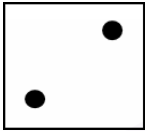
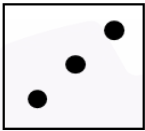
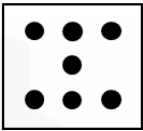
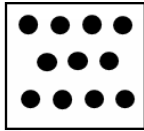
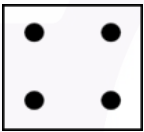
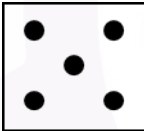
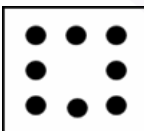


General Aptitude (GA)

Q.1 – Q.5 Carry ONE mark Each

Q.1	“He often _____ the numbers. False claims are not going to help. Honesty _____ trust”, said the manager. Choose the option with the correct order of words to fill the blanks.
(A)	exaggerates; engenders
(B)	excels; encourages
(C)	aggravates; alleviates
(D)	diminishes; eliminates

Q.2	In the sequence of tiles shown below, the missing tile indicated by the question mark should be   ?  
(A)	
(B)	
(C)	
(D)	

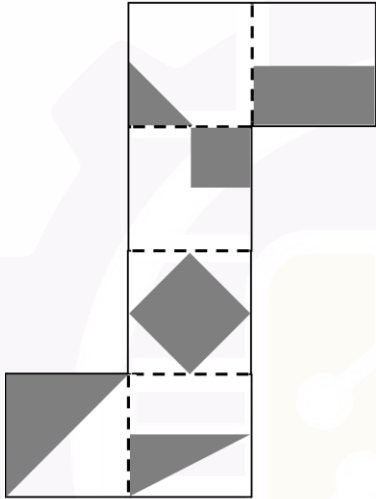
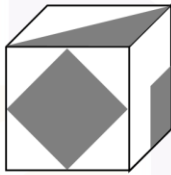
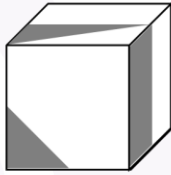
Q.3	A school has 100 students distributed among 1 st to 10 th standards. Based on this, which one of the following statements is always correct?
(A)	There are at least 10 students who belong to the same standard.
(B)	There is at least one student in each standard.
(C)	There are at most 10 students in 10 th standard.
(D)	The total number of students from 1 st to 5 th standards is at least 50.
Q.4	How many 3-digit numbers can be formed using three distinct single digit prime numbers?
(A)	64
(B)	24
(C)	12
(D)	4

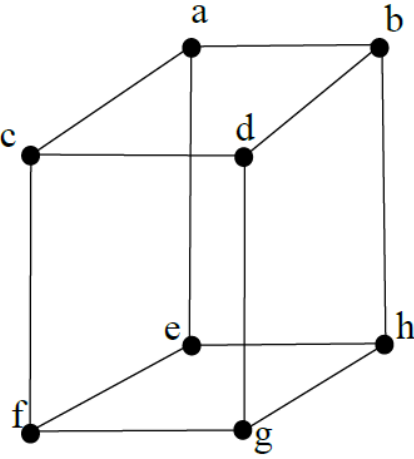
Q.5	In a group of students, 10 students like Mathematics, 12 students like English, 4 students like both Mathematics and English, and 6 students like neither Mathematics nor English. The number of students in the group is ____
(A)	18
(B)	20
(C)	24
(D)	32

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Q.6 – Q.10 Carry TWO marks Each

Q.6	Charity : P :: Retaliation : Q Choose the appropriate pair of words P and Q that fit the analogy.
(A)	P = Parsimonious; Q = Vengeful
(B)	P = Altruistic; Q = Amicable
(C)	P = Resentful; Q = Spiteful
(D)	P = Magnanimous; Q = Vindictive

Q.7	A paper shown in Panel I is folded along the dashed lines (---) to construct a cube. The shaded regions shown in Panel I appear on the outer surface of the cube. Referring to cubes shown in Panel II, which one of the options is correct? Panel I  Panel II  (i)  (ii)
(A)	Only (i) can correspond to the unfolded cube in Panel I.
(B)	Only (ii) can correspond to the unfolded cube in Panel I.
(C)	Both (i) and (ii) can correspond to the unfolded cube in Panel I.
(D)	Neither (i) nor (ii) can correspond to the unfolded cube in Panel I.

Q.8	Consider the cube shown below with its 8 corners labelled a, b, c, d, e, f, g, and h. The figure is representative. All corners are to be colored such that any two corners that are connected by an edge must be of different colors. The minimum number of colors required to achieve this is _____ 
(A)	8
(B)	4
(C)	3
(D)	2

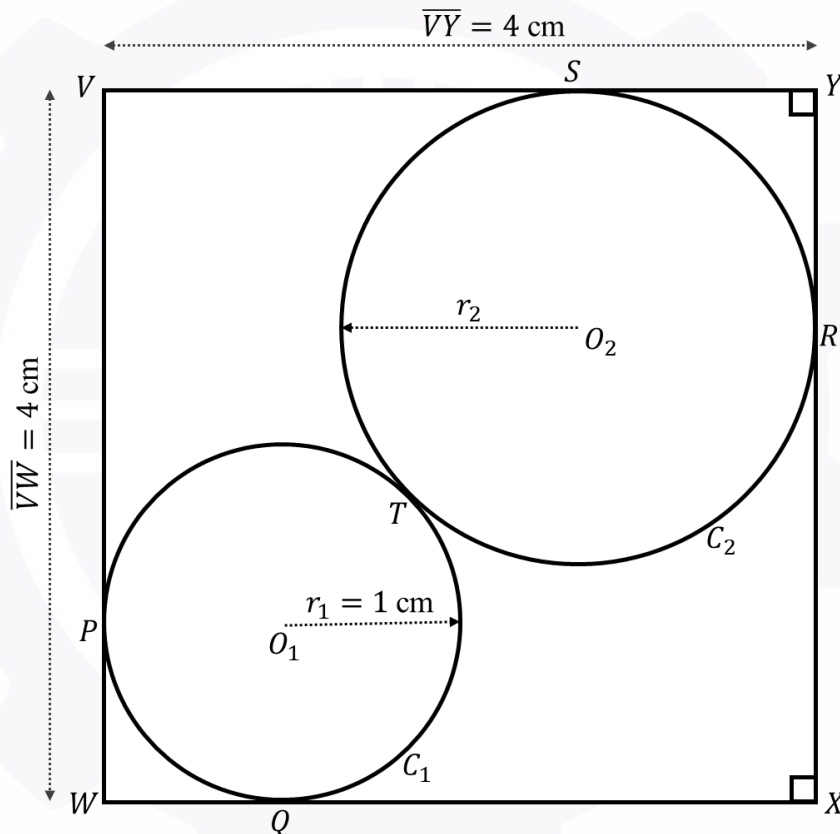
Q.9	Four hills H1, H2, H3, and H4 are present in an area. The following observations are made about them: i. Neither H2 nor H3 is the easternmost hill. ii. Neither H2 nor H3 is the westernmost hill. iii. Neither the easternmost hill nor the westernmost hill is the southernmost hill. iv. Two hills are located to the west of H2. v. The southernmost hill has at least two hills to its east. The southernmost hill is _____.
(A)	H1
(B)	H2
(C)	H3
(D)	H4

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Q.10

As shown in the figure, circle C_1 with center O_1 and radius r_1 touches the square $VWXY$ at points P and Q while circle C_2 with center O_2 and radius r_2 touches the square $VWXY$ at points R and S . The two circles touch each other at T .

Given $r_1 = 1$ cm and $\overline{VY} = \overline{VW} = 4$ cm, $r_2 =$ _____ cm.



(A)

$4 - 3\sqrt{2}$

(B)

$1 + 2\sqrt{2}$

(C)

$7 - 4\sqrt{2}$

(D)

$5 + 3\sqrt{2}$

Q.11 – Q.17 Carry ONE mark Each

Q.11	Aman, Beena, Chiranjeevi and Dhiman are four siblings. Each of them is an expert in one of the performing arts, namely, dance, theatre, guitar and percussion, not necessarily in that order. The dancer is taller than the theatre expert. Aman is taller than Chiranjeevi. The percussionist is taller than Beena but shorter than Aman. Beena is shorter than the dancer. The guitarist is not the tallest. Dhiman is shorter than both, guitarist and Chiranjeevi. What is the expertise of Aman?
(A)	Dance
(B)	Theatre
(C)	Guitar
(D)	Percussion

Q.12	Let $\triangle ABC$ be an isosceles triangle with the base AB of length 8 units. Let CD be a perpendicular of length 4 units drawn from the vertex C onto the base AB and $AC = BC$. Then, which of the following is the set of values of the angles (in degrees) CAB, ABC, BCA respectively?
(A)	45,45,90
(B)	100,40,40
(C)	90,45,45
(D)	40,40,100

Q.13	In the given passage, fill in the blanks with most suitable set of given words: The future must no longer be___ by the past. While, the effects of the past are still with us, each day is a new___. Therefore, one should ___from solely believing in destiny and crave towards charting their own path of success with grit and labour. Positive_____ is imperative.
(A)	Determined, beginning, refrain, anticipation
(B)	Fascinated, one, include, physiology
(C)	Explored, suffering, content, psychiatry
(D)	Marred, life, hinder, labyrinth

Q.14	Indian society is experiencing a boom in pet culture, where people are becoming responsible caretakers of pets rather than merely providing food and shelter. They no longer like to identify themselves as ‘pet-owners’ but rather as ‘pet-parents’. This means that there is an emotional transaction rather than a utilitarian one. Which of the following weaken(s) the argument presented in the given passage?
(A)	Some social media influencers are using their pets only for popularity.
(B)	Food, medicines and clothes for pets are becoming easily available.
(C)	Pet owners are expecting some provision for tax rebate.
(D)	In today’s stressful times, pets provide emotional support.

Q.15	Three statements, S1, S2 and S3 are given, followed with 4 conclusions, C1, C2, C3 and C4. S1: Hostel authorities organised a special lunch on 01-02-26 during 12 noon to 3 pm, for those residents of the Hostel, who paid hostel mess fees on time. S2: Hostel authorities issued a notice that, since elections for Mess Council is held during 4-5 pm of 01-02-26, residents of the Hostel who are contesting the elections need to stay away from the hostel since morning till 5 pm. S3: Hostel residents who were eligible to have special lunch, had it on 01-02-26. C1: Residents who did not have special lunch on 01-02-26, either did not pay hostel mess fees on time or were contesting elections. C2: Residents having special lunch on 01-02-26, were either not contesting elections or had paid hostel mess fees on time. C3: Residents who are contesting elections need not care about paying mess fees. C4: Residents who have paid hostel mess fees on time could join special lunch only if they are not contesting elections. Which of the conclusion(s) is/are incorrect?
(A)	Only one among C1, C2, C3 and C4 is incorrect.
(B)	C1 and C2 are incorrect.
(C)	C2 and C3 are incorrect.
(D)	C3 and C4 are incorrect.

Q.16	Six statements, S1 to S6, are given. S1: All GATE candidates are engineers. S2: Some GATE candidates are CAT candidates. S3: All GRE candidates are GATE candidates. S4: All engineers are GRE candidates. S5: Some CAT candidates are GRE candidates. S6: Some CAT candidates are engineers. Based on S1-S6, following options provide a set of three statements, followed by a fourth statement. Identify the option(s) where the fourth statement can be necessarily inferred from the set of three statements.
(A)	{S1, S2, S3} => S5
(B)	{S4, S1, S2} => S5
(C)	{S6, S1, S3} => S5
(D)	{S4, S3, S1} => S6

Q.17	Four couples M-N, O-P, R-L, S-E meet to have a dinner together on an eight-seater rectangular dining table with four seats each on opposite sides. The men are named as M, O, R, S. Two of the men, O, R, sit on the two corners of one side of the table and M sits beside R. Further, none of the couples occupy seats opposite to each other. However, a person sits adjacent to the seat opposite to his/her spouse. Based on the information, which of the following conclusions can be drawn?
(A)	R sits opposite to N and S sits opposite to P.
(B)	R sits opposite to P and O sits opposite to N.
(C)	S sits opposite to N and O sits opposite to L.
(D)	M sits opposite to L and O sits opposite to E.

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Q.18 – Q.26 Carry TWO marks Each

Q.18	Me and my spouse have a big family, comprising 8 females and 6 males. We have two sons and two daughters, of whom the eldest is unmarried. Out of my two grandsons and three granddaughters, only one grandson is a single child. His mother is my younger daughter. Which of my children necessarily has two daughters?
(A)	None of my sons
(B)	One of my sons
(C)	One of my daughters
(D)	Elder daughter

Q.19	Given the first four terms 30, 105, 385, 1001 in a sequence, which amongst the following is the fifth term of the sequence?
(A)	2341
(B)	2431
(C)	2571
(D)	2751

Q.20	Three players named Arun, Babita and Chandu play a game by tossing an unbiased coin in turn whose rules are as follows: Initially each player has 100 candies. If the tossing of this coin results in a ‘head’ then the player who tosses receives 10 candies from each of the other two players, whereas, if the toss results in a ‘tail’ then the player who tosses has to give away 20 candies to each of the other two players. A player with the highest number of candies at the end will be the winner. The game is started by Arun, followed by Babita and finally stopped after Chandu’s turn. Given that Arun is the only winner, which of the following hold(s) true?
(A)	Arun has 90 candies more than Chandu
(B)	Both Babita and Chandu have the same number of candies
(C)	Arun has 90 candies more than Babita
(D)	Babita and Chandu together have 120 candies

Q.21	Choose the correct sequence of sentences so that they form a coherent paragraph: P. However, in the context of texts dealing with science or engineering, this condition may not be applicable. Q. One can infer, that there is something called discipline fidelity and within this aspect, content, language, structure and scope of a text may vary. R. In the meaning-making process of a text, it is not always logic that is central. S. Most of the times, it is the expression of the experience that supersedes the structure and argument. Which of the following options is/are correct and giving the most appropriate order and meaning to the sentence?
(A)	RSPQ
(B)	QRSP
(C)	RSQP
(D)	SPRQ

Q.22	Mental health is a global concern, especially among the youth. During the Covid-19 pandemic, when schools and colleges were operating online, students were left with no option but to stay at home leading to negligible social interaction. Several studies indicate that even when offline classes have now resumed post Covid-19 pandemic, these students are finding it difficult to establish social connect leading to mental health issues. To deal with this situation, schools and colleges are trying hard to implement different strategies to combat their student's mental health depending on their unique culture, overall strength, and resources. Which of the following conclusions can be drawn from the above passage?
(A)	India is a young nation.
(B)	Different schools and colleges will have their own way to tackle the issue of mental health.
(C)	A combination of online and offline class is good for students.
(D)	Social connect is important for mental health.

Q.23	On the basis of syntax and grammar, identify the incorrect sentence(s). I. Doctors have found high levels of cerebrospinal fluid in certain cases of cerebral palsy around the world. They also suggested its abnormal impact on speech and muscle movement. II. Doctors have found high levels of cerebrospinal fluid in certain cases of cerebral palsy around the world which suggests the abnormal impact on speech and muscle movement. III. Having found high levels of cerebrospinal fluid in certain cases of cerebral palsy around the world, doctors are suggesting abnormal impact on speech and muscle movement. IV. Having found high levels of cerebrospinal fluid in certain cases of cerebral palsy around the world, doctors suggested its abnormal impact on speech and muscle movement.
(A)	I
(B)	II
(C)	III
(D)	IV

Q.24	In a cricket match amongst 7 friends, named P1 – P7, P1 scored maximum individual runs of 25 and P7 scored minimum individual run of 0. No two friends had the same score. The median and average runs scored were 15 and 12.57, not necessarily in that order. Two players, P2 and P3, who scored more than median but less than maximum, scored less than 40 runs together. One player scored double the sum of non-zero scores of two players. What could be the possible value(s) of the second highest score?
(A)	18
(B)	20
(C)	21
(D)	22

Q.25	A police station has six personnel comprising an inspector (I) and five constables (C_1, C_2, C_3, C_4, C_5). Normally, a 'raid team' of two, three, or four members is formed depending upon the nature of the raid. As per rule, it is mandatory that the inspector is part of raid team. Number of distinct raid teams that can be formed is _____. (Answer in integer)
Q.26	A man visits four relatives on a day. He purchases some sweets and gives a part of it to the first relative. Next, he purchases the same number of sweets he is left with after he visited his first relative. He repeats this process while visiting his other relatives. Finally, he gives all the sweets to his fourth relative. It is known that he gives equal number of sweets to all the relatives and is left with no sweets after the fourth relative. Assuming that he initially purchased more than 20 sweets, the minimum number of sweets he gave to each relative is _____. (Answer in integer)

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Q.27 – Q.44 Carry ONE mark Each

Q.27	A is an $(n \times n)$ matrix. Consider the following two statements Statement 1: Columns of matrix A are linearly independent Statement 2: Inverse of matrix A exists Which one of the following statements is TRUE?
(A)	Statement 1 is true if and only if Statement 2 is true
(B)	Statement 1 and Statement 2 can be individually true or false
(C)	Statement 1 implies Statement 2 but not the other way round
(D)	Statement 2 implies Statement 1 but not the other way round
Q.28	Madhu's utility function is given by $U = \max(2C, 3F)$, where C represents the amount of cloth and F represents the amount of food. Her preferences DO NOT satisfy which one of the following axioms?
(A)	Completeness
(B)	Continuity
(C)	Convexity
(D)	Transitivity

Q.29	High powered money belongs to the
(A)	asset side of the central bank's balance sheet
(B)	liability side of the central bank's balance sheet
(C)	asset side of the commercial bank's balance sheet
(D)	liability side of the commercial bank's balance sheet

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Q.30	Match Column I with Column II <table border="1"> <thead> <tr> <th data-bbox="320 380 874 434">Column I</th><th data-bbox="874 380 1385 434">Column II</th></tr> </thead> <tbody> <tr> <td data-bbox="320 434 874 510">P Amrit Bharat Station Scheme</td><td data-bbox="874 434 1385 510">1 To automate train protection system</td></tr> <tr> <td data-bbox="320 510 874 586">Q Bharatmala Pariyojna</td><td data-bbox="874 510 1385 586">2 To enhance the amenities at railway stations</td></tr> <tr> <td data-bbox="320 586 874 663">R Kavach</td><td data-bbox="874 586 1385 663">3 To develop the National Highways</td></tr> <tr> <td data-bbox="320 663 874 770">S Pradhan Mantri Bhartiya Janaushadhi Kendras</td><td data-bbox="874 663 1385 770">4 To provide some specific facilities for passengers passing through railway stations</td></tr> </tbody> </table>	Column I	Column II	P Amrit Bharat Station Scheme	1 To automate train protection system	Q Bharatmala Pariyojna	2 To enhance the amenities at railway stations	R Kavach	3 To develop the National Highways	S Pradhan Mantri Bhartiya Janaushadhi Kendras	4 To provide some specific facilities for passengers passing through railway stations
Column I	Column II										
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S Pradhan Mantri Bhartiya Janaushadhi Kendras	4 To provide some specific facilities for passengers passing through railway stations										
(A)	(P → 2), (Q → 3), (R → 1), (S → 4)										
(B)	(P → 4), (Q → 3), (R → 1), (S → 2)										
(C)	(P → 2), (Q → 1), (R → 3), (S → 4)										
(D)	(P → 4), (Q → 1), (R → 3), (S → 2)										

Q.31	Two players use the following procedure to divide a perfectly homogeneous and continuously divisible cake. First, Player 1 divides the cake into two pieces and then Player 2 chooses one of the pieces. Player 1 gets the remaining piece. Each player cares only about the size of the piece s/he gets. How is the cake divided in a sub-game perfect equilibrium if both the players are rational?
(A)	Player 1 gets the whole cake
(B)	Player 2 gets the larger piece
(C)	Each player gets half of the cake
(D)	The outcome cannot be decided based on the given information
Q.32	Which one of the following statements regarding externality is TRUE ?
(A)	Cigarette smoking creates positive externality
(B)	A ban on smoking is Pareto optimal
(C)	Competitive market with a negative externality produces more than socially optimal output
(D)	Cigarette smoking does not create externality

Q.33	According to the theory of Keynesian Liquidity Preference, demand for money
(A)	is only for transaction purposes
(B)	does not depend on the interest rate
(C)	depends on income and interest rate
(D)	is only for precautionary purposes

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Q.34	Unanticipated inflation rate, percentage change of output from full employment level, and the Okun's law yield (i) _____ and it represents (ii) _____ side of the economy. Which one of the following combinations of (i) and (ii) make the above sentence correct as per economic theory?
(A)	(i) Expectation augmented Phillips curve; (ii) supply
(B)	(i) Expectation augmented Phillips curve; (ii) demand
(C)	(i) Phillips-Okun's curve; (ii) supply
(D)	(i) Phillips-Okun's curve; (ii) demand
Q.35	In an economy, which one of the following relates private investment to the stock market?
(A)	Neo-classical theory of capital accumulation
(B)	Capital asset pricing model
(C)	Tobin's q
(D)	Investment accelerator model

Q.36	Suppose, a random variable X follows a Normal distribution with mean μ , and variance σ^2 . The variance of the distribution is unknown. For testing $\mu = 10$ against the alternative $\mu > 10$, the distribution of the test statistic is
(A)	Standard Normal distribution
(B)	Student's t distribution
(C)	Normal distribution
(D)	F distribution
Q.37	The Factorization theorem of Neyman is used to identify
(A)	consistent statistic
(B)	efficient statistic
(C)	sufficient statistic
(D)	unbiased statistic

Q.38	Match Column I with Column II	
	Column I	Column II
	P Rostow	1 Expanding variety model
	Q Schumpeter	2 Rural-urban migration
	R Harris-Todaro	3 Stages of development
	S Grossman-Helpman	4 Creative-destruction
(A)	(P→3), (Q→ 1), (R→ 2), (S→ 4)	
(B)	(P→ 3), (Q→ 4), (R→ 2), (S→ 1)	
(C)	(P→ 2), (Q→ 1), (R→ 3), (S→ 4)	
(D)	(P→ 2), (Q→ 4), (R→ 3), (S→ 1)	

Q.39	Goods that come under the purview of “tragedy of commons” are (i)_____ and (ii)_____. Which one of the following combinations of (i) and (ii) makes the above sentence correct as per the economic theory?
(A)	(i) non-rivalrous; (ii) excludable
(B)	(i) rivalrous; (ii) excludable
(C)	(i) non-rivalrous; (ii) non-excludable
(D)	(i) rivalrous; (ii) non-excludable

Q.40	Consider a two-variable (x, y) linear regression model given in Equations (1) and (2) below. The error term, u_t, of Equation (1) is serially correlated as given in Equation (2). The error term, ε_t, of Equation (2) is white noise. All other assumptions of the Classical Linear Regression Model (CLRM) hold. Then, which of the following options is/are FALSE? $y_t = \alpha + \beta x_t + u_t \quad (1)$ $u_t = \rho u_{t-1} + \varepsilon_t; 0 < \rho < 1 \quad (2)$
(A)	Ordinary Least Squares estimators of the parameters in Equation (1) are biased
(B)	Ordinary Least Squares estimators of the parameters in Equation (1) are asymptotically normally distributed
(C)	Ordinary Least Squares estimators of the parameters in Equation (1) are efficient
(D)	Ordinary Least Squares estimators of the parameters in Equation (1) are consistent
Q.41	Suppose, a random variable X follows a Poisson distribution with parameter $\lambda = 25$. The coefficient of variation of the distribution is _____ (rounded off to two decimal places)
Q.42	You and three of your friends go to a restaurant for dinner. All four of you agree to divide the total bill equally amongst yourselves. One of your friends orders a dish worth INR 400. The marginal cost for ordering the dish for each one of you in INR is _____ (in integer)

Q.43	The inverse demand function for the first book on “Economics of Digital Public Infrastructure in India” is given by $p = 200 - 0.002Q$; where, p is the price of the book, and Q is the number of books purchased. The publisher’s marginal cost is $60 + 0.0168Q$. The author’s royalty is 25% of the total revenue. The optimal price of the book from the author’s perspective is _____ (in integer)
Q.44	When the currency-deposit ratio is 0, and the reserve-deposit ratio is 0.5, then the value of the money multiplier is _____ (in integer)

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Q.45 to Q.65 Carry TWO marks Each

Q.45	Two companies, Company 1 and Company 2, are playing a simultaneous-move game. They are selling competing devices, whose quantity demanded are given by x_1 and x_2, and their prices are p_1 and p_2, respectively. The demand equation for the device of Company 1 is $x_1 = 300(90 - 0.5p_1 + 0.25p_2)$, and that of Company 2 is $x_2 = 300(90 - 0.5p_2 + 0.25p_1)$. The cost of production of both devices is zero. Each company is interested in maximizing its own profit. Which one of the following price combinations constitutes the Nash equilibrium of the game?
(A)	$p_1 = 90, p_2 = 90$
(B)	$p_1 = 120, p_2 = 120$
(C)	$p_1 = 45, p_2 = 45$
(D)	$p_1 = 105, p_2 = 75$

Q.46	Match Column I with Column II	
	Column I	Column II
	P e-Nam	1 Working capital loan
	Q PM Micro Food Processing Scheme	2 A seed capital of INR 40,000, and 50% branding/marketing grant
	R Adivashi Mahila Sashaktikaran Yojna	3 Loan up to INR 2 lakhs at 4% interest
	S Swayam Shakti Sahakar Yojna	4 Innovative agricultural technologies and price discovery mechanism
(A)	(P → 3), (Q → 2), (R → 4), (S → 1)	
(B)	(P → 4), (Q → 2), (R → 3), (S → 1)	
(C)	(P → 1), (Q → 2), (R → 4), (S → 3)	
(D)	(P → 4), (Q → 1), (R → 2), (S → 3)	
Q.47	Suppose that X_1, X_2, X_3 and X_4 are independent random variables with common distribution $N(4, 12)$. Observations $x_1 = 6, x_2 = 3, x_3 = 1$, and $x_4 = 10$ correspond to X_1, X_2, X_3 and X_4 , respectively. What is the sample mean and its sampling distribution?	
(A)	4 and $N(4, 3)$	
(B)	5 and $N(4, 3)$	
(C)	4 and $N(5, 12)$	
(D)	5 and $N(4, 12)$	

Q.48	Which one of the following combinations of simultaneous policy actions is NOT possible?
(A)	Country A allows full international capital mobility, conducts an independent monetary policy, and follows a floating exchange rate regime
(B)	Country A allows full international capital mobility, conducts an independent monetary policy, and follows a fixed exchange rate regime
(C)	Country A allows full international capital mobility, cannot conduct an independent monetary policy, and follows a fixed exchange rate regime
(D)	Country A does not allow full international capital mobility, conducts an independent monetary policy, and follows a fixed exchange rate regime

Q.49	Match Column I with Column II <table border="1"> <thead> <tr> <th data-bbox="320 383 887 439">Column I</th><th data-bbox="887 383 1430 439">Column II</th></tr> </thead> <tbody> <tr> <td data-bbox="320 439 887 551">P Infant Industrialization</td><td data-bbox="887 439 1430 551">1 When a firm charges lower prices in the export market than in the domestic market</td></tr> <tr> <td data-bbox="320 551 887 663">Q High Performing Asian Economy</td><td data-bbox="887 551 1430 663">2 Industrialized not via import substitution but via export promotion of manufactured goods</td></tr> <tr> <td data-bbox="320 663 887 775">R National Procurement</td><td data-bbox="887 663 1430 775">3 New industries need a temporary period of protection from foreign companies</td></tr> <tr> <td data-bbox="320 775 887 920">S Dumping</td><td data-bbox="887 775 1430 920">4 Government or publicly regulated firms are directed to purchase expensive domestic goods than cheap imports</td></tr> </tbody> </table>	Column I	Column II	P Infant Industrialization	1 When a firm charges lower prices in the export market than in the domestic market	Q High Performing Asian Economy	2 Industrialized not via import substitution but via export promotion of manufactured goods	R National Procurement	3 New industries need a temporary period of protection from foreign companies	S Dumping	4 Government or publicly regulated firms are directed to purchase expensive domestic goods than cheap imports
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(D)	(P → 4), (Q → 2), (R → 1), (S → 3)										
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Q.50	Consider a Solow growth model with the production function $Y_t = K_t^\alpha N_t^{1-\alpha}$; $0 < \alpha < 1$; where, Y_t is aggregate output at time t; K_t is aggregate capital stock at time t; N_t is the number of workers at time t. There is population growth but no technology growth. Let $0 < s < 1$ be the savings rate, $0 < n < 1$ be the population growth rate, and $0 < \delta < 1$ be the rate of depreciation of capital stock. What is the growth rate of aggregate output at steady state?
(A)	n
(B)	$s + n$
(C)	$n + \delta$
(D)	0

Q.51	Consider the following IS-LM model where, C_0 is autonomous consumption, c is marginal propensity to consumption, T_0 is the autonomous tax, t is the tax rate on income Y, b is the interest sensitivity of investment to real interest rate r, M^S is exogenously determined nominal money supply, P is the aggregate price level, l_1 is the income sensitivity of money demand to income, l_2 is the interest sensitivity of money demand Consumption function: $C = C_0 + cY^d$; $0 < c < 1$ Disposable Income: $Y^d = Y - T$ Tax function: $T = T_0 + tY$; $0 < t < 1$ Investment function: $I = I_0 - br$; $b > 0$ LM equation: $\frac{M^S}{P} = l_1Y - l_2r$; $l_1 > 0, l_2 > 0$ Closed economy without government: $Y = C + I$ Which one of the following options gives the investment multiplier $\left(\frac{\partial Y}{\partial I_0}\right)$?
(A)	$\frac{1}{1 - c(1 - t)}$
(B)	$\frac{1}{[1 - c(1 - t)] + \left(\frac{l_1}{l_2}\right)b}$
(C)	$\frac{1}{(1 - c) + \left(\frac{l_1}{l_2}\right)b}$
(D)	$1 - c(1 - t) + \left(\frac{l_1}{l_2}\right)b$

Q.52	The estimated energy demand is given in the Equation below, where, $\hat{y}_t$ is the estimated value of the log of energy demand at time t. The numbers in the parentheses are the values of the t-statistic of the corresponding coefficients. $\hat{y}_t = \underset{(10.73)}{1.24} + \underset{(7.28)}{0.56} \ln(\text{GDP}_t) - \underset{(5.28)}{0.03} \ln(\text{energyprice}_t)$ Which one of the following statements is CORRECT?
(A)	Demand for energy is price inelastic
(B)	Demand for energy is price elastic
(C)	Demand for energy is unit elastic
(D)	Sufficient information has not been provided to calculate price elasticity
Q.53	In terms of the general relations among total cost, average cost and marginal cost, which of the following statements is/are FALSE?
(A)	When the total cost is rising, the marginal cost is also rising
(B)	When the marginal cost is rising, average cost is also rising
(C)	When the total cost is rising, the marginal cost is positive
(D)	When the marginal cost remains unchanged, the average cost also remains unchanged

Q.54	Which of the following statements concerning Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) is/are CORRECT ?
(A)	MDGs had 8 enumerated goals, and SDGs have 17
(B)	The MDGs are considered less comprehensive compared to the SDGs in terms of the range of issues covered
(C)	Both MDGs and SDGs are meant exclusively for developing countries
(D)	SDGs were introduced after the world achieved the targets specified by the MDGs
Q.55	Nominal exchange rate is defined as the amount of domestic currency that can fetch one unit of foreign currency. Suppose that there is a fall in nominal exchange rate. Which of the following statements is/are TRUE ?
(A)	Appreciation of domestic currency with respect to foreign currency
(B)	Depreciation of domestic currency with respect to foreign currency
(C)	Fall in the price of foreign currency in terms of domestic currency
(D)	Rise in the price of foreign currency in terms of domestic currency

Q.56	Which of the following statements is/are INCORRECT ?
(A)	According to the Periodic Labour Force Survey 2023-24, the agricultural sector remains dominant in providing employment
(B)	The share of female workforce in agriculture has significantly increased in the financial year 2023-24 relative to the financial year 2017-18
(C)	The male participation in the agriculture employment decreased in the financial year 2023-24 relative to the financial year 2017-18
(D)	The share of industry and service sector saw an increment in the employment share in the financial year 2023-24 relative to the financial year 2017-18
Q.57	Which of the following statements is/are CORRECT ?
(A)	India's total exports (merchandise and services) have shown positive growth in the first nine months of the financial year 2024-25
(B)	India's merchandise imports grew by 5.2% during April to December 2024, and this increase was largely due to a rise in non-oil, non-gold imports
(C)	India's service sector exports declined in the first nine months of the financial year 2024-25
(D)	The recent rise in India's current account deficit can be attributed to an increase in the service trade deficit

Q.58	In the town of Belapur, 5000 used cars are available for sale. The cars vary in quality and only the car owners know the true worth of their car. All used cars look the same to potential buyers. If a car is of quality x , then the original owner is ready to sell it for any price greater than or equal to x . For a buyer, the expected worth of a car is equal to half of the number of cars selling in the market. As the buyer does not know the exact quality of the car, he is willing to pay a price that is equal to 1000 more than the expected worth of the car. At the equilibrium, the number of cars that remain unsold in the market is _____ (in integer)
Q.59	Suppose that Ritwick owns two plants, Plant X and Plant Y. Both plants produce the same industrial good. The marginal cost to produce at Plant X is $4 + 2Q_X$; where, Q_X is the quantity produced in Plant X, and the marginal cost to produce at Plant Y is $40 + Q_Y$; where, Q_Y is the total quantity produced in Plant Y. If Ritwick plans to produce 15 units of this good, the amount of the good produced in Plant Y is _____ (in integer)
Q.60	Consider the function $G(x, y, z) = 0$. This function allows us to implicitly define each of three variables as a function of the other two variables. Assume that all partial derivatives of the function $G(x, y, z)$ exist everywhere. Then, the value of $\left(\frac{\partial z}{\partial x} \times \frac{\partial x}{\partial y} \times \frac{\partial y}{\partial z}\right)$ is _____ (in integer)
Q.61	The market for torch is perfectly competitive. The market demand function for torch is given by $X^d = \min(400 - p, 0)$, $p \geq 0$, where p is the price of a torch. The market supply for the same good is $X^s = \max\left(0, \left(\frac{p}{7} - \frac{80}{7}\right)\right)$, $p \geq 0$. If a specific tax of 40 is imposed on the purchase of each unit of torch, the corresponding decrease in the consumer surplus is _____ (rounded off to one decimal place)
Q.62	An individual lives for two periods, Period 1 and Period 2. In Period 1, her income is 210, and in Period 2, her income is 0. She saves in Period 1 and earns a real interest rate of 10% on these savings in Period 2. She does not save anything in Period 2. She consumes equal amounts in both the time periods. Her consumption in the current period is _____ (in integer)

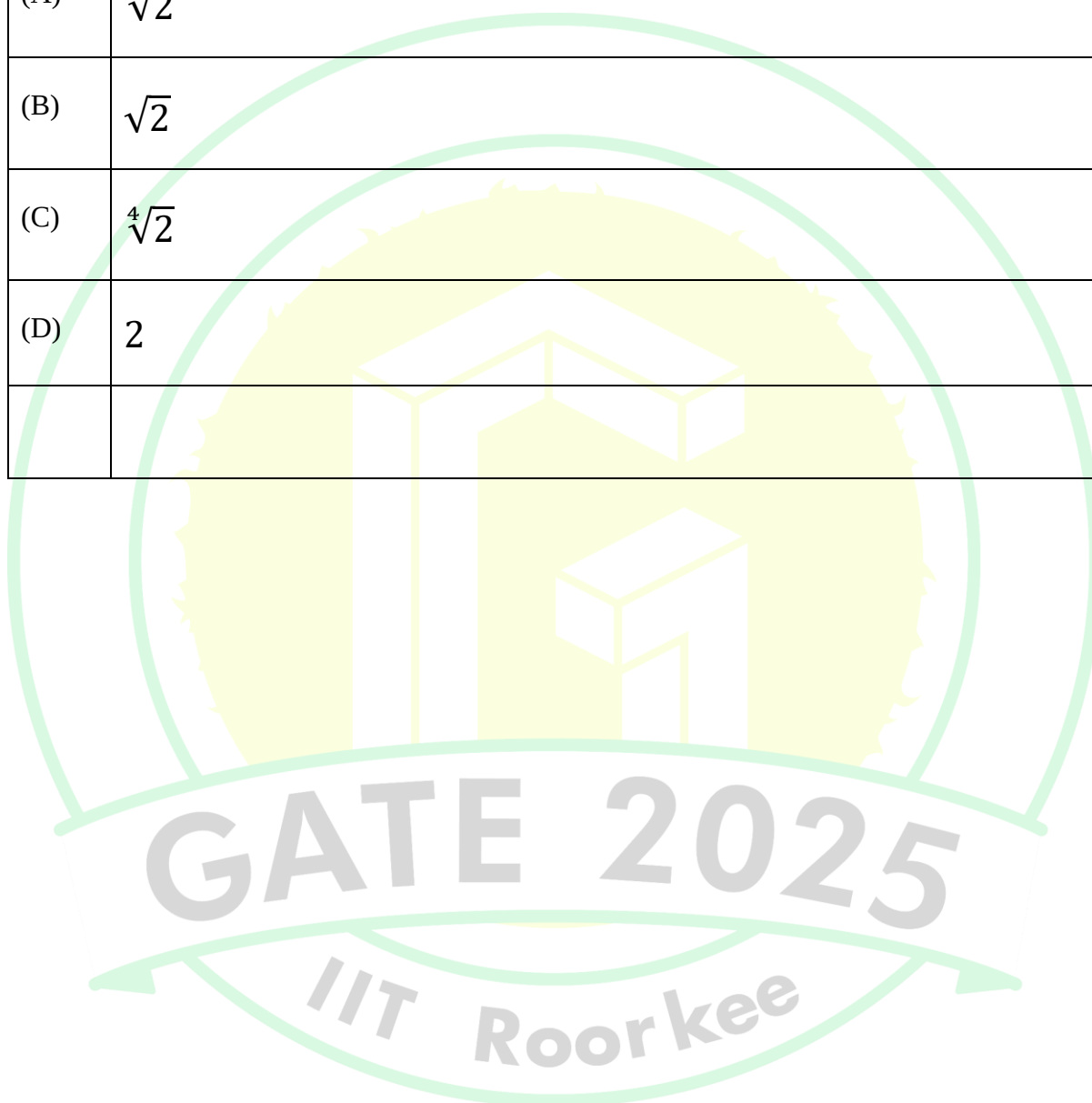
Q.63	The money demand function is $\frac{M}{P} = 800 + 0.3Y - 2000i$; where, M is nominal money supply, P is the aggregate price level, Y is the real GDP, and i is the nominal interest rate. Suppose that $Y = 2000$, and $i = 0.20$. The velocity of money is _____ (in integer)																																
Q.64	Consider the estimated regression Equation below, where, $\hat{y}_t$ is the estimated value of the log (to the base e) of real GDP at time t. The numbers in the parentheses are the value of the t-statistic of the corresponding coefficients. $\hat{y}_t = 6.20 + 0.05 t$ (10.25) (4.62) The growth rate of real GDP (in %) is _____ (rounded off to the nearest integer)																																
Q.65	Table 1 <table><tr><th>P1/P2</th><th>X</th><th>Y</th><th>Z</th></tr><tr><td>A</td><td>2,1,2</td><td>0,0,2</td><td>1,2,3</td></tr><tr><td>B</td><td>0,3,1</td><td>2,2,4</td><td>3,1,0</td></tr><tr><td>C</td><td>1,1,1</td><td>3,2,1</td><td>2,2,2</td></tr></table> Table 2 <table><tr><th>P1/P2</th><th>X</th><th>Y</th><th>Z</th></tr><tr><td>A</td><td>2,1,3</td><td>1,0,3</td><td>1,0,4</td></tr><tr><td>B</td><td>1,2,1</td><td>3,3,3</td><td>1,1,1</td></tr><tr><td>C</td><td>1,2,1</td><td>1,0,0</td><td>2,1,2</td></tr></table> Table 1 and Table 2 represent a 3-player game. The payoff (a, b, c), in each cell, represents Player 1, Player 2, and Player 3's payoffs respectively. Player 1 (P1) decides to play either A, B, or C. Player 2 (P2) decides to play either X, Y, or Z. Player 3 (P3) decides between Table 1 and Table 2. The number of Nash equilibrium in pure strategy in this game is _____ (in integer)	P1/P2	X	Y	Z	A	2,1,2	0,0,2	1,2,3	B	0,3,1	2,2,4	3,1,0	C	1,1,1	3,2,1	2,2,2	P1/P2	X	Y	Z	A	2,1,3	1,0,3	1,0,4	B	1,2,1	3,3,3	1,1,1	C	1,2,1	1,0,0	2,1,2
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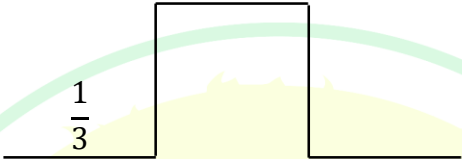
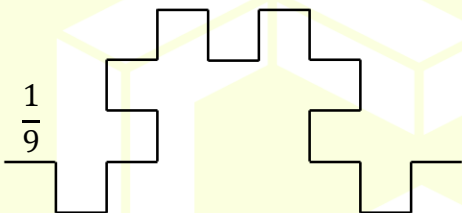
General Aptitude

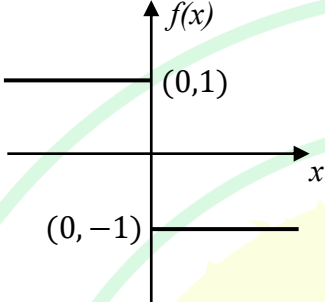
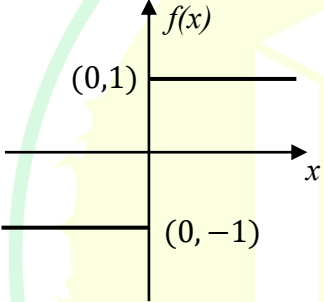
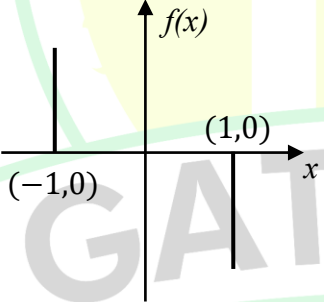
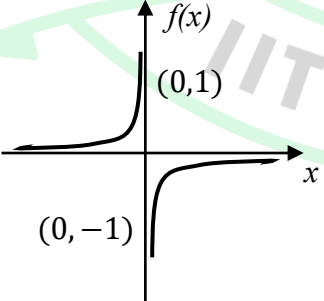
Q.1 – Q.5 Carry ONE mark Each

Q.1	Here are two analogous groups, Group-I and Group-II, that list words in their decreasing order of intensity. Identify the missing word in Group-II. Group-I: Abuse → Insult → Ridicule Group-II: _____ → Praise → Appreciate
(A)	Extol
(B)	Prize
(C)	Appropriate
(D)	Espouse
Q.2	Had I learnt acting as a child, I _____ a famous film star. Select the most appropriate option to complete the above sentence.
(A)	will be
(B)	can be
(C)	am going to be
(D)	could have been

Q.3	The 12 musical notes are given as $C, C^\sharp, D, D^\sharp, E, F, F^\sharp, G, G^\sharp, A, A^\sharp$, and B . Frequency of each note is $\sqrt[12]{2}$ times the frequency of the previous note. If the frequency of the note C is 130.8 Hz, then the ratio of frequencies of notes $F^\sharp$ and C is:
(A)	$\sqrt[6]{2}$
(B)	$\sqrt{2}$
(C)	$\sqrt[4]{2}$
(D)	2



Q.4	The following figures show three curves generated using an iterative algorithm. The total length of the curve generated after 'Iteration n' is: Note: The figures shown are representative.
	Iteration 0:  Iteration 1:  Length of each segment: $\frac{1}{3}$ Iteration 2:  Length of each segment: $\frac{1}{9}$
(A)	$\left(\frac{5}{3}\right)^{\frac{n}{2}}$
(B)	$\left(\frac{5}{3}\right)^n$
(C)	$\left(\frac{5}{3}\right)^{2n}$
(D)	$\left(\frac{5}{3}\right)^{n(2n-1)}$

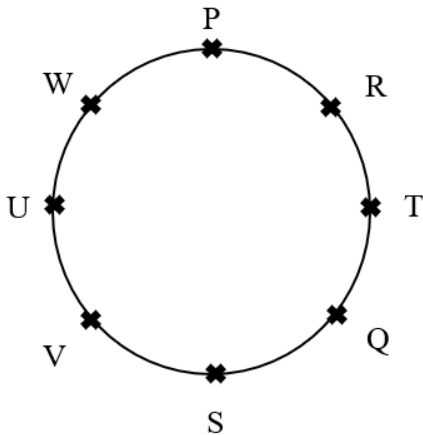
Q.5	Which one of the following plots represents $f(x) = -\frac{ x }{x}$, where x is a non-zero real number? Note: The figures shown are representative.
(A)	
(B)	
(C)	
(D)	

Q.6 – Q.10 Carry TWO marks Each

Q. 6	Identify the option that has the most appropriate sequence such that a coherent paragraph is formed: P. Over time, such adaptations lead to significant evolutionary changes with the potential to shape the development of new species. Q. In natural world, organisms constantly adapt to their environments in response to challenges and opportunities. R. This process of adaptation is driven by the principle of natural selection, where favorable traits increase an organism's chances of survival and reproduction. S. As environments change, organisms that can adapt their behavior, structure and physiology to such changes are more likely to survive.
(A)	$P \rightarrow Q \rightarrow R \rightarrow S$
(B)	$Q \rightarrow S \rightarrow R \rightarrow P$
(C)	$R \rightarrow S \rightarrow Q \rightarrow P$
(D)	$S \rightarrow P \rightarrow R \rightarrow Q$

Q.7	A stick of length one meter is broken at two locations at distances of b_1 and b_2 from the origin (0), as shown in the figure. Note that $0 < b_1 < b_2 < 1$. Which one of the following is NOT a necessary condition for forming a triangle using the three pieces? Note: All lengths are in meter. The figure shown is representative.
	
(A)	$b_1 < 0.5$
(B)	$b_2 > 0.5$
(C)	$b_2 < b_1 + 0.5$
(D)	$b_1 + b_2 < 1$

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Q.8	Eight students (P, Q, R, S, T, U, V, and W) are playing musical chairs. The figure indicates their order of position at the start of the game. They play the game by moving forward in a circle in the clockwise direction. After the 1st round, 4th student behind P leaves the game. After 2nd round, 5th student behind Q leaves the game. After 3rd round, 3rd student behind V leaves the game. After 4th round, 4th student behind U leaves the game. Who all are left in the game after the 4th round? Note: The figure shown is representative.
	
(A)	P; T; Q; S
(B)	V; P; T; Q
(C)	W; R; Q; V
(D)	Q; T; V; W

Q.9	The table lists the top 5 nations according to the number of gold medals won in a tournament; also included are the number of silver and the bronze medals won by them. Based only on the data provided in the table, which one of the following statements is INCORRECT?				
	Nation	Gold	Silver	Bronze	
	USA	40	44	41	
	Canada	39	27	24	
	Japan	20	12	13	
	Australia	17	19	16	
	France	16	26	22	
(A)	France will occupy the third place if the list were made on the basis of the total number of medals won.				
(B)	The order of the top two nations will not change even if the list is made on the basis of the total number of medals won.				
(C)	USA and Canada together have less than 50% of the medals awarded to the nations in the above table.				
(D)	Canada has won twice as many total medals as Japan.				

Q.10	An organization allows its employees to work independently on consultancy projects but charges an overhead on the consulting fee. The overhead is 20% of the consulting fee, if the fee is up to ₹ 5,00,000. For higher fees, the overhead is ₹ 1,00,000 plus 10% of the amount by which the fee exceeds ₹ 5,00,000. The government charges a Goods and Services Tax of 18% on the total amount (the consulting fee plus the overhead). An employee of the organization charges this entire amount, i.e., the consulting fee, overhead, and tax, to the client. If the client cannot pay more than ₹ 10,00,000, what is the maximum consulting fee that the employee can charge?
(A)	₹ 7,01,438
(B)	₹ 7,24,961
(C)	₹ 7,51,232
(D)	₹ 7,75,784

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Q.11– Q.17 Carry ONE mark Each

Q.11	Which one of the following numbers is odd one out? 31541 42651 53791 64871 75981
(A)	31541
(B)	42651
(C)	53791
(D)	75981
Q.12	Ankit, Arun, and Ankur have one apple each. Ankur also has one banana. Alam has one mango and one kiwi. Ankit has just bought one pineapple. Who has the least number of fruit(s)?
(A)	Ankit
(B)	Arun
(C)	Ankur
(D)	Alam

Q.13	If each vowel in the word RESIDE is changed to its previous letter in the English alphabet and each consonant is changed to the next letter in the English alphabet, which one of the following options will be the third from the right?
(A)	T
(B)	D
(C)	S
(D)	H
Q.14	Vipul, Ahmad, Santosh, and David are playing Carrom. Vipul and Ahmad are partners sitting opposite to each other. David faces towards South. If Vipul faces towards West, then who faces towards the North?
(A)	Alam
(B)	Santosh
(C)	David
(D)	Vipul

Q.15	Consider the following sentence. <i>What the country needs _____ accordingly.</i> First and last parts of the sentence are given. P, Q, R, and S are the remaining parts of the sentence, not necessarily in that order. P: <i>and change tactics</i> Q: <i>who would encourage players</i> R: <i>are coaches and officials</i> S: <i>to read the game as it progresses</i> Which one of the following options is correct that gives the most appropriate order and meaning to the sentence?
(A)	QSPR
(B)	RQSP
(C)	RQPS
(D)	SPRQ

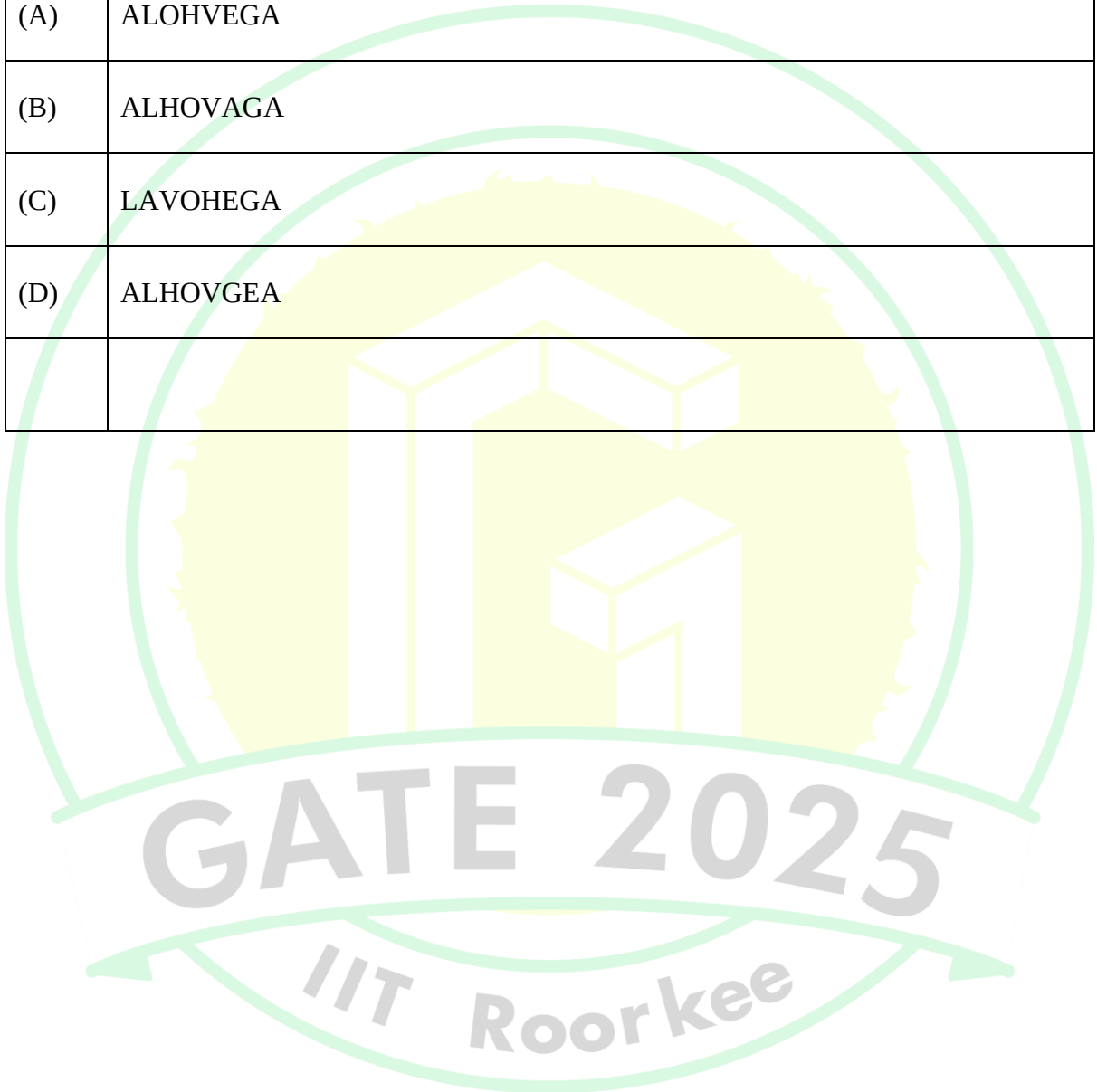
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Q.16	A car started from city P at 9.40am. The time taken for the car to reach the city Q is 4 hours and 50 minutes. The time of arrival of the car at city Q is
(A)	15:10 Hours
(B)	14:20 Hours
(C)	14:30 Hours
(D)	14:10 Hours
Q.17	P is three years younger than R but one year older than S. S is one year older than Q but 4 years younger than R. R is 15 years old. The age of Q is ____ years (<i>answer in integer</i>).

Q.18 – Q26 Carry TWO marks Each

Q.18	In a certain code language, ATTITUDE is written as TAUJUEDU and CHILDREN is written as HCJMENER. How LANGUAGE is written in that code language?
(A)	ALOHVEGA
(B)	ALHOVAGA
(C)	LAVOHEGA
(D)	ALHOVGEA



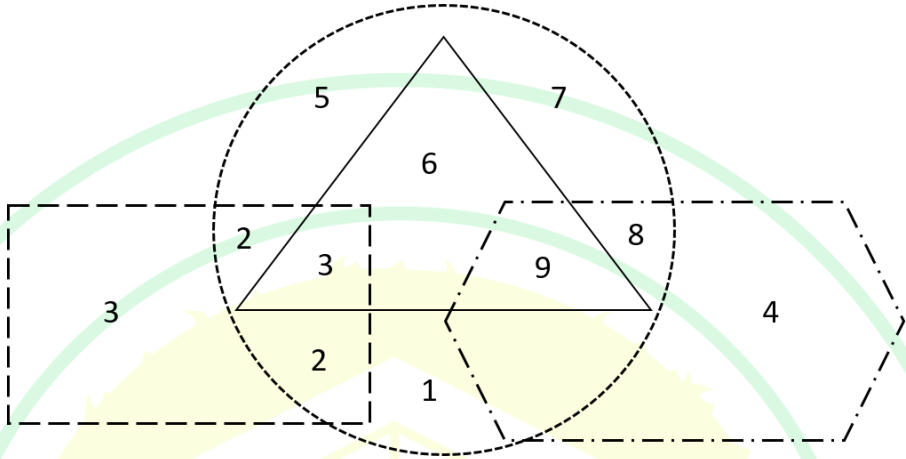
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Q.19	The table shows the data of 450 candidates who appeared in the examination of three subjects – Social Science, Mathematics, and Science.																		
	<table border="1"> <thead> <tr> <th>Particulars</th><th>Number of candidates</th></tr> </thead> <tbody> <tr> <td>Passed in all the three subjects</td><td>167</td></tr> <tr> <td>Failed in all the three subjects</td><td>60</td></tr> <tr> <td>Failed in Social Science subject</td><td>175</td></tr> <tr> <td>Failed in Mathematics subject</td><td>199</td></tr> <tr> <td>Failed in Science subject</td><td>191</td></tr> <tr> <td>Passed in only Social Science subject</td><td>62</td></tr> <tr> <td>Passed in only Mathematics subject</td><td>48</td></tr> <tr> <td>Passed in only Science subject</td><td>52</td></tr> </tbody> </table> How many candidates have passed in at least one subject?	Particulars	Number of candidates	Passed in all the three subjects	167	Failed in all the three subjects	60	Failed in Social Science subject	175	Failed in Mathematics subject	199	Failed in Science subject	191	Passed in only Social Science subject	62	Passed in only Mathematics subject	48	Passed in only Science subject	52
Particulars	Number of candidates																		
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Passed in only Science subject	52																		
(A)	48																		
(B)	162																		
(C)	390																		
(D)	425																		

Q.20	If $\times$ means $+$, $+$ means $\div$, $-$ means $\times$, and $\div$ means $-$, then $8 \times 7 - 8 + 40 \div 2 =$
(A)	$3\frac{8}{5}$
(B)	$7\frac{2}{5}$
(C)	$2\frac{7}{5}$
(D)	$8\frac{3}{5}$
Q.21	Given a series 5, 8, 11, 14, ... If the n^{th} term of the given series is 320, then n (where, $n \geq 1$) is
(A)	104
(B)	105
(C)	106
(D)	107

Q.22	Suppose, your last year taxable income was Rs. 22000. Due to hike in salary, your taxable income this year is Rs. 34200. The details for tax calculation are given in the table below.														
	<table> <tr> <th>Income range (Rs.)</th><th>Tax slab (Rs.)</th></tr> <tr> <td>0 to 5000</td><td>2 % of income</td></tr> <tr> <td>Greater than 5000 to 10000</td><td>100 + 3 % of income over 5000</td></tr> <tr> <td>Greater than 10000 to 20000</td><td>250 + 5 % of income over 10000</td></tr> <tr> <td>Greater than 20000 to 30000</td><td>750 + 8 % of income over 20000</td></tr> <tr> <td>Greater than 30000 to 50000</td><td>1550 + 10 % of income over 30000</td></tr> <tr> <td>Greater than 50000 to 100000</td><td>3550 + 20 % of income over 50000</td></tr> </table> Consider the appropriate tax slab corresponding to your income. What is the additional amount of tax you need to pay this year compared to last year?	Income range (Rs.)	Tax slab (Rs.)	0 to 5000	2 % of income	Greater than 5000 to 10000	100 + 3 % of income over 5000	Greater than 10000 to 20000	250 + 5 % of income over 10000	Greater than 20000 to 30000	750 + 8 % of income over 20000	Greater than 30000 to 50000	1550 + 10 % of income over 30000	Greater than 50000 to 100000	3550 + 20 % of income over 50000
Income range (Rs.)	Tax slab (Rs.)														
0 to 5000	2 % of income														
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Greater than 30000 to 50000	1550 + 10 % of income over 30000														
Greater than 50000 to 100000	3550 + 20 % of income over 50000														
(A)	1970														
(B)	1060														
(C)	910														
(D)	420														

Q.23	Anand, Hari, and Chris are engaged in one of the three type of occupations – clerk, teacher, and plumber, not necessarily in that order. Each person is assigned only one type of occupation. No two or more persons can be assigned same type of occupation. Clerk is Chris’s cousin. Hari lives next door to the plumber. Anand, who knows more facts than the teacher, has to drive more than 1 hour to reach Hari’s home. Identify each of the person’s correct type of occupation, and accordingly, which one of the following options is correct?
(A)	Anand is teacher and Chris is clerk.
(B)	Hari is clerk and Anand is plumber.
(C)	Chris is teacher and Hari is clerk.
(D)	Anand is clerk and Chris is plumber.
Q.24	Many countries are facing water shortage crises in the past few years. A report of the United Nation has named India among the worst countries for poor quality of water. The report ranks 122 countries according to the quality of their water as well as their commitment to improve the situation. Some countries in Europe are considered the worst because of the quality of its ground water. Rain failed in some parts of India in the past. The vast areas of Rajasthan, Madhya Pradesh, and Andhra Pradesh were affected by severe drought. People without water turn desperate and violent. Consequently, the food godowns were attacked in some of the states. Based on the details given in the passage, which of the following option(s) is/ are correct statement(s)?
(A)	There is no proof that India is affected by poor quality of water.
(B)	A few European countries are suffering due to occurrence of drought.
(C)	Lack of access to water can lead to social unrest.
(D)	Intense shortage of water is visible in some states of India.

Q.25	In the following figure, four overlapping shapes (rectangle, triangle, circle, and hexagon) are given. The sum of the numbers which belong to only two overlapping shapes is_____.
	
Q.26	Consider a square field ABCD. The diagonal AC is 50 meter. The cost of laying grass in the field is Rs. 5 per square-meter. The total cost for laying grass in the field ABCD is Rs. _____ (rounded off to two decimal places).

Q.27– Q.44 Carry ONE mark Each

Q.27	In the context of a perfectly competitive market, identify the statement that is NOT CORRECT .
(A)	Producing less than the competitive output lowers welfare.
(B)	Producing more than the competitive output lowers welfare.
(C)	The welfare is dependent on both price and the competitive output.
(D)	If a consumer values the last unit more than its marginal cost of production, producing an additional unit shall lower welfare.
Q.28	The demand function is given as $\log Q = \log A + 0.5 \log P$, where Q is quantity, P is the unit price of the good and A is a positive real number. The own price elasticity of demand is
(A)	Perfectly elastic
(B)	Perfectly inelastic
(C)	Elastic
(D)	Inelastic

Q.29	Which one of the following is part of the unconventional monetary policy?
(A)	Repo rate
(B)	Quantitative easing
(C)	Fractional banking
(D)	Reverse Repo rate
Q.30	Which one of the following statements is NOT CORRECT in the context of Keynesian Absolute Income Hypothesis?
(A)	Average Propensity to Consume (APC) plus Average Propensity to Save (APS) is equal to one.
(B)	Marginal Propensity to Consume (MPC) is constant.
(C)	Average Propensity to Consume (APC) increases as income increases.
(D)	Marginal Propensity to Consume (MPC) plus Marginal Propensity to Save (MPS) is equal to one.

Q.31	Let $f(x, y, z) = x^2y^3z$. Then, $x \frac{\partial f}{\partial x}(x, y, z) + y \frac{\partial f}{\partial y}(x, y, z) + z \frac{\partial f}{\partial z}(x, y, z) =$
(A)	$f(x, y, z)$
(B)	$2f(x, y, z)$
(C)	$3f(x, y, z)$
(D)	$6f(x, y, z)$
Q.32	Let $f(x) = -3x^2(1 - x) - 3x(1 - x)^2 - (1 - x)^3$. Then, $\frac{df(x)}{dx} =$
(A)	$3x^2$
(B)	$3(1 - x)^2$
(C)	$3x(1 - x)$
(D)	x

Q.33	In the context of environmental cost-benefit analysis, which of the following statements is/are NOT CORRECT ?
(A)	The discount rates do not impact the fixed and variable costs of the project but does impact the perceived benefits in monetary terms.
(B)	The analysis does not incorporate people's preferences for a policy.
(C)	The analysis is dependent on the choice of the discount rates.
(D)	The discount rates are not easily observable and choice is often subject to value judgements.
Q.34	Which of the following statements is/are CORRECT in the context of National Income Accounting?
(A)	Gross Domestic Product (GDP) is the sum of all factor payments.
(B)	Net Domestic Product (NDP) is equal to Gross Domestic Product (GDP) minus depreciation.
(C)	Gross National Product (GNP) is equal to Gross Domestic Product (GDP) plus net income from abroad.
(D)	Net National Product (NNP) is equal to Gross National Product (GNP) minus Gross Domestic Product (GDP).

Q.35	Consider the following system of linear equations: $x + 2y + 3z = 0$ $2x + py = 0$ $3x + 2y + pz = 0$ The value(s) of p for which the system of equations have infinitely many solutions is/are
(A)	$p = 1$
(B)	$p = 2$
(C)	$p = 6$
(D)	$p = 12$
Q.36	Which of the following statements is/are CORRECT ?
(A)	The difference between Human Poverty Index and the Human Development Index is that the former measure focuses on deprivations.
(B)	The Human Development Index is insensitive to inequalities in the distribution of human development in the population.
(C)	Income-based poverty lines are sufficient to capture the well-being of a country's citizens.
(D)	Multi-dimensional Poverty Index considers differences in intra-household distribution of resources.

Q.37	Which of the following statements is/are the key feature(s) of India's New Economic Reforms (1991)?
(A)	Liberalization of the economy
(B)	Privatization of public sector enterprises
(C)	Complete nationalization of all industries
(D)	Globalization and increased foreign direct investment
Q.38	A Constant Elasticity of Substitution (CES) utility function is given as: $U_{CES}(z_1, z_2) = \frac{1}{\delta} (z_1^\delta + z_2^\delta)$ where z_1 and z_2 are two goods, and $\delta \leq 1, \delta \neq 0$. A Quasi-linear (QL) utility function is given as: $U_{QL}(z_1, z_2) = 2z_1 + \log z_2$ where z_1 and z_2 are two goods. Which of the following statements is/are NOT CORRECT?
(A)	The CES utility function is homothetic but the QL utility function is non-homothetic.
(B)	For $\delta = 1$, the CES utility function is not strictly convex.
(C)	The Marginal Rate of Substitution ($MRS_{z_1 z_2}$) for the CES utility function and the QL utility function are dependent on both z_1 and z_2 .
(D)	If $z_1 = z_2$, the Marginal Rate of Substitution ($MRS_{z_1 z_2}$) is 2 for both the CES and the QL utility functions.

Q.39	Consider a lottery with three possible outcomes: <table><tr><th>Outcomes</th><th>Probability</th><th>Reward/Win (in INR)</th></tr><tr><td>I</td><td>0.2</td><td>25</td></tr><tr><td>II</td><td>0.3</td><td>50</td></tr><tr><td>III</td><td>0.5</td><td>100</td></tr></table> The maximum amount that a risk-neutral person would be willing to pay to play the above lottery is INR _____ (in integer)	Outcomes	Probability	Reward/Win (in INR)	I	0.2	25	II	0.3	50	III	0.5	100
Outcomes	Probability	Reward/Win (in INR)											
I	0.2	25											
II	0.3	50											
III	0.5	100											
Q.40	For a closed economy with no government expenditure and taxes, the aggregate consumption function (C) is given by: $C = 100 + 0.75 Y_d$ where Y_d is the disposable income. If the total investment is 80, the equilibrium output is _____ (in integer)												
Q.41	If X is a continuous random variable whose probability density function is given by $f_X(x) = \begin{cases} \frac{1}{x^2} & \text{for } 1 < x < \infty \\ 0 & \text{elsewhere} \end{cases}$ Then the median of X is _____ (in integer)												

Q.42	The inverse demand function for a monopolist is given by $P = 100 - kQ$ where P is the unit price of the good, Q is the quantity and k is a constant. The cost function facing the monopolist is given as $C(Q) = 50 + 2Q(1 + Q)$. If the profit maximizing output is 7, the maximum profit is _____ (in integer)
Q.43	Consider a simple Keynesian closed economy model with the following information: The Marginal Propensity to Consume (MPC) is 0.9 and the initial level of saving is INR 120. When income rises by INR 100, then the new level of saving will be INR _____ (in integer)
Q44.	If X is a continuous random variable whose probability density function is given by $f_X(x) = \begin{cases} cx^3 + 0.25 & \text{for } 0 \leq x \leq 1, c \in \mathbb{R} \\ 0 & \text{elsewhere} \end{cases}$ Then the value of c is _____ (in integer)

Q.45 – Q.65 Carry TWO marks Each

Q.45	Consider a three-firms oligopoly market with a linear demand function given by $P = 25 - Q$ where P is the unit price and Q is the total quantity supplied. The total quantity $Q = (q_1 + q_2 + q_3)$, where q_i is the output from the i^{th} firm with $i = 1, 2, 3$. The total cost (TC) curve of firm i is given by $TC_i = (\alpha_i + 5q_i)$, where α_i's are positive real numbers. Assuming a Cournot solution exists, the value of Q is
(A)	9
(B)	15
(C)	12
(D)	21
Q.46	Transfer payments by governments are viewed as
(A)	Negative taxes
(B)	Indirect taxes
(C)	Non-tax revenues
(D)	Transfer of wealth

Q.47	Match Column I with Column II.	
	Column I	Column II
	P. Phillips Curve	1. Describes the relationship between devaluation and trade deficit
	Q. Kuznets Curve	2. Describes the relationship between tax revenue and tax rate
	R. Laffer Curve	3. Describes the relationship between rate of unemployment and inflation
	S. J-Curve	4. Describes the relationship between degree of income inequality and level of per-capita income
(A)	(P → 3), (Q → 4), (R → 2), (S → 1)	
(B)	(P → 3), (Q → 1), (R → 2), (S → 4)	
(C)	(P → 2), (Q → 1), (R → 3), (S → 4)	
(D)	(P → 2), (Q → 3), (R → 4), (S → 1)	

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Q.48	Consider the following statements: Statement 1: The new classical policy ineffectiveness proposition asserts that, systematic monetary policy and fiscal policy actions that change aggregate demand will not affect output and employment even in short run. Statement 2: According to Real Business Cycle (RBC) model, the aggregate economic variables are the outcomes of the decisions made by many individual agents acting to maximize their utility subject to production possibilities and resource constraints. Which one of the following options is CORRECT?
(A)	ONLY Statement 1 is TRUE
(B)	ONLY Statement 2 is TRUE
(C)	BOTH Statements are TRUE
(D)	BOTH Statements are FALSE

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Q.49	Consider a two-variables (x, y) linear regression model $y = \alpha + \beta x + \varepsilon$ where α and β are the parameters, and ε is the error term. The parameters are estimated using the Ordinary Least Squares (OLS) method. Let b denote the estimated value of β. If $b = 0$, then which one of the following statements is CORRECT?
(A)	R^2 can be any real number in $(0, 0.5]$
(B)	R^2 can be any real number in $(0.5, 1)$
(C)	R^2 is any positive real number greater than 1
(D)	$R^2 = 0$
Q.50	Let $X_1, X_2, X_3, \dots$, be independent and identically distributed random variables with $E[X_1] = \mu$. Let N be a positive integer valued random variable with $E[N] = n$. If $S_N = X_1 + X_2 + \dots + X_N$, then $E[S_N] =$
(A)	μ
(B)	$N\mu$
(C)	$n\mu$
(D)	μ^n

Q.51	A Cobb-Douglas type short-run production function is given by $q = 2\sqrt{LK}$ where q, L and K are the output, labour and capital, respectively. K is fixed at $\bar{K}$. The unit price of L is w and the unit price of K is r. It is given that w is 12. Considering the above information, which of the following statements is/are CORRECT?
(A)	The short-run marginal cost is $\frac{6q}{\bar{K}}$
(B)	The short-run average variable cost is $\frac{3q}{\bar{K}}$
(C)	To produce 10 units of the output, required L is $\frac{25}{\bar{K}}$
(D)	For $\bar{K} = 3$ and $r = 4$, the total cost is $12 + 3q^2$

Q.52	A simple Keynesian open economy model is given by $S + T + M = G + I + X$ where S, I, G, T, X, and M stands for saving, investment, government expenditure, taxes, exports and imports, respectively. If the country has trade surplus, which strategy/strategies among the following will reduce the trade imbalance?
(A)	Everything else being constant, decrease in private saving would reduce trade surplus.
(B)	Everything else being constant, increase in investment would reduce trade surplus.
(C)	Everything else being constant, increase in government taxes would reduce trade surplus.
(D)	Everything else being constant, decrease in government spending would reduce trade surplus.

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Q.53	Consider the two scenarios for a small open economy based on the Mundell-Fleming IS-LM model with floating exchange rate and perfect capital mobility <table border="1" data-bbox="316 365 1385 678"> <thead> <tr> <th data-bbox="316 365 874 465">Scenario I</th><th data-bbox="874 365 1385 465">Scenario II</th></tr> </thead> <tbody> <tr> <td data-bbox="316 465 874 555">$Y = C(Y - T) + I(r^*) + G + NX(e, Y)$</td><td data-bbox="874 465 1385 555">$Y = C(Y - T) + I(r^*) + G + NX(e)$</td></tr> <tr> <td data-bbox="316 555 874 678">$\frac{M}{\bar{P}} = L(r^*, Y)$</td><td data-bbox="874 555 1385 678">$\frac{M}{\bar{P}} = L(r^*, Y - T)$</td></tr> </tbody> </table> where Y is aggregate income, C is aggregate consumption, I is investment, r^* is world interest rate, G is government expenditure, T is taxes, NX is net exports, e is exchange rate, M is money supply, and $\bar{P}$ is general price level. I has a negative relationship with r^*, NX depends negatively on both e and Y, and $\bar{P}$ is fixed. Given the above information, which of the following statements is/are CORRECT?	Scenario I	Scenario II	$Y = C(Y - T) + I(r^*) + G + NX(e, Y)$	$Y = C(Y - T) + I(r^*) + G + NX(e)$	$\frac{M}{\bar{P}} = L(r^*, Y)$	$\frac{M}{\bar{P}} = L(r^*, Y - T)$
Scenario I	Scenario II						
$Y = C(Y - T) + I(r^*) + G + NX(e, Y)$	$Y = C(Y - T) + I(r^*) + G + NX(e)$						
$\frac{M}{\bar{P}} = L(r^*, Y)$	$\frac{M}{\bar{P}} = L(r^*, Y - T)$						
(A)	Increase in G has no effect on income in Scenario I.						
(B)	Decrease in T lowers income in Scenario II.						
(C)	Expansionary fiscal policy raises income in Scenario I and Scenario II.						
(D)	Expansionary fiscal policy raises exchange rate in Scenario I and Scenario II.						

Q.54	Which of the following statements is/are CORRECT in the context of Foreign Exchange Market?
(A)	When the value of domestic currency increases vis-à-vis the value of foreign currency, the domestic currency experiences appreciation.
(B)	When the value of domestic currency increases vis-à-vis the value of foreign currency, the domestic currency experiences depreciation.
(C)	When the value of domestic currency decreases vis-à-vis the value of foreign currency, the domestic currency experiences depreciation.
(D)	When the value of domestic currency decreases vis-à-vis the value of foreign currency, the domestic currency experiences appreciation.
Q.55	Which of the following statements characterize(s) the Indian labour market?
(A)	High workforce participation in agriculture
(B)	A predominant formal sector employment
(C)	Increasing Gig and contractual employment
(D)	A dual structure comprising organised and unorganised sector

Q.56	Which of the following statements is/are NOT CORRECT ?
(A)	According to the “Pollution Haven hypothesis”, trade liberalisation may lead to reallocation of production to countries where either environmental regulation are ineffective or altogether absent.
(B)	According to the “Porter hypothesis”, stringency in ensuring environmental standards often induces firms to become more efficient and prevent technological advancement and innovation.
(C)	According to the “Race to the Bottom hypothesis”, the environmental regulation are progressively made stringent so that economies gain in competition for inward investments.
(D)	According to the “Environmental Kuznets curve hypothesis”, there is an inverted U-shape relationship between per-capita income and environmental quality.
Q.57	There are two firms in an industry producing a homogeneous product. The market demand function is given by $P = 1 - (q_1 + q_2)$, where q_1 and q_2 are the output levels of Firm 1 and Firm 2, respectively. Firm 1’s cost function is common knowledge and equals zero. Firm 2’s cost function is private information. Firm 1 believes that Firm 2’s cost function is $0.5q_2$ with probability 0.5 and that Firm 2’s cost function is $0.25q_2$ with probability 0.5. The firms choose their quantities simultaneously. Let q_1^* denote the quantity produced by Firm 1 in the Bayesian Nash equilibrium of this game. Then, the value of $24q_1^*$ is _____ (round off to one decimal place)

Q.58	Consider a two-person exchange economy where two goods, x and y are available in limited quantities of 50 and 100, respectively. The preferences of the two persons, Anil and Binod are given by the utility functions $U_{\text{Anil}}(x_{\text{Anil}}, y_{\text{Anil}}) = x_{\text{Anil}}^{0.4} y_{\text{Anil}}^{0.6}$ and $U_{\text{Binod}}(x_{\text{Binod}}, y_{\text{Binod}}) = x_{\text{Binod}}^{0.6} y_{\text{Binod}}^{0.4}$ If they decide to share good y equally among themselves, the amount of good x Anil receives is _____ (in integer)
Q.59	Let Y be income, r be interest rate, G be government expenditure and M^s be money supply. Consider the following closed economy IS-LM equations with fixed general price level ($\bar{P}$) IS equation: $Y = 490 + 0.6 Y - 4 r + G$ LM equation: $\frac{M^s}{\bar{P}} = 20 + 0.25 Y - 10 r$ If G is 330 and $\frac{M^s}{\bar{P}}$ is 500, then the equilibrium Y is _____ (round off to one decimal place)

Q.60	Consider the following Harrod-Domar growth equation $\frac{s}{\theta} = g + \delta$ where s = saving rate, θ = capital-output ratio, g = overall growth rate, and δ = capital depreciation rate. If $\delta = 0$ and $s = 20\%$, then to achieve $g = 10\%$, the capital-output ratio will be _____ (in integer)
Q.61	A coin has a true probability μ of turning up Heads. This coin is tossed 100 times and shows up Heads 60 times. The following hypothesis is tested: $H_0: \mu = 0.5 \text{ (Null Hypothesis)}$ $H_1: \mu > 0.5 \text{ (Alternative Hypothesis)}$ Using the Central Limit Theorem, the p-value of the above test is _____ (round off to three decimal places) (Hint: If Z is a random variable that follows a standard normal distribution, then $P(Z \leq 2) = 0.977$)

Q.62	The installation cost (IC) of a solar power plant is INR 89,000. The plant shall be operational for 5 years. The recurring costs for maintenance of the solar plant per year is INR 5,000 but the benefits it creates including reduction in emissions amounts to INR 25,000 per year. These are the only costs and benefits associated with this project. The social discount rate (r) considered is 4% per year. The year-wise information is presented below <table><tr><th>Year (t)</th><th>Discount Factor $(1 + r)^{-t}$</th><th>Benefits (in '000)</th><th>Costs (in '000)</th></tr><tr><td>0</td><td>1</td><td></td><td>IC</td></tr><tr><td>1</td><td>0.96</td><td>25</td><td>5</td></tr><tr><td>2</td><td>0.92</td><td>25</td><td>5</td></tr><tr><td>3</td><td>0.89</td><td>25</td><td>5</td></tr><tr><td>4</td><td>0.85</td><td>25</td><td>5</td></tr><tr><td>5</td><td>0.82</td><td>25</td><td>5</td></tr></table> The net present value of the plant is _____ (in integer)	Year (t)	Discount Factor $(1 + r)^{-t}$	Benefits (in '000)	Costs (in '000)	0	1		IC	1	0.96	25	5	2	0.92	25	5	3	0.89	25	5	4	0.85	25	5	5	0.82	25	5
Year (t)	Discount Factor $(1 + r)^{-t}$	Benefits (in '000)	Costs (in '000)																										
0	1		IC																										
1	0.96	25	5																										
2	0.92	25	5																										
3	0.89	25	5																										
4	0.85	25	5																										
5	0.82	25	5																										
Q.63	Let $f(x, y) = -x^2 - y^2 + 2x + 4y + 5$. Let (x^*, y^*) denote the solution to the following optimization problem: Maximize $f(x, y)$ subject to $x \geq 0, y \geq 0, 2x + y \leq 6$ Then the value of $f(x^*, y^*)$ is _____ (in integer)																												

Q.64	Two players A and B are playing a game. Player A has two available actions a_1 and a_2. Player B has two available actions b_1 and b_2. The payoff matrix arising from their actions is presented below. <table><tr><td></td><td>b_1</td><td>b_2</td></tr><tr><td>a_1</td><td>$-1, 3$</td><td>$4, -1$</td></tr><tr><td>a_2</td><td>$3, -4$</td><td>$-2, 2$</td></tr></table> Let p be the probability that player A plays action a_1 in the mixed strategy Nash equilibrium of the game. Then the value of p is _____ (round off to one decimal place)		b_1	b_2	a_1	$-1, 3$	$4, -1$	a_2	$3, -4$	$-2, 2$
	b_1	b_2								
a_1	$-1, 3$	$4, -1$								
a_2	$3, -4$	$-2, 2$								
Q.65	If the Marginal Propensity to Consume (MPC) of an economy is 0.75, then the value of expenditure multiplier will be _____ (in integer).									

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General Aptitude (GA)

Q.1 – Q.5 Carry ONE mark Each

Q.1	If '→' denotes increasing order of intensity, then the meaning of the words [simmer → seethe → smolder] is analogous to [break → raze → _____]. Which one of the given options is appropriate to fill the blank?
(A)	obfuscate
(B)	obliterate
(C)	fracture
(D)	fissure

Q.2	In a locality, the houses are numbered in the following way: The house-numbers on one side of a road are consecutive odd integers starting from 301, while the house-numbers on the other side of the road are consecutive even numbers starting from 302. The total number of houses is the same on both sides of the road. If the difference of the sum of the house-numbers between the two sides of the road is 27, then the number of houses on each side of the road is
(A)	27
(B)	52
(C)	54
(D)	26
Q.3	For positive integers p and q, with $\frac{p}{q} \neq 1$, $\left(\frac{p}{q}\right)^{\frac{p}{q}} = p^{\left(\frac{p}{q}-1\right)}$. Then,
(A)	$q^p = p^q$
(B)	$q^p = p^{2q}$
(C)	$\sqrt{q} = \sqrt{p}$
(D)	$\sqrt[p]{q} = \sqrt[q]{p}$

Q.4	Which one of the given options is a possible value of X in the following sequence? 3, 7, 15, x , 63, 127, 255
(A)	35
(B)	40
(C)	45
(D)	31
Q.5	On a given day, how many times will the second-hand and the minute-hand of a clock cross each other during the clock time 12:05:00 hours to 12:55:00 hours?
(A)	51
(B)	49
(C)	50
(D)	55

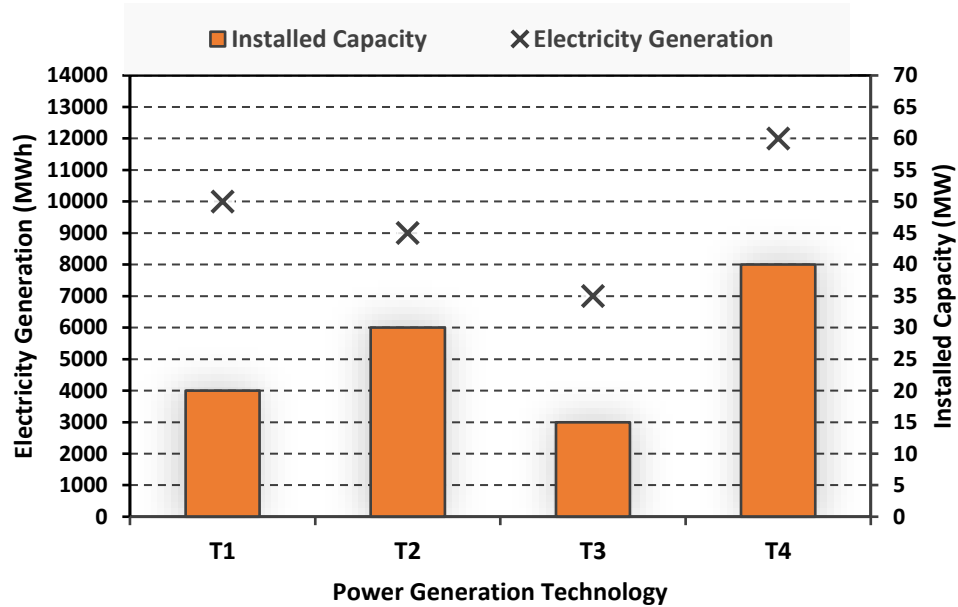
Q.6 – Q.10 Carry TWO marks Each

Q.6	In the given text, the blanks are numbered (i)–(iv). Select the best match for all the blanks. From the ancient Athenian arena to the modern Olympic stadiums, athletics _____⁽ⁱ⁾_____ the potential for a spectacle. The crowd _____⁽ⁱⁱ⁾_____ with bated breath as the Olympian artist twists his body, stretching the javelin behind him. Twelve strides in, he begins to cross-step. Six cross-steps _____⁽ⁱⁱⁱ⁾_____ in an abrupt stop on his left foot. As his body _____^(iv)_____ like a door turning on a hinge, the javelin is launched skyward at a precise angle.
(A)	(i) hold (ii) waits (iii) culminates (iv) pivot
(B)	(i) holds (ii) wait (iii) culminates (iv) pivot
(C)	(i) hold (ii) wait (iii) culminate (iv) pivots
(D)	(i) holds (ii) waits (iii) culminate (iv) pivots

Q.7	Three distinct sets of indistinguishable twins are to be seated at a circular table that has 8 identical chairs. Unique seating arrangements are defined by the relative positions of the people. How many unique seating arrangements are possible such that each person is sitting next to their twin?
(A)	12
(B)	14
(C)	10
(D)	28

Q.8

The chart given below compares the Installed Capacity (MW) of four power generation technologies, T1, T2, T3, and T4, and their Electricity Generation (MWh) in a time of 1000 hours (h).



The Capacity Factor of a power generation technology is:

$$\text{Capacity Factor} = \frac{\text{Electricity Generation (MWh)}}{\text{Installed Capacity (MW)} \times 1000 \text{ (h)}}$$

Which one of the given technologies has the highest Capacity Factor?

(A) T1

(B) T2

(C) T3

(D) T4

Q.9	In the 4×4 array shown below, each cell of the first three columns has either a cross (X) or a number, as per the given rule. <table><tr><td>1</td><td>1</td><td>2</td><td></td></tr><tr><td>2</td><td>X</td><td>3</td><td></td></tr><tr><td>2</td><td>X</td><td>4</td><td></td></tr><tr><td>1</td><td>2</td><td>X</td><td></td></tr></table> Rule: The number in a cell represents the count of crosses around its immediate neighboring cells (left, right, top, bottom, diagonals). As per this rule, the maximum number of crosses possible in the empty column is	1	1	2		2	X	3		2	X	4		1	2	X	
1	1	2															
2	X	3															
2	X	4															
1	2	X															
(A)	0																
(B)	1																
(C)	2																
(D)	3																

Q.10	During a half-moon phase, the Earth-Moon-Sun form a right triangle. If the Moon-Earth-Sun angle at this half-moon phase is measured to be 89.85° , the ratio of the Earth-Sun and Earth-Moon distances is closest to
(A)	328
(B)	382
(C)	238
(D)	283

Reasoning and Comprehension (XH-B1)

XH-B1: Q.11– Q.17 Carry ONE mark Each

Q.11	Amma's tone in the context of the given passage is that of:
	For Amma, the difference between men and women was a kind of discrimination and inequality; she felt strongly about women's rights but was not familiar with concepts like gender and patriarchy. She would have dismissed Betty Friedan because she was predominantly dealing with the problems of white middle-class women in the United States. Amma, and women of her generation, could de-link the oppression of women from the wider struggle for the liberation of human beings from class exploitation and imperialism. So Amma continued to play her role as mother and wife, but would often complain: 'I am a doormat on which everyone wipes their emotional dirt off'.
(A)	Compromise
(B)	Protest
(C)	Contentment
(D)	Resignation

Q.12	Fill in the blanks by choosing the correct sequence for the following passage:
	I am wearing for the first time some (i)_____ that I have never been able to wear for long at a time, as they are horribly tight. I usually put them on just before giving a lecture. The painful pressure they exert on my feet goads my oratorical capacities to their utmost. This sharp and overwhelming pain makes me sing like a nightingale or like one of those Neapolitan singers who also wear (ii)_____ that are too tight. The visceral physical longing, the overwhelming torture provoked by my (iii)_____, forces me to extract from words distilled and sublime truths, generalized by the supreme inquisition of the pain my (iv)_____ suffer.
(A)	(i) patent-leather belt (ii) belts (iii) patent-leather belt (iv) waist
(B)	(i) patent-leather shoes (ii) bands (iii) patent-leather bands (iv) wrist
(C)	(i) patent-leather shoes (ii) shoes (iii) patent-leather shoes (iv) feet
(D)	(i) patent-leather jacket (ii) jacket (iii) patent-leather jacket (iv) body

Q.13	The appropriate synonym for the word 'ignite' in the following passage will be:
	Spirituality must be integrated with education. Self-realization is the focus. Each one of us must become aware of our higher self. We are links of a great past to a grand future. We should ignite our dormant inner energy and let it guide our lives. The radiance of such minds embarked on constructive endeavor will bring peace, prosperity and bliss to this nation.
(A)	Encourage
(B)	Simulate
(C)	Dissipate
(D)	Engross

Q.14	Which of the following sentences is punctuated correctly?
(A)	One day, I'll write a book, 'I said'. Not just a thriller but a real book, about real people.
(B)	'One day I'll write a book', I said, 'not just a thriller, but a real book, about real people.'
(C)	'One day I'll write a book', I said. 'Not just a thriller but, a real book, about real people'.
(D)	'One day I'll write a book', I said, not just a thriller, but a real book, about real people.'

Q.15	Fill in the blanks with the correct combination of tenses for the given sentence:
	Darwin's work (i)_____ a related effect that (ii)_____ influenced the development of environmental politics – a 'decentering' of the human being.
(A)	(i) have (ii) had
(B)	(i) had (ii) have
(C)	(i) had (ii) has
(D)	(i) has (ii) have

Q.16	Which of the following options holds similar relationship as the words, ‘Music: Notes’?
(A)	Water: Cold drink
(B)	Paper: Class Notes
(C)	House: Bricks
(D)	Graphite: Charcoal

Q.17	In a particular code, if “RAMAN” is written as 52 and “MAP” is written as 33, then how will you code “CLICK”?
(A)	37
(B)	43
(C)	51
(D)	38

XH-B1: Q.18 – Q.26 Carry TWO marks Each

Q.18	On the basis of the statements given below, which valid assumption(s) can be made?
	Statements: • Life has suffering • Desire is the cause of suffering • The end of desire is the end of suffering • Desire can be reduced by following the noble eightfold path Assumptions: 1. Suffering is because of wants 2. Life is not always full of suffering 3. The eightfold path can reduce suffering 4. Suffering is caused by life
(A)	Only 1, 3 and 4
(B)	Only 1, 2 and 3
(C)	Only 1 and 4
(D)	Only 2 and 3

Q.19	If 'KARAMCHAND' is coded as 'ICPCKEFCLF' what should be the code of 'CREATION'?
(A)	ATCCRKMP
(B)	ETGCVKQP
(C)	APCCRJMP
(D)	ETCGKRPM

Q.20	Given an input line of numbers and words, a machine rearranges them following a particular rule in each step. Here is an illustration of an input and rearrangement sequence (Step 1 to Step 5): Input: 61 wb ob 48 45 29 34 sb pb lb Step 1: lb wb ob 48 45 29 34 sb pb 61 Step 2: lb ob wb 45 29 34 sb pb 61 48 Step 3: lb ob pb wb 29 34 sb 61 48 45 Step 4: lb ob pb sb wb 29 61 48 45 34 Step 5: lb ob pb sb wb 61 48 45 34 29 Step 5 is the last step of the above arrangement. Based on the rules followed in the above steps, answer the following question: Input: cb kb eb 58 49 23 38 jb nb gb 69 82 Which of the following represents the position of 58 in the fourth step? (Step-5 is the last step of the arrangement.)
(A)	Second from the left
(B)	Fourth from the right
(C)	Third from the right
(D)	Seventh from the left

Q.21	In a certain type of code, 'they play cricket together' is written as 'mv kb lb iv'; 'they score maximum points' is written as 'gb lb mb kv'; 'cricket score earned points' is written as 'mb gv kb kv' and 'points are earned together' is written as 'kv mv ob gv.' What is the code for 'earned maximum points'?
(A)	gv gb kv
(B)	mv kb mb
(C)	lb iv ob
(D)	ob mb iv

Q.22	Which of the statement(s) about the passage weaken(s) the argument presented?
	Scientists associate large brains with greater intelligence. However, in the evolutionary context it has also been identified that beyond a point, the size of the brain has not increased and yet after a particular period, in spite of no significant change in brain size humans have made significant progress. Certain researchers propose that this is because, while the overall brain size may not have changed, marked structural changes can be noticed in specific structures that run parallel to increase in human intelligence.
(A)	Recent studies refute the hypothesis that region-specific brain development is necessarily associated with rapid human progress
(B)	Neanderthal people's extinction was probably because of their brain size
(C)	Homo Sapiens and its destruction in the future may happen because of its rapid brain development
(D)	Recent studies show that Neanderthal people, with relatively smaller brains, were capable of complex language and social activities

Q. 23	The narrator's use of 'I' in the given passage is/are:
	I have never been any good at the more lurid sort of writing. Psychopathic killers, impotent war-heroes, self-tortured film stars, and seedy espionage agents must exist in the world, but strangely enough I do not come across them, and I prefer to write about the people and places I have known and the lives of those whose paths I have crossed. This crossing of paths makes for stories rather than novels, and although I have worked in both mediums, I am happier being a short-story writer than a novelist.
(A)	Self-conscious
(B)	Apologetic and regretful
(C)	Confessional and communicating
(D)	Egotistical and vain

Q.24	Which of the following recommended action(s) seem to be appropriate with the stated problem?
	Stated problem : Many students at educational institutes do not attend classes in the post-pandemic scenario.
(A)	Disciplinary action against all students should be taken as a warning.
(B)	Counselling sessions should be organized to address the issues such students face.
(C)	Surveys should be conducted to identify the reasons for their absence.
(D)	Course content should immediately be changed.

Q.25	Read the passage and identify the statement(s) which follow(s) from it:
	The purpose of this work is to inform educators about the brain science related to emotion and learning, and, more important, to offer strategies to apply these understandings to their own teaching. Although many of the approaches I describe will be familiar, integrating the lens of emotion and the brain may be a new concept. As an educator I had been trained in how to deliver content and organize my lessons, but I had not been taught how to design learning experiences that support emotions for learning.
(A)	The author wishes, through his work, to inform us about brain science and learning.
(B)	The author, through his work, wishes to offer strategies to apply our learnings to our teaching.
(C)	The author feels that the newness of his approach lies in linking emotion oriented approach to brain.
(D)	The author wants to use emotions as a strategy for learning.

Q.26	If A says that his mother is the daughter of B's mother, then how is B related to A?
(A)	Uncle
(B)	Aunt
(C)	Father
(D)	Brother

Economics (XH-C1)

XH-C1: Q.27 – Q.44 Carry ONE mark Each

Q.27 Which one of the following measures in the Keynesian framework is adopted to tame inflation in an economy?

- (A) Reduction in government spending
- (B) Reduction in the bank rate
- (C) Reduction in the repo rate
- (D) Increase in merchandise exports

Q. 28 If the difference between actual GDP and the trend output varies inversely with the difference between actual unemployment rate and the natural rate of unemployment, then such a relationship is called the

- (A) Okun's law
- (B) New Keynesian aggregate supply curve
- (C) Taylor Rule
- (D) New Keynesian Phillips curve

Q.29 In the sticky-price model of aggregate supply, if none of the firms in the market have flexible prices, then the short-run aggregate supply curve will be

- (A) horizontal
- (B) vertical
- (C) steeper than it would be if some firms had flexible prices
- (D) upward sloping to the right

Q.30 When transfer of income happens from the “not richer” individual to the “not poorer” individual, then such a transfer is known as

- (A) Regressive transfer
- (B) Additive transfer
- (C) Direct transfer
- (D) Indirect transfer

Q.31 In the context of the Harris-Todaro model of rural-urban migration, which one of the following is TRUE?

- (A) Unemployment in the urban sector emerges because rural-urban migration occurs primarily due to the higher expected wage income in the urban sector
- (B) Unemployment in the urban sector emerges because rural workers migrate to the cities and towns due to the expected shortage of unskilled labour in the urban sector
- (C) Unemployment in the urban sector emerges because the rural wage rate is institutionally fixed by the local body at a higher level than the urban wage rate
- (D) Unemployment in the rural sector emerges because urban workers migrate to the rural sector due to the higher expected wage income in the advanced economies

Q.32 The Minimum Support Prices in India are notified based on the recommendations of which one among the following Commissions?

- (A) Commission for Agricultural Costs and Prices
- (B) Commission for Farmers' Benefits and Costs
- (C) Commission for Agricultural Subsidy Costs and Prices
- (D) Commission for Agricultural Subsidy Benefits and Costs

Q.33 In an economy, the dependency ratio is the ratio of

- (A) non-working age group population to the working age group population
- (B) number of children to adults in the total population
- (C) number of unemployed to employed workers in the total labour force
- (D) total foreign aids and grants to the total (net) factor income from abroad

Q. 34 Which one of the following is NOT a source of finance of the Government of India?

- (A) Land revenue
- (B) Income tax
- (C) Corporate tax
- (D) Import duty

- Q. 35 In the Keynesian closed economy *IS-LM* model, where interest rate is plotted along the vertical axis and output is plotted along the horizontal axis, the product market schedule will be
- (A) relatively steeper if the interest elasticity of investment is low
 - (B) relatively steeper, the higher the marginal propensity to save
 - (C) relatively steeper if the interest elasticity of investment is very high
 - (D) relatively flatter when the interest elasticity of money demand is very high
- Q. 36 In the Keynesian system, the speculative demand for money arises because of
- (A) uncertainty of future interest rates
 - (B) uncertainty regarding bond prices and associated capital gains
 - (C) unexpected out-of-pocket expenditure
 - (D) the gap that emerges between income and sudden eventual expenditure
- Q.37 Which of the following statements is/are TRUE?
- (A) A firm experiences economies of scale when an increase in its output of a good or service brings a reduction in the average total cost of production
 - (B) A firm experiences economies of scope when an increase in its range of goods produced brings down the average total cost of production
 - (C) A firm experiences economies of scale when an increase in the range of products produced brings down the short-run average total cost of production
 - (D) A firm experiences economies of scope when an increase in its output of a good or service brings a reduction in the marginal cost of production

- Q.38 Let $x_1, x_2, \dots, x_n$ be an independently, and identically distributed (*iid*) random sample drawn from a population that follows the Normal Distribution $N(\mu, \sigma^2)$, where both the mean (μ) and variance (σ^2) are unknown. Let $\bar{x}$ be the sample mean. The maximum likelihood estimator (MLE) of the variance ($\hat{\sigma}_{MLE}^2$) is/are then characterized by

- (A) $\hat{\sigma}_{MLE}^2 = \frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2$ which is a biased estimator of σ^2
- (B) $\hat{\sigma}_{MLE}^2 = \frac{1}{n} \sum_{i=1}^n (x_i^2 - \bar{x})^2$ which is a consistent estimator of σ^2
- (C) $\hat{\sigma}_{MLE}^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$ which is an unbiased estimator of σ^2
- (D) $\hat{\sigma}_{MLE}^2 = \frac{1}{n-1} \sum_{i=1}^{n-1} (x_i - \bar{x})^2$ which is an unbiased and consistent estimator of σ^2

- Q.39 Consider a simple pooled regression model: $y_{it} = \beta_0 + \beta_1 x_{it} + v_{it}$ where $v_{it} = \mu_i + \epsilon_{it}$ and $Cov(x_{it}, \mu_i) \neq 0$. Here, μ_i captures the unknown individual specific effects and ϵ_{it} is the idiosyncratic error uncorrelated with both x_{it} and μ_i . If the parameters of this model are estimated using the ordinary least squares (OLS) method, then the estimated slope coefficient will be

- (A) biased
- (B) inconsistent
- (C) unbiased but consistent
- (D) unbiased but efficient

Q.40 Which of the following factor(s) do NOT affect output and employment in the classical macroeconomic model?

- (A) Quantity of money
- (B) Level of government spending
- (C) Level of demand for investment goods
- (D) Technological progress

Q. 41 For the following function $f(x)$ to be a *probability density function*, the value of c will be _____ (rounded off to two decimal places).

$$f(x) = \begin{cases} \frac{c}{\sqrt{x}}; & 0 < x < 4 \text{ and } c > 0 \\ 0; & \text{otherwise} \end{cases}$$

Q.42 A six-face fair die is rolled once, with X being the number that appeared on the uppermost surface. Then the variance of X is _____ (rounded off to three decimal places).

Q. 43 Consider a Cobb-Douglas utility function given as $U(H) = (24 - H)^{1-a} (wH)^a$, where H is the number of hours spent working per day, and w is the wage rate per hour. If $a = \frac{1}{2}$, then the corresponding labour supply (in hours) is _____ (in integer).

Q. 44 For a given foreign currency, if the forward exchange rate of delivery is 20 and the current value of spot exchange rate is 8, then the forward premium will be _____ (rounded off to two decimal places).

XH-C1: Q.45 – Q.65 Carry TWO marks Each

- Q.45 Two friends Aditi and Raju are deciding independently whether to watch a movie or go to a music concert that evening. Both friends would prefer to spend the evening together than apart. Aditi would prefer that they watch a movie together, while Raju would prefer that they go to the concert together. The payoff matrix arising from their actions is presented below. p and $(1 - p)$ are the probabilities that Aditi will decide in favour of the movie and concert, respectively. Similarly, q and $(1 - q)$ are the probabilities that Raju will decide in favour of the movie and concert, respectively. Which one of the following options correctly contains all the Nash Equilibria?

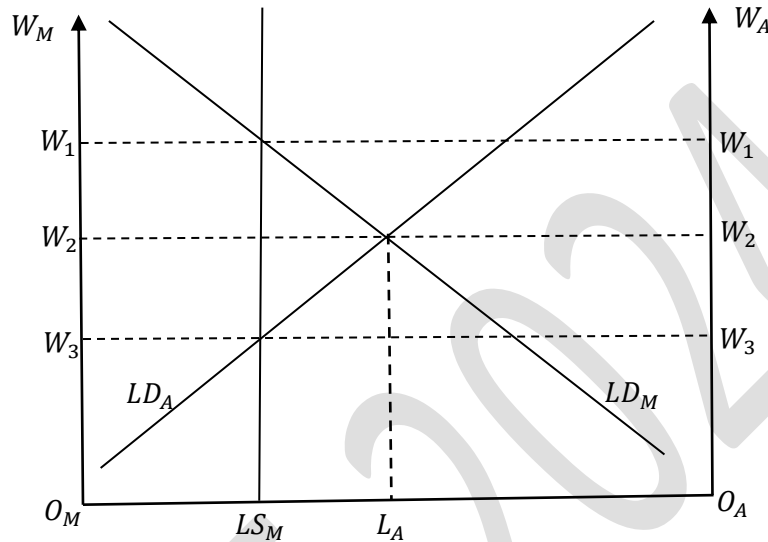
		Raju	
Aditi		Movie	Concert
	Movie	2,1	0,0
	Concert	0,0	1,2

- (A) $(p = 0, q = 0); (p = 1, q = 1); \left(p = \frac{2}{3}, q = \frac{1}{3}\right)$
- (B) $(p = 0, q = 1); (p = 1, q = 0); \left(p = \frac{2}{3}, q = \frac{1}{3}\right)$
- (C) $(p = 0, q = 0); (p = 1, q = 1); \left(p = \frac{1}{3}, q = \frac{2}{3}\right)$
- (D) $(p = 0, q = 1); (p = 1, q = 0); \left(p = \frac{1}{3}, q = \frac{2}{3}\right)$

Q.46 Consider a two good economy where a denotes consumption of apricots and b denotes consumption of bananas. Anu's utility function is $U^{Anu}(a, b) = a + 2b$, and Binu's utility function is $U^{Binu}(a, b) = \min\{a, 2b\}$. Anu initially has no apricots and 12 bananas. Binu initially has 12 apricots and no bananas. In the competitive equilibrium, which one of the following will be Anu's optimal consumption bundle?

- (A) 6 apricots and 9 bananas
- (B) 9 apricots and 9 bananas
- (C) 4 apricots and 10 bananas
- (D) 0 apricots and 12 bananas

- Q. 47 A dual economy consisting of a manufacturing sector (M) and an agricultural sector (A) is depicted in the figure below. $O_M O_A$ is the total labour available in the economy of which $O_M L S_M$ is the labour supply in the manufacturing sector before any migration was allowed among the labourers. The vertical axis in the left (right) side measures the wage in the manufacturing, W_M (agricultural, W_A) sector. LD_M (LD_A) is the demand of labour in the manufacturing (agricultural) sector with respect to O_M (O_A) as the origin. If wages are flexible, and labour is allowed to migrate between these two sectors, then it will be TRUE that



- (A) Total amount of labour that will migrate from the agricultural sector to the manufacturing sector will be $L_A L S_M$
- (B) Total amount of labour that will migrate from the manufacturing sector to the agricultural sector will be $L S_M L_A$
- (C) The wage in the manufacturing sector will be W_3
- (D) The wage in the agricultural sector will be W_1

Q.48 If X and Y are two random variables with the joint probability density function

$$\frac{2}{3}(x + 2y); \text{ for } 0 < x, y < 1$$

$$f(x, y) = \begin{cases} 0; & \text{otherwise} \end{cases},$$

then $E\left[X|Y = \frac{1}{2}\right]$ will be

(A) $\frac{5}{9}$

(B) $\frac{4}{9}$

(C) $\frac{1}{3}$

(D) $\frac{2}{3}$

Q.49 If a discrete random variable X follows the uniform distribution and assumes only the values 8, 9, 11, 15, 18, and 20, then $P(|X - 14| < 5)$ is

(A) $\frac{1}{2}$

(B) $\frac{1}{5}$

(C) $\frac{1}{4}$

(D) $\frac{2}{3}$

Q.50 Assume the following probabilities for two events, A and B : $P(A) = 0.50$, $P(B) = 0.70$, and $P(A \cup B) = 0.85$. Then we can conclude that

(A) A and B are mutually independent

(B) A and B are equally likely

(C) A and B are not mutually independent

(D) A and B are mutually exclusive

- Q. 51 The following table provides different statistical model specifications along with the elasticity of y_t with respect to x_t . Which one of the following options is correct?

Row	Statistical Model	Elasticity
1	$y_t = \beta_1 + \beta_2 \frac{1}{x_t} + \varepsilon_t$	$-\frac{\beta_2}{x_t^2}$
2	$y_t = \beta_1 - \beta_2 \ln(x_t) + \varepsilon_t$	$-\frac{\beta_2}{x_t}$
3	$\ln(y_t) = \beta_1 + \beta_2 \ln(x_t) + \varepsilon_t$	β_2
4	$\ln(y_t) = \beta_1 + \beta_2 x_t + \varepsilon_t$	$\beta_2 x_t$
5	$\ln(y_t) = \beta_1 + \beta_2 \ln(x_t) + \varepsilon_t$	$\beta_2 \exp(x_t)$
6	$\ln(y_t) = \beta_1 + \beta_2 x_t + \varepsilon_t$	$\beta_2 \frac{1}{\exp(x_t)}$

- (A) Only rows 3 and 4 are correct
- (B) Only rows 1 and 2 are correct
- (C) Only rows 3 and 5 are correct
- (D) Only rows 4 and 6 are correct

Q. 52 An incumbent firm (I) faces the possibility of entry by a challenger firm (C). If C enters, I may either accommodate or fight. If C does not enter, its payoff is 1, while I 's payoff is 2. If C enters, and I accommodates, their payoffs are 2 and 1, respectively. However, if C 's entry is met with a fight by I , their payoffs are 0 and 1, respectively. Which one of the following is a *subgame perfect Nash equilibrium* (SPNE) under perfect information?

- (A) enter; accommodate
- (B) enter; fight
- (C) not enter; accommodate
- (D) not enter; fight

Q.53 For the function $F: \mathbb{R}^2 \rightarrow \mathbb{R}$ specified as $F(x, y) = x^3 - y^3 + 9xy$, which of the following options is/are correct

- (A) one saddle point
- (B) one strict local minimum
- (C) one strict local maximum
- (D) one global maximum

Q.54 A decrease in the income tax rate has a _____ effect on the labour supply if the _____ effect dominates.

- (A) negative; income
- (B) positive; substitution
- (C) positive; income
- (D) negative; substitution

Q. 55 Which of the following statements is/are FALSE?

- (A) The arbitrage pricing theory says that the prices which producers in different countries set for a particular product will be the same if the prices are expressed in the same currency using the current exchange rate
- (B) The interest rate parity theory says that the interest rates on similar assets in two countries will always be the same
- (C) The Purchasing Power Parity theory says that the total prices of any basket of products which apply in two different countries will be the same, if the prices are expressed in the same currency using the current exchange rate
- (D) The real exchange rate between two countries is the rate at which a particular basket of products produced in one country can be traded with a similar basket produced in another country

Q.56 Consider the Solow growth model in which output (Y) is determined by the production function $Y_t = 0.2K_t + 0.8L_t$, where K and L denote capital and labour used in the production process, and t depicts time. The depreciation is given by δK_t , where $\delta = 0.2$. Saving is given by sY_t , where $s = 0.5$. Assume that the population does not grow with time. The steady state capital per unit of labour is _____ (in integer).

Q.57 Suppose XYZ Corp. is totally financed by equity; it is earning Rs. 2.50 per share; its capitalization rate is 20%. There are 10,000 shares outstanding, and the replacement cost of the firm's real assets is Rs. 1,25,000. XYZ Corp.'s value of Tobin's q is _____ (in integer).

Q.58 An industry comprising only two firms produces a homogenous product where the market demand function is given by $P = 200 - 2(q_1 + q_2)$ where q_1 and q_2 are the output levels of firm 1 and firm 2, respectively. The individual firm's cost functions are $TC_1 = 4q_1$ and $TC_2 = 4q_2$, where TC_1 and TC_2 are total costs of firm 1 and 2, respectively. If firm 2 is a Stackelberg Leader, and firm 1 is a Follower, then the profit of the Stackelberg Leader will be _____ (rounded off to two decimal places).

Q.59 Let x and y be two dummy variables that take the values of either 0 or 1, and follow the bivariate frequency distribution as given below. If a *logit regression* is estimated with y as the dependent variable and x as the independent variable, then the estimated coefficient of x is _____ (rounded off to two decimal places).

$x \backslash y$	0	1	Total
0	6	11	17
1	6	7	13
Total	12	18	30

Q.60 Based on the table given below, the current account deficit in nominal terms as a percentage of GDP during 2012-13 will be _____ (rounded off to three decimal places).

Expenditure on Gross Domestic Product (Rupees in Crores)					
At Current Prices		2009-10	2010-11	2011-12	2012-13
1.	Final Consumption Expenditures	448	525	617	696
2.	Gross Fixed Capital Formation	206	241	286	307
3.	Change in Inventory Stocks	18	27	17	17
4.	Export of Goods & Services	130	171	215	243
5.	Import of Goods & Services	165	205	272	311
At Constant 2004-05 Prices		2009-10	2010-11	2011-12	2012-13
1.	Final Consumption Expenditures	340	368	400	421
2.	Gross Fixed Capital Formation	159	117	199	200
3.	Change in Inventory Stocks	14	21	12	11
4.	Export of Goods & Services	100	120	138	145
5.	Import of Goods & Services	133	154	187	199

- Q.61 In an economy, the effort level of a worker in firm i is denoted by e_i and depends on the wage W_i received by the worker from the firm, and the minimum wage W_0 is set by the government. The effort function is given by

$$e_i(W_i, W_0) = \sqrt{W_i - W_0}$$

If the firm employs N_i unit of workers, then the efficiency unit of labour employed by the firm is $e_i N_i$. The production is based on only the efficiency unit of labour, and the production function is given by

$$F(e_i N_i) = \log_e(e_i N_i)$$

If the minimum wage set by the government is 10, and the profit maximizing firms sell the good in a competitive market at price P by choosing W_i and N_i , then the profit maximizing wage set by the firm will be _____ (rounded off to one decimal place).

- Q.62 In a perfectly competitive market, suppose the market demand curve is given by $P = 10 + W - Q$, where P is the market price, W is the average wealth of the consumers in the market, and Q is the industry output. The total cost function for a representative firm is given by $C(q) = q^3 - 2q^2 + 5q$, where q is the output of a firm. If $W = 80$, then the total number of firms in this industry in the long-run will be _____ (in integer).

- Q.63 The estimated results of a Probit model is given in the table below, where Y is a binary variable taking the value either 0 or 1, and X is an integer. The probability that $Y = 1$ when $X = 30$ is _____ (rounded off to two decimal places).

Variable	Coefficient	Standard Error	Z-Statistic	Probability
Constant	-0.064	0.399	-0.161	0.871
X	0.029	0.010	2.916	0.003

- Q.64 Consider an industry with six firms. An analyst collated the data for this industry as given below. The Herfindahl-Hirschman Index (HHI) for this industry will be _____ (in integer).

Firm	Market Share
F1	30%
F2	20%
F3	15%
F4	15%
F5	10%
F6	10%

- Q.65 Consider a duopoly market where Firm 1 and Firm 2 produce differentiated products such that the demand function of each firm is given by:
 $q_1(p_1, p_2) = 18 - p_1 + p_2$
 $q_2(p_1, p_2) = 18 + p_1 - p_2$
 Here, q_1 and q_2 are the outputs produced by Firm 1 and Firm 2, respectively, and p_1 and p_2 are the corresponding per unit prices.
 Cost of production for the i^{th} firm is given by $C_i(q_i) = 2q_i \forall i = 1, 2$
 The firms compete in prices. The price set by Firm 2 such that the market is in Nash equilibrium will be _____ (in integer).

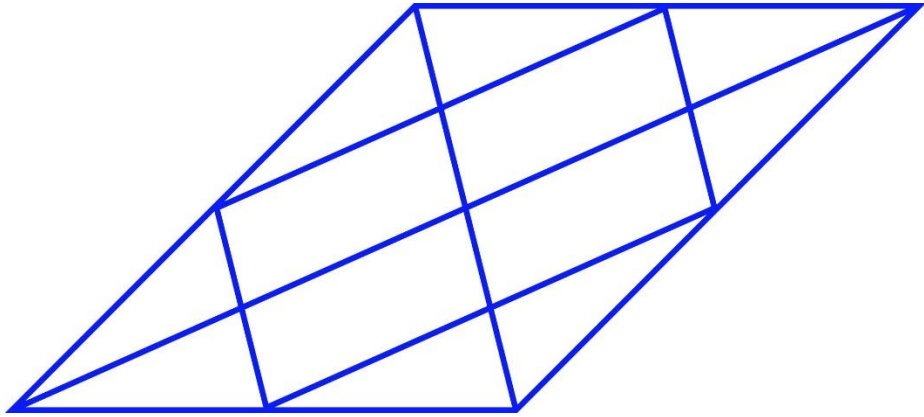
General Aptitude (GA)**Q.1 – Q.5 Carry ONE mark Each**

Q.1	Rafi told Mary, “I am thinking of watching a film this weekend.” The following reports the above statement in indirect speech: Rafi told Mary that he _____ of watching a film that weekend.
(A)	thought
(B)	is thinking
(C)	am thinking
(D)	was thinking

Q.2	Permit : _____ : : Enforce : Relax (By word meaning)
(A)	Allow
(B)	Forbid
(C)	License
(D)	Reinforce

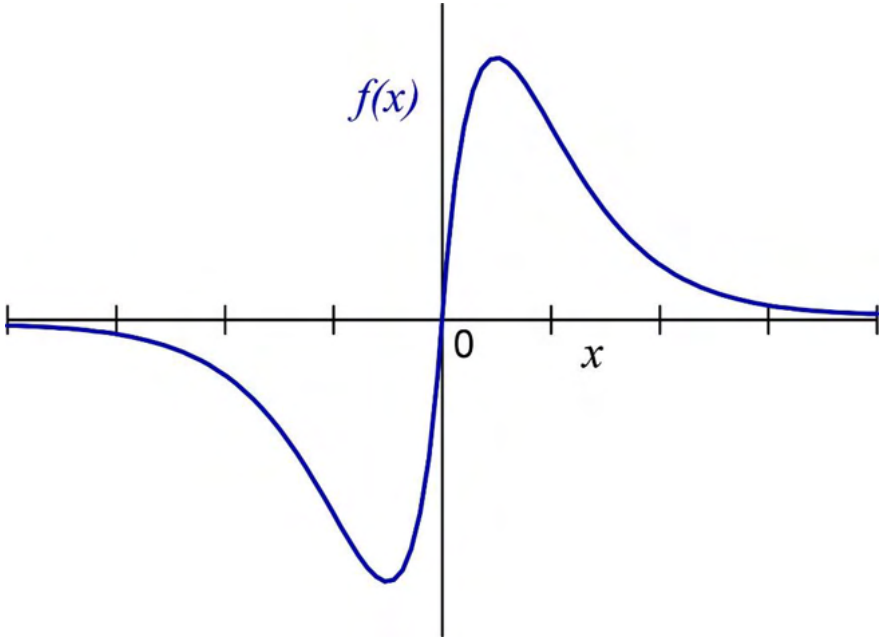
Q.3	Given a fair six-faced dice where the faces are labelled '1', '2', '3', '4', '5', and '6', what is the probability of getting a '1' on the first roll of the dice and a '4' on the second roll?
(A)	$\frac{1}{36}$
(B)	$\frac{1}{6}$
(C)	$\frac{5}{6}$
(D)	$\frac{1}{3}$

Q.4	A recent survey shows that 65% of tobacco users were advised to stop consuming tobacco. The survey also shows that 3 out of 10 tobacco users attempted to stop using tobacco. Based only on the information in the above passage, which one of the following options can be logically inferred with <i>certainty</i>?
(A)	A majority of tobacco users who were advised to stop consuming tobacco made an attempt to do so.
(B)	A majority of tobacco users who were advised to stop consuming tobacco did not attempt to do so.
(C)	Approximately 30% of tobacco users successfully stopped consuming tobacco.
(D)	Approximately 65% of tobacco users successfully stopped consuming tobacco.

Q.5	How many triangles are present in the given figure?
	
(A)	12
(B)	16
(C)	20
(D)	24

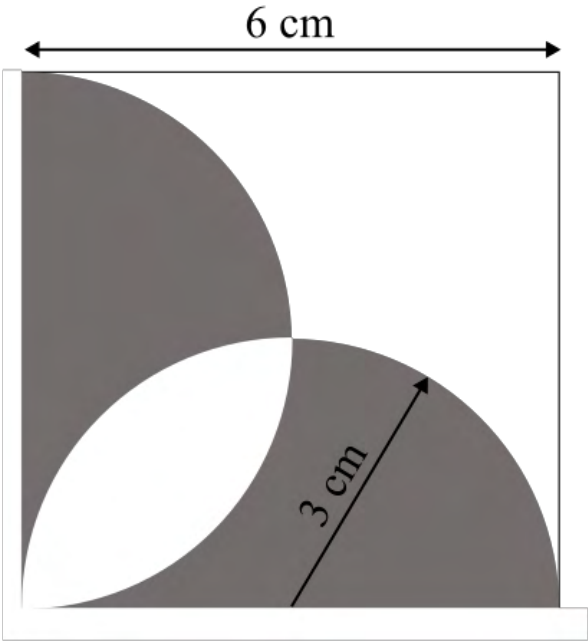
Q.6 – Q.10 Carry TWO marks Each

Q.6	Students of all the departments of a college who have successfully completed the registration process are eligible to vote in the upcoming college elections. However, by the time the due date for registration was over, it was found that suprisingly none of the students from the Department of Human Sciences had completed the registration process. Based only on the information provided above, which one of the following sets of statement(s) can be logically inferred with <i>certainty</i>? (i) All those students who would not be eligible to vote in the college elections would certainly belong to the Department of Human Sciences. (ii) None of the students from departments other than Human Sciences failed to complete the registration process within the due time. (iii) All the eligible voters would certainly be students who are not from the Department of Human Sciences.
(A)	(i) and (ii)
(B)	(i) and (iii)
(C)	only (i)
(D)	only (iii)

Q.7	Which one of the following options represents the given graph?
	
(A)	$f(x) = x^2 2^{- x }$
(B)	$f(x) = x 2^{- x }$
(C)	$f(x) = x 2^{-x}$
(D)	$f(x) = x 2^{-x}$

Q.8	Which one of the options does NOT describe the passage below or follow from it? We tend to think of cancer as a ‘modern’ illness because its metaphors are so modern. It is a disease of overproduction, of sudden growth, a growth that is unstoppable, tipped into the abyss of no control. Modern cell biology encourages us to imagine the cell as a molecular machine. Cancer is that machine unable to quench its initial command (to grow) and thus transform into an indestructible, self-propelled automaton. [Adapted from <i>The Emperor of All Maladies</i> by Siddhartha Mukherjee]
(A)	It is a reflection of why cancer seems so modern to most of us.
(B)	It tells us that modern cell biology uses and promotes metaphors of machinery.
(C)	Modern cell biology encourages metaphors of machinery, and cancer is often imagined as a machine.
(D)	Modern cell biology never uses figurative language, such as metaphors, to describe or explain anything.

Q.9	The digit in the unit's place of the product $3^{999} \times 7^{1000}$ is _____.
(A)	7
(B)	1
(C)	3
(D)	9

Q.10	A square with sides of length 6 cm is given. The boundary of the shaded region is defined by two semi-circles whose diameters are the sides of the square, as shown. The area of the shaded region is _____ cm^2.
	
(A)	6π
(B)	18
(C)	20
(D)	9π

Reasoning and Comprehension (XH-B1)**XH-B1: Q.11 – Q.17 Carry ONE mark Each**

Q.11	Which word below best describes the idea of being both <i>Spineless</i> and <i>Cowardly</i> ?
(A)	Pusillanimous
(B)	Unctuous
(C)	Obsequious
(D)	Reticent
Q.12	Choose the right preposition to fill up the blank: The whole family got together ____ Diwali
(A)	of
(B)	at
(C)	in
(D)	till

Q.13	Select the correct option to fill in all the blanks to complete the passage: The (i)_____ factor amid this turbulence has been the (ii)_____ of high-octane, action-oriented films such as RRR, K.G.F: Chapter 2 and Pushpa from film industries in the south of the country. Traditionally, films made in the south have done well in their own (iii) _____. But increasingly, their dubbed versions have performed well in the Hindi heartland, with collections (iv)_____ those of their Bollywood counterparts.
(A)	(i) disheartening (ii) failure (iii) channels (iv) matching
(B)	(i) redeeming (ii) outperformance (iii) geographies (iv) eclipsing
(C)	(i) shocking (ii) underperformance (iii) cinemas (iv) below
(D)	(i) humbling (ii) bombing (iii) theatres (iv) falling behind

Q.14	The following passage consists of 6 sentences. The first and sixth sentences of the passage are at their correct positions, while the middle four sentences (represented by 2, 3, 4, and 5) are jumbled up. Choose the correct sequence of the sentences so that they form a coherent paragraph: 1. Most obviously, mobility is taken to be a geographical as well as a social phenomenon. 2. Much of the social mobility literature regarded society as a uniform surface and failed to register the geographical intersections of region, city and place, with the social categories of class, gender and ethnicity. 3. The existing sociology of migration is incidentally far too limited in its concerns to be very useful here. 4. Further, I am concerned with the flows of people within, but especially beyond, the territory of each society, and how these flows may relate to many different desires, for work, housing, leisure, religion, family relationships, criminal gain, asylum seeking and so on. 5. Moreover, not only people are mobile but so too are many ‘objects’. 6. I show that sociology’s recent development of a ‘sociology of objects’ needs to be taken further and that the diverse flows of objects across societal borders and their intersections with the multiple flows of people are hugely significant.
(A)	3, 2, 5, 4
(B)	2, 3, 4, 5
(C)	5, 4, 3, 2
(D)	4, 2, 5, 3

Q.15	The population of a country increased by 5% from 2020 to 2021. Then, the population decreased by 5% from 2021 to 2022. By what percentage did the population change from 2020 to 2022?
(A)	-0.25%
(B)	0%
(C)	2.5%
(D)	10.25%
Q.16	The words Thin: Slim: Slender are related in some way. Identify the correct option(s) that reflect(s) the same relationship:
(A)	Fat: Plump: Voluptuous
(B)	Short: Small: Petite
(C)	Tall: Taller: Tallest
(D)	Fair: Dark: Wheatish

Q.17	A pandemic like situation hit the country last year, resulting in loss of human life and economic depression. To improve the condition of its citizens, the government made a series of emergency medical interventions and increased spending to revive the economy. In both these efforts, district administration authorities were actively involved. Which of the following action(s) are plausible?
(A)	In future, the government can make district administration authorities responsible for protecting health of citizens and reviving the economy.
(B)	The government may set up a task force to review the post pandemic situation and ascertain the effectiveness of the measures taken.
(C)	The government may set up a committee to formulate a pandemic management program to minimize losses to life and economy in future.
(D)	The government may take population control measures to minimize pandemic related losses in future.

XH-B1: Q.18 – Q.26 Carry TWO marks Each

Q.18	Six students, Arif, Balwinder, Chintu, David, Emon and Fulmoni appeared in the GATE-XH exam in 2022. Balwinder scores less than Chintu in XH-B1, but more than Arif in XH-C1. David scores more than Balwinder in XH-C1, and more than Chintu in XH-B1. Emon scores less than David, but more than Fulmoni in XH-B1. Fulmoni scores more than David in XH-C1. Arif scores less than Emon, but more than Fulmoni in XH-B1. Who scores highest in XH-B1?
(A)	Fulmoni
(B)	Emon
(C)	David
(D)	Chintu
Q.19	Select the correct relation between E and F.
	$E = \frac{x}{1+x}$ and $F = \frac{-x}{1-x}$ $x > 1$
(A)	$E > F$
(B)	$E < F$
(C)	$E = F$
(D)	$E < -F$

Q.20	A code language is formulated thus: Vowels in the original word are replaced by the next vowel from the list of vowels, A-E-I-O-U (For example, E is replaced by I and U is replaced by A). Consonants in the original word are replaced by previous consonant (For example, T is replaced by S and V is replaced by T). Then how does the word, GOODMORNING appear in the coded language?
(A)	HUUFNUSPOPH
(B)	FIICLIQMEMF
(C)	FUUCLUQMOMF
(D)	HEEDATTACRH

Q.21	The stranger is by nature no "owner of soil" -- soil not only in the physical, but also in the figurative sense of a life-substance, which is fixed, if not in a point in space, at least in an ideal point of the social environment. Although in more intimate relations, he may develop all kinds of charm and significance, as long as he is considered a stranger in the eyes of the other, he is not an "owner of soil." Restriction to intermediary trade, and often (as though sublimated from it) to pure finance, gives him the specific character of mobility. If mobility takes place within a closed group, it embodies that synthesis of nearness and distance which constitutes the formal position of the stranger. For, the fundamentally mobile person comes in contact, at one time or another, with every individual, but is not organically connected, through established ties of kinship, locality, and occupation, with any single one. What assumptions can be made about the stranger from the passage above?
(A)	The stranger can become an owner of soil through developing all kinds of charm in more intimate relations.
(B)	The stranger cannot become an owner of soil either in the physical or psychological sense.
(C)	The stranger can become an owner of soil through establishing ties of kinship and so on.
(D)	The stranger might become an owner of soil in the physical sense but not in the psychological

Q.22	L is the only son of A and S. S has one sibling, B, who is married to L's aunt, K. B is the only son of D. How are L and D related? Select the possible option(s):
(A)	Grandchild and Paternal Grandfather
(B)	Grandchild and Maternal Grandfather
(C)	Grandchild and Paternal Grandmother
(D)	Grandchild and Maternal Grandmother

Q.23	Five segments of a sentence are given below. The first and fifth segments are at their correct positions, while the middle three segments (represented by 2, 3, and 4) are jumbled up. Choose the correct order of the segments so that they form a coherent sentence: 1. Consumed multitudes are jostling and shoving inside me 2. and guided only by the memory of a large white bedsheet with a roughly circular hole some seven inches in diameter cut into the center, 3. clutching at the dream of that holey, mutilated square of linen, which is my talisman, my open-sesame, 4. I must commence the business of remaking my life from the point at which it really began, 5. some thirty-two years before anything as obvious, as present, as my clock-ridden, crime-stained birth.
(A)	2 – 3 – 4
(B)	3 – 2 – 4
(C)	4 – 2 – 3
(D)	4 – 3 – 2

Q.24	“I told you the truth,” I say yet again, “Memory’s truth, because memory has its own special kind. It selects, eliminates, alters, exaggerates, minimizes, glorifies, and vilifies also; but in the end it creates its own reality, its heterogeneous but usually coherent versions of events; and no sane human being ever trusts someone else’s version more than his own.” What are the different ways in which ‘truth’ can be understood from the passage?
(A)	Truth is what can be verified by hard empirical evidence.
(B)	Truth is based on what can be perceived by the senses.
(C)	Truth is the product of memory that is fallible, selective and slanted.
(D)	Truth is contingent on the observer and can only be partial.
Q.25	A firm needs both skilled labour and unskilled labour for the production of cloth. The wage of skilled labour is Rs. 40,000 per month, and that of unskilled labour is Rs. 15,000 per month. The total wage bill of the firm for the production of cloth is Rs. 23,75,000 in a month for 100 labour. How many skilled labour are employed by the firm (<i>in Integer</i>)?
Q.26	Select the odd word and write the option number as answer: (1) Lek (2) Zloty (3) Diner (4) Drachma (5) Real

Economics – C1

XH-C1: Q.27 – Q.44 Carry ONE mark Each

Q.27	An individual is endowed with income of Rs. 142 and has the utility function $U(x_1, x_2) = x_2(x_1 + 1)$, where $x_1 \geq 0$, $x_2 \geq 0$. The unit price of x_1 is Rs. 2 and the unit price of x_2 is Rs. 3. The utility maximizing bundle is
(A)	$x_1 = 35, x_2 = 20$
(B)	$x_1 = 30, x_2 = 24$
(C)	$x_1 = 35, x_2 = 24$
(D)	$x_1 = 30, x_2 = 20$
Q.28	The International Monetary Fund (IMF) began operations in the year
(A)	1942
(B)	1947
(C)	1945
(D)	1940

Q.29	According to the <i>Working Group on Money Supply: Analytics and Methodology of Compilation</i> (1998) constituted by the Reserve Bank of India (RBI), which of the following is NOT a component of the new monetary aggregate NM ₁ ?
(A)	Currency with the public
(B)	Demand deposits with the banking system
(C)	Short-term time deposits of residents
(D)	‘Other’ deposits with the RBI
Q.30	Stagflation is a situation when
(A)	both unemployment and inflation are low
(B)	both unemployment and inflation are high
(C)	unemployment is high but inflation is low
(D)	unemployment is low but inflation is high

Q.31	Consider the Keynesian consumption function $C = \alpha + \beta Y$, where C is the aggregate consumption, Y is the aggregate income, α is a constant ($\alpha > 0$), and β is the marginal propensity to consume ($0 < \beta < 1$). Then, the average propensity to consume is
(A)	α
(B)	$\frac{\alpha}{Y} + \beta$
(C)	$\alpha Y + \beta Y^2$
(D)	$\alpha + \frac{\beta}{Y}$
Q.32	An analyst regressed Y on X_1 and X_2 . If she later noticed that $X_1 = 5X_2$, then which of the following assumptions of the classical linear regression model was violated?
(A)	Homoscedasticity
(B)	No Perfect Multicollinearity
(C)	No Autocorrelation
(D)	Linearity in parameters

Q.33	Which of the following is NOT an example of non-tariff barriers?
(A)	Voluntary export restraint
(B)	A procurement law directing a government to buy domestically made products unless comparable foreign made products are substantially cheaper.
(C)	Imposition of sanitary and phytosanitary measures on agricultural produce.
(D)	An antidumping law
Q.34	Among the following, who first proposed that internal government debt does not create a burden for the future generation?
(A)	N. Gregory Mankiw
(B)	Martin Feldstein
(C)	Harvey S. Rosen
(D)	A. P. Lerner

Q.35	Which of the following is an example of direct tax?
(A)	Sales tax
(B)	Customs duty
(C)	Individual income tax
(D)	Excise tax
Q.36	In the context of endogenous growth theory, the Nobel laureate Paul Romer emphasized that “ideas” are
(A)	non-rival
(B)	rival with medium degree of excludability
(C)	rival with high degree of excludability
(D)	rival with low degree of excludability

Q.37	In the Human Development Index (HDI), the longevity is measured by
(A)	child survival rate
(B)	healthy life expectancy
(C)	disability-adjusted life years
(D)	life expectancy at birth
Q.38	Which of the following statements is correct about the Fourteenth Finance Commission?
(A)	The Commission was chaired by Dr. C. Rangarajan.
(B)	The Commission recommended achieving 90 percent metering of electricity by the end of the year 2012.
(C)	The Commission recommended an increase in the share of tax devolution to states to 42 percent of the divisible pool.
(D)	The Commission was mandated to make recommendations for the period 2010-2015.

Q.39	Many scholars consider the study conducted by Dandekar and Rath in the 1960s as the first systematic assessment of poverty in independent India. Which option from the following is NOT correct about the study?
(A)	The study used the data on monthly per capita consumption expenditure (MPCE) from the 1960-61 round of the National Sample Surveys.
(B)	The study used the identical calorie norm for rural and urban areas.
(C)	The poverty head count ratio estimated by the study was higher for rural areas than that for urban areas.
(D)	The study used the same poverty line for all states.
Q.40	Which of the following statements is/are correct about the Pradhan Mantri Kaushal Vikas Yojana (PMKVY)?
(A)	It has been a flagship scheme of the Ministry of Education.
(B)	It was launched in the year 2010.
(C)	The National Skill Development Corporation has been responsible for its implementation.
(D)	One of the objectives of PMKVY has been to enable a large number of Indian youth to take up industry-relevant skill training.

Q.41	Which of the following is/are used for testing the assumption of normality?
(A)	Shapiro-Wilk test
(B)	Breusch-Godfrey test
(C)	Jarque-Bera test
(D)	Park test
Q.42	Suppose Amar borrows Rs. 1000 from Ujala. After one year, Ujala wants Rs. 1100 back from Amar. The yield to maturity in percent (%) on this borrowing is _____ (<i>round off to one decimal place</i>).
Q.43	A 250 ml bottle of mango juice costs USD 4 in the United States. If the exchange rate is 0.02 USD per Rupee, then the cost of the same bottle of mango juice in Rupees would be _____ (<i>in integer</i>).

Q.44

The following table provides population information for different age groups in 2010 and 2017.

Age group	Population in 2010	Population in 2017
0 to 14 years	201630	213609
15 to 64 years	899210	847552
65 years and above	232450	254474

The percentage change in old-age dependency ratio from 2010 to 2017 is _____
(round off to two decimal places).

XH-C1: Q.45– Q.65 Carry TWO marks Each

Q.45	A firm in a market with perfect competition has the following total cost (TC) function: $TC(Q) = a + b(Q)$ where Q is the quantity produced by the firm, a is the fixed cost and $b(Q)$ is the variable cost. What will happen if the fixed cost increases?
(A)	In the short-run, the firm's Average Variable Cost (AVC) curve will shift upwards.
(B)	In the short-run, the firm's Average Total Cost (ATC) curve will shift upwards.
(C)	The firm will earn higher profits.
(D)	In the short-run, the firm's Marginal Cost (MC) curve will shift upwards.
Q.46	The emission of greenhouse gases is an example of "bads" that are
(A)	rival and excludable
(B)	non-rival and excludable
(C)	rival and non-excludable
(D)	non-rival and non-excludable

Q.47	Consider a closed-economy IS-LM model. The IS and LM equations are $Y = C(Y) + I(z) + \bar{G}$ $\frac{\bar{M}}{\bar{P}} = kY - li$ where Y is the output, C is the consumption ($C' > 0$), I is the investment ($I' < 0$), $z \equiv i - \pi^e$, i is the nominal interest rate, π^e is the expected inflation, $\bar{G}$ is the government purchases, $\frac{\bar{M}}{\bar{P}}$ is the fixed real money balances, and k and l are positive constants. Suppose everyone in the economy suddenly expects the inflation to rise in the future. Assuming that the LM curve remains unchanged, what will happen in the short-run?
(A)	Equilibrium Y increases.
(B)	Aggregate demand remains unchanged.
(C)	Equilibrium Y remains unchanged.
(D)	Aggregate demand shifts down.

Q.48	Consider the following simultaneous equations model: $Y_t = \beta_1 + \beta_2 X_t + \beta_3 X_{t-1} + \beta_4 Z_t + \mu_{1t} \quad (1)$ $Z_t = \delta_1 + \delta_2 Y_t + \delta_3 W_t + \mu_{2t} \quad (2)$ Before estimating the above model, a researcher performed the test of identification using order and rank conditions, and found that equation (2) is overidentified. Then, which of the following methods is appropriate to estimate equation (2) ?
(A)	Two-Stage Least Squares
(B)	Indirect Least Squares
(C)	Weighted Least Squares
(D)	Ordinary Least Squares

Q.49	An income tax system is considered as progressive if the average tax rate rises with income. Consider an income tax schedule: $T = p + tY$, where T denotes the tax liability, p is a constant, t is the constant marginal tax rate, and Y is the income. For this tax schedule to be progressive, the value of p
(A)	must be positive
(B)	must be negative
(C)	must be zero
(D)	can be any value except zero

Q.50

Match the following:

Demographic Transition Stage	Feature
I	P. High fertility and high mortality
II	Q. Declining fertility
III	R. Stationary population
IV	S. Declining mortality

(A)

$I \rightarrow P ; II \rightarrow Q ; III \rightarrow R ; IV \rightarrow S$

(B)

$I \rightarrow P ; II \rightarrow S ; III \rightarrow Q ; IV \rightarrow R$

(C)

$I \rightarrow R ; II \rightarrow S ; III \rightarrow Q ; IV \rightarrow P$

(D)

$I \rightarrow S ; II \rightarrow P ; III \rightarrow R ; IV \rightarrow Q$

Q.51

Consider two countries, India and Bangladesh, and two goods, Glass Bottle and Ceramic Plate, with labour requirements of production for a unit of each good given below:

Labour hours required per unit of production		
	Glass Bottle	Ceramic Plate
India	2 hours	3 hours
Bangladesh	3 hours	9 hours

Which of the following options is/are correct?

(A)

India has an absolute advantage in Glass Bottle production and a comparative disadvantage in Glass Bottle production.

(B)

India has an absolute advantage in Ceramic Plate production and a comparative disadvantage in Ceramic Plate production.

(C)

India has an absolute advantage in Ceramic Plate production and a comparative disadvantage in Glass Bottle production.

(D)

India has an absolute advantage in Glass Bottle production and a comparative disadvantage in Ceramic Plate production.

Q.52	Suppose the own price elasticity of demand and income elasticity of demand are given by e_p and e_I , respectively. The subscript p represents own price of a good and the subscript I represents the income of the consumer. Identify the correct statement(s) from the following.
(A)	If $1 < e_p < \infty$, the demand is price inelastic.
(B)	Luxury goods are more price inelastic and the necessities are price elastic.
(C)	Luxury goods have $e_I > 1$.
(D)	If $0 < e_p < 1$, the demand is price elastic.
Q.53	Let π^e be the expected inflation rate, i be the nominal interest rate and r be the real interest rate. Which of the following statements is/are correct?
(A)	For small values of r and π^e , $r \approx i - \pi^e$.
(B)	When real interest rate is low, there are greater incentives to borrow and fewer incentives to lend.
(C)	Real interest rate reflects the real cost of borrowing.
(D)	If $i = 8\%$ and $\pi^e = 10\%$, then r is approximately (+) 2%.

Q.54	Which of the following models explain(s) the upward-sloping aggregate supply curve in the short-run?
(A)	Sticky-wage model
(B)	Worker-misperception model
(C)	Imperfect-information model
(D)	Solow model

Q.55	Consider a Mundell-Fleming model for a small open economy with perfect capital mobility. The goods market equation is $Y = C(Y) + I(r^*) + G + NX(e)$ where Y is the output, C is the consumption ($C' > 0$), I is the investment ($I' < 0$), G is the government purchases, and NX is the net exports ($NX' < 0$), r^* is the fixed world interest rate, and e is the exchange rate. The money market equation is $\frac{M}{\bar{P}} = kY - lr^*$ where M is the money supply, $\bar{P}$ is the fixed price level, and k and l are positive constants. Which of the following policies is/are ineffective (i.e., have no impact on income) in the short-run?
(A)	Expansionary fiscal policy under floating exchange rate
(B)	Expansionary monetary policy under floating exchange rate
(C)	Expansionary fiscal policy under fixed exchange rate
(D)	Expansionary monetary policy under fixed exchange rate

Q.56	In the context of Balance of Payments accounting, which of the following transactions is/are NOT recorded under the Current Account?
(A)	Merchandise trade
(B)	Unilateral transfer payments
(C)	Purchase of international financial assets
(D)	Purchase of foreign currency by the central bank
Q.57	The demand and supply functions for a commodity are given by: $D(p) = 10 - 2p \text{ and } S(p) = -2 + p$ where $D(p)$ and $S(p)$ are the quantity demanded and supplied, respectively, and p (in USD) is the unit price of the good. If the government sets a price ceiling of USD 3 per unit, then the increase in consumer surplus (in USD) is _____ (round off to two decimal places).
Q.58	A duopoly faces the inverse market demand function $p = 120 - Q$, where p is the unit price (in Rs.) of the good being sold by firms A and B, and Q is the total output. Firm A has a constant marginal cost of Rs. 20, which is exactly half of firm B's constant marginal cost. There is no fixed cost for both the firms. If there exists a Cournot-Nash equilibrium, Q is _____ (in integer).

Q.59	Consider the following short-run cost function: $C(q) = 10q^3 - 80q^2 + 300q + 50$ At the minimum average variable cost (AVC), the value of marginal cost (MC) is _____ (in integer).
Q.60	Consider the Keynesian Cross Model with a linear consumption function and a zero tax, where the government purchase is Rs. 100 and the equilibrium income is Rs. 1300. If the government purchase is increased to Rs. 125, the equilibrium income increases to Rs. 1400. Using the given information, the marginal propensity to consume is _____ (round off to two decimal places).
Q.61	Using the Ordinary Least Squares (OLS) method, a researcher estimated the relationship between initial salary (S) of MBA graduates and their cumulative grade point average ($CGPA$) as $\hat{S}_i = \hat{\beta}_0 + \hat{\beta}_1 CGPA_i \quad ; \quad i = 1, 2, \dots, 100$ where $\hat{\beta}_0 = 4543$ and $\hat{\beta}_1 = 645.08$. The standard errors of $\hat{\beta}_0$ and $\hat{\beta}_1$ are 921.79 and 70.01, respectively. The t-statistic for testing the null hypothesis $\beta_1 = 0$ is _____ (round off to two decimal places).

Q.62	Let X be a random variable with the probability density function $f(x)$ such that $f(x) = \begin{cases} \frac{1}{2\sqrt{3}} & \text{if } -\sqrt{3} < x < \sqrt{3} \\ 0 & , \quad \text{otherwise.} \end{cases}$ Then, the variance of X is _____ (in integer).
Q.63	Suppose from the estimation of a linear regression model $Y_i = \beta_0 + \beta_1 X_i + e_i$ the residual sum of squares and the total sum of squares are obtained as 44 and 80, respectively. The value of coefficient of determination is _____ (round off to two decimal places).
Q.64	A labour-augmenting production function is $Y = K^{0.33} (A L)^{0.67}$ where Y = output, K = capital, L = labour, and A = technology. Assume that the growth rate of L is 1.2 percent per annum, the growth rate of K is 3 percent per annum, and the growth rate of A is 1.5 percent per annum. Using the growth-accounting approach, the growth rate of Y in percent per annum is _____ (round off to two decimal places).

Q.65	A monopolist is facing the demand function $Q = \frac{100}{(P-1)}$, where Q is the quantity demanded and P is the price per unit of the good ($P > 1$). The average variable cost for the monopolist is $\frac{4}{\sqrt{Q}}$ and the fixed cost is 10. The profit maximizing price is _____ (in integer).

END OF QUESTION PAPER

GATE 2022 General Aptitude (GA)

Q.1 – Q.5 Carry ONE mark each.

Q.1	Inhaling the smoke from a burning _____ could _____ you quickly.
(A)	tire / tier
(B)	tire / tyre
(C)	tyre / tire
(D)	tyre / tier

Q.2	A sphere of radius r cm is packed in a box of cubical shape. What should be the minimum volume (in cm^3) of the box that can enclose the sphere?
(A)	$\frac{r^3}{8}$
(B)	r^3
(C)	$2r^3$
(D)	$8r^3$



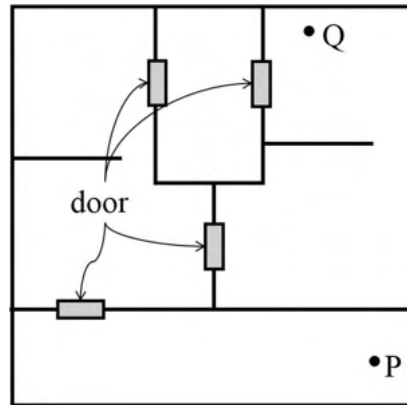
Q.3	Pipes P and Q can fill a storage tank in full with water in 10 and 6 minutes, respectively. Pipe R draws the water out from the storage tank at a rate of 34 litres per minute. P, Q and R operate at a constant rate. If it takes one hour to completely empty a full storage tank with all the pipes operating simultaneously, what is the capacity of the storage tank (in litres)?
(A)	26.8
(B)	60.0
(C)	120.0
(D)	127.5

Q.4	Six persons P, Q, R, S, T and U are sitting around a circular table facing the center not necessarily in the same order. Consider the following statements: • P sits next to S and T. • Q sits diametrically opposite to P. • The shortest distance between S and R is equal to the shortest distance between T and U. Based on the above statements, Q is a neighbor of
(A)	U and S
(B)	R and T
(C)	R and U
(D)	P and S

Q.5

A building has several rooms and doors as shown in the top view of the building given below. The doors are closed initially.

What is the minimum number of doors that need to be opened in order to go from the point P to the point Q?



(A) 4

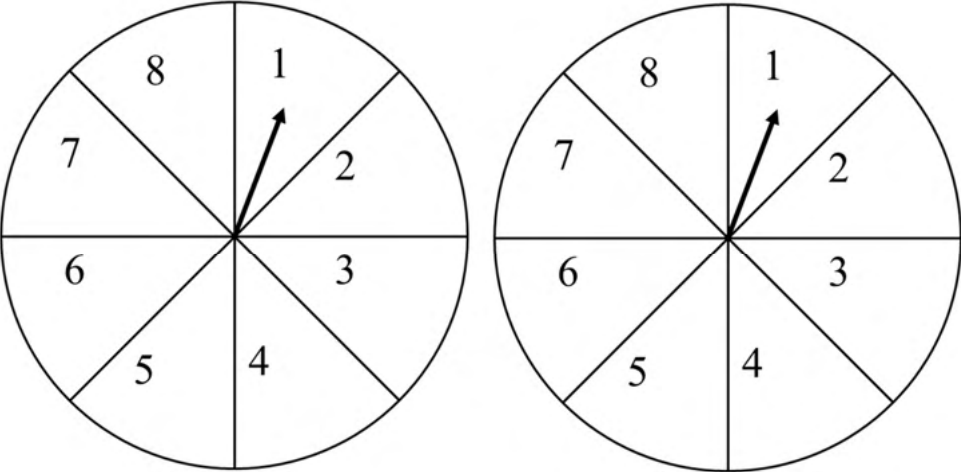
(B) 3

(C) 2

(D) 1

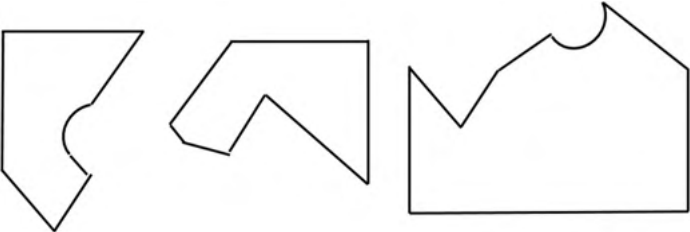
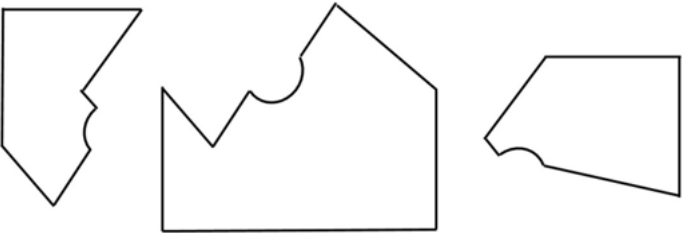
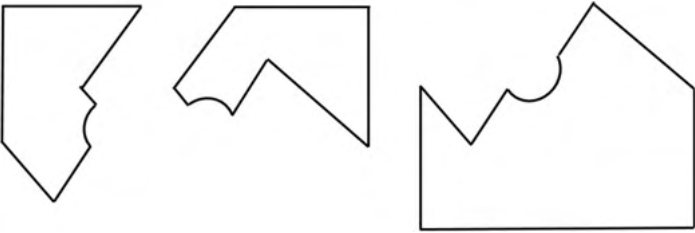
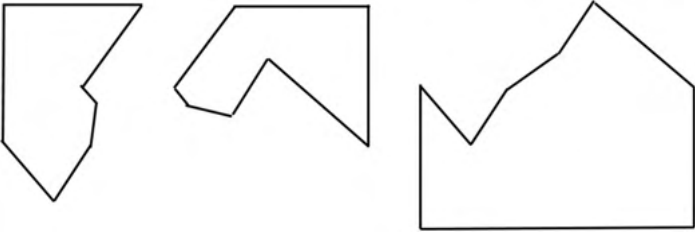
Q. 6 – Q. 10 Carry TWO marks each.

Q.6	Rice, a versatile and inexpensive source of carbohydrate, is a critical component of diet worldwide. Climate change, causing extreme weather, poses a threat to sustained availability of rice. Scientists are working on developing Green Super Rice (GSR), which is resilient under extreme weather conditions yet gives higher yields sustainably. Which one of the following is the CORRECT logical inference based on the information given in the above passage?
(A)	GSR is an alternative to regular rice, but it grows only in an extreme weather
(B)	GSR may be used in future in response to adverse effects of climate change
(C)	GSR grows in an extreme weather, but the quantity of produce is lesser than regular rice
(D)	Regular rice will continue to provide good yields even in extreme weather

Q.7	A game consists of spinning an arrow around a stationary disk as shown below. When the arrow comes to rest, there are eight equally likely outcomes. It could come to rest in any one of the sectors numbered 1, 2, 3, 4, 5, 6, 7 or 8 as shown. Two such disks are used in a game where their arrows are independently spun. What is the probability that the sum of the numbers on the resulting sectors upon spinning the two disks is equal to 8 after the arrows come to rest? 
(A)	$\frac{1}{16}$
(B)	$\frac{5}{64}$
(C)	$\frac{3}{32}$
(D)	$\frac{7}{64}$

Q.8	Consider the following inequalities. (i) $3p - q < 4$ (ii) $3q - p < 12$ Which one of the following expressions below satisfies the above two inequalities?
(A)	$p + q < 8$
(B)	$p + q = 8$
(C)	$8 \leq p + q < 16$
(D)	$p + q \geq 16$

Q.9	Given below are three statements and four conclusions drawn based on the statements. Statement 1: Some engineers are writers. Statement 2: No writer is an actor. Statement 3: All actors are engineers. Conclusion I: Some writers are engineers. Conclusion II: All engineers are actors. Conclusion III: No actor is a writer. Conclusion IV: Some actors are writers. Which one of the following options can be logically inferred?
(A)	Only conclusion I is correct
(B)	Only conclusion II and conclusion III are correct
(C)	Only conclusion I and conclusion III are correct
(D)	Either conclusion III or conclusion IV is correct

Q.10	Which one of the following sets of pieces can be assembled to form a square with a single round hole near the center? Pieces cannot overlap.
(A)	
(B)	
(C)	
(D)	

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

XH-B1: Q.11 – Q.17 Carry ONE mark Each

Q.11	A relationship is expressed as Iodine : Goitre . The pair(s) of words showing SIMILAR relationship is/are
	Space for Figure/Equation, if any:
(A)	Mango : Anaemia
(B)	Insulin : Diabetes
(C)	Fat : Obesity
(D)	Hormones : Heredity
Q.12	Three individuals are named P, Q, and R. Together they have a total of fifteen children of which nine are boys. P has three girls and Q has same number of boys. Q has one more child than P, who has four children. R has four more boys than the number of girls. The number of girls of R is equal to the number of boys of P. How many boys do R and P have?
	Space for Figure/Equation, if any:
(A)	$R = 3, P = 3$
(B)	$R = 4, P = 2$
(C)	$R = 5, P = 1$
(D)	$R = 2, P = 4$

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Q.13	A sentence has been given below. <i>The train will leave at 8:30 PM, we have been ready by 7:30 PM, so that we can reach the station on time.</i> To make the above sentence grammatically correct, the phrase marked in bold is to be replaced by
	Space for Figure/Equation, if any:
(A)	were
(B)	are
(C)	must be
(D)	should have
Q.14	Complete the sentence correctly using the options given below. Hastings ____ (p) ____ developed as a holiday resort after ____ (q) ____ .
	Space for Figure/Equation, if any:
(A)	(p) = a seaside town, (q) = the first world war
(B)	(p) = , a seaside town, (q) = the First World War
(C)	(p) = , a Seaside Town, (q) = World War I
(D)	(p) = A seaside town (q) = World War I

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Q.16	Tailgating another vehicle is unsafe and illegal. Many rear-end collisions are caused by drivers following too close to the vehicle in front of them. The rules state that a driver must keep significant distance from the vehicle in front in order to stop safely and avoid a collision. Drivers should allow a minimum two seconds gap between their vehicle and the one ahead. At 60 km per hour, this equates to a gap of 33 meters; at 100 km per hour, it equates to a gap of 55 meters. More distance is needed to safely stop in rain or poor visibility, as during rain slippery roads reduce the effectiveness of braking. Which of the following statement(s) can be inferred from the above passage?
	Space for Figure/Equation, if any:
(A)	People drive faster in rain and under poor visibility.
(B)	Braking may not be as effective during rain as in the dry conditions.
(C)	Tailgating is against the road rules.
(D)	Collision has no relationship with tailgating.
Q.17	There are three separate, but equal-sized boxes. Inside each box, there are two separate small boxes. Inside each of the small boxes, there are four even smaller boxes. The total number of boxes will be _____ .
	Space for Figure/Equation, if any:

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.18 – Q.26 Carry TWO marks Each

Q.18	In a specific language, <i>xer dan</i> means “big horse”, <i>liro cas</i> means “red tomato” and <i>dum cas dan</i> means “big red barn”. The equivalent word for barn in this language is
	Space for Figure/Equation, if any:
(A)	<i>dum</i>
(B)	<i>liro</i>
(C)	<i>dan</i>
(D)	<i>cas</i>
Q.19	Park street is parallel to Rock street. Garden street is perpendicular (90°) to Lake street. Lake street is parallel to Rock street. For the situation described above, the TRUE statement is
	Space for Figure/Equation, if any:
(A)	Park street is perpendicular to Lake street
(B)	Rock street is parallel to Garden street
(C)	Park street is parallel to Garden street
(D)	Garden street is perpendicular to Park street

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

[illegible]

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.21	A passage consists of 6 sentences. The first and sixth sentences of the passage are at their correct positions, while the middle four sentences (represented by P, Q, R, and S) are jumbled up. <i>First sentence:</i> Smoke oozed up between the planks. P: Passengers were told to be ready to quit the ship. Q: The rising gale fanned the smouldering fire. R: Everyone now knew there was fire onboard. S: Flames broke out here and there. <i>Sixth sentence:</i> Most people bore the shock bravely. The most logically CORRECT order for the given jumbled up sentences is
	Space for Figure/Equation, if any:
(A)	QSRP
(B)	QPSR
(C)	RSPQ
(D)	PQRS

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.22	For a painting to succeed, it is essential that the painter and his public agree about what is significant. The subject of the painting may have a personal meaning for the painter or a common person; but there can also be the possibility of their agreement on its general meaning. It is at this point that the culture of the society and the period in question precedes the artists and her/his art. Renaissance art would have meant nothing to the Aztecs, and vice versa. If, to some extent, a few intellectuals can appreciate them both today, it is because their culture is a historical one. Its inspiration is history and all known developments to date. According to the passage, which of the following is/are NOT necessarily among the attributes needed for a painter to succeed?
	Space for Figure/Equation, if any:
(A)	The subject must have a personal meaning for the painter.
(B)	The painter is able to communicate and justify the significance of its subject selection.
(C)	The painter and the public agree on what is significant.
(D)	The painting of the subjects is driven by public demand.

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

[illegible]

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.24	Cholera, typhoid, diphtheria and tuberculosis cause huge number of deaths. Poor quality drinking water has always been the world's greatest single carrier of sickness. Disease is transmitted when sewage and drinking water come into contact. Children are particularly vulnerable. In some of the poorest countries the infant mortality rate is high. The separation of sewage and the supply of clean drinking water are the domain of civil engineers, and their work makes a significant contribution to public health. That contribution was recognized when public sanitation was voted the greatest medical breakthrough, beating the discoveries including antibiotics and vaccines in a poll organized by the British Medical Journal. Identify the statement(s), which is/are NOT TRUE according to the passage.
	Space for Figure/Equation, if any:
(A)	Children are less prone to water borne diseases.
(B)	The infant mortality rate was high in economically weaker countries.
(C)	The provision of sewage and drinking water should be adequately separated from each other.
(D)	The literature states that the public health and sanitation was never given its due importance.

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q. 25	Shark's teeth have evolved to correspond to the diet of each particular species of shark. Consequently, the teeth of the great white shark bear little resemblance to those of the bull shark or nurse shark. There were essentially four different shark diets and thus four varieties of shark teeth. Sharks that feed on fish have needle like teeth, perfect for spearing and ripping. Sharks that eat mammals such as seals and sea lions have heavy, serrated teeth, typically triangular on the upper jaw and pointed on the lower jaw. Shark that feed in the benthic zone of the ocean have flattened teeth for crushing the shell of the creatures they find scuttling in the sand or clinging to rocks. Sharks that bask have teeth that are largely non-functional; these sharks filter food from the water by passing it through their gills. Which of the following is/are the CORRECT inference(s) as per the passage?
	Space for Figure/Equation, if any:
(A)	Shark's teeth are not specially designed for slaughter.
(B)	The shape of the shark's teeth relates to its prey.
(C)	Some species of sharks filter food through their gills.
(D)	Shark's teeth relate to its diet.

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q. 26	A particular school management wants to contact all parents, all businessmen and all engineers. The following statistics are available with the school. Businessmen = 50 Engineers = 25 Parents = 2500 Businessmen who are engineers = 0 Businessmen who are parents = 25 Engineers who are parents = 15 The number of people needs to be contacted are _____ .
	Space for Figure/Equation, if any:

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

XH-C1 (Q.27 – Q.35 Carry ONE mark Each)

Q.27	Suppose that a firm has a technology represented by the following production function: $Y(K, L) = K^x L^y$ where K denotes capital, L denotes labour, Y denotes the maximum output that is possible to produce using capital K and labour L. x and y are two positive real numbers. It is also known that the production function satisfies constant returns to scale. Then which of the following is true?
(A)	$x + y = 0.5$
(B)	$x + y = 1$
(C)	$x + y = 1.5$
(D)	$x + y = 2$
Q.28	The Human Development Index (HDI), as reported by the United Nations Development Program, is based on three components. Two of these components are per-capita income and a measure of educational attainment of society. The third component is
(A)	Gini coefficient
(B)	percentage of population who have access to safe drinking water
(C)	percentage of population who work in non-agricultural sector
(D)	life expectancy at birth

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.29	Suppose we estimate the following regression equation: $\ln(x_t) = \alpha_0 + \alpha_1 \ln(y_t) + \varepsilon_t, \quad \alpha_0, \alpha_1 > 0$ where x_t and y_t are some variables. α_0 and α_1 are the intercept and the slope, respectively. ε_t is the residual term. What is the interpretation of the coefficient α_1?
(A)	A 1% increase in y_t causes a $\alpha_1\%$ increase in x_t
(B)	A 1% increase in y_t causes a $\alpha_1 \times 0.01$ unit increase in x_t
(C)	A one unit increase in y_t causes a $100 \times \alpha_1\%$ increase in x_t
(D)	A one unit increase in y_t causes a α_1 unit increase in x_t
Q.30	Consider the following system of equations in three variables x, y, z: $\begin{aligned} -x - y - z &= 3 \\ x + y + z &= 10 \\ 2x - 3y &= 6 \end{aligned}$ This system of equations has
(A)	no combination of values of (x, y, z) that satisfy this system simultaneously
(B)	only one combination of values of (x, y, z) that satisfy this system simultaneously
(C)	only two combinations of values of (x, y, z) that satisfy this system simultaneously
(D)	infinitely many combinations of values of (x, y, z) that satisfy this system simultaneously

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.31	Which of the following models appropriately explains the fluctuations in potential output and long-run aggregate supply by understanding the shocks to productivity or the willingness of the worker?
(A)	Solow growth model
(B)	Real business cycle model
(C)	IS-LM model
(D)	Harrod-Domar Model
Q.32	The change in equilibrium output for an equal amount of change in government expenditure and tax revenue is linked to which one of the following multipliers?
(A)	Expenditure multiplier
(B)	Balanced Budget multiplier
(C)	Lum-sum tax multiplier
(D)	Trade multiplier

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.33	Solaris is a firm that can install solar panels at an airport to generate electricity for the airport's usage. The company claims that in 70 percent of all airports where its solar panels are installed, an airport's electricity bill is reduced by at least 40 percent. The probability that an airport's electricity bill is reduced by at least 40 percent, in seven out of ten airports where the company's solar panels are installed, equals approximately:
(A)	0.082
(B)	0.002
(C)	0.490
(D)	0.267
Q.34	IndiaSMart is a retail shop that accepts either a Rupay credit card, or a Visa credit card. 31 percent of IndiaSMart's customers carry a Rupay credit card, 44 percent of its customers carry a Visa credit card, while 18 percent of its customers carry a Rupay credit card as well as a Visa credit card. What is the probability that a customer carries at least one of the two, i.e. either a Rupay or a Visa credit card?
(A)	0.75
(B)	0.93
(C)	0.57
(D)	0.49

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.35	What is the user cost of capital for a firm when the rate of depreciation of machine is 20% and the cost of financial capital is 15%?
(A)	37%
(B)	50%
(C)	35%
(D)	31%
Q.36	Which among the following Gini coefficients exhibits the highest equality?
(A)	0.1
(B)	0.2
(C)	0.5
(D)	0.6

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.37	Let $f(x, y)$ be a continuously differentiable homogenous function of degree 4. Which of the following is necessarily true?
(A)	$x \frac{\partial f(x, y)}{\partial x} + y \frac{\partial f(x, y)}{\partial y} = f(x, y)$
(B)	$x \frac{\partial f(x, y)}{\partial x} + y \frac{\partial f(x, y)}{\partial y} = 2f(x, y)$
(C)	$x \frac{\partial f(x, y)}{\partial x} + y \frac{\partial f(x, y)}{\partial y} = 4f(x, y)$
(D)	$x \frac{\partial f(x, y)}{\partial x} + y \frac{\partial f(x, y)}{\partial y} = 8f(x, y)$
Q.38	Which of the following committees was set-up to address issues related to capital account convertibility in India?
(A)	Tandon Committee
(B)	Abid Hussain Committee
(C)	Tarapore Committee
(D)	Percy Mistry Committee

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.39	The demand curve for tea in Borduria is given by $D(P) = 40 - 2P$ and the domestic supply curve of tea in Borduria is given by $S(P) = \frac{2}{3}P$ Here $D(P)$ denotes quantity demanded when price is P and $S(P)$ is quantity supplied by domestic producers at price P. Tea is traded in a competitive world market and imported into Borduria at a price of 9 per unit. Initially there was no restriction on trade. However, as a result of lobbying by the domestic suppliers, the Bordurian government imposes a tariff of 3 per unit on each unit imported. As a result of the tariff, import of tea decreased by how many units?
(A)	2
(B)	3
(C)	8
(D)	9
Q.40	Bretton Woods agreement gave birth to the following organization:
(A)	GATT
(B)	RBI
(C)	NAFTA
(D)	ASEAN

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.41	Which one of the following is a test of heteroscedastity?
(A)	White test
(B)	Jarque-Bera test
(C)	Breusch-Godfrey test
(D)	Ljung-box test
Q.42	The law that explains the relationship between income growth and the size of government expenditure is appropriately linked to:
(A)	Wagner's law
(B)	Okun's law
(C)	Walras law
(D)	Ricardian equivalence
Q.43	As per recent Economic Survey, how many states and Union Territories (UTs) are driven by services sector in India?
(A)	15
(B)	19
(C)	25
(D)	21

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.44	An economy is characterized by the following production function: $Y = AK^{0.25}L^{0.75}$ where K denotes capital, L denotes labour, A denotes the total factor productivity and Y denotes output produced. All capital and labour are fully employed. Suppose that the growth rate of labour is 1%, the growth rate of capital is 4%, and the growth rate of output is 4%. The growth rate of total factor productivity A is
(A)	1.5 %
(B)	1.75%
(C)	2.25%
(D)	2.5%

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.45 – Q.65 Carry TWO marks Each

Q.45	Suppose a firm has the following production function: $f(x_1, x_2, x_3, x_4) = \min\{x_1, x_2\} + \min\{x_3, x_4\}$ The per unit cost of input x_i is given by w_i, where $i = 1, 2, 3, 4$. Suppose that $w_1 = 1$, $w_2 = 5$, $w_3 = 3$, and $w_4 = 6$. If the firm is minimizing cost, which of the following input choices by the firm can be observed?
(A)	$x_1 > 0, x_2 = 0, x_3 > 0, x_4 = 0$
(B)	$x_1 > 0, x_2 > 0, x_3 = 0, x_4 = 0$
(C)	$x_1 > 0, x_2 = 0, x_3 = 0, x_4 > 0$
(D)	$x_1 = 0, x_2 = 0, x_3 > 0, x_4 > 0$
Q.46	Suppose an econometrician had specified the following regression: $y_t = \beta_1 + \beta_2 z_{2t} + \beta_3 z_{3t} + \beta_4 z_{4t} + \varepsilon_t$ but a researcher estimated the following regression: $y_t = \beta_1 + \beta_2 z_{2t} + \beta_3 z_{3t} + \beta_4 z_{4t} + \beta_5 z_{5t} + \varepsilon_t$ What will be the consequence of including the irrelevant variable on the estimated coefficients?
(A)	Coefficient estimates will be unbiased, consistent but inefficient
(B)	Coefficient estimates will be consistent, asymptotically efficient but biased
(C)	Coefficient estimates will be inconsistent and efficient
(D)	Coefficient estimates will be biased, consistent and efficient

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.47	Okun's law says that a 1% increase in unemployment for one year is associated with a 2% decrease in GDP growth. Suppose an economy has the following expectations augmented Phillips curve: $\pi = \pi^e - \beta(U - U^N), \beta > 0$ where π and π^e are the inflation and expected inflation rates, respectively. U and U^N are the unemployment and natural rate of unemployment, respectively. β measures sensitivity of inflation to unemployment gap. When $\beta = 2$, by what percentage does output fall short of full-employment given that the inflation rate, expected inflation rate and natural rate of unemployment are 8%, 10% and 6%, respectively?
(A)	2
(B)	4
(C)	6
(D)	8
Q.48	Let $f(x)$ be the probability distribution function of a random variable X, where $f(x) = (5x^4/64) \quad \text{if } -2 < x < 2$ $= 0 \quad \text{otherwise}$ Let $\cdot$ denote the modulus function. Then, $P(X < 1)$ and $P(X^2 < 3)$ are given by (respectively):
(A)	$(1/32)$ and $9(\sqrt{3}/32)$
(B)	$(5/64)$ and $5(\sqrt{3}/32)$
(C)	$(1/64)$ and $(\sqrt{3}/32)$
(D)	$2(\sqrt{3}/32)$ and $(1/32)$

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.49	Liquidity Adjustment Facility (LAF) uses the following instruments:
(A)	Call Money Rate and Mumbai Inter-bank Offered Rate
(B)	Repo Rate and Reverse Repo Rate
(C)	Bank Rate and Statutory Liquidity Ratio
(D)	Cash Reserve Ratio and Prime Lending Rate
Q.50	What is the weightage of manufacturing sector in the Index of Industrial Production (IIP) during 2020-2021? <i>Note: numbers are in approximate values</i>
(A)	78%
(B)	81%
(C)	65%
(D)	71%

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.51	The curve that explains the relationship between tax rate and tax revenue is known as:
(A)	Laffer curve
(B)	Engle curve
(C)	Beveridge curve
(D)	Phillips curve
Q.52	Suppose the estimated consumption equation of an economy is: $C = 40 + \beta Y_d$ where Y_d is the personal disposable income, β is the marginal propensity to consume (MPC). Government expenditure (G) is given as 90. Total tax (T_x) received is δY, where Y is aggregate output or real income and δ is tax to real income proportionality factor. Autonomous investment (I_A) is given as 80. What are the tax revenue and budget surplus of the government when $\beta = 0.75$ and $\delta = 0.20$? All units are measured in constant rupees.
(A)	Tax revenue = Rs. 105 and surplus = Rs. 15
(B)	Tax revenue = Rs. 118 and surplus = Rs. 28
(C)	Tax revenue = Rs. 110 and surplus = Rs. 20
(D)	Tax revenue = Rs. 125 and surplus = Rs. 35

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.53	Consider a two-period consumption model in which a representative household lives for two periods only. In period 1, he earns income y_1 and consumes c_1. In period 2, he earns y_2 and consumes c_2. He can borrow and lend at the same rate of interest (r). His lifetime utility function is as follows: $U(c_1, c_2) = \ln(c_1) + \beta \ln(c_2)$ where $\beta > 0$ measures the sensitivity of future period's consumption. What will be the marginal propensity to consume of current consumption, i.e. $\frac{\partial c_1}{\partial y_1}$?
(A)	$\frac{1}{1 + \beta}$
(B)	$\frac{1}{1 + \beta^2}$
(C)	$\frac{y_1}{1 + \beta}$
(D)	$\frac{y_1}{1 + \beta^2}$

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q. 54	Suppose an investigator has specified the following simultaneous equation model: $y_{1,t} = \alpha_{1,0} + \alpha_{1,2}y_{2,t} + \alpha_2M_t + \alpha_3K_t + u_t \quad (1)$ $y_{2,t} = \alpha_{2,0} + \alpha_{2,1}y_{1,t} + \alpha_3I_t + v_t \quad (2)$ where $y_{1,t}$ and $y_{2,t}$ are endogenous variables. M_t, K_t and I_t are predetermined variables. u_t and v_t are residual terms. Based on the order condition of identification, which one of the following statements are correct?
(A)	Equations (1) and (2) are exactly identified
(B)	Equation (1) is exactly identified and equation (2) is over-identified
(C)	Equation (1) is over-identified and equation (2) is exactly identified
(D)	Both the equations are under-identified

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.55	There are two regions in a country. The demand for chocolates in region 1 is given by $Q_1(P) = 100 - P$ and the demand for chocolates in region 2 is given by $Q_2(P) = 200 - P$ where $Q_1(P)$ and $Q_2(P)$ denote the demand for chocolates in region 1 and 2 respectively at a price P. There is only one seller who is licensed to sell chocolates in the country. Suppose the seller sets a price of $P = 125$. The total demand for chocolates in the country at this price is
(A)	50
(B)	75
(C)	100
(D)	125

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.56	A producer manufactures batteries by using techniques I and II. The capacities (in ampere hours) of 12 randomly selected batteries manufactured by using technique I are: 140, 132, 136, 142, 138, 150, 154, 150, 152, 136, 144 and 142. Moreover, the capacities (in ampere hours) of 14 randomly selected batteries manufactured by using technique II are: 144, 134, 132, 130, 136, 146, 140, 128, 131, 128, 150, 137, 130 and 135. Suppose that battery capacities manufactured by using techniques I and II are normally distributed, with unknown means, μ_I and μ_{II} respectively, and an unknown common variance σ^2. Consider the null hypothesis $H_0: (\mu_I - \mu_{II}) = \gamma$ ampere hours. For which of the following values of γ should the null hypothesis H_0 be accepted, against the alternative hypothesis $H_1: (\mu_I - \mu_{II}) \neq \gamma$ ampere hours, at 10% level of significance? Note that if Z is a standard normal variate, then: $P(Z \leq 1.282) = 0.900$, $P(Z \leq 1.645) = 0.950$, $P(Z \leq 1.960) = 0.975$ and $P(Z \leq 2.326) = 0.990$ Further, if a random variable T follows the Student's t-distribution, with degrees of freedom r, then the α-percentile values $t_{\alpha,r}$ for various values of α and r are given by (where $P(T \leq t_{\alpha,r}) = \alpha$): $t_{0.90,24} = 1.318$, $t_{0.90,25} = 1.316$, $t_{0.90,26} = 1.315$, $t_{0.95,24} = 1.711$, $t_{0.95,25} = 1.708$, $t_{0.95,26} = 1.706$, $t_{0.975,24} = 2.064$, $t_{0.975,25} = 2.060$, $t_{0.975,26} = 2.056$.
(A)	$\gamma = 4$
(B)	$\gamma = 7$
(C)	$\gamma = 10$
(D)	$\gamma = 13$

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.57	Tom and Jerry both arrive at a petrol pump. Without worrying about price, Tom says, "I want 10 liters of petrol." Also, without worrying about price, Jerry says, "I want petrol worth 1000 rupees." The own price elasticities of demand for Tom (denoted by ε_T) and Jerry (denoted by ε_J) are:
(A)	$\varepsilon_T = 0, \varepsilon_J = -\infty$
(B)	$\varepsilon_T = 0, \varepsilon_J = -1$
(C)	$\varepsilon_T = -\infty, \varepsilon_J = 0$
(D)	$\varepsilon_T = -1, \varepsilon_J = 0$
Q.58	Which of the following variables are pushed upwards by 'Seigniorage'?
(A)	Money supply
(B)	Inflation
(C)	Tax rate
(D)	Interest rate

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.59	Suppose Raju enters the job market at age 25 and earns annual income of Rs. 6000. He retires at age 65 and his life expectancy is 75 years. He does not own any assets. Assume that Raju consumes annual income uniformly over his lifetime. What will be his average propensity to consume during employment years?
(A)	0.90
(B)	0.80
(C)	0.50
(D)	0.40
Q.60	A monopolist faces the following inverse demand function: $P = 40 - Q,$ where P denotes price and Q denotes quantity. The monopolist has zero fixed cost and a marginal cost of 5 per unit of output produced. The monopolist aims to maximize profit. Suppose the government imposes a tax of 5 per unit of output on the monopolist. As a result, the price charged by the profit-maximizing monopolist to the consumer increases by:
(A)	0
(B)	2.5
(C)	5
(D)	10

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.61	In the flexible exchange rate environment with perfect capital mobility, a fiscal stimulus will be linked to which of the following statements?
(A)	Fiscal policy increases the domestic outcome
(B)	Fiscal policy does not increase the domestic output
(C)	Fiscal policy leads domestic exports to fall
(D)	Fiscal policy appreciates the domestic currency

Q.62	Consider a lottery with two possible outcomes: • Rupees 100 with probability 0.6 • Rupees 50 with probability 0.4 The maximum amount that a risk-neutral person would be willing to pay to play the above lottery equals Rupees _____(in integer).
Q.63	Mr. Sharma's consumption preference for tea (denoted by x) and sugar (denoted by y) is given by the utility function $U(x, y) = \min\{x, 2y\}$ The price per unit of tea is 10 and the price per unit of sugar is 10. Mr. Sharma's total income is 900. The optimum quantity of tea purchased by Mr. Sharma equals _____(in integer).

GATE 2022 Humanities and Social Sciences - Economics (XH-C1)

Q.64	Suppose α is a real number between 0 and 1. Rohit is choosing x and y to maximize the following utility function: $U(x, y) = x^2 + 2xy + y^2 + 4\alpha^2 + 8\alpha + 10$ subject to the following constraints: $2x + y = 10,$ $x, y \geq 0$ Then the optimal value of y chosen by Rohit is _____ (in integer).
Q.65	In a competitive market for dry-cleaning, the inverse market demand function is given by $P = 100 - Q$ where P denotes price and Q denotes quantity. The (private) marginal cost (MC) of production for all the dry-cleaning firms together is given by $MC = 20 + 2Q$ The market pollution generated by the dry-cleaning processes of all firms creates external damages given by the marginal external cost (MEC): $MEC = 2Q$ The socially efficient output of dry-cleaning is _____ (in integer).



General Aptitude (GA)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	Consider the following sentences: (i) After his surgery, Raja hardly could walk. (ii) After his surgery, Raja could barely walk. (iii) After his surgery, Raja barely could walk. (iv) After his surgery, Raja could hardly walk. Which of the above sentences are grammatically CORRECT?
(A)	(i) and (ii)
(B)	(i) and (iii)
(C)	(iii) and (iv)
(D)	(ii) and (iv)

Q.2	Ms. X came out of a building through its front door to find her shadow due to the morning sun falling to her right side with the building to her back. From this, it can be inferred that building is facing _____
(A)	North
(B)	East
(C)	West
(D)	South



Q.3	In the above figure, O is the center of the circle and, M and N lie on the circle. The area of the right triangle MON is 50 cm^2. What is the area of the circle in cm^2 ?
(A)	2π
(B)	50π
(C)	75π
(D)	100π

Q.4	If $\begin{cases} \text{"}\oplus\text{" means "}-\text{"}, \\ \text{"}\otimes\text{" means "}\div\text{"}, \\ \text{"}\Delta\text{" means "}\text{+}\text{"}, \\ \text{"}\nabla\text{" means "}\times\text{"}, \end{cases}$ then, the value of the expression $\Delta 2 \oplus 3 \Delta ((4 \otimes 2) \nabla 4) =$
(A)	-1
(B)	-0.5
(C)	6
(D)	7



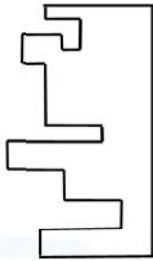
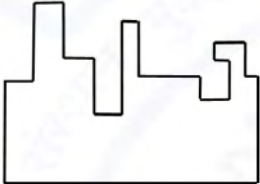
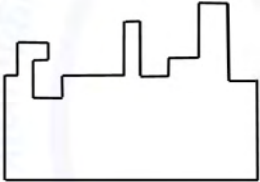
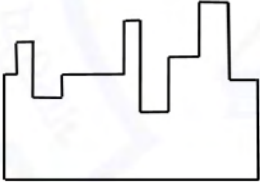
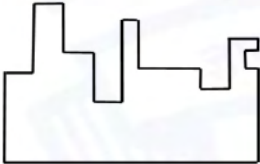
Q.5	“The increased consumption of leafy vegetables in the recent months is a clear indication that the people in the state have begun to lead a healthy lifestyle” Which of the following can be logically inferred from the information presented in the above statement?
(A)	The people in the state did not consume leafy vegetables earlier.
(B)	Consumption of leafy vegetables may not be the only indicator of healthy lifestyle.
(C)	Leading a healthy lifestyle is related to a diet with leafy vegetables.
(D)	The people in the state have increased awareness of health hazards causing by consumption of junk foods.



Q. 6 – Q. 10 Multiple Choice Question (MCQ), carry TWO marks each (for each wrong answer: – 2/3).

Q.6	Oxpeckers and rhinos manifest a symbiotic relationship in the wild. The oxpeckers warn the rhinos about approaching poachers, thus possibly saving the lives of the rhinos. Oxpeckers also feed on the parasitic ticks found on rhinos. In the symbiotic relationship described above, the primary benefits for oxpeckers and rhinos respectively are,
(A)	Oxpeckers get a food source, rhinos have no benefit.
(B)	Oxpeckers save their habitat from poachers while the rhinos have no benefit.
(C)	Oxpeckers get a food source, rhinos may be saved from the poachers.
(D)	Oxpeckers save the lives of poachers, rhinos save their own lives.



Q.7	 A jigsaw puzzle has 2 pieces. One of the pieces is shown above. Which one of the given options for the missing piece when assembled will form a rectangle? The piece can be moved, rotated or flipped to assemble with the above piece.
(A)	
(B)	
(C)	
(D)	

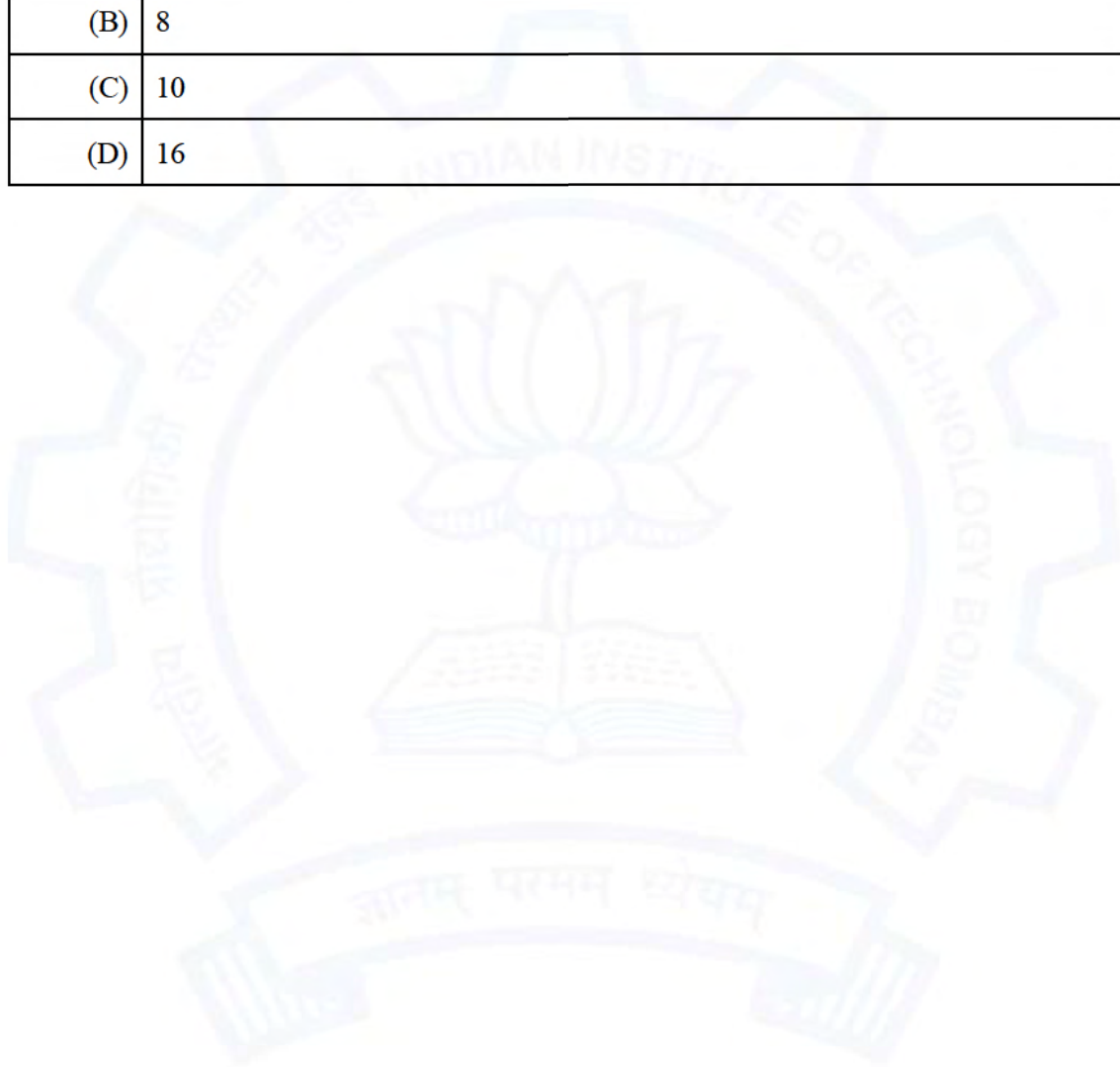


Q.8	The number of hens, ducks and goats in farm P are 65, 91 and 169, respectively. The total number of hens, ducks and goats in a nearby farm Q is 416. The ratio of hens:ducks:goats in farm Q is 5:14:13. All the hens, ducks and goats are sent from farm Q to farm P. The new ratio of hens:ducks:goats in farm P is _____
(A)	5:7:13
(B)	5:14:13
(C)	10:21:26
(D)	21:10:26

Q.9	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Company</th><th>Ratio</th></tr> </thead> <tbody> <tr> <td>C1</td><td>3:2</td></tr> <tr> <td>C2</td><td>1:4</td></tr> <tr> <td>C3</td><td>5:3</td></tr> <tr> <td>C4</td><td>2:3</td></tr> <tr> <td>C5</td><td>9:1</td></tr> <tr> <td>C6</td><td>3:4</td></tr> </tbody> </table> The distribution of employees at the rank of executives, across different companies C1, C2, ..., C6 is presented in the chart given above. The ratio of executives with a management degree to those without a management degree in each of these companies is provided in the table above. The total number of executives across all companies is 10,000. The total number of management degree holders among the executives in companies C2 and C5 together is _____.	Company	Ratio	C1	3:2	C2	1:4	C3	5:3	C4	2:3	C5	9:1	C6	3:4
Company	Ratio														
C1	3:2														
C2	1:4														
C3	5:3														
C4	2:3														
C5	9:1														
C6	3:4														
(A)	225														
(B)	600														
(C)	1900														
(D)	2500														



Q. 10	Five persons P, Q, R, S and T are sitting in a row not necessarily in the same order. Q and R are separated by one person, and S should not be seated adjacent to Q. The number of distinct seating arrangements possible is:
(A)	4
(B)	8
(C)	10
(D)	16





Reasoning and Comprehension (XH-B1)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	According to a recent article in a medical journal, consuming curcumin (from turmeric) significantly lowers the risk of COVID-19. The researchers draw this conclusion from a study that found that people who consumed one or more teaspoons of curcumin extract everyday were half as likely to be diagnosed with the disease as people who did not consume curcumin. Which of the following, if true, most weakens the argument in the article?
(A)	In another study, people who were given a zinc supplement everyday were more than four times less likely to be diagnosed with COVID-19 as those who did not.
(B)	All the participants in this study were from the same state where no other spices or herbs are consumed.
(C)	The participants who consumed curcumin were also more likely to exercise than those who did not.
(D)	In another study, COVID-19 patients who were given curcumin were no more likely to recover than others.

Q.2	Froot Inc. carried out an internet advertisement campaign for its new beverage CocoLoco. After the campaign, the director of the advertising company conducted a survey and found that the CocoLoco sales were higher than that of TenderJoos a competing product from Joos Inc. The agency concluded that the internet advertising campaign is more effective than advertising through other media. Which of the following statements could strengthen the conclusion above by the agency?
(A)	A ₹2 discount was offered on CocoLoco during the campaign period.
(B)	CocoLoco sales were higher than those of TenderJoos before the internet campaign.
(C)	A newspaper advertisement campaign the previous year did not increase CocoLoco sales.
(D)	During the campaign for CocoLoco, Joos Inc. did not advertise TenderJoos at all.



Q.3	An e-commerce site offered a deal last month conditional on the customer spending a minimum of ₹500. Any customer who buys 2 kg of fresh fruit will receive a hand mixer and any customer who buys 2 kg of fresh vegetables will receive a vegetable chopper. Which of the following is NOT a possible outcome of the above?
(A)	A customer purchased 3 kg of fresh fruit and did not receive a vegetable chopper.
(B)	A customer purchased items for ₹500 which included 1 kg of vegetables and received a hand mixer.
(C)	A customer purchased items for ₹500 which included 2 kg of vegetables and 1 kg of fruit and received a hand mixer.
(D)	A customer purchased items for ₹300 which included 2 kg of fruit and received neither a hand mixer nor a vegetable chopper.

Q.4	Writers of detective fiction often include an incompetent detective as a foil for the brilliant investigator-protagonist as they follow different paths in trying to solve the crime. In the individual accounts, the incompetent detective is frequently distracted by the culprit's careful plans, while the competent investigator solves the case after a final confrontation. Analysts of such fiction believe that the authors select this story-telling technique to provide readers with more complexities in the form of misleading clues, while figuring out the crime. Which of the following statements most logically follows from the passage above?
(A)	A detective story is considered well-written if the brilliant investigator is accompanied by an incompetent detective.
(B)	Writers of detective fiction use the contrast of an incompetent detective to mainly show how complex the investigation is.
(C)	Writers of detective fiction never write stories where the incompetent detective solves the case.
(D)	Writers of detective fiction use two investigative accounts to make it difficult for the reader to figure out the outcome.



Q.5	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled (L,M,N,O). Reorder these parts so that the sentence can be read through correctly and select one of the options given. <i>P1: Studies of several Sahitya Akademi award winners show that...</i> L: or encounter professional M: and invariably develop a strained relationship with other literary figures N: they often publish very little O: after winning the prize <i>P6: ...envy and rivalry.</i> The correct order is:
(A)	NOLM
(B)	MLON
(C)	ONML
(D)	MOLN



Q.6 – Q.10 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 6	Gerrymandering refers to the targeted redrawing of election constituencies so as to benefit a particular party. This is especially important where the electoral system is “first past the post” in each constituency (i.e. one winner is selected in each constituency based on a majority of votes won) and where there is no other provision for proportional representation (as for example in the German system). For a simple illustration of gerrymandering, if a region consists of districts 1, 2, 3, ..., 9 with districts 1, 2, 3, 4, 5, 6 favouring party P and 7, 8, 9 favouring party Q, then grouping of districts to constituencies as {1,2,3}, {4,5,6}, {7,8,9} will give two seats to party P and one seat to party Q, whereas the grouping {1,2,7}, {3,4,8}, {5,6,9} will give all three seats to party P, as they will secure a majority in each constituency. Which of these statements can be deduced from the above?
(A)	Gerrymandering implies that constituency boundaries can sometimes be drawn to favour one party over the other.
(B)	Gerrymandering implies that proportional representation is impossible when districts are grouped to form constituencies.
(C)	To counteract gerrymandering political parties should concentrate on districts where they are favoured.
(D)	The grouping of districts to constituencies has very little impact on proportional representation.



Q. 7	X-ray examination of a recently discovered painting that some authorities judge to be a self-portrait by Michelangelo revealed an under-image of a woman's face. Either Michelangelo or some other artist must have repainted over the first painting that had now been seen on the canvas. Because the woman's face also appears on other paintings by Michelangelo, this painting is determined to indeed be an authentic painting by Michelangelo. Which of the following assumptions must be made in reaching the conclusion above?
(A)	When an already painted canvas of an artist is used, the second artist using that canvas for a new painting is usually influenced by the artistic style of the first.
(B)	Several painted canvases that art historians attribute to Michelangelo contain under-images that appear on at least one other of Michelangelo's paintings.
(C)	Subject or subjects that appear in authenticated paintings of Michelangelo are rather unlikely to show up as under-images on painted canvases not attributed to Michelangelo.
(D)	No painted canvas can be attributed to a particular artist with certainty without an X-ray analysis.

Q. 8	This season _____ tourists visited Ladakh than last season; however, _____ to be the biggest tourist destination in India. The tourism department explains that the number of tourists to India has _____ relative to previous years, _____ have chosen to visit Ladakh. Select the correct sequence of phrases to fill in the blanks to complete the passage above.
(A)	more / for the first time in many seasons it does not appear / increased / and it seems that most
(B)	fewer / as in the past, it appears / in fact decreased / but it seems that only a small proportion
(C)	fewer / for the first time in many seasons it appears / in fact decreased / but it seems that most
(D)	more / this season as well, it appears / in fact decreased / but it seems that a large proportion



Q. 9	Reorder the sentences in (1) – (5) such that they form a coherent paragraph. (1) In fact, dozens of languages today have only one native speaker still living, and that person's death will mean the extinction of the language: It will no longer be spoken, or known, by anyone on earth. (2) Many languages are falling out of use and are being replaced by others that are more widely used in the region or nation, such as English in Australia or Portuguese in Brazil. (3) Many other languages are no longer being learned by new generations of children or by new adult speakers. (4) An endangered language is one that is likely to become extinct in the near future. (5) Unless the trends are reversed, these endangered languages will become extinct by the end of the century. (Adapted from <i>What is an Endangered Language</i> by A. Woodbury.)
(A)	2 3 1 4 5
(B)	2 3 5 4 1
(C)	4 1 5 2 3
(D)	4 2 3 1 5



Q. 10	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled L,M,N,O. Reorder these parts so that the sentence can be read correctly and select one of the sequences below. <i>P1: For a little while...</i> L: it was a common belief M: right after the treaty of Versailles N: that Germany had caused World War I not just by her actions O: held by analysts and politicians alike <i>P6: ... but by also encouraging Italy in her own aggressions.</i>
(A)	LMNO
(B)	MLON
(C)	LNMO
(D)	MOLN



Q.11 – Q.15 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 11	After Florentino Ariza saw her for the first time, his mother knew before he told her because he lost his voice and his appetite and spent the entire night tossing and turning in his bed. But when he began to wait for the answer to his first letter, his anguish was complicated by diarrhoea and green vomit, he became disoriented and suffered from sudden fainting spells, and his mother was terrified because his condition did not resemble the turmoil of love so much as the devastation of cholera. Florentino Ariza's godfather, an old homeopathic practitioner who had been Tránsito Ariza's confidant ever since her days as a secret mistress, was also alarmed at first by the patient's condition, because he had the weak pulse, the hoarse breathing, and the pale perspiration of a dying man. But his examination revealed that he had no fever, no pain anywhere, and that his only concrete feeling was an urgent desire to die. All that was needed was shrewd questioning, first of the patient and then of his mother, to conclude once again that the symptoms of love were the same as those of cholera. He prescribed infusions of linden blossoms to calm the nerves and suggested a change of air so he could find consolation in distance, but Florentino Ariza longed for just the opposite: to enjoy his martyrdom. (Adapted from <i>Love in a Time of Cholera</i> by Gabriel García Márquez.) The author of the passage is implying that:
(A)	Homeopathy cures love.
(B)	The doctor could not distinguish between love and cholera.
(C)	The doctor could distinguish between love and cholera.
(D)	The symptoms of love and cholera are similar.



Q. 12	Now, it is clear that the decline of a language must ultimately have political and economic causes: it is not due simply to the bad influence of this or that individual writer. But an effect can become a cause, reinforcing the original cause and producing the same effect in an intensified form, and so on indefinitely. A man may take to drink because he feels himself to be a failure, and then fail all the more completely because he drinks. It is rather the same thing that is happening to the English language. It becomes ugly and inaccurate because our thoughts are foolish, but the slovenliness of our language makes it easier for us to have foolish thoughts. (Adapted from <i>Politics and the English Language</i> by George Orwell.) The illustration of the man who takes to drink is used to underscore which of the following ideas in the passage above?
(A)	Political and economic causes control deterioration of language.
(B)	Foolish thoughts are enabled by inaccurate language.
(C)	Effect of an action becomes the cause in a cyclic pattern.
(D)	Drinking enables people to have foolish thoughts and slovenly language.



Q. 13	It is a pity that Caste even today has its defenders. The defences are many. It is defended on the grounds that the Caste System is but another name for division of labour, and if division of labour is a necessary feature of every civilised society, then it is argued that there is nothing wrong in the Caste System. Now the first thing to be urged against this view is that Caste System is not merely division of labour. It is also a division of labourers. Civilised society undoubtedly needs division of labour but nowhere is division of labour accompanied by this unnatural division of labourers into watertight compartments, grading them one above the other. This division of labour is not spontaneous or based on natural aptitudes. Social and individual efficiency requires us to develop the individual capacity and competency to choose and to make his own career. This principle is violated in so far as it involves an attempt to appoint tasks to individuals in advance, not on the basis of trained original capacities, but on that of birth. Industry undergoes rapid and abrupt changes and an individual must be free to change his occupation and adjust himself to changing circumstances, to gain his livelihood. (Adapted from <i>Annihilation of Caste</i> by Dr. B.R. Ambedkar.) Which of the following observations substantiate the arguments found in the passage above?
(A)	Newer generations are unable to change and move away from low-paying family professions, even with changed economic circumstances.
(B)	Sedentary desk jobs are considered to have more value and are in greater demand than those involving manual labour.
(C)	The government's jobs guarantee programme makes low-level management jobs available across all industries to all graduates in the nation.
(D)	A bus driver becomes an app creator and, in the course of one month, reaches one million downloads on Playstore with a four-star rating.



Q. 14	Imagine that you're in a game show and your host shows you three doors. Behind one of them is a shiny car and behind the others are goats. You pick one of the doors and get what lies within. After making your choice, your host chooses to open one of the other two doors, which inevitably reveals a goat. He then asks you if you want to stick with your original pick, or switch to the other remaining door. What do you do? Most people think that it doesn't make a difference and they tend to stick with their first pick. With two doors left, you should have a 50% chance of selecting the one with the car. If you agree, then you have just fallen afoul of one of the most infamous mathematical problems – the Monty Hall Problem. In reality, you should switch every time which doubles your odds of getting the car. Over the years, the problem has ensnared countless people, but not, it seems, pigeons. The humble pigeon can learn with practice the best tactic for the Monty Hall Problem, switching from their initial choice almost every time. Amazingly, humans do not! (Adapted from an article by Ed Yong in <i>Discover Magazine</i>.) Which of the following conclusions follow from the passage above?
(A)	Humans calculate the probability of independent, random events such as the opening of a door by dividing the specific outcomes by the total number of possible outcomes.
(B)	Humans find it very difficult to learn to account for the host's hand in making the event non-random and, thereby, changing the outcome of the event.
(C)	Calculating probabilities is difficult for humans but easy for pigeons; which is why the pigeons succeed where the humans fail.
(D)	Humans are governed by reason, but pigeons are irrational and only interested in the outcome and will do whatever it takes to get food.



Q. 15	The truth is that, despite the recent success of car-makers P and Q, India's automobile industry is in a state not that different from the bad old days of the license-permit quota raj when two carmakers dominated a captive domestic market with substandard vehicles and with very little, if any, research and development, and low to negligible productivity growth. High tariff barriers have certainly induced foreign automobile makers to enter the Indian market by setting up local operations, but this so-called "tariff jumping" foreign investment has produced an industry that is inefficient, operating generally at a low scale, and whose products are not globally competitive either in terms of cost or of innovation. It is noteworthy that the automobile parts industry, which has faced low tariffs (as low as 12.5%) and has been largely deregulated, has been characterised by higher productivity and much better export performance than the completely-built units' sector in the years since liberalisation. (Adapted from an Op-Ed in <i>The Mint</i>.) Which of the following statements can be inferred from the above?
(A)	Low tariff barriers increase productivity.
(B)	Tariff jumping leads to increases in productivity.
(C)	Deregulation has worked for the automotive parts industry and therefore should be applied to completely-built units.
(D)	P and Q do not invest enough in research and development.



Economics (XH-C1)

Q.1 – Q.20 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	A firm finds that for the product that it produces, its (own) price elasticity of demand is 4. Currently, the firm is selling 2000 units per month at ₹ 5 per unit. If it wishes to increase its sales by 10%, it must
(A)	lower its price by 4%
(B)	lower its price by 2%
(C)	lower its price by 2.5%
(D)	increase its price by 2%

Q.2	"Inflation increases the average level of prices". Which of the following is(are) necessarily implied by this statement: (i) The prices of commodities exceed income (ii) Money supply grows at a higher rate than the real GDP
(A)	Only (i)
(B)	Only (ii)
(C)	Both (i) and (ii)
(D)	Neither (i) nor (ii)

Q.3	For the production function $Q = F(K, L) = \sqrt{KL}$ with $P_K = 4$ and $P_L = 2$, find the values of K and L that will minimize the cost of producing 2 units of output.
(A)	$K = 2\sqrt{3}$; $L = 3\sqrt{2}$
(B)	$K = 2\sqrt{2}$; $L = \sqrt{2}$
(C)	$K = \sqrt{2}$; $L = 2\sqrt{2}$
(D)	$K = 2$; $L = 2$



Q.4	If the sum of price elasticities of imports and exports of a country exceeds unity, then a depreciation of domestic currency will ultimately result in
(A)	contraction in trade deficit of the country
(B)	widening of trade deficit of the country
(C)	an uncertain net effect on the trade balance
(D)	a huge outflow of foreign portfolio capital from that country

Q.5	To determine the relationship between y and x_1, Rohit estimated two different OLS models. In the first model, Rohit regressed y on x_1 and x_2 as given below $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + u \quad (1)$ In the second model, Rohit regressed y only on x_1 as given below $y = \delta_0 + \delta_1 x_1 + v \quad (2)$ The estimated coefficients of x_1 in the above two models are exactly same. From this observation we can state conclusively that (i) $Cov(x_1, y) = 0$ (ii) $\widehat{\beta}_2 = 0$ (iii) $Cov(x_2, x_1) = 0$ where $\widehat{\beta}_2$ is the estimated coefficient of x_2 in the equation (1)
(A)	Only (i) is true
(B)	Only (ii) is true
(C)	Either (ii) or (iii) or both are true
(D)	Neither (ii) nor (iii) is true



Q.6	XYZ Co. Ltd. is a costless monopoly from suburban Mumbai producing and selling exotic mushrooms. The demand for mushrooms is given by $Q = 700 - 100P$. Do you agree that XYZ will have a maximum possible total revenue of ₹1500?
(A)	Yes, the maximum possible total revenue is ₹1500
(B)	No, the maximum possible total revenue is less than ₹1500
(C)	No, the maximum possible total revenue is more than ₹1500
(D)	No, the maximum possible total revenue cannot be estimated

Q.7	In a demand function estimation of a good X, a researcher collected data on various households' consumption of good X (Q_x) for various price levels. The researcher also collected data on household income (M) and household size (S). The estimated regression result is $\log Q_x = -0.345(0.111) - 1.543(2.345) \log P_x + 1.123(0.012) \log M + 0.234(0.123) \log S$ where P_x is price per unit of X. The values in the parentheses are the <i>standard errors</i> of the estimated coefficients. From the estimation one can conclude that
(A)	the demand for good X is highly elastic
(B)	X is an inferior good
(C)	the estimated price elasticity of demand is not statistically significant
(D)	the estimated price elasticity of good X is 2.345



Q.8	Consider a duopoly market in which the market demand function is as follows: $P = 40 - Q$. For the two firms producing with identical marginal costs of 10, the Bertrand-Nash equilibrium price will be:
(A)	40
(B)	10
(C)	20
(D)	30

Q.9	What would be the consequences for the OLS estimator if heteroscedasticity is present in a regression model but ignored? Assume that all the other classical assumptions are valid.
(A)	It will be biased
(B)	It will be inconsistent
(C)	It will be unbiased but inefficient
(D)	It will be unbiased but inconsistent

Q.10	Walras' Law implies that if there are N markets in the economy, then one only needs to find equilibrium prices in
(A)	$N - 2$ markets
(B)	$N - 1$ markets
(C)	$N + 1$ markets
(D)	all the N markets



Q.11	There are many reasons why a poor country may fail to catch up with a rich neighbour. Which of the following is NOT one of these reasons?
(A)	The poor country may have more rapid population growth
(B)	The rich country may have more human capital
(C)	The poor country may have a higher saving ratio
(D)	The rich country through trade may be more integrated with the world economy

Q.12	In a two country model, an increase in foreign country's national income generally leads to:
(A)	increased exports and increased domestic output
(B)	decreased exports but increased domestic output
(C)	decreased exports and decreased domestic output
(D)	increased exports but decreased domestic output



Q.13	Piku faces a lottery with outcomes of ₹24, ₹12, ₹48 and ₹6 given by the following probability distribution <table><tr><td>Lottery Outcome</td><td>₹24</td><td>₹12</td><td>₹48</td><td>₹6</td></tr><tr><td>Probability of Outcome</td><td>$\frac{2}{6}$</td><td>$\frac{3}{6}$</td><td>$\frac{1}{6}$</td><td>0</td></tr></table> She is indifferent between the lottery and receiving ₹28 with certainty. Given the information we can conclude that Piku is a	Lottery Outcome	₹24	₹12	₹48	₹6	Probability of Outcome	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{1}{6}$	0
Lottery Outcome	₹24	₹12	₹48	₹6							
Probability of Outcome	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{1}{6}$	0							
(A)	risk lover										
(B)	risk averse										
(C)	risk neutral										
(D)	hedger										



Q.14	Consider a regression model $y = \beta_0 + \beta x + u$ where the continuous variable y is regressed on a dummy variable x, which takes the value either 1 or 0. However, the model was estimated using the instrumental variable (IV) estimation method, wherein the indicator variable z is used as an instrument of x. Let $\bar{y}_1$ and $\bar{y}_0$ be the sample averages of y when z takes the value 1 and 0, respectively $\bar{x}_1$ and $\bar{x}_0$ be the sample averages of x when z takes the value 1 and 0, respectively $\bar{y}^1$ and $\bar{y}^0$ be the sample averages of y when x takes the value 1 and 0, respectively $\bar{z}^1$ and $\bar{z}^0$ be the sample averages of z when x takes the value 1 and 0, respectively Then the estimated coefficient of β_{IV} is
(A)	$\frac{\bar{y}_1 - \bar{y}_0}{\bar{y}^1 - \bar{y}^0}$
(B)	$\frac{\bar{y}_1 - \bar{x}_1}{\bar{y}_0 - \bar{x}_0}$
(C)	$\frac{\bar{y}_1 - \bar{y}_0}{\bar{x}_1 - \bar{x}_0}$
(D)	$\frac{\bar{y}_1 - \bar{y}_0}{\bar{z}^1 - \bar{z}^0}$

Q.15	Assuming that external economies exist, when demand increases in a perfectly competitive market, in the long-run, the price of the product
(A)	rises above the initial price (before the demand increase) and quantity increases
(B)	remains the same as the initial price (before the demand increase) and quantity increases
(C)	falls below the initial price (before the demand increase) and quantity increases
(D)	equals the initial price (before the demand increase) and quantity decreases



Q.16	Consider an individual who maximizes her expected utility having Bernoulli utility function $u(w) = \alpha - \beta e^{-rw}$; $w > 0$ is wealth. The individual displays _____ relative risk aversion.
(A)	constant
(B)	increasing
(C)	decreasing
(D)	uncertain

Q.17	For an open economy, the 'twin deficits' can be expressed by: [where S = Savings; I = Gross Private Investment; G = Government Expenditures; TR = Transfer Payments; TX = Taxes; X = Exports; M = Imports and $NFIA$ = Net Factor Income from Abroad]
(A)	$S - I = [G - TR - TX] + [X - M]$
(B)	$I - S = [G + TX - TR] + [M - X]$
(C)	$S - I = [G + TR - TX] + [X - M]$
(D)	$I - S = [TX - G + TR] + [NFIA]$

Q.18	If expectations about inflation are formed as per the rational expectations hypothesis, then the short-run Philips curve will be
(A)	negatively sloped
(B)	parallel to the vertical axis
(C)	parallel to the horizontal axis
(D)	coinciding with the NAIRU



Q.19	As economic development proceeds, income inequality tends to follow a(n) _____ curve.
(A)	asymptotically convex
(B)	inverted U-shaped
(C)	V-shaped
(D)	S-shaped

Q.20	India has the highest amount of foreign debt in the form of
(A)	Non Resident Indian (NRI) Deposits
(B)	Commercial Borrowings
(C)	Loans taken from the International Monetary Fund
(D)	Loans taken from the Bank of England



Q.21 – Q.25 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 21	Let A and B be two events with probabilities $P(A) = \frac{3}{4}$ and $P(B) = \frac{1}{3}$; then which of the following options is true?
(A)	$P(A \cap B) \geq \max. [\frac{3}{4}, \frac{1}{3}]$
(B)	$\frac{1}{3} \geq P(A \cap B) \geq \frac{1}{12}$
(C)	$\frac{3}{4} \geq P(A \cap B) \geq \frac{1}{3}$
(D)	$P(A \cap B) \geq \min. [\frac{3}{4}, \frac{1}{3}]$

Q. 22	If $S^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$ is an unbiased and consistent estimator of the population variance, then one can conclude that $S = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2}$ is a(an) _____ estimator of the population standard deviation.
(A)	unbiased and consistent
(B)	biased and consistent
(C)	unbiased and inconsistent
(D)	biased and inconsistent



Q. 23	Consider the following demand–supply model, where Demand function: $P = Q^2 - 12Q + 35$ Supply function: $4P - 3Q = 0$ The <i>stable</i> market equilibrium price–quantity combination will be
(A)	$(P^*, Q^*) = (3, 4)$
(B)	$(P^*, Q^*) = (\frac{105}{16}, \frac{70}{8})$
(C)	$(P^*, Q^*) = (6, 8)$
(D)	$(P^*, Q^*) = (14, 3)$

Q. 24	Trisha’s consumption preference on biryani (x) and pudding (y) is given by the utility function $U(x, y) = x + 4y$. The price per unit of biryani is ₹2 and the price per unit of pudding is ₹3. Trisha’s total income is ₹120. However, she faces an extra quantity constraint as she is not allowed to consume biryani more than 60 units and pudding more than 30 units. The optimum quantity of biryani and pudding consumed by Trisha is
(A)	$(x^*, y^*) = (30, 20)$
(B)	$(x^*, y^*) = (15, 30)$
(C)	$(x^*, y^*) = (30, 15)$
(D)	$(x^*, y^*) = (60, 0)$



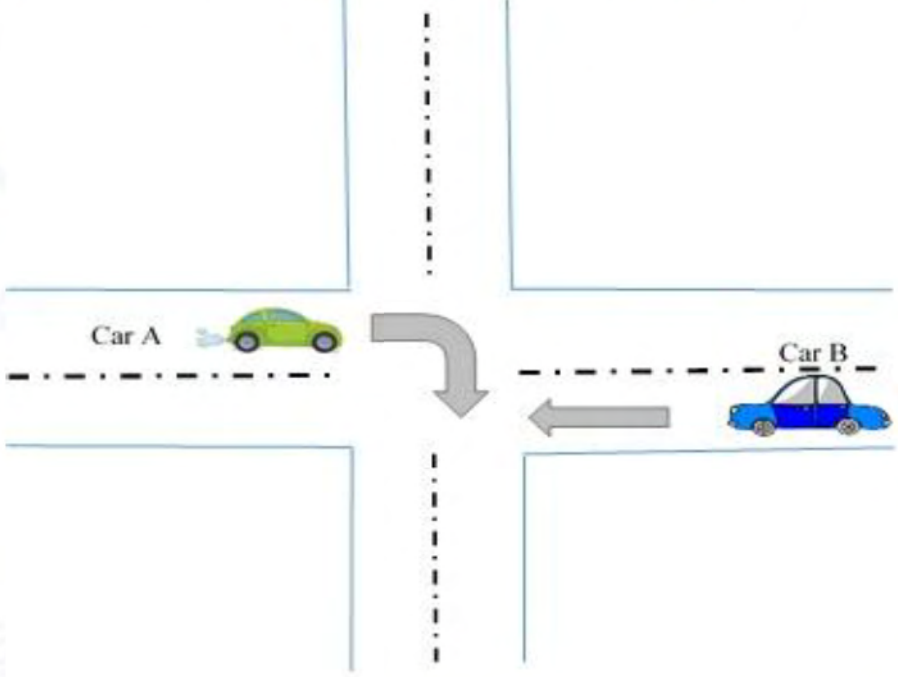
Q. 25	Consider a Cournot type n -firm natural spring oligopoly where the market demand for natural spring water is given by $P(Q) = a - Q$, $a > 0$. The n firms are symmetric. Each firm incurs a bottling cost of $C_i = cq_i$, $c > 0$ and $a > c$. The equilibrium market price will be
(A)	$\frac{(n+1)}{a} + \frac{n(n+1)}{c}$
(B)	$\frac{a}{(n+1)} + \frac{nc}{(n+1)}$
(C)	$\frac{na}{(n+1)} + \frac{nc}{(n+1)}$
(D)	$\frac{(a-c)}{(n+1)} + \frac{c}{n(n+1)}$



Q.26 – Q.30 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 26	Goods and Services Tax (GST) is
(A)	a 'destination based' consumption tax
(B)	an origin based tax assigned to the State of origin where the sale takes place
(C)	an indirect tax
(D)	a modified form of value added tax



Q. 27	Consider an intersection of roads without any traffic light. Two cars A and B approach an intersection and they want to proceed as indicated by respective arrows in the following diagram. If both proceed without stopping and there is an accident, then A would have a payoff of -100 and B would have a payoff of -500 (since B is responsible for the accident). If one stops, and the other proceeds then the payoff is: -5 and 10, respectively. If both of them stop, then it takes a little longer to reach their respective destinations, they have a payoff of -5 each. Find the Pure Strategy Nash Equilibrium (PSNE) of the players (Car drivers). 
(A)	(Car A, Car B) = (Stop, Stop)
(B)	(Car A, Car B) = (Stop, Proceed)
(C)	(Car A, Car B) = (Proceed, Stop)
(D)	(Car A, Car B) = (Proceed, Proceed)



Q. 28	A Government Security (G-Sec)
(A)	is a tradeable instrument issued by the Central Government
(B)	is a tradeable instrument issued by State Governments
(C)	can have maturity of <i>only</i> more than one year
(D)	cannot be considered as 'gilt-edged' instrument

Q. 29	If a country has flexible exchange rate regime with perfect capital mobility, then according to the Mundell-Fleming Model, an expansionary fiscal policy will lead to
(A)	no change in output
(B)	reduced net exports
(C)	appreciation of nominal exchange rate
(D)	expansion of output

Q. 30	The basic tenets of 'Monetarism' are
(A)	acceptance of the 'quantity theory' approach to macroeconomic analysis
(B)	a strict rule based monetary policy
(C)	a monetary approach to the balance-of-payments and exchange-rate theory
(D)	an active stabilization policy through expansionary monetary/fiscal policies



Q.31 – Q.40 Numerical Answer Type (NAT), carry TWO mark each (no negative marks).

Q.31

Two farmers, Rohit and Harish, graze their animals on a common land. They can choose to use this common resource ‘lightly’ or ‘heavily’ and the resulting strategic interaction may be described as a simultaneous-move game. The payoff matrix is given below:

		Harish	
		Graze Lightly	Graze Heavily
Rohit	Graze Lightly	40,40	20,55
	Graze Heavily	55,20	30,30

The *minimum value* of the discount rate (where the discount rate is less than one) under *infinite repetition* of the game where the threat strategy (“Graze lightly if the opponent also grazes lightly, whereas, if the opponent renege then always graze heavily in all the future periods”), is a Sub-game Perfect Nash Equilibrium (SPNE) and, both the farmers graze their animals lightly is _____ (round off to one decimal place).

Q. 32

Suppose Vijay has purchased a high-speed car worth ₹1000000. During the purchase, an Insurance company has shared the latest available road safety survey, wherein it is mentioned that, due to heavy congestion on roads, there is 40% chance of an accident within the first year of car purchase resulting in loss of the car value by 60%. Vijay’s utility function for wealth (W) is given by $U(W) = \ln(W)$. If Vijay plans to buy an accident insurance having a premium of 30%, then he will purchase an insurance of ₹ _____ (round off to the nearest integer).



Q. 33

Consider the following Table.

Month	Currency in Circulation	Cash with Banks	Currency with the Public	Other Deposits with the RBI	Bankers' Deposits with the RBI	Demand Deposits	Time Deposits
April	2523	98	2425	40	457	1582	12988
May	2611	98	2513	42	468	1565	13112
June	2661	94	2567	39	484	1573	13141

(All values are in Rupees Thousand Crore)

Based on the given data, the average Broad Money Multiplier for the period April - June is _____ (round off to three decimal places).

Q. 34

Consider two regression models estimated on a sample of 350 observations.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + u \quad \text{-----(1)}$$

$$y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + v \quad \text{-----(2)}$$

The R^2 in model (1) is $R_1^2 = 0.3521$ and in model (2) is $R_2^2 = 0.2314$. The value of the test statistic to test the $H_0: \beta_3 = \beta_4 = \beta_5 = 0$ is _____ (round off to three decimal places).

Q. 35

Consider a competitive market where the demand and supply functions are given by $q^D = 12 - 2P$ and $q^S = 4P$, respectively. The tax rate per unit of output that maximizes the tax yield (revenue) is _____ (in integer).

Q. 36

Suppose the demand for a new pharmaceutical drug, on which the manufacturer has a patent monopoly, is given by: $Q = (100 - P)A^{0.5}$; where Q is output, P is the price and A is advertising expenditure. Production cost of the patented drug is given by: $C(Q) = 60Q$. At the firm's optimal choices, the ratio of advertising expenditure to sales revenue for the pharmaceutical product will be 1: ____ (in integer).



Q. 37	Let the rate of inflation in an economy be 4.2%, the growth rate of velocity of money be 2% and, the growth rate of real GDP be 6%. According to Milton Friedman's ' k ' percent rule, the rate of growth of money supply for maintaining stable prices will be _____ (round off to one decimal place).
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Q. 38	The long-run cost function of all identical firms in a perfectly competitive industry is given by: $C = 25q - 3q^2 + 1.5q^3$ The market demand function is: $P = 2500 - 0.25Q$ The number of firms in the industry at equilibrium is _____ (in integer).
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Q. 39 Given below is an inter-industry transactions matrix. If final demand for the *agriculture* sector changes from 150 units to 300 units and for the *manufacturing* sector changes from 120 units to 200 units, then the output of the *agriculture* sector should be _____ units (*in integer*).

		User		Final Demand	Total Output
		Agriculture	Manufacturing		
Producer	Agriculture	500	350	150	1000
	Manufacturing	320	360	120	800

Q. 40	Consider that a sample of size 3 is randomly drawn from a population that takes only two values, equally likely: -1 and 1 . Let $z = \max.(x_1, x_2, x_3)$ where x_1, x_2, x_3 are the sample observations. The expected value of z , $E(z)$ is _____ (round off to two decimal places).
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END OF THE QUESTION PAPER

Graduate Aptitude Test in Engineering (GATE 2021)**Subject/Paper: Humanities and Social Sciences (XH) / Economics (XH-C1)**

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
1	7	MCQ	GA	D	1	1/3
2	7	MCQ	GA	D	1	1/3
3	7	MCQ	GA	D	1	1/3
4	7	MCQ	GA	D	1	1/3
5	7	MCQ	GA	C	1	1/3
6	7	MCQ	GA	C	2	2/3
7	7	MCQ	GA	A	2	2/3
8	7	MCQ	GA	C	2	2/3
9	7	MCQ	GA	C	2	2/3
10	7	MCQ	GA	D	2	2/3
1	7	MCQ	XH-B1	C	1	1/3
2	7	MCQ	XH-B1	C	1	1/3
3	7	MCQ	XH-B1	C	1	1/3
4	7	MCQ	XH-B1	D	1	1/3
5	7	MCQ	XH-B1	C	1	1/3
6	7	MCQ	XH-B1	A	2	2/3
7	7	MCQ	XH-B1	C	2	2/3
8	7	MCQ	XH-B1	C	2	2/3
9	7	MCQ	XH-B1	D	2	2/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Economics (XH-C1)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
10	7	MCQ	XH-B1	B	2	2/3
11	7	MSQ	XH-B1	C; D	2	0
12	7	MSQ	XH-B1	B; C	2	0
13	7	MSQ	XH-B1	A; B	2	0
14	7	MSQ	XH-B1	A; B	2	0
15	7	MSQ	XH-B1	A; C; D	2	0
1	7	MCQ	XH-C1	C	1	1/3
2	7	MCQ	XH-C1	B	1	1/3
3	7	MCQ	XH-C1	C	1	1/3
4	7	MCQ	XH-C1	A	1	1/3
5	7	MCQ	XH-C1	C	1	1/3
6	7	MCQ	XH-C1	B	1	1/3
7	7	MCQ	XH-C1	C	1	1/3
8	7	MCQ	XH-C1	B	1	1/3
9	7	MCQ	XH-C1	C	1	1/3
10	7	MCQ	XH-C1	B	1	1/3
11	7	MCQ	XH-C1	C	1	1/3
12	7	MCQ	XH-C1	A	1	1/3
13	7	MCQ	XH-C1	A	1	1/3
14	7	MCQ	XH-C1	C	1	1/3
15	7	MCQ	XH-C1	C	1	1/3
16	7	MCQ	XH-C1	B	1	1/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Economics (XH-C1)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
17	7	MCQ	XH-C1	C	1	1/3
18	7	MCQ	XH-C1	B	1	1/3
19	7	MCQ	XH-C1	B	1	1/3
20	7	MCQ	XH-C1	B	1	1/3
21	7	MCQ	XH-C1	B	2	2/3
22	7	MCQ	XH-C1	B	2	2/3
23	7	MCQ	XH-C1	A	2	2/3
24	7	MCQ	XH-C1	B	2	2/3
25	7	MCQ	XH-C1	B	2	2/3
26	7	MSQ	XH-C1	A; C; D	2	0
27	7	MSQ	XH-C1	B; C	2	0
28	7	MSQ	XH-C1	A; B	2	0
29	7	MSQ	XH-C1	A; B; C	2	0
30	7	MSQ	XH-C1	A; B; C	2	0
31	7	NAT	XH-C1	0.6 to 0.6	2	0
32	7	NAT	XH-C1	950000 to 999999	2	0
33	7	NAT	XH-C1	5.300 to 5.600	2	0
34	7	NAT	XH-C1	21.100 to 21.800	2	0
35	7	NAT	XH-C1	3 to 3	2	0
36	7	NAT	XH-C1	8 to 8	2	0
37	7	NAT	XH-C1	4.0 to 4.0	2	0
38	7	NAT	XH-C1	9904 to 9908	2	0

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Economics (XH-C1)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
39	7	NAT	XH-C1	1860 to 1880	2	0
40	7	NAT	XH-C1	0.70 to 0.80	2	0





General Aptitude (GA)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	Consider the following sentences: (i) After his surgery, Raja hardly could walk. (ii) After his surgery, Raja could barely walk. (iii) After his surgery, Raja barely could walk. (iv) After his surgery, Raja could hardly walk. Which of the above sentences are grammatically CORRECT?
(A)	(i) and (ii)
(B)	(i) and (iii)
(C)	(iii) and (iv)
(D)	(ii) and (iv)

Q.2	Ms. X came out of a building through its front door to find her shadow due to the morning sun falling to her right side with the building to her back. From this, it can be inferred that building is facing _____
(A)	North
(B)	East
(C)	West
(D)	South



Q.3	In the above figure, O is the center of the circle and, M and N lie on the circle. The area of the right triangle MON is 50 cm^2. What is the area of the circle in cm^2 ?
(A)	2π
(B)	50π
(C)	75π
(D)	100π

Q.4	If $\begin{cases} \text{"}\oplus\text{" means "}-\text{"}, \\ \text{"}\otimes\text{" means "}\div\text{"}, \\ \text{"}\Delta\text{" means "}\text{+}\text{"}, \\ \text{"}\nabla\text{" means "}\times\text{"}, \end{cases}$ then, the value of the expression $\Delta 2 \oplus 3 \Delta ((4 \otimes 2) \nabla 4) =$
(A)	-1
(B)	-0.5
(C)	6
(D)	7



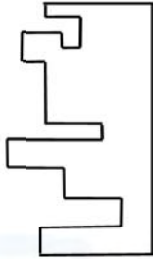
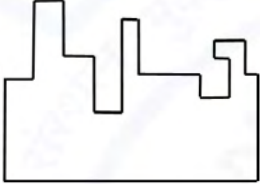
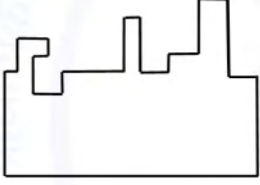
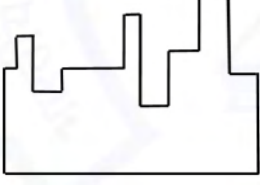
Q.5	“The increased consumption of leafy vegetables in the recent months is a clear indication that the people in the state have begun to lead a healthy lifestyle” Which of the following can be logically inferred from the information presented in the above statement?
(A)	The people in the state did not consume leafy vegetables earlier.
(B)	Consumption of leafy vegetables may not be the only indicator of healthy lifestyle.
(C)	Leading a healthy lifestyle is related to a diet with leafy vegetables.
(D)	The people in the state have increased awareness of health hazards causing by consumption of junk foods.



Q. 6 – Q. 10 Multiple Choice Question (MCQ), carry TWO marks each (for each wrong answer: – 2/3).

Q.6	Oxpeckers and rhinos manifest a symbiotic relationship in the wild. The oxpeckers warn the rhinos about approaching poachers, thus possibly saving the lives of the rhinos. Oxpeckers also feed on the parasitic ticks found on rhinos. In the symbiotic relationship described above, the primary benefits for oxpeckers and rhinos respectively are,
(A)	Oxpeckers get a food source, rhinos have no benefit.
(B)	Oxpeckers save their habitat from poachers while the rhinos have no benefit.
(C)	Oxpeckers get a food source, rhinos may be saved from the poachers.
(D)	Oxpeckers save the lives of poachers, rhinos save their own lives.



Q.7	 A jigsaw puzzle has 2 pieces. One of the pieces is shown above. Which one of the given options for the missing piece when assembled will form a rectangle? The piece can be moved, rotated or flipped to assemble with the above piece.
(A)	
(B)	
(C)	
(D)	



Q.8	The number of hens, ducks and goats in farm P are 65, 91 and 169, respectively. The total number of hens, ducks and goats in a nearby farm Q is 416. The ratio of hens:ducks:goats in farm Q is 5:14:13. All the hens, ducks and goats are sent from farm Q to farm P. The new ratio of hens:ducks:goats in farm P is _____
(A)	5:7:13
(B)	5:14:13
(C)	10:21:26
(D)	21:10:26

Q.9	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Company</th><th>Ratio</th></tr> </thead> <tbody> <tr> <td>C1</td><td>3:2</td></tr> <tr> <td>C2</td><td>1:4</td></tr> <tr> <td>C3</td><td>5:3</td></tr> <tr> <td>C4</td><td>2:3</td></tr> <tr> <td>C5</td><td>9:1</td></tr> <tr> <td>C6</td><td>3:4</td></tr> </tbody> </table> The distribution of employees at the rank of executives, across different companies C1, C2, ..., C6 is presented in the chart given above. The ratio of executives with a management degree to those without a management degree in each of these companies is provided in the table above. The total number of executives across all companies is 10,000. The total number of management degree holders among the executives in companies C2 and C5 together is _____.	Company	Ratio	C1	3:2	C2	1:4	C3	5:3	C4	2:3	C5	9:1	C6	3:4
Company	Ratio														
C1	3:2														
C2	1:4														
C3	5:3														
C4	2:3														
C5	9:1														
C6	3:4														
(A)	225														
(B)	600														
(C)	1900														
(D)	2500														



Q. 10	Five persons P, Q, R, S and T are sitting in a row not necessarily in the same order. Q and R are separated by one person, and S should not be seated adjacent to Q. The number of distinct seating arrangements possible is:
(A)	4
(B)	8
(C)	10
(D)	16



Reasoning and Comprehension (XH-B1)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	According to a recent article in a medical journal, consuming curcumin (from turmeric) significantly lowers the risk of COVID-19. The researchers draw this conclusion from a study that found that people who consumed one or more teaspoons of curcumin extract everyday were half as likely to be diagnosed with the disease as people who did not consume curcumin. Which of the following, if true, most weakens the argument in the article?
(A)	In another study, people who were given a zinc supplement everyday were more than four times less likely to be diagnosed with COVID-19 as those who did not.
(B)	All the participants in this study were from the same state where no other spices or herbs are consumed.
(C)	The participants who consumed curcumin were also more likely to exercise than those who did not.
(D)	In another study, COVID-19 patients who were given curcumin were no more likely to recover than others.

Q.2	Froot Inc. carried out an internet advertisement campaign for its new beverage CocoLoco. After the campaign, the director of the advertising company conducted a survey and found that the CocoLoco sales were higher than that of TenderJoos a competing product from Joos Inc. The agency concluded that the internet advertising campaign is more effective than advertising through other media. Which of the following statements could strengthen the conclusion above by the agency?
(A)	A ₹2 discount was offered on CocoLoco during the campaign period.
(B)	CocoLoco sales were higher than those of TenderJoos before the internet campaign.
(C)	A newspaper advertisement campaign the previous year did not increase CocoLoco sales.
(D)	During the campaign for CocoLoco, Joos Inc. did not advertise TenderJoos at all.



Q.3	An e-commerce site offered a deal last month conditional on the customer spending a minimum of ₹500. Any customer who buys 2 kg of fresh fruit will receive a hand mixer and any customer who buys 2 kg of fresh vegetables will receive a vegetable chopper. Which of the following is NOT a possible outcome of the above?
(A)	A customer purchased 3 kg of fresh fruit and did not receive a vegetable chopper.
(B)	A customer purchased items for ₹500 which included 1 kg of vegetables and received a hand mixer.
(C)	A customer purchased items for ₹500 which included 2 kg of vegetables and 1 kg of fruit and received a hand mixer.
(D)	A customer purchased items for ₹300 which included 2 kg of fruit and received neither a hand mixer nor a vegetable chopper.

Q.4	Writers of detective fiction often include an incompetent detective as a foil for the brilliant investigator-protagonist as they follow different paths in trying to solve the crime. In the individual accounts, the incompetent detective is frequently distracted by the culprit's careful plans, while the competent investigator solves the case after a final confrontation. Analysts of such fiction believe that the authors select this story-telling technique to provide readers with more complexities in the form of misleading clues, while figuring out the crime. Which of the following statements most logically follows from the passage above?
(A)	A detective story is considered well-written if the brilliant investigator is accompanied by an incompetent detective.
(B)	Writers of detective fiction use the contrast of an incompetent detective to mainly show how complex the investigation is.
(C)	Writers of detective fiction never write stories where the incompetent detective solves the case.
(D)	Writers of detective fiction use two investigative accounts to make it difficult for the reader to figure out the outcome.



Q.5	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled (L,M,N,O). Reorder these parts so that the sentence can be read through correctly and select one of the options given. <i>P1: Studies of several Sahitya Akademi award winners show that...</i> L: or encounter professional M: and invariably develop a strained relationship with other literary figures N: they often publish very little O: after winning the prize <i>P6: ...envy and rivalry.</i> The correct order is:
(A)	NOLM
(B)	MLON
(C)	ONML
(D)	MOLN



Q.6 – Q.10 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 6	Gerrymandering refers to the targeted redrawing of election constituencies so as to benefit a particular party. This is especially important where the electoral system is “first past the post” in each constituency (i.e. one winner is selected in each constituency based on a majority of votes won) and where there is no other provision for proportional representation (as for example in the German system). For a simple illustration of gerrymandering, if a region consists of districts 1, 2, 3, ..., 9 with districts 1, 2, 3, 4, 5, 6 favouring party P and 7, 8, 9 favouring party Q, then grouping of districts to constituencies as {1,2,3}, {4,5,6}, {7,8,9} will give two seats to party P and one seat to party Q, whereas the grouping {1,2,7}, {3,4,8}, {5,6,9} will give all three seats to party P, as they will secure a majority in each constituency. Which of these statements can be deduced from the above?
(A)	Gerrymandering implies that constituency boundaries can sometimes be drawn to favour one party over the other.
(B)	Gerrymandering implies that proportional representation is impossible when districts are grouped to form constituencies.
(C)	To counteract gerrymandering political parties should concentrate on districts where they are favoured.
(D)	The grouping of districts to constituencies has very little impact on proportional representation.



Q. 7	X-ray examination of a recently discovered painting that some authorities judge to be a self-portrait by Michelangelo revealed an under-image of a woman's face. Either Michelangelo or some other artist must have repainted over the first painting that had now been seen on the canvas. Because the woman's face also appears on other paintings by Michelangelo, this painting is determined to indeed be an authentic painting by Michelangelo. Which of the following assumptions must be made in reaching the conclusion above?
(A)	When an already painted canvas of an artist is used, the second artist using that canvas for a new painting is usually influenced by the artistic style of the first.
(B)	Several painted canvases that art historians attribute to Michelangelo contain under-images that appear on at least one other of Michelangelo's paintings.
(C)	Subject or subjects that appear in authenticated paintings of Michelangelo are rather unlikely to show up as under-images on painted canvases not attributed to Michelangelo.
(D)	No painted canvas can be attributed to a particular artist with certainty without an X-ray analysis.

Q. 8	This season _____ tourists visited Ladakh than last season; however, _____ to be the biggest tourist destination in India. The tourism department explains that the number of tourists to India has _____ relative to previous years, _____ have chosen to visit Ladakh. Select the correct sequence of phrases to fill in the blanks to complete the passage above.
(A)	more / for the first time in many seasons it does not appear / increased / and it seems that most
(B)	fewer / as in the past, it appears / in fact decreased / but it seems that only a small proportion
(C)	fewer / for the first time in many seasons it appears / in fact decreased / but it seems that most
(D)	more / this season as well, it appears / in fact decreased / but it seems that a large proportion



Q. 9	Reorder the sentences in (1) – (5) such that they form a coherent paragraph. (1) In fact, dozens of languages today have only one native speaker still living, and that person's death will mean the extinction of the language: It will no longer be spoken, or known, by anyone on earth. (2) Many languages are falling out of use and are being replaced by others that are more widely used in the region or nation, such as English in Australia or Portuguese in Brazil. (3) Many other languages are no longer being learned by new generations of children or by new adult speakers. (4) An endangered language is one that is likely to become extinct in the near future. (5) Unless the trends are reversed, these endangered languages will become extinct by the end of the century. (Adapted from <i>What is an Endangered Language</i> by A. Woodbury.)
(A)	2 3 1 4 5
(B)	2 3 5 4 1
(C)	4 1 5 2 3
(D)	4 2 3 1 5



Q. 10	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled L,M,N,O. Reorder these parts so that the sentence can be read correctly and select one of the sequences below. <i>P1: For a little while...</i> L: it was a common belief M: right after the treaty of Versailles N: that Germany had caused World War I not just by her actions O: held by analysts and politicians alike <i>P6: ... but by also encouraging Italy in her own aggressions.</i>
(A)	LMNO
(B)	MLON
(C)	LNMO
(D)	MOLN



Q.11 – Q.15 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 11	After Florentino Ariza saw her for the first time, his mother knew before he told her because he lost his voice and his appetite and spent the entire night tossing and turning in his bed. But when he began to wait for the answer to his first letter, his anguish was complicated by diaorrhea and green vomit, he became disoriented and suffered from sudden fainting spells, and his mother was terrified because his condition did not resemble the turmoil of love so much as the devastation of cholera. Florentino Ariza's godfather, an old homeopathic practitioner who had been Tránsito Ariza's confidant ever since her days as a secret mistress, was also alarmed at first by the patient's condition, because he had the weak pulse, the hoarse breathing, and the pale perspiration of a dying man. But his examination revealed that he had no fever, no pain anywhere, and that his only concrete feeling was an urgent desire to die. All that was needed was shrewd questioning, first of the patient and then of his mother, to conclude once again that the symptoms of love were the same as those of cholera. He prescribed infusions of linden blossoms to calm the nerves and suggested a change of air so he could find consolation in distance, but Florentino Ariza longed for just the opposite: to enjoy his martyrdom. (Adapted from <i>Love in a Time of Cholera</i> by Gabriel García Márquez.) The author of the passage is implying that:
(A)	Homeopathy cures love.
(B)	The doctor could not distinguish between love and cholera.
(C)	The doctor could distinguish between love and cholera.
(D)	The symptoms of love and cholera are similar.



Q. 12	Now, it is clear that the decline of a language must ultimately have political and economic causes: it is not due simply to the bad influence of this or that individual writer. But an effect can become a cause, reinforcing the original cause and producing the same effect in an intensified form, and so on indefinitely. A man may take to drink because he feels himself to be a failure, and then fail all the more completely because he drinks. It is rather the same thing that is happening to the English language. It becomes ugly and inaccurate because our thoughts are foolish, but the slovenliness of our language makes it easier for us to have foolish thoughts. (Adapted from <i>Politics and the English Language</i> by George Orwell.) The illustration of the man who takes to drink is used to underscore which of the following ideas in the passage above?
(A)	Political and economic causes control deterioration of language.
(B)	Foolish thoughts are enabled by inaccurate language.
(C)	Effect of an action becomes the cause in a cyclic pattern.
(D)	Drinking enables people to have foolish thoughts and slovenly language.



Q. 13	It is a pity that Caste even today has its defenders. The defences are many. It is defended on the grounds that the Caste System is but another name for division of labour, and if division of labour is a necessary feature of every civilised society, then it is argued that there is nothing wrong in the Caste System. Now the first thing to be urged against this view is that Caste System is not merely division of labour. It is also a division of labourers. Civilised society undoubtedly needs division of labour but nowhere is division of labour accompanied by this unnatural division of labourers into watertight compartments, grading them one above the other. This division of labour is not spontaneous or based on natural aptitudes. Social and individual efficiency requires us to develop the individual capacity and competency to choose and to make his own career. This principle is violated in so far as it involves an attempt to appoint tasks to individuals in advance, not on the basis of trained original capacities, but on that of birth. Industry undergoes rapid and abrupt changes and an individual must be free to change his occupation and adjust himself to changing circumstances, to gain his livelihood. (Adapted from <i>Annihilation of Caste</i> by Dr. B.R. Ambedkar.) Which of the following observations substantiate the arguments found in the passage above?
(A)	Newer generations are unable to change and move away from low-paying family professions, even with changed economic circumstances.
(B)	Sedentary desk jobs are considered to have more value and are in greater demand than those involving manual labour.
(C)	The government's jobs guarantee programme makes low-level management jobs available across all industries to all graduates in the nation.
(D)	A bus driver becomes an app creator and, in the course of one month, reaches one million downloads on Playstore with a four-star rating.



Q. 14	Imagine that you're in a game show and your host shows you three doors. Behind one of them is a shiny car and behind the others are goats. You pick one of the doors and get what lies within. After making your choice, your host chooses to open one of the other two doors, which inevitably reveals a goat. He then asks you if you want to stick with your original pick, or switch to the other remaining door. What do you do? Most people think that it doesn't make a difference and they tend to stick with their first pick. With two doors left, you should have a 50% chance of selecting the one with the car. If you agree, then you have just fallen afoul of one of the most infamous mathematical problems – the Monty Hall Problem. In reality, you should switch every time which doubles your odds of getting the car. Over the years, the problem has ensnared countless people, but not, it seems, pigeons. The humble pigeon can learn with practice the best tactic for the Monty Hall Problem, switching from their initial choice almost every time. Amazingly, humans do not! (Adapted from an article by Ed Yong in <i>Discover Magazine</i>.) Which of the following conclusions follow from the passage above?
(A)	Humans calculate the probability of independent, random events such as the opening of a door by dividing the specific outcomes by the total number of possible outcomes.
(B)	Humans find it very difficult to learn to account for the host's hand in making the event non-random and, thereby, changing the outcome of the event.
(C)	Calculating probabilities is difficult for humans but easy for pigeons; which is why the pigeons succeed where the humans fail.
(D)	Humans are governed by reason, but pigeons are irrational and only interested in the outcome and will do whatever it takes to get food.



Q. 15	The truth is that, despite the recent success of car-makers P and Q, India's automobile industry is in a state not that different from the bad old days of the license-permit quota raj when two carmakers dominated a captive domestic market with substandard vehicles and with very little, if any, research and development, and low to negligible productivity growth. High tariff barriers have certainly induced foreign automobile makers to enter the Indian market by setting up local operations, but this so-called "tariff jumping" foreign investment has produced an industry that is inefficient, operating generally at a low scale, and whose products are not globally competitive either in terms of cost or of innovation. It is noteworthy that the automobile parts industry, which has faced low tariffs (as low as 12.5%) and has been largely deregulated, has been characterised by higher productivity and much better export performance than the completely-built units' sector in the years since liberalisation. (Adapted from an Op-Ed in <i>The Mint</i>.) Which of the following statements can be inferred from the above?
(A)	Low tariff barriers increase productivity.
(B)	Tariff jumping leads to increases in productivity.
(C)	Deregulation has worked for the automotive parts industry and therefore should be applied to completely-built units.
(D)	P and Q do not invest enough in research and development.



English (XH-C2)

Q.1 – Q.12 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	Which of the following texts is a collection of stories that a group of pilgrims tell each other?
(A)	<i>The Shepheardes Calender</i>
(B)	<i>The Pilgrim's Progress</i>
(C)	<i>The Canterbury Tales</i>
(D)	<i>Parliament of Fowls</i>

Q.2	Which of these is NOT an autobiography?
(A)	Baby Kamble, <i>The Prisons We Broke</i>
(B)	Bama, <i>Karukku</i>
(C)	Mulk Raj Anand, <i>Untouchable</i>
(D)	Om Prakash Valmiki, <i>Joothan</i>

Q.3	Writers Workshop and Bhaft are _____.
(A)	niche publishing houses in India that focus on particular genres
(B)	little magazines that were set up by small collectives of writers
(C)	digital archives of performance poetry
(D)	well-known reading circles in 1950s' Lucknow



Q.4	The following lines capture the central trope of a well-known 18th century satirical tract. “I have been assured by a very knowing American of my acquaintance in London, that a young healthy child, well nursed, is, at a year old, a most delicious, nourishing, and wholesome food...” Identify the tract from the options below.
(A)	John Stuart Mill, “On Liberty”
(B)	Francis Bacon, “On Death”
(C)	Jonathan Swift, “A Modest Proposal”
(D)	Robert Graves, “Warning to Children”

Q.5	Whose poem does Cleanth Brooks close-read to arrive at his concept of “the well-wrought urn”?
(A)	William Wordsworth
(B)	John Keats
(C)	William Blake
(D)	Alfred Tennyson

Q.6	What is common among Charles Dickens’ <i>A Tale of Two Cities</i>, Mahasweta Devi’s <i>Mother of 1084</i>, Shobha Shakti’s <i>Gorilla</i>, and Chimamanda Ngozi Adichie’s <i>Half of A Yellow Sun</i>?
(A)	These novels are set during times of political uprisings.
(B)	These novels are feminist narratives.
(C)	These novels have animals as central characters.
(D)	These novels are picaresque novels.



Q.7	Henry James' essay "The Art of Fiction", one of the earliest literary critical engagements with the form of the novel, was preceded by his book-length study of _____.
(A)	William Faulkner
(B)	Nathaniel Hawthorne
(C)	Aphra Behn
(D)	Oscar Wilde

Q.8	Which of the following is NOT true of Bram Stoker's <i>Dracula</i>?
(A)	It is considered to be a gothic novel.
(B)	It is narrated mostly through letters.
(C)	Transylvania is an important setting in the novel.
(D)	It is a bildungsroman.

Q.9	"The name is H. Hatterr, and I am continuing . . . Biologically, I am fifty-five of the species." The lines above are from an early Indian English novel. Who is the author of this novel?
(A)	G. V. Desani
(B)	Allan Sealy
(C)	Toru Dutt
(D)	Ruth Praver Jhabvala



Q.10	In <i>Areopagitica</i>, John Milton made an impassioned appeal _____.
(A)	against censorship and for freedom of expression
(B)	for legal reform allowing divorce based on spousal incompatibility
(C)	for freedom of the church from royal control
(D)	against slavery in the New World

Q.11	The first institution to teach English Literature in the world is - _____.
(A)	The University of Oxford, Oxford
(B)	Royal Polytechnic Institution, London
(C)	The College of William and Mary, Williamsburg, Virginia
(D)	Fort William College, Calcutta

Q.12	Which one of the following texts propounds the aesthetic theory of 'rasa'?
(A)	<i>Natya Shastra</i>
(B)	<i>Abhigyan Shakuntalam</i>
(C)	<i>Manu Smriti</i>
(D)	<i>Charaka Samhita</i>



Q.13 – Q.20 Multiple Select Question (MSQ), carry ONE mark each (no negative marks).

Q.13	Which of the following novels is/are predominantly set in Bombay?
(A)	Kiran Nagarkar, <i>Ravan and Eddie</i>
(B)	Rohinton Mistry, <i>A Fine Balance</i>
(C)	Salman Rushdie, <i>Midnight's Children</i>
(D)	Aravind Adiga, <i>The White Tiger</i>

Q.14	Which of the following critically rewrite/s canonical English novels?
(A)	J. M. Coetzee, <i>Foe</i>
(B)	Jean Rhys, <i>Wide Sargasso Sea</i>
(C)	Bapsi Sidhwa, <i>Ice-Candy-Man</i>
(D)	Ben Okri, <i>The Famished Road</i>

Q.15	Of the following, which novelist/s combine/s feminist concerns with magic realism?
(A)	Virginia Woolf
(B)	Toni Morrison
(C)	Kamala Markandaya
(D)	Svetlana Alexievich



Q.16	In which of these Shakespearean plays do important female characters disguise themselves as men?
(A)	<i>A Midsummer Night's Dream</i>
(B)	<i>The Merchant of Venice</i>
(C)	<i>As You Like It</i>
(D)	<i>Twelfth Night</i>

Q.17	The following words in English are clustered according to their origin. Choose the cluster/s that contain/s words drawn from languages of the Indian subcontinent.
(A)	Kedgerie, Punch, Mulligatawny, Candy
(B)	Shampoo, Chintz, Calico, Juggernaut
(C)	Philistine, Echo, Panic, Galaxy
(D)	Anaconda, Cheroot, Bungalow, Dungaree

Q. 18	Which of the following is/are true of Charlotte Brontë's <i>Jane Eyre</i>?
(A)	It was published under the pen-name Currer Bell.
(B)	It was published originally in three volumes.
(C)	It has been read as a critique of heterosexual romance, marriage, and domesticity.
(D)	The story is told from the point of view of a "madwoman in the attic".



Q. 19	Which of the following is an example/are examples of noir, popular both as fiction and film?
(A)	<i>The Big Sleep</i>
(B)	<i>Murder on the Orient Express</i>
(C)	<i>The Maltese Falcon</i>
(D)	<i>Fargo</i>

Q. 20	Which of the following use/s the device of a 'story within a story' with multiple narrators?
(A)	<i>A Portrait of an Artist as a Young Man</i>
(B)	<i>Wuthering Heights</i>
(C)	<i>Emma</i>
(D)	<i>Heart of Darkness</i>



Q.21 – Q.30 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 21	Match the following plays with genre or style:			
	i	<i>Hayavadana</i>	a	Political satire
	ii	<i>Harvest</i>	b	Modernist play reworking the folk
	iii	<i>Ghashiram Kotwal</i>	c	Theatre of the absurd
	iv	<i>Evam Indrajit</i>	d	Futuristic dystopia
(A)	i-b, ii-d, iii-a, iv-c			
(B)	i-a, ii-c, iii-b, iv-d			
(C)	i-d, ii-b, iii-c, iv-a			
(D)	i-c, ii-d, iii-a, iv-b			



Q. 22	<i>Study the three examples below:</i> i) In George Orwell's novel <i>1984</i>, the interior ministry of the totalitarian state is called the 'Ministry of Love'. ii) In the genre of horror fiction, the reader knows that the killer is hiding in the closet, but the protagonist does not. iii) "But Brutus says he was ambitious; And Brutus is an honourable man." (William Shakespeare, <i>Julius Caesar</i>) <i>These are instances of _____.</i>
(A)	metaphor
(B)	irony
(C)	parody
(D)	synecdoche

Q. 23	An "implied reader" is a _____.
(A)	reader who participates in creating the meaning of a text
(B)	reader who anticipates authorial intention
(C)	hypothetical reader, not the actual reader, that the text addresses
(D)	reader who reads critically against the grain of the text



Q. 24	Read the following: “[...] a text is made of multiple writings, drawn from many cultures and entering into mutual relations of dialogue, parody, contestation, but there is one place where this multiplicity is focused and that place is the reader, not, as was hitherto said, the author. [...] the birth of the reader must be at the cost of the death of the Author.” Which theoretical school does the excerpt best represent?
(A)	Reader-response criticism
(B)	Formalism
(C)	Post-structuralism
(D)	New Criticism

Q. 25	Literary criticism considers which one of the following texts as offering the strongest support for mimetic theories of art?
(A)	Plato, <i>Republic</i>
(B)	Longinus, <i>On Sublimity</i>
(C)	Horace, <i>The Art of Poetry</i>
(D)	Aristotle, <i>Poetics</i>



Q. 26	The following is a passage about O. V. Vijayan's <i>The Legends of Khasak</i>: The novel is set in a remote village, in the middle of the 20th century. The narrative is replete with images of the vast ecosystem of the living and the non-living, a land potent with dreams and legends. The analysis presented in this description is congruent with which one of the following concepts proposed by Mikhail Bakhtin?
(A)	Chronotope
(B)	Dialogism
(C)	Carnavalesque
(D)	Polyphony

Q. 27	Which one of the following did NOT happen in 1919, the year the First World War ended?
(A)	The Progressive Writers' Association was formed in India.
(B)	The radical political activist and philosopher Rosa Luxemborg was murdered.
(C)	Rabindranath Tagore renounced his knighthood.
(D)	James Joyce's <i>Ulysses</i> was being serialised.



Q. 28	Assertion P: Dalit narratives tend to be read single-dimensionally as evoking the reader's pity at the protagonist's caste humiliation, or as telling the story of heroic protest against discrimination, or as a description of the protagonist's rise from misery to triumph. Assertion Q: There is a tendency to keep the Other in the space of difference, as perpetually exotic. In the context of the assertions above, which one of the following statements is true?
(A)	P and Q are contradictory assertions.
(B)	P and Q are compatible assertions.
(C)	P and Q cannot be read in relation to each other.
(D)	Q is the only explanation for P.

Q. 29	Some of the recent novels of the Brazilian writer Paulo Coelho were published in multiple languages simultaneously, or immediately after the Portuguese edition. Which of the following is this phenomenon NOT an evidence of?
(A)	Rebecca Walkowitz's argument that novels are often 'born translated'
(B)	The globality of marketplace for books
(C)	Paulo Coelho's expanding popularity
(D)	The 'nation' as the sole frame for understanding literature



Q. 30

Match the authors in the first column with their respective translators in the second column.

i	Madhavikutty	a	A. K. Ramanujan
ii	U. R. Ananthamurthy	b	Dilip Chitre
iii	Indira Goswami	c	Kamala Das
iv	Namdeo Dhasal	d	Aruni Kashyap

(A) i-d, ii-c, iii-b, iv-a

(B) i-c, ii-b, iii-d, iv-a

(C) i-c, ii-a, iii-d, iv-b

(D) i-b, ii-a, iii-d, iv-c



Q.31 – Q.40 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 31	Which of the following is/are true about Gilles Deleuze and Felix Guattari's conception of 'minor literature'?
(A)	The discussion focuses on the writing of Franz Kafka.
(B)	Minor literature is literature that a minority produces in a major language.
(C)	Minor literature is a form of popular literature.
(D)	Minor literature is literature in a minor language.



Q. 32	Quote P: “O wild West Wind, thou breath of Autumn's being, Thou, from whose unseen presence the leaves dead Are driven, like ghosts from an enchanter fleeing, Yellow, and black, and pale, and hectic red, Pestilence-stricken multitudes: O thou, Who chariotest to their dark wintry bed [...]” Quote Q: “O golden-tongued Romance with serene lute! Fair plumed Siren! Queen of far away!” Which of the following is/are correct?
(A)	Both quotes are examples of apostrophe.
(B)	Both quotes use alliteration.
(C)	Both quotes are examples of aporia.
(D)	Both quotes are examples of personification.



Q. 33	Prolepsis is the representation or assumption in the present, of a future act or development. Which of the following is/are instance/s of prolepsis?
(A)	“Six decades later she would describe how at the age of thirteen she had written her way through a whole history of literature.” Ian McEwan, <i>Atonement</i> .
(B)	“Horatio, I am dead.” William Shakespeare, <i>Hamlet</i> .
(C)	“In my younger and more vulnerable years my father gave me some advice that I’ve been turning over in my head ever since.” F. Scott Fitzgerald, <i>The Great Gatsby</i> .
(D)	“Many years later, as he faced the firing squad, Colonel Aureliano Buendía was to remember that distant afternoon when his father took him to discover ice.” Gabriel García Márquez, <i>One Hundred Years of Solitude</i> .

Q. 34	Gayatri Chakravorty Spivak’s essay “Can the Subaltern Speak?” proposes which of the following?
(A)	The voice of the subaltern is appropriated by ‘intellectuals’ desiring to speak for the subaltern.
(B)	It is easy to confuse writing about the subaltern with the subaltern speaking for herself.
(C)	All women are subaltern and therefore cannot truly speak.
(D)	The ‘intellectuals’ speaking for the subaltern and the subaltern speaking for herself can be equivalent.



Q. 35	Which of the following is/are example/s of ‘metafiction’?
(A)	Each chapter in a novel is narrated by a different character.
(B)	The reader is a character in the novel who interrupts the story because he realises that he is reading an incomplete text.
(C)	The narrator of the novel travels into the wild and encounters a man who embodies the horrors of colonial power. The latter then proceeds to tell his story.
(D)	A character in a novel encounters a shabbily dressed man. Soon, this man lets us, the readers, know that he is the author of the novel and is contemplating the future of this character.

Q. 36	Choose one or more options from below. In contrast to traditional Historicism, New Historicism _____.
(A)	rejects the idea that history is an objective narrative of events unfolding in linear time
(B)	does not make strict distinctions between literary and non-literary texts
(C)	takes a particular interest in the textualisation of the material world
(D)	takes history only to be a background and context for understanding literary texts



Q. 37	“The feminist insistence that ‘the personal is political’ has had profound effects on other genres. Feminist academics in several disciplines now insist that the subjective element must not be left out of the practice of research methods, such as the interview, or of theories of knowledge production (Skeggs 1995; Maynard and Purvis 1994; Reinhartz 1992).” From the passage above, which of the following can be correctly concluded?
(A)	The passage argues that interviews and theories of knowledge production are not examples of research methods.
(B)	‘The personal is political’ is a feminist argument.
(C)	Skeggs, Maynard, Purvis, and Reinhartz are names of feminist scholars.
(D)	The passage argues that the subjective can legitimately be part of research methods.



Q. 38	“ARE YOU DARK? OR VERY LIGHT?” Revelation came. “You mean—like plain or milk chocolate?” Her assent was clinical, crushing in its light Impersonality. Rapidly, wave-length adjusted, I chose. “West African sepia”—and as afterthought, “Down in my passport.” Silence for spectroscopic Flight of fancy, till truthfulness clanged her accent Hard on the mouthpiece. “WHAT’S THAT?” conceding “DON’T KNOW WHAT THAT IS.” “Like brunette.” “THAT’S DARK, ISN’T IT?” “Not altogether. Facially, I am brunette, but, madam, you should see The rest of me. Palm of my hand, soles of my feet Are a peroxide blond. Friction, caused— Foolishly, madam—by sitting down, has turned My bottom raven black—One moment, madam!”—sensing Her receiver rearing on the thunderclap About my ears—“Madam,” I pleaded, “wouldn’t you rather See for yourself?” In Wole Soyinka’s “Telephone Conversation”, the man seeking to rent a room responds to the white landlady’s racism by _____.
(A)	describing black as a spectrum as opposed to a single colour
(B)	being the subservient Black man, who concedes to her definition of race
(C)	locating race squarely in her ways of seeing
(D)	fragmenting the racialised body



Q. 39	In Arthur Conan Doyle’s writings featuring Sherlock Holmes, as is the case with much of 19th century British fiction, colonialism appears as objects, events, animals, places, fears and desires. Which of the following support/s this claim?
(A)	Opium dens in London, frequented by Holmes
(B)	The war in which Watson served as a doctor
(C)	The hound in <i>The Hound of the Baskervilles</i>
(D)	The pet animals in “The Adventure of the Speckled Band”





Q. 40	“My Papa’s Waltz” by Theodore Roethke The whiskey on your breath Could make a small boy dizzy; But I hung on like death: Such waltzing was not easy. We romped until the pans Slid from the kitchen shelf; My mother’s countenance Could not unfrown itself. The hand that held my wrist Was battered on one knuckle; At every step you missed My right ear scraped a buckle. You beat time on my head With a palm caked hard by dirt, Then waltzed me off to bed Still clinging to your shirt. Which of the following can be observed about this poem?
(A)	The form of the poem is that of the Petrarchan sonnet.
(B)	There is a simile in the first stanza.
(C)	Images in the last two stanzas suggest that the father is a working-class man.
(D)	The poem is in rhyming couplets.

END OF THE QUESTION PAPER

Graduate Aptitude Test in Engineering (GATE 2021)**Subject/Paper: Humanities and Social Sciences (XH) / English (XH-C2)**

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
1	7	MCQ	GA	D	1	1/3
2	7	MCQ	GA	D	1	1/3
3	7	MCQ	GA	D	1	1/3
4	7	MCQ	GA	D	1	1/3
5	7	MCQ	GA	C	1	1/3
6	7	MCQ	GA	C	2	2/3
7	7	MCQ	GA	A	2	2/3
8	7	MCQ	GA	C	2	2/3
9	7	MCQ	GA	C	2	2/3
10	7	MCQ	GA	D	2	2/3
1	7	MCQ	XH-B1	C	1	1/3
2	7	MCQ	XH-B1	C	1	1/3
3	7	MCQ	XH-B1	C	1	1/3
4	7	MCQ	XH-B1	D	1	1/3
5	7	MCQ	XH-B1	C	1	1/3
6	7	MCQ	XH-B1	A	2	2/3
7	7	MCQ	XH-B1	C	2	2/3
8	7	MCQ	XH-B1	C	2	2/3
9	7	MCQ	XH-B1	D	2	2/3
10	7	MCQ	XH-B1	B	2	2/3
11	7	MSQ	XH-B1	C; D	2	0
12	7	MSQ	XH-B1	B; C	2	0

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / English (XH-C2)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
13	7	MSQ	XH-B1	A; B	2	0
14	7	MSQ	XH-B1	A; B	2	0
15	7	MSQ	XH-B1	A; C; D	2	0
1	7	MCQ	XH-C2	C	1	1/3
2	7	MCQ	XH-C2	C	1	1/3
3	7	MCQ	XH-C2	A	1	1/3
4	7	MCQ	XH-C2	C	1	1/3
5	7	MCQ	XH-C2	B	1	1/3
6	7	MCQ	XH-C2	A	1	1/3
7	7	MCQ	XH-C2	B	1	1/3
8	7	MCQ	XH-C2	D	1	1/3
9	7	MCQ	XH-C2	A	1	1/3
10	7	MCQ	XH-C2	A	1	1/3
11	7	MCQ	XH-C2	MTA	1	1/3
12	7	MCQ	XH-C2	A	1	1/3
13	7	MSQ	XH-C2	A; B; C	1	0
14	7	MSQ	XH-C2	A; B	1	0
15	7	MSQ	XH-C2	B	1	0
16	7	MSQ	XH-C2	B; C; D	1	0
17	7	MSQ	XH-C2	A; B; D	1	0
18	7	MSQ	XH-C2	A; B; C	1	0
19	7	MSQ	XH-C2	A; C	1	0
20	7	MSQ	XH-C2	B; D	1	0
21	7	MCQ	XH-C2	A	2	2/3
22	7	MCQ	XH-C2	B	2	2/3
23	7	MCQ	XH-C2	C	2	2/3
24	7	MCQ	XH-C2	C	2	2/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / English (XH-C2)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
25	7	MCQ	XH-C2	D	2	2/3
26	7	MCQ	XH-C2	A	2	2/3
27	7	MCQ	XH-C2	A	2	2/3
28	7	MCQ	XH-C2	B	2	2/3
29	7	MCQ	XH-C2	D	2	2/3
30	7	MCQ	XH-C2	C	2	2/3
31	7	MSQ	XH-C2	A; B	2	0
32	7	MSQ	XH-C2	A; D	2	0
33	7	MSQ	XH-C2	A; B; D	2	0
34	7	MSQ	XH-C2	A; B	2	0
35	7	MSQ	XH-C2	B; D	2	0
36	7	MSQ	XH-C2	A; B; C	2	0
37	7	MSQ	XH-C2	B; C; D	2	0
38	7	MSQ	XH-C2	A; C; D	2	0
39	7	MSQ	XH-C2	A; B; D	2	0
40	7	MSQ	XH-C2	B; C	2	0
MTA means Marks to All						



General Aptitude (GA)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	Consider the following sentences: (i) After his surgery, Raja hardly could walk. (ii) After his surgery, Raja could barely walk. (iii) After his surgery, Raja barely could walk. (iv) After his surgery, Raja could hardly walk. Which of the above sentences are grammatically CORRECT?
(A)	(i) and (ii)
(B)	(i) and (iii)
(C)	(iii) and (iv)
(D)	(ii) and (iv)

Q.2	Ms. X came out of a building through its front door to find her shadow due to the morning sun falling to her right side with the building to her back. From this, it can be inferred that building is facing _____
(A)	North
(B)	East
(C)	West
(D)	South



Q.3	In the above figure, O is the center of the circle and, M and N lie on the circle. The area of the right triangle MON is 50 cm^2. What is the area of the circle in cm^2 ?
(A)	2π
(B)	50π
(C)	75π
(D)	100π

Q.4	If $\begin{cases} \text{"}\oplus\text{" means "}-\text{"}, \\ \text{"}\otimes\text{" means "}\div\text{"}, \\ \text{"}\Delta\text{" means "}\text{+}\text{"}, \\ \text{"}\nabla\text{" means "}\times\text{"}, \end{cases}$ then, the value of the expression $\Delta 2 \oplus 3 \Delta ((4 \otimes 2) \nabla 4) =$
(A)	-1
(B)	-0.5
(C)	6
(D)	7



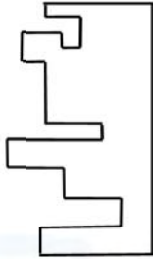
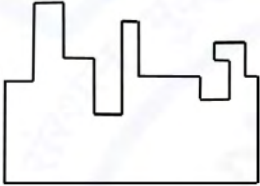
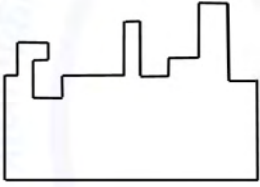
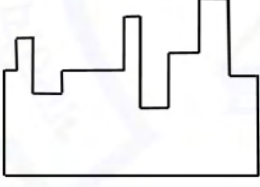
Q.5	“The increased consumption of leafy vegetables in the recent months is a clear indication that the people in the state have begun to lead a healthy lifestyle” Which of the following can be logically inferred from the information presented in the above statement?
(A)	The people in the state did not consume leafy vegetables earlier.
(B)	Consumption of leafy vegetables may not be the only indicator of healthy lifestyle.
(C)	Leading a healthy lifestyle is related to a diet with leafy vegetables.
(D)	The people in the state have increased awareness of health hazards causing by consumption of junk foods.



Q. 6 – Q. 10 Multiple Choice Question (MCQ), carry TWO marks each (for each wrong answer: – 2/3).

Q.6	Oxpeckers and rhinos manifest a symbiotic relationship in the wild. The oxpeckers warn the rhinos about approaching poachers, thus possibly saving the lives of the rhinos. Oxpeckers also feed on the parasitic ticks found on rhinos. In the symbiotic relationship described above, the primary benefits for oxpeckers and rhinos respectively are,
(A)	Oxpeckers get a food source, rhinos have no benefit.
(B)	Oxpeckers save their habitat from poachers while the rhinos have no benefit.
(C)	Oxpeckers get a food source, rhinos may be saved from the poachers.
(D)	Oxpeckers save the lives of poachers, rhinos save their own lives.



Q.7	 A jigsaw puzzle has 2 pieces. One of the pieces is shown above. Which one of the given options for the missing piece when assembled will form a rectangle? The piece can be moved, rotated or flipped to assemble with the above piece.
(A)	
(B)	
(C)	
(D)	



Q.8	The number of hens, ducks and goats in farm P are 65, 91 and 169, respectively. The total number of hens, ducks and goats in a nearby farm Q is 416. The ratio of hens:ducks:goats in farm Q is 5:14:13. All the hens, ducks and goats are sent from farm Q to farm P. The new ratio of hens:ducks:goats in farm P is _____
(A)	5:7:13
(B)	5:14:13
(C)	10:21:26
(D)	21:10:26

Q.9	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Company</th><th>Ratio</th></tr> </thead> <tbody> <tr> <td>C1</td><td>3:2</td></tr> <tr> <td>C2</td><td>1:4</td></tr> <tr> <td>C3</td><td>5:3</td></tr> <tr> <td>C4</td><td>2:3</td></tr> <tr> <td>C5</td><td>9:1</td></tr> <tr> <td>C6</td><td>3:4</td></tr> </tbody> </table> The distribution of employees at the rank of executives, across different companies C1, C2, ..., C6 is presented in the chart given above. The ratio of executives with a management degree to those without a management degree in each of these companies is provided in the table above. The total number of executives across all companies is 10,000. The total number of management degree holders among the executives in companies C2 and C5 together is _____.	Company	Ratio	C1	3:2	C2	1:4	C3	5:3	C4	2:3	C5	9:1	C6	3:4
Company	Ratio														
C1	3:2														
C2	1:4														
C3	5:3														
C4	2:3														
C5	9:1														
C6	3:4														
(A)	225														
(B)	600														
(C)	1900														
(D)	2500														



Q. 10	Five persons P, Q, R, S and T are sitting in a row not necessarily in the same order. Q and R are separated by one person, and S should not be seated adjacent to Q. The number of distinct seating arrangements possible is:
(A)	4
(B)	8
(C)	10
(D)	16



Reasoning and Comprehension (XH-B1)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	According to a recent article in a medical journal, consuming curcumin (from turmeric) significantly lowers the risk of COVID-19. The researchers draw this conclusion from a study that found that people who consumed one or more teaspoons of curcumin extract everyday were half as likely to be diagnosed with the disease as people who did not consume curcumin. Which of the following, if true, most weakens the argument in the article?
(A)	In another study, people who were given a zinc supplement everyday were more than four times less likely to be diagnosed with COVID-19 as those who did not.
(B)	All the participants in this study were from the same state where no other spices or herbs are consumed.
(C)	The participants who consumed curcumin were also more likely to exercise than those who did not.
(D)	In another study, COVID-19 patients who were given curcumin were no more likely to recover than others.

Q.2	Froot Inc. carried out an internet advertisement campaign for its new beverage CocoLoco. After the campaign, the director of the advertising company conducted a survey and found that the CocoLoco sales were higher than that of TenderJoos a competing product from Joos Inc. The agency concluded that the internet advertising campaign is more effective than advertising through other media. Which of the following statements could strengthen the conclusion above by the agency?
(A)	A ₹2 discount was offered on CocoLoco during the campaign period.
(B)	CocoLoco sales were higher than those of TenderJoos before the internet campaign.
(C)	A newspaper advertisement campaign the previous year did not increase CocoLoco sales.
(D)	During the campaign for CocoLoco, Joos Inc. did not advertise TenderJoos at all.



Q.3	An e-commerce site offered a deal last month conditional on the customer spending a minimum of ₹500. Any customer who buys 2 kg of fresh fruit will receive a hand mixer and any customer who buys 2 kg of fresh vegetables will receive a vegetable chopper. Which of the following is NOT a possible outcome of the above?
(A)	A customer purchased 3 kg of fresh fruit and did not receive a vegetable chopper.
(B)	A customer purchased items for ₹500 which included 1 kg of vegetables and received a hand mixer.
(C)	A customer purchased items for ₹500 which included 2 kg of vegetables and 1 kg of fruit and received a hand mixer.
(D)	A customer purchased items for ₹300 which included 2 kg of fruit and received neither a hand mixer nor a vegetable chopper.

Q.4	Writers of detective fiction often include an incompetent detective as a foil for the brilliant investigator-protagonist as they follow different paths in trying to solve the crime. In the individual accounts, the incompetent detective is frequently distracted by the culprit's careful plans, while the competent investigator solves the case after a final confrontation. Analysts of such fiction believe that the authors select this story-telling technique to provide readers with more complexities in the form of misleading clues, while figuring out the crime. Which of the following statements most logically follows from the passage above?
(A)	A detective story is considered well-written if the brilliant investigator is accompanied by an incompetent detective.
(B)	Writers of detective fiction use the contrast of an incompetent detective to mainly show how complex the investigation is.
(C)	Writers of detective fiction never write stories where the incompetent detective solves the case.
(D)	Writers of detective fiction use two investigative accounts to make it difficult for the reader to figure out the outcome.



Q.5	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled (L,M,N,O). Reorder these parts so that the sentence can be read through correctly and select one of the options given. <i>P1: Studies of several Sahitya Akademi award winners show that...</i> L: or encounter professional M: and invariably develop a strained relationship with other literary figures N: they often publish very little O: after winning the prize <i>P6: ...envy and rivalry.</i> The correct order is:
(A)	NOLM
(B)	MLON
(C)	ONML
(D)	MOLN



Q.6 – Q.10 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 6	Gerrymandering refers to the targeted redrawing of election constituencies so as to benefit a particular party. This is especially important where the electoral system is “first past the post” in each constituency (i.e. one winner is selected in each constituency based on a majority of votes won) and where there is no other provision for proportional representation (as for example in the German system). For a simple illustration of gerrymandering, if a region consists of districts 1, 2, 3, ..., 9 with districts 1, 2, 3, 4, 5, 6 favouring party P and 7, 8, 9 favouring party Q, then grouping of districts to constituencies as {1,2,3}, {4,5,6}, {7,8,9} will give two seats to party P and one seat to party Q, whereas the grouping {1,2,7}, {3,4,8}, {5,6,9} will give all three seats to party P, as they will secure a majority in each constituency. Which of these statements can be deduced from the above?
(A)	Gerrymandering implies that constituency boundaries can sometimes be drawn to favour one party over the other.
(B)	Gerrymandering implies that proportional representation is impossible when districts are grouped to form constituencies.
(C)	To counteract gerrymandering political parties should concentrate on districts where they are favoured.
(D)	The grouping of districts to constituencies has very little impact on proportional representation.



Q. 7	X-ray examination of a recently discovered painting that some authorities judge to be a self-portrait by Michelangelo revealed an under-image of a woman's face. Either Michelangelo or some other artist must have repainted over the first painting that had now been seen on the canvas. Because the woman's face also appears on other paintings by Michelangelo, this painting is determined to indeed be an authentic painting by Michelangelo. Which of the following assumptions must be made in reaching the conclusion above?
(A)	When an already painted canvas of an artist is used, the second artist using that canvas for a new painting is usually influenced by the artistic style of the first.
(B)	Several painted canvases that art historians attribute to Michelangelo contain under-images that appear on at least one other of Michelangelo's paintings.
(C)	Subject or subjects that appear in authenticated paintings of Michelangelo are rather unlikely to show up as under-images on painted canvases not attributed to Michelangelo.
(D)	No painted canvas can be attributed to a particular artist with certainty without an X-ray analysis.

Q. 8	This season _____ tourists visited Ladakh than last season; however, _____ to be the biggest tourist destination in India. The tourism department explains that the number of tourists to India has _____ relative to previous years, _____ have chosen to visit Ladakh. Select the correct sequence of phrases to fill in the blanks to complete the passage above.
(A)	more / for the first time in many seasons it does not appear / increased / and it seems that most
(B)	fewer / as in the past, it appears / in fact decreased / but it seems that only a small proportion
(C)	fewer / for the first time in many seasons it appears / in fact decreased / but it seems that most
(D)	more / this season as well, it appears / in fact decreased / but it seems that a large proportion



Q. 9	Reorder the sentences in (1) – (5) such that they form a coherent paragraph. (1) In fact, dozens of languages today have only one native speaker still living, and that person's death will mean the extinction of the language: It will no longer be spoken, or known, by anyone on earth. (2) Many languages are falling out of use and are being replaced by others that are more widely used in the region or nation, such as English in Australia or Portuguese in Brazil. (3) Many other languages are no longer being learned by new generations of children or by new adult speakers. (4) An endangered language is one that is likely to become extinct in the near future. (5) Unless the trends are reversed, these endangered languages will become extinct by the end of the century. (Adapted from <i>What is an Endangered Language</i> by A. Woodbury.)
(A)	2 3 1 4 5
(B)	2 3 5 4 1
(C)	4 1 5 2 3
(D)	4 2 3 1 5



Q. 10	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled L,M,N,O. Reorder these parts so that the sentence can be read correctly and select one of the sequences below. <i>P1: For a little while...</i> L: it was a common belief M: right after the treaty of Versailles N: that Germany had caused World War I not just by her actions O: held by analysts and politicians alike <i>P6: ... but by also encouraging Italy in her own aggressions.</i>
(A)	LMNO
(B)	MLON
(C)	LNMO
(D)	MOLN



Q.11 – Q.15 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 11	After Florentino Ariza saw her for the first time, his mother knew before he told her because he lost his voice and his appetite and spent the entire night tossing and turning in his bed. But when he began to wait for the answer to his first letter, his anguish was complicated by diaorrhea and green vomit, he became disoriented and suffered from sudden fainting spells, and his mother was terrified because his condition did not resemble the turmoil of love so much as the devastation of cholera. Florentino Ariza's godfather, an old homeopathic practitioner who had been Tránsito Ariza's confidant ever since her days as a secret mistress, was also alarmed at first by the patient's condition, because he had the weak pulse, the hoarse breathing, and the pale perspiration of a dying man. But his examination revealed that he had no fever, no pain anywhere, and that his only concrete feeling was an urgent desire to die. All that was needed was shrewd questioning, first of the patient and then of his mother, to conclude once again that the symptoms of love were the same as those of cholera. He prescribed infusions of linden blossoms to calm the nerves and suggested a change of air so he could find consolation in distance, but Florentino Ariza longed for just the opposite: to enjoy his martyrdom. (Adapted from <i>Love in a Time of Cholera</i> by Gabriel García Márquez.) The author of the passage is implying that:
(A)	Homeopathy cures love.
(B)	The doctor could not distinguish between love and cholera.
(C)	The doctor could distinguish between love and cholera.
(D)	The symptoms of love and cholera are similar.



Q. 12	Now, it is clear that the decline of a language must ultimately have political and economic causes: it is not due simply to the bad influence of this or that individual writer. But an effect can become a cause, reinforcing the original cause and producing the same effect in an intensified form, and so on indefinitely. A man may take to drink because he feels himself to be a failure, and then fail all the more completely because he drinks. It is rather the same thing that is happening to the English language. It becomes ugly and inaccurate because our thoughts are foolish, but the slovenliness of our language makes it easier for us to have foolish thoughts. (Adapted from <i>Politics and the English Language</i> by George Orwell.) The illustration of the man who takes to drink is used to underscore which of the following ideas in the passage above?
(A)	Political and economic causes control deterioration of language.
(B)	Foolish thoughts are enabled by inaccurate language.
(C)	Effect of an action becomes the cause in a cyclic pattern.
(D)	Drinking enables people to have foolish thoughts and slovenly language.



Q. 13	It is a pity that Caste even today has its defenders. The defences are many. It is defended on the grounds that the Caste System is but another name for division of labour, and if division of labour is a necessary feature of every civilised society, then it is argued that there is nothing wrong in the Caste System. Now the first thing to be urged against this view is that Caste System is not merely division of labour. It is also a division of labourers. Civilised society undoubtedly needs division of labour but nowhere is division of labour accompanied by this unnatural division of labourers into watertight compartments, grading them one above the other. This division of labour is not spontaneous or based on natural aptitudes. Social and individual efficiency requires us to develop the individual capacity and competency to choose and to make his own career. This principle is violated in so far as it involves an attempt to appoint tasks to individuals in advance, not on the basis of trained original capacities, but on that of birth. Industry undergoes rapid and abrupt changes and an individual must be free to change his occupation and adjust himself to changing circumstances, to gain his livelihood. (Adapted from <i>Annihilation of Caste</i> by Dr. B.R. Ambedkar.) Which of the following observations substantiate the arguments found in the passage above?
(A)	Newer generations are unable to change and move away from low-paying family professions, even with changed economic circumstances.
(B)	Sedentary desk jobs are considered to have more value and are in greater demand than those involving manual labour.
(C)	The government's jobs guarantee programme makes low-level management jobs available across all industries to all graduates in the nation.
(D)	A bus driver becomes an app creator and, in the course of one month, reaches one million downloads on Playstore with a four-star rating.



Q. 14	Imagine that you're in a game show and your host shows you three doors. Behind one of them is a shiny car and behind the others are goats. You pick one of the doors and get what lies within. After making your choice, your host chooses to open one of the other two doors, which inevitably reveals a goat. He then asks you if you want to stick with your original pick, or switch to the other remaining door. What do you do? Most people think that it doesn't make a difference and they tend to stick with their first pick. With two doors left, you should have a 50% chance of selecting the one with the car. If you agree, then you have just fallen afoul of one of the most infamous mathematical problems – the Monty Hall Problem. In reality, you should switch every time which doubles your odds of getting the car. Over the years, the problem has ensnared countless people, but not, it seems, pigeons. The humble pigeon can learn with practice the best tactic for the Monty Hall Problem, switching from their initial choice almost every time. Amazingly, humans do not! (Adapted from an article by Ed Yong in <i>Discover Magazine</i>.) Which of the following conclusions follow from the passage above?
(A)	Humans calculate the probability of independent, random events such as the opening of a door by dividing the specific outcomes by the total number of possible outcomes.
(B)	Humans find it very difficult to learn to account for the host's hand in making the event non-random and, thereby, changing the outcome of the event.
(C)	Calculating probabilities is difficult for humans but easy for pigeons; which is why the pigeons succeed where the humans fail.
(D)	Humans are governed by reason, but pigeons are irrational and only interested in the outcome and will do whatever it takes to get food.



Q. 15	The truth is that, despite the recent success of car-makers P and Q, India's automobile industry is in a state not that different from the bad old days of the license-permit quota raj when two carmakers dominated a captive domestic market with substandard vehicles and with very little, if any, research and development, and low to negligible productivity growth. High tariff barriers have certainly induced foreign automobile makers to enter the Indian market by setting up local operations, but this so-called "tariff jumping" foreign investment has produced an industry that is inefficient, operating generally at a low scale, and whose products are not globally competitive either in terms of cost or of innovation. It is noteworthy that the automobile parts industry, which has faced low tariffs (as low as 12.5%) and has been largely deregulated, has been characterised by higher productivity and much better export performance than the completely-built units' sector in the years since liberalisation. (Adapted from an Op-Ed in <i>The Mint</i>.) Which of the following statements can be inferred from the above?
(A)	Low tariff barriers increase productivity.
(B)	Tariff jumping leads to increases in productivity.
(C)	Deregulation has worked for the automotive parts industry and therefore should be applied to completely-built units.
(D)	P and Q do not invest enough in research and development.



Linguistics (XH-C3)

Q.1 – Q.14 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	Which of the following is NOT demonstrated by studies with Great Apes like <i>Koko</i> and <i>Washoe</i> and <i>Sarah</i>?
(A)	The capacity to produce rule-governed, novel messages.
(B)	The capacity for symbolic communication.
(C)	The manual dexterity for signing.
(D)	The ability to teach other members of the species.

Q.2	The meaning <i>relax</i> or <i>calm down</i> for the word ‘chill’ is an example of what kind of semantic change?
(A)	Metaphor
(B)	Metonymy
(C)	Synecdoche
(D)	Pejoration



Q.3	Match the following communication systems (P-T) to their type (i-vi) and select the correct sequence:		
	P	Bird song	(i) Indexical and discrete
	Q	☺ ☀ ♂ ;-) ♥ 🎵 ☹	(ii) Symbolic and continuous
	R	Footprints on the beach	(iii) Symbolic and discrete
	S	Direction indication in bee dance	(iv) Indexical and continuous
	T	Bird calls	(v) Iconic and discrete
			(vi) Iconic and continuous
(A) P-(iii), Q-(v), R-(i), S-(ii), T-(iv)			
(B) P-(v), Q-(vi), R-(ii), S-(iv), T-(iii)			
(C) P-(iv), Q-(v), R-(iii), S-(ii), T-(vi)			
(D) P-(ii), Q-(vi), R-(v), S-(iii), T-(i)			

Q.4	Statistical learning in language development in infants refers to _____.
(A)	calculating regularities in speech to isolate words
(B)	early mathematical knowledge that infants can demonstrate
(C)	infant data that researchers use to understand language growth
(D)	learning to differentiate phonemes as they are used in spoken words



Q.5	If ‘Aam Aadmi’ is translated as ‘Mango Man’, which type of ambiguity does the translation demonstrate?
(A)	Lexical
(B)	Syntactic
(C)	Morphological
(D)	Morphosyntactic

Q.6	While most of the historically known writing systems in India tend to write from left to right, identify the one which writes from right to left.
(A)	Kharoṣṭhī
(B)	Brāhmī
(C)	Śāradā
(D)	Grantha

Q.7	Identify the pair of words with a <i>circumfix</i> from the list below.
(A)	enlighten, embolden
(B)	enquiring, inquiring
(C)	transformation, transportation
(D)	reduced, repeated



Q.8	Which of the following sets illustrates sound symbolism in English?
(A)	mash, splash, bash, crash
(B)	flash, shine, sear, glimmer
(C)	duck, suck, luck, tuck
(D)	forte, piano, allegro, crescendo

Q.9	Voice Onset Time (VOT) is an acoustic cue used by our auditory-perceptual systems. Which of the following sounds can be identified using VOT? (i) Voiced Stops (ii) Unvoiced Stops (iii) Prenasalised Stops (iv) Aspirated Stops (v) Ejective Stops
(A)	(i), (ii), (iv) but NOT (iii) and (v)
(B)	(i), (ii), (iii), (iv) but NOT (v)
(C)	(iv), (v) but NOT (i), (ii) and (iii)
(D)	(i), (iii), (v) but NOT (ii) and (iv)

Q.10	In syntactic terms, which of the following is the odd one out?
(A)	Belle struck the Beast as incompetent.
(B)	Belle regarded the Beast as incompetent.
(C)	Belle identified the Beast as incompetent.
(D)	Belle viewed the Beast as incompetent.



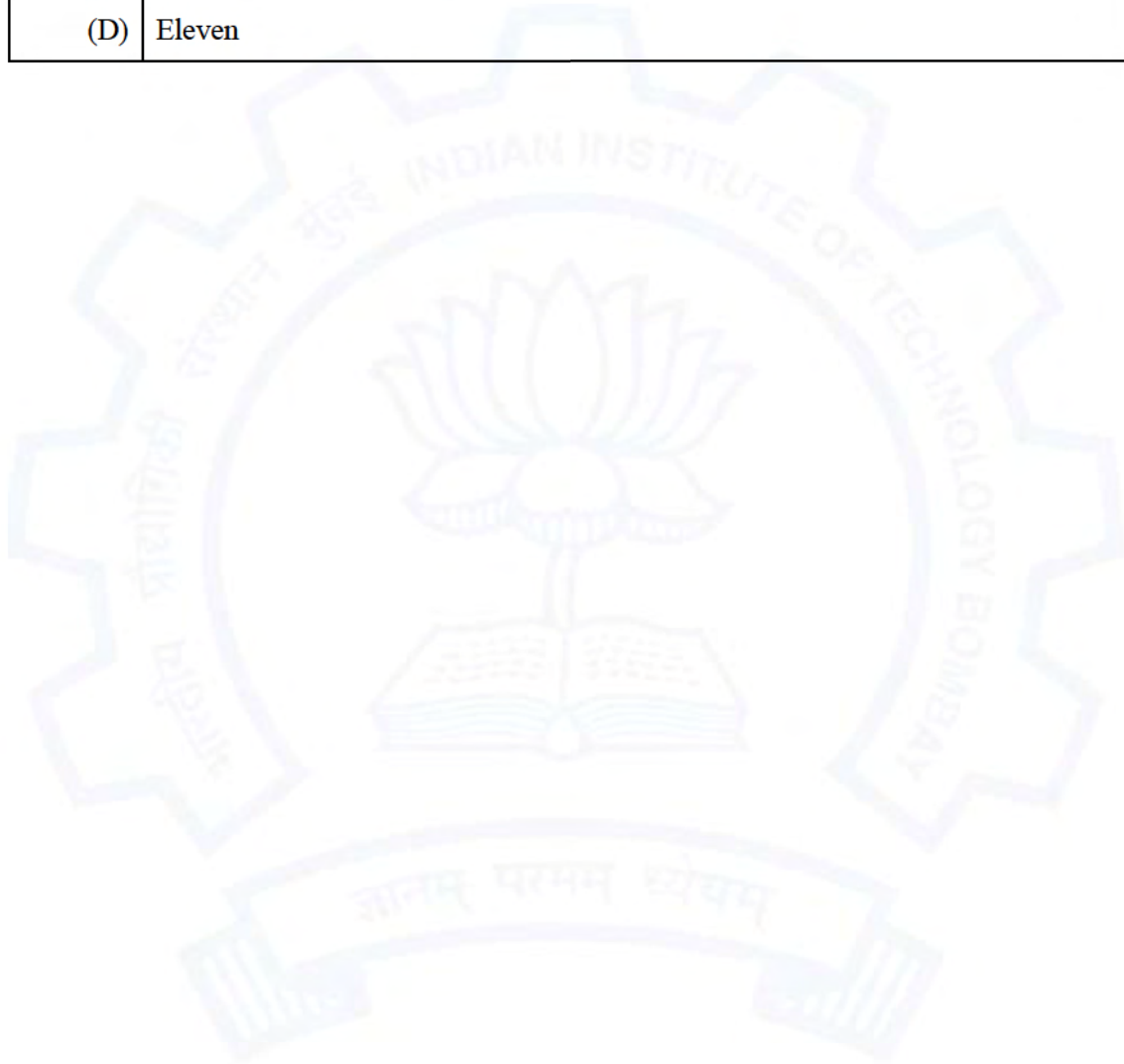
Q.11	Which of the following speech errors is NOT expected in natural languages? The items that are swapped are indicated in capitals. The intended phrase is <i>tight-ly pack-ed</i>.
(A)	tighKly paTed
(B)	Pightly Tacked
(C)	PACKly TIGHTed
(D)	tightED packLY

Q.12	Language <i>isolates</i> are languages that _____.
(A)	are not known to be related to any other languages
(B)	are spoken in isolated parts of the world
(C)	have no dialectal or sociolectal varieties
(D)	are separated geographically from other members of their family

Q.13	On the new ₹2000 note, how many languages can be found in the language panel displaying the denomination of the note?
(A)	Fifteen
(B)	Sixteen
(C)	Seventeen
(D)	Eighteen



Q.14	How many unique morphemes can be isolated in <i>this</i> sentence?
(A)	Twelve
(B)	Ten
(C)	Sixteen
(D)	Eleven





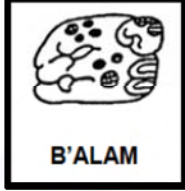
Q.15 – Q.20 Multiple Select Question (MSQ), carry ONE mark each (no negative marks).

Q.15	“I look forward to visiting teachers”. What does this sentence demonstrate?
(A)	Syntactic ambiguity
(B)	Semantic role ambiguity
(C)	Lexical ambiguity
(D)	No ambiguity

Q.16	Which of the following pairs of words do NOT stand in <i>troponymous</i> relationship?
(A)	lisp-talk
(B)	limp-walk
(C)	dream-sleep
(D)	wait-fidget

Q.17	Which of the following areal/typological feature(s) may be seen in a vast majority of the languages of South Asia?
(A)	Compound Verbs
(B)	Retroflexed Sounds
(C)	Non-nominative Subject Case
(D)	Agglutinative Morphology



Q.18	Three different ways of writing a single word in the Mayan script are given below. The glyphs (i-iii) are of a single word [ba'lam] meaning 'jaguar'. What can we conclude about the Mayan writing system from the examples provided?  (i)  (ii)  (iii)
(A)	The glyphs can be logograms, mean whole words.
(B)	The glyphs can be syllabic.
(C)	The glyphs use the <i>rebus</i> principle, part sound part meaning.
(D)	The glyphs can be alphabetic, spelling out sounds.

Q.19	Identify symptom(s) of phonological dyslexia.
(A)	The inability to map letters to sounds.
(B)	The inability to pronounce made-up or nonsense words.
(C)	The inability to tell homographs apart.
(D)	The inability to recognise semantic mismatches.

Q.20	Creolisation and creoles are characterised by which of the following?
(A)	Creolisation is the process of elaborating Pidgin languages.
(B)	Creolisation happens when a Pidgin is learned by young children as a first language.
(C)	Creoles have elaborated grammars but somewhat limited vocabulary.
(D)	Creole vocabulary is expansive but the grammar is limited and variable.



Q.21 – Q.25 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 21	In the following sentence, you are required to identify the type of aphasia and select the correct sequence from the options given below. Use of jargon and words that have no meaning are typical of _____ aphasia, while the inability to differentiate between actives and passives is seen in _____ aphasia; some patients use circumlocutions for simple words and this is known as _____ aphasia; in patients with _____ aphasia, production and comprehension may be reasonably preserved, but the ability to repeat an utterance is disrupted.
(A)	Wernicke's, Broca's, Anomic, Conduction
(B)	Broca's, Wernicke's, Conduction, Dysphonia
(C)	Anomic, Conduction, Broca's, Wernicke's
(D)	Dysphonia, Anomic, Wernicke's, Broca's



Q. 22	Match the dialogues in (P-S) to the Gricean Maxim (i-v) that has been flouted to create humour. <table border="1"> <tr> <td data-bbox="388 357 446 472">P.</td><td data-bbox="446 357 1049 472"> - Excuse me, do you know what time it is? - Yes. </td><td data-bbox="1049 357 1122 472">(i)</td><td data-bbox="1122 357 1354 472">Maxim of Relation</td></tr> <tr> <td data-bbox="388 472 446 621">Q.</td><td data-bbox="446 472 1049 621"> - How many surrealists does it take to screw in a light bulb? - Fish. </td><td data-bbox="1049 472 1122 621">(ii)</td><td data-bbox="1122 472 1354 621">Maxim of Manner</td></tr> <tr> <td data-bbox="388 621 446 737">R.</td><td data-bbox="446 621 1049 737"> - Do you believe in clubs for young men? - Only when kindness fails. </td><td data-bbox="1049 621 1122 737">(iii)</td><td data-bbox="1122 621 1354 737">Maxim of Quantity</td></tr> <tr> <td data-bbox="388 737 446 852">S.</td><td data-bbox="446 737 1049 852"> - Why did the General fly to Panama? - Because the fighting is over. </td><td data-bbox="1049 737 1122 852">(iv)</td><td data-bbox="1122 737 1354 852">Maxim of Quality</td></tr> <tr> <td data-bbox="388 852 446 953"></td><td data-bbox="446 852 1049 953"></td><td data-bbox="1049 852 1122 953">(v)</td><td data-bbox="1122 852 1354 953">Maxim of co-operation</td></tr> </table> (Adapted from Attardo, 1990)	P.	- Excuse me, do you know what time it is? - Yes.	(i)	Maxim of Relation	Q.	- How many surrealists does it take to screw in a light bulb? - Fish.	(ii)	Maxim of Manner	R.	- Do you believe in clubs for young men? - Only when kindness fails.	(iii)	Maxim of Quantity	S.	- Why did the General fly to Panama? - Because the fighting is over.	(iv)	Maxim of Quality			(v)	Maxim of co-operation		
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		(v)	Maxim of co-operation																				
(A)	P-(iii), Q-(i), R-(ii), S-(iv)																						
(B)	P-(i), Q-(v), R-(ii), S-(iii)																						
(C)	P-(i), Q-(iii), R-(iv), S-(v)																						
(D)	P-(iv), Q-(ii), R-(iii), S-(i)																						

Q. 23	Sign languages have long been used by the deaf communities to communicate amongst themselves. Which of the following is correct?
(A)	Sign language shows duality of patterning with meaningless gestures combining to create single signs.
(B)	Signs in sign languages are dominantly iconic and transparent with respect to the meaning they encode.
(C)	Children who are hearing-impaired do not converge on a language without instruction in signing and/or speaking.
(D)	Sign languages are pidgin like, rudimentary communication systems.



Q. 24	In the sentence “The gunman sprayed the building with bullets”, the preposition phrase (PP) ‘with bullets’ is attached to _____ .
(A)	‘sprayed’, because it meets the selectional restriction of ‘sprayed’
(B)	‘sprayed’, because it serves as the adjunct of the verb ‘sprayed’
(C)	‘the gunman’, because the gunman has the gun
(D)	‘the building’, because of proximity

Q. 25	Consider the sentence “Little children marched past the church sang”. Assume the starting rule of the context free grammar describing the language to be $S \rightarrow NP VP$, where S is the start symbol, NP is the noun phrase and VP is the verb phrase. For the given sentence, how many words does VP contain?
(A)	One
(B)	Two
(C)	Three
(D)	Four



Q.26 – Q.40 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q.26	<pre> graph LR S0[S0] -- DT --> S1[S1] S1 -- AJ --> S1 S1 -- NN --> S2[S2] style S0 fill:#fff,stroke:#000 style S1 fill:#fff,stroke:#000 style S2 fill:#fff,stroke:#000,stroke-width:2px </pre> The above figure shows what is called a finite state machine. The machine reads one word at a time and transitions to a new state. The states are indicated by boxes and the transitions by arrows. There are three states S_0, S_1 and S_2 and the last is the final state (indicated by two coincident boxes). The text beside each arrow means the following: DT = determiner (a, an, the), AJ = adjective, NN = noun. The machine starts at S_0 and on seeing a determiner (DT) enters the state S_1. Then if it sees an adjective (AJ), it remains in the same state. But at state S_1 if it sees a noun (NN), it enters the final state. The final state is also called the “accept” state. No other states or state transitions are defined or permitted. Which of the following will cause the machine to enter S_2, the <i>accept</i> state?
(A)	The blue sky
(B)	A vast blue sky
(C)	The sky
(D)	A very blue sky



Q. 27	Which of the following has/have been observed in speech perception experiments?
(A)	Speech perception experiments with infants show that they are sensitive at birth to the rhythmic properties of their language, as well as the difference between stress-timed and syllable-timed languages.
(B)	Infants and adults show categorical perception of consonant sounds, that is, the ability to treat what is a continuous acoustic feature as discrete.
(C)	Infants are sensitive to sounds that are not part of the phonemic inventory of the language(s) to which they are exposed, but older children and adults are not.
(D)	The Phoneme Restoration effect seen in speech perception experiments (where people hear phonemes that have been replaced by noise or a cough) shows that speech is perceived as linear.

Q. 28	Language games are a way to manipulate spoken words as the following examples from three languages show. Identify the correct statement(s) below about language games.			
	LANGUAGE	USUAL WORD FORM	GAME WORD FORM	GLOSS
	Bakwiri	kóndì mòkó	ndíkò kòmó	<i>rice</i> <i>one person</i>
	English	pɪg lætɪn kəntri	ɪgpe ætɪnle ʌntri:ke	<i>Pig Latin</i> <i>country</i>
	Marathi	kāi chāl-lai mərāṭʰi	kāpmāi chāpmāl-lai məpmərāṭʰi	<i>What's up?</i> <i>Marathi</i>
(A)	The intent is to disguise or conceal conversation.			
(B)	Words are manipulated systematically using defined rules.			
(C)	The game manipulation targets varying units of the phonological form.			
(D)	Only children use language games.			



Q. 29	What can be said about the intent and nature of prescriptive rules for languages?
(A)	Provide criteria for written language.
(B)	Characterise the universal grammar of languages.
(C)	Characterise inter-dialectal differences.
(D)	Encode changes to spoken language.

Q. 30	The use of singular <i>they</i> was voted ‘the word of the decade’ by linguists. Which of the following motivates the singular use?
(A)	The use of <i>they</i> in the singular replaces the sex specific <i>he</i> and <i>she</i> pronouns.
(B)	Using gendered pronouns can lead to gendered interpretations of the messages.
(C)	Sometimes the gender information is not known and it is easier to use <i>they</i> than <i>he/she</i> .
(D)	English is a sexist language.



Q. 31	Tok Pisin (Papua New Guinea) is an extended Pidgin/Creole language. Words borrowed from English are modified in various ways. Given the word list below, study the phonological modifications and choose the correct generalisation(s).		
	ENGLISH	TOK PISIN	GLOSS
	da:ns	da:nis	<i>dance</i>
	kæpsauz	kapsait	<i>capsize</i>
	stændbaɪ	sambai	<i>standby</i>
	spiə	supia	<i>spear</i>
	bəli:v	bilip	<i>believe</i>
	aʊtsaɪd	aʊtsaid	<i>outside</i>
(A)	Only single onsets permitted.		
(B)	Vowel epenthesis to create syllable nuclei.		
(C)	Fortition of fricatives to stops.		
(D)	Obligatory null codas.		



Q. 32	Consider the following set of Phrase Structure Rules in a toy grammar: [Note: T is tense, P is preposition, V is verb and N is noun; they project their respective phrasal units TP, PP, VP and NP] TP → NP T VP VP → (Adverb) V (TP) (PP) PP → P NP NP → (Determiner) (Adjective) N Which of the following sentences can be generated by these rules?
(A)	The golden bells are probably ringing in the church.
(B)	Bells ring to let believers know that mass will begin.
(C)	The golden bells in the church always ring for prayers.
(D)	The silent bells say that the pastor has not visited the bell tower.

Q. 33	Evaluate the following according to the <i>three principles</i> of the Binding Theory and choose the correct statement(s). (Note: the subscripted <<i>i</i>> indicates co-reference between the arguments that bear them.)
(A)	The sentence <i>Everyone who meets Tagore_i admires him_i</i> is permitted by the principles of the Binding Theory.
(B)	The sentence <i>Every one of his followers says that he_i likes Tagore_i</i> is ruled out by the Binding Theory.
(C)	The sentence <i>Tagore_i seems to ask himself_i about effects of education</i> is permitted by the Binding Theory.
(D)	The sentence <i>Everyone who meets him_i admires Tagore_i</i> is ruled out by the Binding Theory.



Q. 34	Given the facts (i-iv) about the World Cup, evaluate the statements using truth conditions and the truth tables of connectors to find the 'false' statement(s). (i) Argentina has won the World Cup twice: 1978, 1986 (ii) Germany has won it four times: 1954, 1974, 1990, 2014 (iii) France has won it twice: 1998, 2018 (iv) Japan has never won it
(A)	If [Argentina won the World Cup in 1986] then [Germany won it in 1998].
(B)	[Germany didn't win the World Cup in 1986] and [France won it in 1990].
(C)	[Argentina didn't win the World Cup in 1986] or [Japan has never won the World Cup].
(D)	If [Argentina didn't win the World Cup in 1978] then [France won it in 1990].

Q. 35	For which of the following sentence(s) can the assigned <i>presupposition</i> (P) hold?
(A)	Who discovered the Silverback Slug in 1960? P: Someone discovered the Silverback Slug in 1960.
(B)	If she had drunk coffee this morning, she would have been more alert. P: She had not drunk coffee.
(C)	Ruchi's parents returned to Alaska over the summer. P: Ruchi's parents had been to Alaska sometime before the summer.
(D)	The police ordered the students to stop drinking. P: The students were drunk.



Q. 36	Consider carefully the following data from four languages. Which deduction(s) can plausibly be made using the methods of comparative reconstruction?				
	LANGUAGE A	LANGUAGE B	LANGUAGE C	LANGUAGE D	GLOSS
	due	bi	dó	doi	<i>two</i>
	naso	nosa	srón	nas	<i>nose</i>
	fratello	anaia	bráthair	frate	<i>brother</i>
	padre	aita	pathair	pata	<i>father</i>
	sette	zazpi	seacht	sapte	<i>seven</i>
	orecchio	elarri	cluas	ureche	<i>ear</i>
	dieci	hamar	deich	zece	<i>ten</i>
(A) Languages A and D are closely related.					
(B) Language A is distantly related to Language C.					
(C) Language D is distantly related to Language B.					
(D) Languages A,B,C and D are all unrelated languages.					



Q. 37	Analyse the following Shakespearean sentences, and observe the differences between Early Modern English and Modern English – that is, how you would say these sentences today. What can we say in <i>precise, grammatical terms</i> about the syntactic changes that have occurred? <table border="1" data-bbox="386 447 1360 1136"> <tr> <td>Thou marvell'st at my words</td><td>Macbeth, <i>Macbeth</i>, III.ii</td></tr> <tr> <td>Macbeth doth come.</td><td>Third Witch, <i>Macbeth</i>, I.iii</td></tr> <tr> <td>Wilt thou use thy wit?</td><td>Claudio, <i>Much Ado About Nothing</i>, V.i</td></tr> <tr> <td>Do you fear it?</td><td>Cassius, <i>Julius Caesar</i>, I.ii</td></tr> <tr> <td>Knows he not thy voice?</td><td>First Lord, <i>All's Well That Ends Well</i>, IV.i</td></tr> <tr> <td>Didst thou not say he comes?</td><td>Baptista, <i>Taming of the Shrew</i>, III.ii</td></tr> <tr> <td>Can'st not rule her?</td><td>Leontes, <i>Winter's Tale</i>, II.iii</td></tr> <tr> <td>What sayst thou?</td><td>Olivia, <i>Twelfth Night</i>, III.iv</td></tr> <tr> <td>What dost thou say?</td><td>Othello, <i>Othello</i>, III.iii</td></tr> <tr> <td>Whom overcame he?</td><td>Boyet, <i>Love's Labour's Lost</i>, IV.i</td></tr> </table>	Thou marvell'st at my words	Macbeth, <i>Macbeth</i> , III.ii	Macbeth doth come.	Third Witch, <i>Macbeth</i> , I.iii	Wilt thou use thy wit?	Claudio, <i>Much Ado About Nothing</i> , V.i	Do you fear it?	Cassius, <i>Julius Caesar</i> , I.ii	Knows he not thy voice?	First Lord, <i>All's Well That Ends Well</i> , IV.i	Didst thou not say he comes?	Baptista, <i>Taming of the Shrew</i> , III.ii	Can'st not rule her?	Leontes, <i>Winter's Tale</i> , II.iii	What sayst thou?	Olivia, <i>Twelfth Night</i> , III.iv	What dost thou say?	Othello, <i>Othello</i> , III.iii	Whom overcame he?	Boyet, <i>Love's Labour's Lost</i> , IV.i
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Do you fear it?	Cassius, <i>Julius Caesar</i> , I.ii																				
Knows he not thy voice?	First Lord, <i>All's Well That Ends Well</i> , IV.i																				
Didst thou not say he comes?	Baptista, <i>Taming of the Shrew</i> , III.ii																				
Can'st not rule her?	Leontes, <i>Winter's Tale</i> , II.iii																				
What sayst thou?	Olivia, <i>Twelfth Night</i> , III.iv																				
What dost thou say?	Othello, <i>Othello</i> , III.iii																				
Whom overcame he?	Boyet, <i>Love's Labour's Lost</i> , IV.i																				
(A)	The agreement forms of Early Modern English included a different form for 2 nd person, singular subjects.																				
(B)	In wh- and yes-no questions the main verb can raise to Head, CP [Complementizer Phrase].																				
(C)	Pronominal forms are unchanged from Early Modern into Modern English.																				
(D)	Auxiliary verbs could raise to T [Tense] in Early Modern English but not main verbs.																				



Q. 38	The following utterances were produced by a child aged 3 years. (i) Put him in the bathtub. (ii) We eated gummy bears. (iii) Thank you for giving us these books. (iv) I don't know ... I knowed her! (v) He bited my finger. (After correction: He bitted my finger.) (vi) I runned in the water. (vii) I rided on an elephant. Which of the following statement(s) can be deduced from the data?
(A)	The child differentiates between lexical and non-lexical categories of English.
(B)	The child has acquired the Spec-Head and Complement-Head orders of English.
(C)	The child has acquired case marking in English.
(D)	The child has not yet acquired the rule of past tense formation in English.

Q. 39	The human speech production system is characterised by which of the following?
(A)	A laryngeal source
(B)	A vocal tract that acts as a filter
(C)	A vocal tract that acts as a resonator
(D)	A laryngeal resonator

Q. 40	Which of the following kinds of evidence are offered in support of an <i>innateness</i> view of the human language ability?
(A)	All humans, no matter how primitive their societies, have the capacity for language.
(B)	Children learn the language(s) in their environment without explicit instruction.
(C)	Speakers of all languages are capable of producing and understanding an infinite number of sentences.
(D)	All languages and their grammars change through time.

END OF THE QUESTION PAPER
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Graduate Aptitude Test in Engineering (GATE 2021)**Subject/Paper: Humanities and Social Sciences (XH) / Linguistics (XH-C3)**

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
1	7	MCQ	GA	D	1	1/3
2	7	MCQ	GA	D	1	1/3
3	7	MCQ	GA	D	1	1/3
4	7	MCQ	GA	D	1	1/3
5	7	MCQ	GA	C	1	1/3
6	7	MCQ	GA	C	2	2/3
7	7	MCQ	GA	A	2	2/3
8	7	MCQ	GA	C	2	2/3
9	7	MCQ	GA	C	2	2/3
10	7	MCQ	GA	D	2	2/3
1	7	MCQ	XH-B1	C	1	1/3
2	7	MCQ	XH-B1	C	1	1/3
3	7	MCQ	XH-B1	C	1	1/3
4	7	MCQ	XH-B1	D	1	1/3
5	7	MCQ	XH-B1	C	1	1/3
6	7	MCQ	XH-B1	A	2	2/3
7	7	MCQ	XH-B1	C	2	2/3
8	7	MCQ	XH-B1	C	2	2/3
9	7	MCQ	XH-B1	D	2	2/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Linguistics (XH-C3)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
10	7	MCQ	XH-B1	B	2	2/3
11	7	MSQ	XH-B1	C; D	2	0
12	7	MSQ	XH-B1	B; C	2	0
13	7	MSQ	XH-B1	A; B	2	0
14	7	MSQ	XH-B1	A; B	2	0
15	7	MSQ	XH-B1	A; C; D	2	0
1	7	MCQ	XH-C3	A	1	1/3
2	7	MCQ	XH-C3	A	1	1/3
3	7	MCQ	XH-C3	A	1	1/3
4	7	MCQ	XH-C3	A	1	1/3
5	7	MCQ	XH-C3	A	1	1/3
6	7	MCQ	XH-C3	A	1	1/3
7	7	MCQ	XH-C3	A	1	1/3
8	7	MCQ	XH-C3	A	1	1/3
9	7	MCQ	XH-C3	A	1	1/3
10	7	MCQ	XH-C3	A	1	1/3
11	7	MCQ	XH-C3	A	1	1/3
12	7	MCQ	XH-C3	A	1	1/3
13	7	MCQ	XH-C3	A	1	1/3
14	7	MCQ	XH-C3	A	1	1/3
15	7	MSQ	XH-C3	A; B	1	0
16	7	MSQ	XH-C3	A; B	1	0
17	7	MSQ	XH-C3	A; B; C	1	0

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Linguistics (XH-C3)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
18	7	MSQ	XH-C3	A; B; C	1	0
19	7	MSQ	XH-C3	A; B	1	0
20	7	MSQ	XH-C3	A; B; C	1	0
21	7	MCQ	XH-C3	A	2	2/3
22	7	MCQ	XH-C3	A	2	2/3
23	7	MCQ	XH-C3	A	2	2/3
24	7	MCQ	XH-C3	A	2	2/3
25	7	MCQ	XH-C3	A	2	2/3
26	7	MSQ	XH-C3	A; B; C	2	0
27	7	MSQ	XH-C3	A; B; C	2	0
28	7	MSQ	XH-C3	A; B; C	2	0
29	7	MSQ	XH-C3	A	2	0
30	7	MSQ	XH-C3	A; B	2	0
31	7	MSQ	XH-C3	A; B; C	2	0
32	7	MSQ	XH-C3	A; B	2	0
33	7	MSQ	XH-C3	A; B; C	2	0
34	7	MSQ	XH-C3	A; B	2	0
35	7	MSQ	XH-C3	A; B; C	2	0
36	7	MSQ	XH-C3	A; B	2	0
37	7	MSQ	XH-C3	A; B	2	0
38	7	MSQ	XH-C3	A; B; C	2	0
39	7	MSQ	XH-C3	A; B; C	2	0
40	7	MSQ	XH-C3	A; B; C	2	0



General Aptitude (GA)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	Consider the following sentences: (i) After his surgery, Raja hardly could walk. (ii) After his surgery, Raja could barely walk. (iii) After his surgery, Raja barely could walk. (iv) After his surgery, Raja could hardly walk. Which of the above sentences are grammatically CORRECT?
(A)	(i) and (ii)
(B)	(i) and (iii)
(C)	(iii) and (iv)
(D)	(ii) and (iv)

Q.2	Ms. X came out of a building through its front door to find her shadow due to the morning sun falling to her right side with the building to her back. From this, it can be inferred that building is facing _____
(A)	North
(B)	East
(C)	West
(D)	South



Q.3	In the above figure, O is the center of the circle and, M and N lie on the circle. The area of the right triangle MON is 50 cm^2. What is the area of the circle in cm^2 ?
(A)	2π
(B)	50π
(C)	75π
(D)	100π

Q.4	If $\begin{cases} "\oplus" \text{ means } "-", \\ "\otimes" \text{ means } "\div", \\ "\Delta" \text{ means } "+", \\ "\nabla" \text{ means } "\times", \end{cases}$ then, the value of the expression $\Delta 2 \oplus 3 \Delta ((4 \otimes 2) \nabla 4) =$
(A)	-1
(B)	-0.5
(C)	6
(D)	7



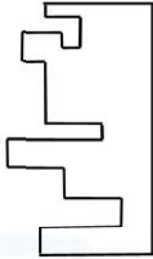
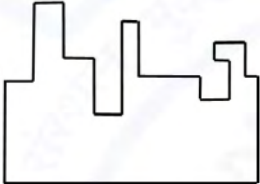
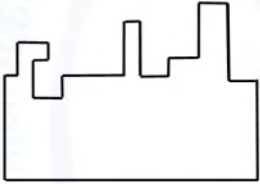
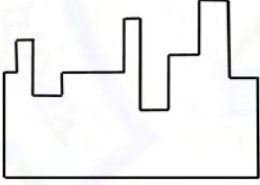
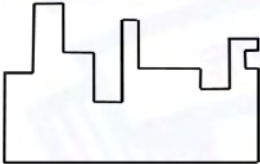
Q.5	“The increased consumption of leafy vegetables in the recent months is a clear indication that the people in the state have begun to lead a healthy lifestyle” Which of the following can be logically inferred from the information presented in the above statement?
(A)	The people in the state did not consume leafy vegetables earlier.
(B)	Consumption of leafy vegetables may not be the only indicator of healthy lifestyle.
(C)	Leading a healthy lifestyle is related to a diet with leafy vegetables.
(D)	The people in the state have increased awareness of health hazards causing by consumption of junk foods.



Q. 6 – Q. 10 Multiple Choice Question (MCQ), carry TWO marks each (for each wrong answer: – 2/3).

Q.6	Oxpeckers and rhinos manifest a symbiotic relationship in the wild. The oxpeckers warn the rhinos about approaching poachers, thus possibly saving the lives of the rhinos. Oxpeckers also feed on the parasitic ticks found on rhinos. In the symbiotic relationship described above, the primary benefits for oxpeckers and rhinos respectively are,
(A)	Oxpeckers get a food source, rhinos have no benefit.
(B)	Oxpeckers save their habitat from poachers while the rhinos have no benefit.
(C)	Oxpeckers get a food source, rhinos may be saved from the poachers.
(D)	Oxpeckers save the lives of poachers, rhinos save their own lives.



Q.7	 A jigsaw puzzle has 2 pieces. One of the pieces is shown above. Which one of the given options for the missing piece when assembled will form a rectangle? The piece can be moved, rotated or flipped to assemble with the above piece.
(A)	
(B)	
(C)	
(D)	

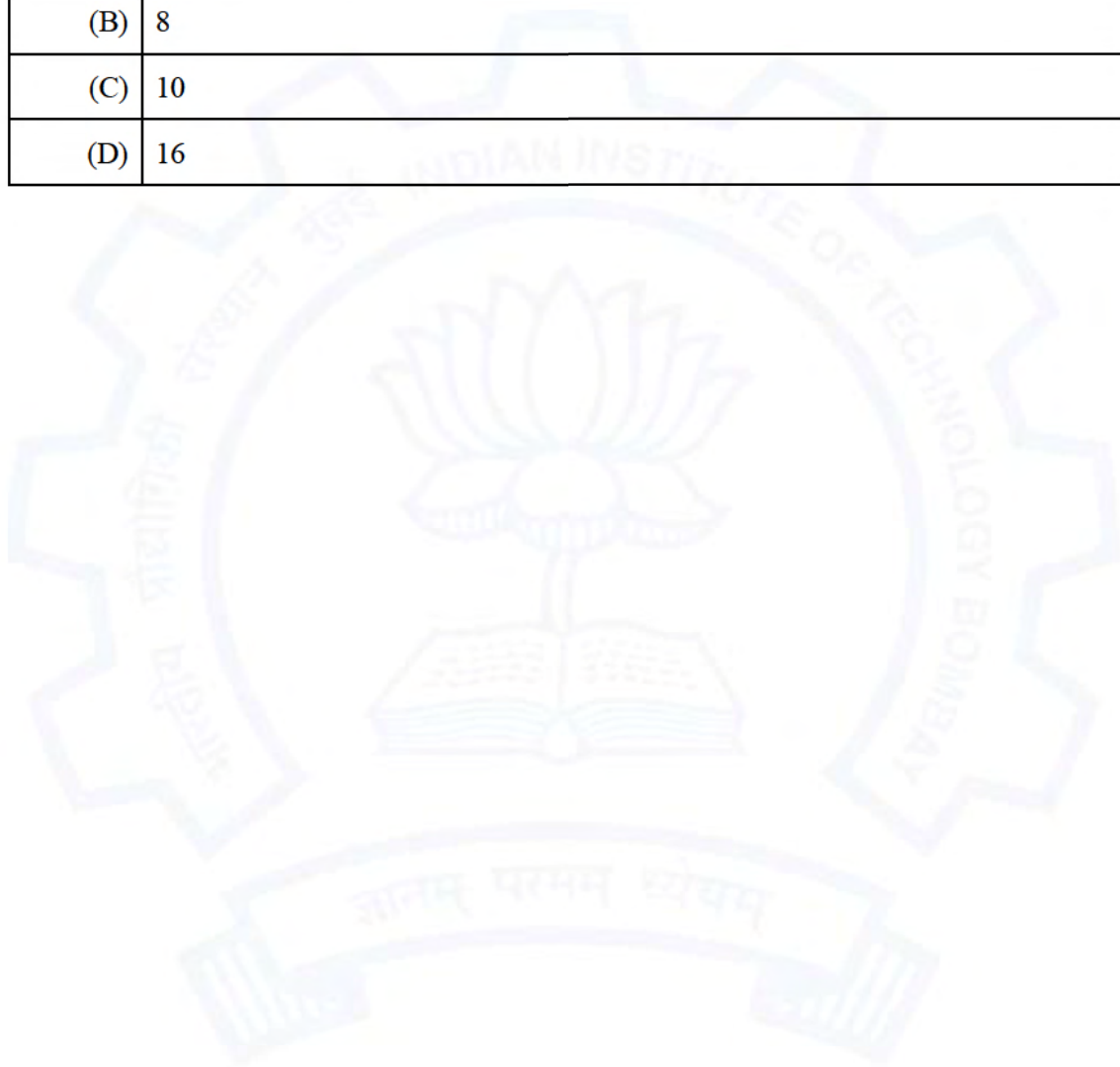


Q.8	The number of hens, ducks and goats in farm P are 65, 91 and 169, respectively. The total number of hens, ducks and goats in a nearby farm Q is 416. The ratio of hens:ducks:goats in farm Q is 5:14:13. All the hens, ducks and goats are sent from farm Q to farm P. The new ratio of hens:ducks:goats in farm P is _____
(A)	5:7:13
(B)	5:14:13
(C)	10:21:26
(D)	21:10:26

Q.9	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Company</th><th>Ratio</th></tr> </thead> <tbody> <tr> <td>C1</td><td>3:2</td></tr> <tr> <td>C2</td><td>1:4</td></tr> <tr> <td>C3</td><td>5:3</td></tr> <tr> <td>C4</td><td>2:3</td></tr> <tr> <td>C5</td><td>9:1</td></tr> <tr> <td>C6</td><td>3:4</td></tr> </tbody> </table> The distribution of employees at the rank of executives, across different companies C1, C2, ..., C6 is presented in the chart given above. The ratio of executives with a management degree to those without a management degree in each of these companies is provided in the table above. The total number of executives across all companies is 10,000. The total number of management degree holders among the executives in companies C2 and C5 together is _____.	Company	Ratio	C1	3:2	C2	1:4	C3	5:3	C4	2:3	C5	9:1	C6	3:4
Company	Ratio														
C1	3:2														
C2	1:4														
C3	5:3														
C4	2:3														
C5	9:1														
C6	3:4														
(A)	225														
(B)	600														
(C)	1900														
(D)	2500														



Q. 10	Five persons P, Q, R, S and T are sitting in a row not necessarily in the same order. Q and R are separated by one person, and S should not be seated adjacent to Q. The number of distinct seating arrangements possible is:
(A)	4
(B)	8
(C)	10
(D)	16





Reasoning and Comprehension (XH-B1)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	According to a recent article in a medical journal, consuming curcumin (from turmeric) significantly lowers the risk of COVID-19. The researchers draw this conclusion from a study that found that people who consumed one or more teaspoons of curcumin extract everyday were half as likely to be diagnosed with the disease as people who did not consume curcumin. Which of the following, if true, most weakens the argument in the article?
(A)	In another study, people who were given a zinc supplement everyday were more than four times less likely to be diagnosed with COVID-19 as those who did not.
(B)	All the participants in this study were from the same state where no other spices or herbs are consumed.
(C)	The participants who consumed curcumin were also more likely to exercise than those who did not.
(D)	In another study, COVID-19 patients who were given curcumin were no more likely to recover than others.

Q.2	Froot Inc. carried out an internet advertisement campaign for its new beverage CocoLoco. After the campaign, the director of the advertising company conducted a survey and found that the CocoLoco sales were higher than that of TenderJoos a competing product from Joos Inc. The agency concluded that the internet advertising campaign is more effective than advertising through other media. Which of the following statements could strengthen the conclusion above by the agency?
(A)	A ₹2 discount was offered on CocoLoco during the campaign period.
(B)	CocoLoco sales were higher than those of TenderJoos before the internet campaign.
(C)	A newspaper advertisement campaign the previous year did not increase CocoLoco sales.
(D)	During the campaign for CocoLoco, Joos Inc. did not advertise TenderJoos at all.



Q.3	An e-commerce site offered a deal last month conditional on the customer spending a minimum of ₹500. Any customer who buys 2 kg of fresh fruit will receive a hand mixer and any customer who buys 2 kg of fresh vegetables will receive a vegetable chopper. Which of the following is NOT a possible outcome of the above?
(A)	A customer purchased 3 kg of fresh fruit and did not receive a vegetable chopper.
(B)	A customer purchased items for ₹500 which included 1 kg of vegetables and received a hand mixer.
(C)	A customer purchased items for ₹500 which included 2 kg of vegetables and 1 kg of fruit and received a hand mixer.
(D)	A customer purchased items for ₹300 which included 2 kg of fruit and received neither a hand mixer nor a vegetable chopper.

Q.4	Writers of detective fiction often include an incompetent detective as a foil for the brilliant investigator-protagonist as they follow different paths in trying to solve the crime. In the individual accounts, the incompetent detective is frequently distracted by the culprit's careful plans, while the competent investigator solves the case after a final confrontation. Analysts of such fiction believe that the authors select this story-telling technique to provide readers with more complexities in the form of misleading clues, while figuring out the crime. Which of the following statements most logically follows from the passage above?
(A)	A detective story is considered well-written if the brilliant investigator is accompanied by an incompetent detective.
(B)	Writers of detective fiction use the contrast of an incompetent detective to mainly show how complex the investigation is.
(C)	Writers of detective fiction never write stories where the incompetent detective solves the case.
(D)	Writers of detective fiction use two investigative accounts to make it difficult for the reader to figure out the outcome.



Q.5	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled (L,M,N,O). Reorder these parts so that the sentence can be read through correctly and select one of the options given. <i>P1: Studies of several Sahitya Akademi award winners show that...</i> L: or encounter professional M: and invariably develop a strained relationship with other literary figures N: they often publish very little O: after winning the prize <i>P6: ...envy and rivalry.</i> The correct order is:
(A)	NOLM
(B)	MLON
(C)	ONML
(D)	MOLN



Q.6 – Q.10 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 6	Gerrymandering refers to the targeted redrawing of election constituencies so as to benefit a particular party. This is especially important where the electoral system is “first past the post” in each constituency (i.e. one winner is selected in each constituency based on a majority of votes won) and where there is no other provision for proportional representation (as for example in the German system). For a simple illustration of gerrymandering, if a region consists of districts 1, 2, 3, ..., 9 with districts 1, 2, 3, 4, 5, 6 favouring party P and 7, 8, 9 favouring party Q, then grouping of districts to constituencies as {1,2,3}, {4,5,6}, {7,8,9} will give two seats to party P and one seat to party Q, whereas the grouping {1,2,7}, {3,4,8}, {5,6,9} will give all three seats to party P, as they will secure a majority in each constituency. Which of these statements can be deduced from the above?
(A)	Gerrymandering implies that constituency boundaries can sometimes be drawn to favour one party over the other.
(B)	Gerrymandering implies that proportional representation is impossible when districts are grouped to form constituencies.
(C)	To counteract gerrymandering political parties should concentrate on districts where they are favoured.
(D)	The grouping of districts to constituencies has very little impact on proportional representation.



Q. 7	X-ray examination of a recently discovered painting that some authorities judge to be a self-portrait by Michelangelo revealed an under-image of a woman's face. Either Michelangelo or some other artist must have repainted over the first painting that had now been seen on the canvas. Because the woman's face also appears on other paintings by Michelangelo, this painting is determined to indeed be an authentic painting by Michelangelo. Which of the following assumptions must be made in reaching the conclusion above?
(A)	When an already painted canvas of an artist is used, the second artist using that canvas for a new painting is usually influenced by the artistic style of the first.
(B)	Several painted canvases that art historians attribute to Michelangelo contain under-images that appear on at least one other of Michelangelo's paintings.
(C)	Subject or subjects that appear in authenticated paintings of Michelangelo are rather unlikely to show up as under-images on painted canvases not attributed to Michelangelo.
(D)	No painted canvas can be attributed to a particular artist with certainty without an X-ray analysis.

Q. 8	This season _____ tourists visited Ladakh than last season; however, _____ to be the biggest tourist destination in India. The tourism department explains that the number of tourists to India has _____ relative to previous years, _____ have chosen to visit Ladakh. Select the correct sequence of phrases to fill in the blanks to complete the passage above.
(A)	more / for the first time in many seasons it does not appear / increased / and it seems that most
(B)	fewer / as in the past, it appears / in fact decreased / but it seems that only a small proportion
(C)	fewer / for the first time in many seasons it appears / in fact decreased / but it seems that most
(D)	more / this season as well, it appears / in fact decreased / but it seems that a large proportion



Q. 9	Reorder the sentences in (1) – (5) such that they form a coherent paragraph. (1) In fact, dozens of languages today have only one native speaker still living, and that person's death will mean the extinction of the language: It will no longer be spoken, or known, by anyone on earth. (2) Many languages are falling out of use and are being replaced by others that are more widely used in the region or nation, such as English in Australia or Portuguese in Brazil. (3) Many other languages are no longer being learned by new generations of children or by new adult speakers. (4) An endangered language is one that is likely to become extinct in the near future. (5) Unless the trends are reversed, these endangered languages will become extinct by the end of the century. (Adapted from <i>What is an Endangered Language</i> by A. Woodbury.)
(A)	2 3 1 4 5
(B)	2 3 5 4 1
(C)	4 1 5 2 3
(D)	4 2 3 1 5



Q. 10	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled L,M,N,O. Reorder these parts so that the sentence can be read correctly and select one of the sequences below. <i>P1: For a little while...</i> L: it was a common belief M: right after the treaty of Versailles N: that Germany had caused World War I not just by her actions O: held by analysts and politicians alike <i>P6: ... but by also encouraging Italy in her own aggressions.</i>
(A)	LMNO
(B)	MLON
(C)	LNMO
(D)	MOLN



Q.11 – Q.15 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 11	After Florentino Ariza saw her for the first time, his mother knew before he told her because he lost his voice and his appetite and spent the entire night tossing and turning in his bed. But when he began to wait for the answer to his first letter, his anguish was complicated by diaorrhea and green vomit, he became disoriented and suffered from sudden fainting spells, and his mother was terrified because his condition did not resemble the turmoil of love so much as the devastation of cholera. Florentino Ariza's godfather, an old homeopathic practitioner who had been Tránsito Ariza's confidant ever since her days as a secret mistress, was also alarmed at first by the patient's condition, because he had the weak pulse, the hoarse breathing, and the pale perspiration of a dying man. But his examination revealed that he had no fever, no pain anywhere, and that his only concrete feeling was an urgent desire to die. All that was needed was shrewd questioning, first of the patient and then of his mother, to conclude once again that the symptoms of love were the same as those of cholera. He prescribed infusions of linden blossoms to calm the nerves and suggested a change of air so he could find consolation in distance, but Florentino Ariza longed for just the opposite: to enjoy his martyrdom. (Adapted from <i>Love in a Time of Cholera</i> by Gabriel García Márquez.) The author of the passage is implying that:
(A)	Homeopathy cures love.
(B)	The doctor could not distinguish between love and cholera.
(C)	The doctor could distinguish between love and cholera.
(D)	The symptoms of love and cholera are similar.



Q. 12	Now, it is clear that the decline of a language must ultimately have political and economic causes: it is not due simply to the bad influence of this or that individual writer. But an effect can become a cause, reinforcing the original cause and producing the same effect in an intensified form, and so on indefinitely. A man may take to drink because he feels himself to be a failure, and then fail all the more completely because he drinks. It is rather the same thing that is happening to the English language. It becomes ugly and inaccurate because our thoughts are foolish, but the slovenliness of our language makes it easier for us to have foolish thoughts. (Adapted from <i>Politics and the English Language</i> by George Orwell.) The illustration of the man who takes to drink is used to underscore which of the following ideas in the passage above?
(A)	Political and economic causes control deterioration of language.
(B)	Foolish thoughts are enabled by inaccurate language.
(C)	Effect of an action becomes the cause in a cyclic pattern.
(D)	Drinking enables people to have foolish thoughts and slovenly language.



Q. 13	It is a pity that Caste even today has its defenders. The defences are many. It is defended on the grounds that the Caste System is but another name for division of labour, and if division of labour is a necessary feature of every civilised society, then it is argued that there is nothing wrong in the Caste System. Now the first thing to be urged against this view is that Caste System is not merely division of labour. It is also a division of labourers. Civilised society undoubtedly needs division of labour but nowhere is division of labour accompanied by this unnatural division of labourers into watertight compartments, grading them one above the other. This division of labour is not spontaneous or based on natural aptitudes. Social and individual efficiency requires us to develop the individual capacity and competency to choose and to make his own career. This principle is violated in so far as it involves an attempt to appoint tasks to individuals in advance, not on the basis of trained original capacities, but on that of birth. Industry undergoes rapid and abrupt changes and an individual must be free to change his occupation and adjust himself to changing circumstances, to gain his livelihood. (Adapted from <i>Annihilation of Caste</i> by Dr. B.R. Ambedkar.) Which of the following observations substantiate the arguments found in the passage above?
(A)	Newer generations are unable to change and move away from low-paying family professions, even with changed economic circumstances.
(B)	Sedentary desk jobs are considered to have more value and are in greater demand than those involving manual labour.
(C)	The government's jobs guarantee programme makes low-level management jobs available across all industries to all graduates in the nation.
(D)	A bus driver becomes an app creator and, in the course of one month, reaches one million downloads on Playstore with a four-star rating.



Q. 14	Imagine that you're in a game show and your host shows you three doors. Behind one of them is a shiny car and behind the others are goats. You pick one of the doors and get what lies within. After making your choice, your host chooses to open one of the other two doors, which inevitably reveals a goat. He then asks you if you want to stick with your original pick, or switch to the other remaining door. What do you do? Most people think that it doesn't make a difference and they tend to stick with their first pick. With two doors left, you should have a 50% chance of selecting the one with the car. If you agree, then you have just fallen afoul of one of the most infamous mathematical problems – the Monty Hall Problem. In reality, you should switch every time which doubles your odds of getting the car. Over the years, the problem has ensnared countless people, but not, it seems, pigeons. The humble pigeon can learn with practice the best tactic for the Monty Hall Problem, switching from their initial choice almost every time. Amazingly, humans do not! (Adapted from an article by Ed Yong in <i>Discover Magazine</i>.) Which of the following conclusions follow from the passage above?
(A)	Humans calculate the probability of independent, random events such as the opening of a door by dividing the specific outcomes by the total number of possible outcomes.
(B)	Humans find it very difficult to learn to account for the host's hand in making the event non-random and, thereby, changing the outcome of the event.
(C)	Calculating probabilities is difficult for humans but easy for pigeons; which is why the pigeons succeed where the humans fail.
(D)	Humans are governed by reason, but pigeons are irrational and only interested in the outcome and will do whatever it takes to get food.



Q. 15	The truth is that, despite the recent success of car-makers P and Q, India's automobile industry is in a state not that different from the bad old days of the license-permit quota raj when two carmakers dominated a captive domestic market with substandard vehicles and with very little, if any, research and development, and low to negligible productivity growth. High tariff barriers have certainly induced foreign automobile makers to enter the Indian market by setting up local operations, but this so-called "tariff jumping" foreign investment has produced an industry that is inefficient, operating generally at a low scale, and whose products are not globally competitive either in terms of cost or of innovation. It is noteworthy that the automobile parts industry, which has faced low tariffs (as low as 12.5%) and has been largely deregulated, has been characterised by higher productivity and much better export performance than the completely-built units' sector in the years since liberalisation. (Adapted from an Op-Ed in <i>The Mint</i>.) Which of the following statements can be inferred from the above?
(A)	Low tariff barriers increase productivity.
(B)	Tariff jumping leads to increases in productivity.
(C)	Deregulation has worked for the automotive parts industry and therefore should be applied to completely-built units.
(D)	P and Q do not invest enough in research and development.



Philosophy (XH-C4)

Q.1 – Q.20 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	What is the <i>mood</i> of the following syllogistic argument? All Professors are Academicians. Some Academicians are Activists. Therefore, Some Activists are Professors.
(A)	A I I
(B)	I I I
(C)	I A I
(D)	A I A

Q.2	What is the <i>formal fallacy</i> committed in the following syllogistic argument? No Students are tested Covid-positive. Some Covid-positive cases are not Professors. Therefore, Some Professors are not Students.
(A)	Fallacy of Exclusive Premises
(B)	Fallacy of Illicit Major
(C)	Fallacy of Illicit Minor
(D)	Fallacy of Excluded Middle



Q.3	The Philosophy of Aurobindo may aptly be identified as
(A)	Integral Non-dualism.
(B)	Non-dualism.
(C)	Integral Dualism.
(D)	Dualism.

Q.4	Scientists in the Institute of Virology tested Influenza-affected patients in Wuhan for all known acute respiratory diseases but could not establish the cause for their influenza from the set of known causes. Hence, they inferred for the first time that a Novel Corona Virus is the cause of their disease. Determine which of Mill's methods matches with the above description?
(A)	Method of Residues
(B)	Method of Difference
(C)	Method of Agreement
(D)	Joint method of Agreement and Difference

Q.5	In his <i>Republic</i>, Plato makes four-fold classification of the possible objects of knowledge. Where does he place Mathematical Objects?
(A)	<i>Dianoia</i> [Thought]
(B)	<i>Noesis</i> [Understanding]
(C)	<i>Pistis</i> [Belief]
(D)	<i>Eikasia</i> [Imagination]



Q.6	According to Plato, which among the following is NOT a <i>cardinal virtue</i>?
(A)	Autonomy
(B)	Courage
(C)	Justice
(D)	Wisdom

Q.7	In Plato's <i>Republic</i>, the guardians of the ideal state reserve the right to govern because
(A)	it is their duty.
(B)	it is their birth-right.
(C)	they are democratically elected.
(D)	they have exclusive command over military power.

Q.8	What is true of Rāmānuja's Viśiṣṭādvaita?
(A)	It accepts the conception of qualified Brahman.
(B)	It accepts the conception of formless and non-qualified Brahman.
(C)	It considers the individual soul/self (<i>cit</i>) as unreal.
(D)	It considers the world (<i>acit</i>) as unreal.



Q.9	In the Mīmāṃsā system, <i>apūrva</i> stands for a link/relation between
(A)	an act (action) and its fruit.
(B)	the past and the present.
(C)	Perception and Inference.
(D)	Creator and Creation.

Q.10	The conception of <i>jīva</i> in Advaita stands for:
(A)	Individual self
(B)	Universal Self
(C)	Liberated self
(D)	Living beings

Q.11	What among the following is in conformity with Leibniz's metaphysical assertion of <i>Pre-established Harmony</i>?
(A)	There is a mutual coordination of mind and body.
(B)	Mind and body are different kinds of substances.
(C)	The mind can causally influence the body.
(D)	Cause of a mental state cannot be any previous state of that mind.



Q.12	In Edmund Husserl's phenomenology, <i>eidetic reduction</i> is meant to provide access to the sphere of
(A)	essential structures of pure psychic processes.
(B)	accidental structures of psychic processes.
(C)	inner experience as such.
(D)	transcendental phenomena.

Q.13	In Jaina classification of knowledge, <i>Matī</i> includes
(A)	both Perception and Inference.
(B)	only Perception.
(C)	only Inference.
(D)	Inference and Authority (<i>śruta</i>).

Q.14	Among the four <i>Brahmavihāras</i> of Buddhism, _____ evokes happiness at the joy and success of others.
(A)	<i>Muditā</i>
(B)	<i>Maitrī</i>
(C)	<i>Karuṇā</i>
(D)	<i>Upekṣā</i>



Q.15	Read the following verse from <i>Bhagavadgītā</i> carefully. <i>Karmaṇyevādhikāraste mā phaleṣu kadācana;</i> <i>Mā karmaphalaheturbhūrmā te sango'stvakarmaṇi.</i> [Your right is for action alone, never for the results. Do not become the agent of the results of action. May you not have any inclination for inaction.] (<i>Bhagavadgītā</i> 2: 47) This above quoted verse is a standard reference to:
(A)	Karma-yoga
(B)	Bhakti-yoga
(C)	Jñāna-yoga
(D)	Rāja-yoga

Q.16	Which among the following is predominantly a non-dualistic philosophical system?
(A)	Kāśmir Śaivism
(B)	Śaiva-siddhānta
(C)	Vīra-śaivism
(D)	Vaiṣṇavism



Q.17	Gandhi's doctrine of <i>Trusteeship</i> establishes a normative relationship between labour and capital. Indicate which of the following is NOT in agreement with this doctrine?
(A)	Class struggle is the key to social development and economic equality.
(B)	The capitalists would function only as trustees for the poor and working class.
(C)	The capitalist would keep the surplus wealth in <i>trust</i> in order to have economic equality and solidarity.
(D)	The capitalists would be made to realise the wealth in their hands is the fruit of the labour of the workers.

Q.18	Which of the following is NOT a <i>pramāṇa</i> in the Nyāya system?
(A)	<i>Anupalabdhi</i> (Non-apprehension)
(B)	<i>Upamāna</i> (Comparison)
(C)	<i>Anumāna</i> (Inference)
(D)	<i>Pratyakṣa</i> (Perception)

Q.19	In the Vaiśeṣika system, which of the following is a <i>padārtha</i> (category)?
(A)	<i>Guṇa</i> (Quality)
(B)	<i>Ātman</i> (Spirit/Soul)
(C)	<i>Tejas</i> (Fire)
(D)	<i>Vāyu</i> (Air)



Q.20	Identify which among the following is NOT a characteristic of a <i>simple idea</i> according to John Locke.
(A)	Varying in its appearance or conception
(B)	Cannot be further divided into other simple ideas
(C)	Distinctly clear
(D)	Unambiguous



Q.21 – Q.40 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q.21	Which of the following are in accordance to Democritus' cosmology?
(A)	The cosmos has an underlying order.
(B)	Fundamental units of the reality are atoms.
(C)	Atoms are extended but indivisible and indestructible.
(D)	Atoms are weightless, shapeless and always in a state of rest.

Q.22	For Immanuel Kant, which of the following statements are appropriate examples of <i>synthetic a priori</i> judgment?
(A)	$2 + 2 = 4$
(B)	The shortest distance between two points is a straight line.
(C)	For every action there is an equal and opposite reaction.
(D)	God is a perfect being.

Q.23	In the Sāṅkhya system, which among the following are <i>antaḥkaraṇas</i>?
(A)	<i>Buddhi</i> (Intellect)
(B)	<i>Ahaṁkāra</i> (Ego)
(C)	<i>Jñānedriyas</i> (Sensory Organs)
(D)	<i>Karmendriyas</i> (Motor Organs)



Q.24	Which of the following are meant by Kant's notion of <i>autonomy of will</i>?
(A)	A recognition of the will as duty-bound.
(B)	The will is not bound by empirical laws.
(C)	The will is not bound by material objects of desire.
(D)	The will is only determined by the material principle of self-love.

Q.25	On which of the following, Plato and Aristotle DISAGREE concerning the realm of the political?
(A)	Women, in principle, are barred from participation in the political realm.
(B)	The best form of government entails the concentration of power in a limited few.
(C)	Manual labourers, traders, and businessmen are not fit for political powers.
(D)	The ethical and the political are intricately connected.

Q.26	Which among the following are part of <i>yama</i> in Patanjali's Aṣṭāṅga-Yoga?
(A)	<i>Ahimsā</i> (Non-violence)
(B)	<i>Satya</i> (Truthfulness)
(C)	<i>Aparigraha</i> (Detachment)
(D)	<i>Īśvara-praṇidhāna</i> (Devotion to God)



Q.27	Progress of the modern sciences and reflection on method have led to the development of new fields of analysis in Renaissance Philosophy. Which among the following correctly trace the influence of a particular science on a particular philosopher's thought?
(A)	Mathematics on Rene Descartes
(B)	Mechanics on Thomas Hobbes
(C)	Historical science on G.W.F. Hegel
(D)	Biology and the evolutionary hypothesis on Francis Bacon

Q.28	Gottlob Frege, in his <i>Sense and Reference</i>, discusses the identity relation between the statements “a=a” and “a=b”. Which of the following are his conclusions?
(A)	Identity relation is between names or signs of objects.
(B)	They are statements of differing cognitive value.
(C)	The two ensuing judgments of the statements are different.
(D)	Sense expressed in the two statements are the same.

Q.29	If Descartes' <i>Meditations</i> is credited for a modern version of mind-body dualism, which statements among the following hold true in accordance with it?
(A)	Descartes is a substance dualist.
(B)	Mind is essentially a <i>thinking thing</i> .
(C)	Essential property of matter is determined by the <i>form</i> .
(D)	Both, mind and body are indivisible.



Q.30	John Stuart Mill, in his <i>Utilitarianism</i>, proposes the conception of Utility or Happiness as the directive rule of human conduct. Which of the following are drawn from his conception of Happiness to form the utilitarian standard?
(A)	Happiness of all concerned is overriding.
(B)	The agent acts as a disinterested spectator.
(C)	The agent's own happiness is paramount.
(D)	Impartiality cannot be maintained in action.

Q. 31	Which among the following statements does W.V.O. Quine REJECT in his work, <i>Two Dogmas of Empiricism</i>?
(A)	The distinction between analytic and synthetic truths.
(B)	Every meaningful statement can be reduced to a statement about immediate experience.
(C)	Truths which are grounded in meanings are dependent on truths which are grounded in fact.
(D)	The verification theory of meaning is not a possible key to resolve the problem of meaning.



Q. 32	Read the following statements carefully and answer the following question. i. Greater welfare of others is to be valued more than the individual freedom. ii. Only when the conception of justice is on hand, the ideas of respect and human dignity can be given a more definite meaning. iii. Principles of justice are derived from the ideas of respect and human dignity. iv. The loss of freedom for some is not made right by a greater welfare of others. In light of the theory of <i>justice as fairness</i>, as proposed by John Rawls, which of following pairs of statement DO NOT agree with Rawl's position?
(A)	i and iii
(B)	iii and iv
(C)	ii and iv
(D)	i and ii

Q. 33	George Berkeley, in his <i>Principles of Human Knowledge</i>, reflects on the nature of thought and attacks <i>abstract ideas</i>. Which among the following hold true to his view?
(A)	There cannot be an idea of anything essentially independent of mind.
(B)	One cannot conceive of the unperceived.
(C)	Any idea is essentially independent of mind.
(D)	One can conceive of the unperceived.



Q.34	In his <i>An Enquiry Concerning Human Understanding</i>, Hume relies on a basic distinction between two forms of perception. Which among the following are true about it?
(A)	Perceptions are understood as the items of our mental world.
(B)	<i>Impressions</i> and <i>ideas</i> are two categories of perceptions.
(C)	<i>Ideas</i> are derived from <i>impressions</i> .
(D)	<i>Impressions</i> include sensations, desires, and passions.

Q.35	In Martin Heidegger's <i>Being and Time</i>, which among the following correctly describe <i>Dasein</i>?
(A)	Inquiring is one of the possibilities of <i>Dasein's Being</i> .
(B)	Understanding of <i>Being</i> is a definite characteristic of <i>Dasein's Being</i> .
(C)	<i>Dasein</i> always understands itself in terms of its existence.
(D)	<i>Dasein</i> is closest to us but it is not we ourselves.



Q. 36	Read the passage carefully and answer the question. “There is ... a subtler domination exercised in the sphere of ideas by one culture on another, a domination all the more serious in the consequence, because it is not ordinarily felt... Slavery begins when one ceases to feel the evil and it deepens when the evil is accepted as a good. Cultural subjection is ordinarily of an unconscious character and it implies slavery from the very start. When I speak of cultural subjection, I do not mean the assimilation of an alien culture. That assimilation need not be an evil; it may be positively necessary for healthy progress and in any case it does not mean a lapse of freedom. There is cultural subjection only when one's traditional cast of ideas and sentiments is superseded without comparison or competition by a new cast representing an alien culture which possesses one like a ghost.” (K.C. Bhattacharyya, <i>Swaraj in Ideas</i>, p.13) In the light of the passage above, <i>cultural subjection</i> amounts to
(A)	an uncritical assimilation of foreign culture.
(B)	an inability to accurately distinguish the good from the evil.
(C)	an uncritical discarding of one's tradition.
(D)	a complete rejection of foreign ideas.



Q.37	Read the following statements carefully and answer the following question. i. Rahul <i>is not</i> what he <i>is</i> and <i>is</i> what he <i>is not</i>. ii. The book <i>is</i> a book and can <i>be</i> nothing more. iii. Of course, a book <i>is</i> a book, but <i>it</i> can always <i>be</i> something more. iv. Rahul <i>is</i> what he <i>is</i> and must always <i>be</i> so. Which of the following pairs of statements given below is NOT compatible with Jean-Paul Sartre's Existential Philosophy?
(A)	iii and iv
(B)	i and iii
(C)	ii and iv
(D)	i and ii

Q.38	Which of the following philosophical tenets are admissible in Cārvāka philosophy?
(A)	The soul is nothing but the conscious body.
(B)	Consciousness arises from matter.
(C)	Death alone is liberation.
(D)	Earth, water, fire, air, and ether are elements.



Q.39	Read the passage carefully and answer the following question. ‘While I condemn a religion of rules, I must not be understood to hold the opinion that there is no necessity for a religion. On the contrary, I agree with Burke when he says that “True religion is the foundation of society, the basis on which all true Civil Government rests, and both their sanction.” Consequently, when I urge that these ancient rules of life be annulled, I am anxious that their place shall be taken by a religion of principles, which alone can lay claim to being a true religion.’ (B. R. Ambedkar, <i>Annihilation of Caste</i>, 24.1) From the above passage, which among the following accurately represents Ambedkar’s view on foundation of society?
(A)	Religion of principles should provide the foundation of society.
(B)	Traditional religion should provide the foundation of society.
(C)	Religion of rules should provide a foundation of society.
(D)	Religion is not necessary at all for the foundation of society.

Q.40	Which among the following statements are justifiably held from Thomas Hobbes’ political theory on the social contract, in his book <i>Leviathan</i>?
(A)	It is founded on the hypothetical State of Nature.
(B)	All men are made by nature to be equals, therefore, no one has a natural right to govern others.
(C)	All are to submit to the authority of an absolute sovereign power.
(D)	People can live together only by submitting their individual, particular wills to the collective will.

END OF THE QUESTION PAPER

Graduate Aptitude Test in Engineering (GATE 2021)**Subject/Paper: Humanities and Social Sciences (XH) / Philosophy (XH-C4)**

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
1	7	MCQ	GA	D	1	1/3
2	7	MCQ	GA	D	1	1/3
3	7	MCQ	GA	D	1	1/3
4	7	MCQ	GA	D	1	1/3
5	7	MCQ	GA	C	1	1/3
6	7	MCQ	GA	C	2	2/3
7	7	MCQ	GA	A	2	2/3
8	7	MCQ	GA	C	2	2/3
9	7	MCQ	GA	C	2	2/3
10	7	MCQ	GA	D	2	2/3
1	7	MCQ	XH-B1	C	1	1/3
2	7	MCQ	XH-B1	C	1	1/3
3	7	MCQ	XH-B1	C	1	1/3
4	7	MCQ	XH-B1	D	1	1/3
5	7	MCQ	XH-B1	C	1	1/3
6	7	MCQ	XH-B1	A	2	2/3
7	7	MCQ	XH-B1	C	2	2/3
8	7	MCQ	XH-B1	C	2	2/3
9	7	MCQ	XH-B1	D	2	2/3
10	7	MCQ	XH-B1	B	2	2/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Philosophy (XH-C4)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
11	7	MSQ	XH-B1	C; D	2	0
12	7	MSQ	XH-B1	B; C	2	0
13	7	MSQ	XH-B1	A; B	2	0
14	7	MSQ	XH-B1	A; B	2	0
15	7	MSQ	XH-B1	A; C; D	2	0
1	7	MCQ	XH-C4	A	1	1/3
2	7	MCQ	XH-C4	A	1	1/3
3	7	MCQ	XH-C4	A	1	1/3
4	7	MCQ	XH-C4	A	1	1/3
5	7	MCQ	XH-C4	A	1	1/3
6	7	MCQ	XH-C4	A	1	1/3
7	7	MCQ	XH-C4	A	1	1/3
8	7	MCQ	XH-C4	A	1	1/3
9	7	MCQ	XH-C4	A	1	1/3
10	7	MCQ	XH-C4	A	1	1/3
11	7	MCQ	XH-C4	A	1	1/3
12	7	MCQ	XH-C4	A	1	1/3
13	7	MCQ	XH-C4	A	1	1/3
14	7	MCQ	XH-C4	A	1	1/3
15	7	MCQ	XH-C4	A	1	1/3
16	7	MCQ	XH-C4	A	1	1/3
17	7	MCQ	XH-C4	A	1	1/3
18	7	MCQ	XH-C4	A	1	1/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Philosophy (XH-C4)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
19	7	MCQ	XH-C4	A	1	1/3
20	7	MCQ	XH-C4	A	1	1/3
21	7	MSQ	XH-C4	A; B; C	2	0
22	7	MSQ	XH-C4	A; B; C	2	0
23	7	MSQ	XH-C4	A; B	2	0
24	7	MSQ	XH-C4	A; B; C	2	0
25	7	MSQ	XH-C4	A; B; C	2	0
26	7	MSQ	XH-C4	A; B; C	2	0
27	7	MSQ	XH-C4	A; B; C	2	0
28	7	MSQ	XH-C4	A; B; C	2	0
29	7	MSQ	XH-C4	A; B	2	0
30	7	MSQ	XH-C4	A; B	2	0
31	7	MSQ	XH-C4	A; B; C	2	0
32	7	MSQ	XH-C4	A; B; C	2	0
33	7	MSQ	XH-C4	A; B	2	0
34	7	MSQ	XH-C4	A; B; C	2	0
35	7	MSQ	XH-C4	A; B; C	2	0
36	7	MSQ	XH-C4	A; B; C	2	0
37	7	MSQ	XH-C4	A OR A; B; C	2	0
38	7	MSQ	XH-C4	A; B; C	2	0
39	7	MSQ	XH-C4	A	2	0
40	7	MSQ	XH-C4	A; B; C	2	0



General Aptitude (GA)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	Consider the following sentences: (i) After his surgery, Raja hardly could walk. (ii) After his surgery, Raja could barely walk. (iii) After his surgery, Raja barely could walk. (iv) After his surgery, Raja could hardly walk. Which of the above sentences are grammatically CORRECT?
(A)	(i) and (ii)
(B)	(i) and (iii)
(C)	(iii) and (iv)
(D)	(ii) and (iv)

Q.2	Ms. X came out of a building through its front door to find her shadow due to the morning sun falling to her right side with the building to her back. From this, it can be inferred that building is facing _____
(A)	North
(B)	East
(C)	West
(D)	South



Q.3	In the above figure, O is the center of the circle and, M and N lie on the circle. The area of the right triangle MON is 50 cm^2. What is the area of the circle in cm^2 ?
(A)	2π
(B)	50π
(C)	75π
(D)	100π

Q.4	If $\begin{cases} \text{"}\oplus\text{" means "}-\text{"}, \\ \text{"}\otimes\text{" means "}\div\text{"}, \\ \text{"}\Delta\text{" means "}\text{+}\text{"}, \\ \text{"}\nabla\text{" means "}\times\text{"}, \end{cases}$ then, the value of the expression $\Delta 2 \oplus 3 \Delta ((4 \otimes 2) \nabla 4) =$
(A)	-1
(B)	-0.5
(C)	6
(D)	7



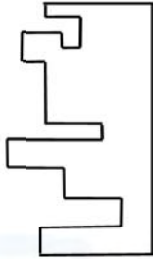
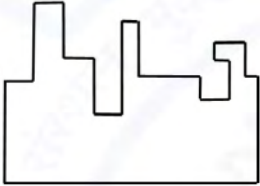
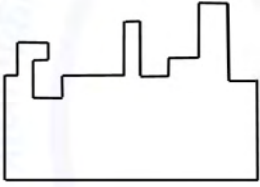
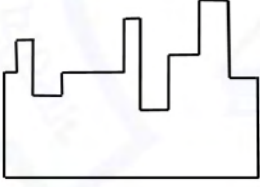
Q.5	“The increased consumption of leafy vegetables in the recent months is a clear indication that the people in the state have begun to lead a healthy lifestyle” Which of the following can be logically inferred from the information presented in the above statement?
(A)	The people in the state did not consume leafy vegetables earlier.
(B)	Consumption of leafy vegetables may not be the only indicator of healthy lifestyle.
(C)	Leading a healthy lifestyle is related to a diet with leafy vegetables.
(D)	The people in the state have increased awareness of health hazards causing by consumption of junk foods.



Q. 6 – Q. 10 Multiple Choice Question (MCQ), carry TWO marks each (for each wrong answer: – 2/3).

Q.6	Oxpeckers and rhinos manifest a symbiotic relationship in the wild. The oxpeckers warn the rhinos about approaching poachers, thus possibly saving the lives of the rhinos. Oxpeckers also feed on the parasitic ticks found on rhinos. In the symbiotic relationship described above, the primary benefits for oxpeckers and rhinos respectively are,
(A)	Oxpeckers get a food source, rhinos have no benefit.
(B)	Oxpeckers save their habitat from poachers while the rhinos have no benefit.
(C)	Oxpeckers get a food source, rhinos may be saved from the poachers.
(D)	Oxpeckers save the lives of poachers, rhinos save their own lives.



Q.7	 A jigsaw puzzle has 2 pieces. One of the pieces is shown above. Which one of the given options for the missing piece when assembled will form a rectangle? The piece can be moved, rotated or flipped to assemble with the above piece.
(A)	
(B)	
(C)	
(D)	

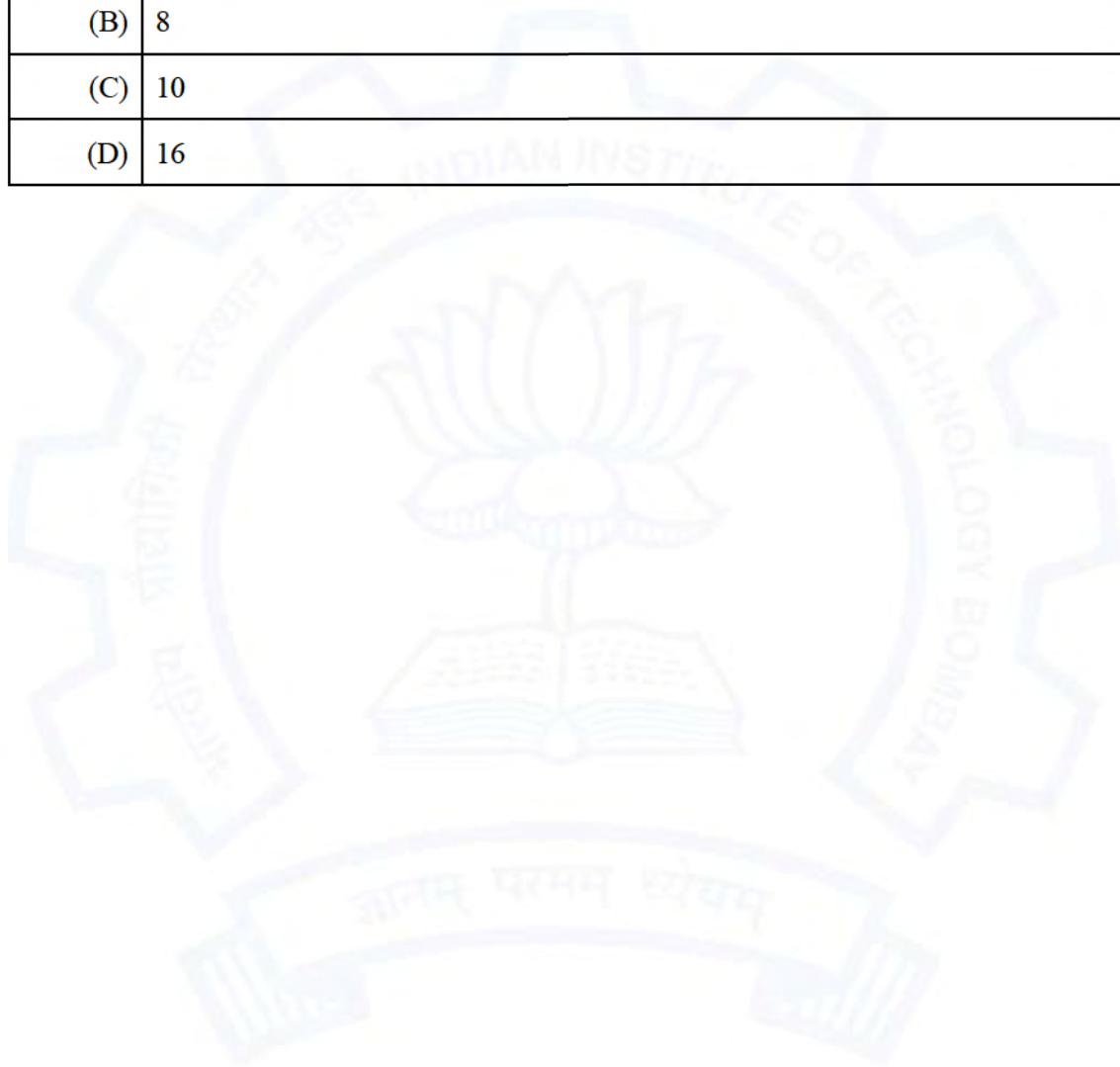


Q.8	The number of hens, ducks and goats in farm P are 65, 91 and 169, respectively. The total number of hens, ducks and goats in a nearby farm Q is 416. The ratio of hens:ducks:goats in farm Q is 5:14:13. All the hens, ducks and goats are sent from farm Q to farm P. The new ratio of hens:ducks:goats in farm P is _____
(A)	5:7:13
(B)	5:14:13
(C)	10:21:26
(D)	21:10:26

Q.9	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Company</th><th>Ratio</th></tr> </thead> <tbody> <tr> <td>C1</td><td>3:2</td></tr> <tr> <td>C2</td><td>1:4</td></tr> <tr> <td>C3</td><td>5:3</td></tr> <tr> <td>C4</td><td>2:3</td></tr> <tr> <td>C5</td><td>9:1</td></tr> <tr> <td>C6</td><td>3:4</td></tr> </tbody> </table> The distribution of employees at the rank of executives, across different companies C1, C2, ..., C6 is presented in the chart given above. The ratio of executives with a management degree to those without a management degree in each of these companies is provided in the table above. The total number of executives across all companies is 10,000. The total number of management degree holders among the executives in companies C2 and C5 together is _____.	Company	Ratio	C1	3:2	C2	1:4	C3	5:3	C4	2:3	C5	9:1	C6	3:4
Company	Ratio														
C1	3:2														
C2	1:4														
C3	5:3														
C4	2:3														
C5	9:1														
C6	3:4														
(A)	225														
(B)	600														
(C)	1900														
(D)	2500														



Q. 10	Five persons P, Q, R, S and T are sitting in a row not necessarily in the same order. Q and R are separated by one person, and S should not be seated adjacent to Q. The number of distinct seating arrangements possible is:
(A)	4
(B)	8
(C)	10
(D)	16





Reasoning and Comprehension (XH-B1)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	According to a recent article in a medical journal, consuming curcumin (from turmeric) significantly lowers the risk of COVID-19. The researchers draw this conclusion from a study that found that people who consumed one or more teaspoons of curcumin extract everyday were half as likely to be diagnosed with the disease as people who did not consume curcumin. Which of the following, if true, most weakens the argument in the article?
(A)	In another study, people who were given a zinc supplement everyday were more than four times less likely to be diagnosed with COVID-19 as those who did not.
(B)	All the participants in this study were from the same state where no other spices or herbs are consumed.
(C)	The participants who consumed curcumin were also more likely to exercise than those who did not.
(D)	In another study, COVID-19 patients who were given curcumin were no more likely to recover than others.

Q.2	Froot Inc. carried out an internet advertisement campaign for its new beverage CocoLoco. After the campaign, the director of the advertising company conducted a survey and found that the CocoLoco sales were higher than that of TenderJoos a competing product from Joos Inc. The agency concluded that the internet advertising campaign is more effective than advertising through other media. Which of the following statements could strengthen the conclusion above by the agency?
(A)	A ₹2 discount was offered on CocoLoco during the campaign period.
(B)	CocoLoco sales were higher than those of TenderJoos before the internet campaign.
(C)	A newspaper advertisement campaign the previous year did not increase CocoLoco sales.
(D)	During the campaign for CocoLoco, Joos Inc. did not advertise TenderJoos at all.



Q.3	An e-commerce site offered a deal last month conditional on the customer spending a minimum of ₹500. Any customer who buys 2 kg of fresh fruit will receive a hand mixer and any customer who buys 2 kg of fresh vegetables will receive a vegetable chopper. Which of the following is NOT a possible outcome of the above?
(A)	A customer purchased 3 kg of fresh fruit and did not receive a vegetable chopper.
(B)	A customer purchased items for ₹500 which included 1 kg of vegetables and received a hand mixer.
(C)	A customer purchased items for ₹500 which included 2 kg of vegetables and 1 kg of fruit and received a hand mixer.
(D)	A customer purchased items for ₹300 which included 2 kg of fruit and received neither a hand mixer nor a vegetable chopper.

Q.4	Writers of detective fiction often include an incompetent detective as a foil for the brilliant investigator-protagonist as they follow different paths in trying to solve the crime. In the individual accounts, the incompetent detective is frequently distracted by the culprit's careful plans, while the competent investigator solves the case after a final confrontation. Analysts of such fiction believe that the authors select this story-telling technique to provide readers with more complexities in the form of misleading clues, while figuring out the crime. Which of the following statements most logically follows from the passage above?
(A)	A detective story is considered well-written if the brilliant investigator is accompanied by an incompetent detective.
(B)	Writers of detective fiction use the contrast of an incompetent detective to mainly show how complex the investigation is.
(C)	Writers of detective fiction never write stories where the incompetent detective solves the case.
(D)	Writers of detective fiction use two investigative accounts to make it difficult for the reader to figure out the outcome.



Q.5	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled (L,M,N,O). Reorder these parts so that the sentence can be read through correctly and select one of the options given. <i>P1: Studies of several Sahitya Akademi award winners show that...</i> L: or encounter professional M: and invariably develop a strained relationship with other literary figures N: they often publish very little O: after winning the prize <i>P6: ...envy and rivalry.</i> The correct order is:
(A)	NOLM
(B)	MLON
(C)	ONML
(D)	MOLN



Q.6 – Q.10 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 6	Gerrymandering refers to the targeted redrawing of election constituencies so as to benefit a particular party. This is especially important where the electoral system is “first past the post” in each constituency (i.e. one winner is selected in each constituency based on a majority of votes won) and where there is no other provision for proportional representation (as for example in the German system). For a simple illustration of gerrymandering, if a region consists of districts 1, 2, 3, ..., 9 with districts 1, 2, 3, 4, 5, 6 favouring party P and 7, 8, 9 favouring party Q, then grouping of districts to constituencies as {1,2,3}, {4,5,6}, {7,8,9} will give two seats to party P and one seat to party Q, whereas the grouping {1,2,7}, {3,4,8}, {5,6,9} will give all three seats to party P, as they will secure a majority in each constituency. Which of these statements can be deduced from the above?
(A)	Gerrymandering implies that constituency boundaries can sometimes be drawn to favour one party over the other.
(B)	Gerrymandering implies that proportional representation is impossible when districts are grouped to form constituencies.
(C)	To counteract gerrymandering political parties should concentrate on districts where they are favoured.
(D)	The grouping of districts to constituencies has very little impact on proportional representation.



Q. 7	X-ray examination of a recently discovered painting that some authorities judge to be a self-portrait by Michelangelo revealed an under-image of a woman's face. Either Michelangelo or some other artist must have repainted over the first painting that had now been seen on the canvas. Because the woman's face also appears on other paintings by Michelangelo, this painting is determined to indeed be an authentic painting by Michelangelo. Which of the following assumptions must be made in reaching the conclusion above?
(A)	When an already painted canvas of an artist is used, the second artist using that canvas for a new painting is usually influenced by the artistic style of the first.
(B)	Several painted canvases that art historians attribute to Michelangelo contain under-images that appear on at least one other of Michelangelo's paintings.
(C)	Subject or subjects that appear in authenticated paintings of Michelangelo are rather unlikely to show up as under-images on painted canvases not attributed to Michelangelo.
(D)	No painted canvas can be attributed to a particular artist with certainty without an X-ray analysis.

Q. 8	This season _____ tourists visited Ladakh than last season; however, _____ to be the biggest tourist destination in India. The tourism department explains that the number of tourists to India has _____ relative to previous years, _____ have chosen to visit Ladakh. Select the correct sequence of phrases to fill in the blanks to complete the passage above.
(A)	more / for the first time in many seasons it does not appear / increased / and it seems that most
(B)	fewer / as in the past, it appears / in fact decreased / but it seems that only a small proportion
(C)	fewer / for the first time in many seasons it appears / in fact decreased / but it seems that most
(D)	more / this season as well, it appears / in fact decreased / but it seems that a large proportion



Q. 9	Reorder the sentences in (1) – (5) such that they form a coherent paragraph. (1) In fact, dozens of languages today have only one native speaker still living, and that person's death will mean the extinction of the language: It will no longer be spoken, or known, by anyone on earth. (2) Many languages are falling out of use and are being replaced by others that are more widely used in the region or nation, such as English in Australia or Portuguese in Brazil. (3) Many other languages are no longer being learned by new generations of children or by new adult speakers. (4) An endangered language is one that is likely to become extinct in the near future. (5) Unless the trends are reversed, these endangered languages will become extinct by the end of the century. (Adapted from <i>What is an Endangered Language</i> by A. Woodbury.)
(A)	2 3 1 4 5
(B)	2 3 5 4 1
(C)	4 1 5 2 3
(D)	4 2 3 1 5



Q. 10	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled L,M,N,O. Reorder these parts so that the sentence can be read correctly and select one of the sequences below. <i>P1: For a little while...</i> L: it was a common belief M: right after the treaty of Versailles N: that Germany had caused World War I not just by her actions O: held by analysts and politicians alike <i>P6: ... but by also encouraging Italy in her own aggressions.</i>
(A)	LMNO
(B)	MLON
(C)	LNMO
(D)	MOLN



Q.11 – Q.15 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 11	After Florentino Ariza saw her for the first time, his mother knew before he told her because he lost his voice and his appetite and spent the entire night tossing and turning in his bed. But when he began to wait for the answer to his first letter, his anguish was complicated by diaorrhea and green vomit, he became disoriented and suffered from sudden fainting spells, and his mother was terrified because his condition did not resemble the turmoil of love so much as the devastation of cholera. Florentino Ariza's godfather, an old homeopathic practitioner who had been Tránsito Ariza's confidant ever since her days as a secret mistress, was also alarmed at first by the patient's condition, because he had the weak pulse, the hoarse breathing, and the pale perspiration of a dying man. But his examination revealed that he had no fever, no pain anywhere, and that his only concrete feeling was an urgent desire to die. All that was needed was shrewd questioning, first of the patient and then of his mother, to conclude once again that the symptoms of love were the same as those of cholera. He prescribed infusions of linden blossoms to calm the nerves and suggested a change of air so he could find consolation in distance, but Florentino Ariza longed for just the opposite: to enjoy his martyrdom. (Adapted from <i>Love in a Time of Cholera</i> by Gabriel García Márquez.) The author of the passage is implying that:
(A)	Homeopathy cures love.
(B)	The doctor could not distinguish between love and cholera.
(C)	The doctor could distinguish between love and cholera.
(D)	The symptoms of love and cholera are similar.



Q. 12	Now, it is clear that the decline of a language must ultimately have political and economic causes: it is not due simply to the bad influence of this or that individual writer. But an effect can become a cause, reinforcing the original cause and producing the same effect in an intensified form, and so on indefinitely. A man may take to drink because he feels himself to be a failure, and then fail all the more completely because he drinks. It is rather the same thing that is happening to the English language. It becomes ugly and inaccurate because our thoughts are foolish, but the slovenliness of our language makes it easier for us to have foolish thoughts. (Adapted from <i>Politics and the English Language</i> by George Orwell.) The illustration of the man who takes to drink is used to underscore which of the following ideas in the passage above?
(A)	Political and economic causes control deterioration of language.
(B)	Foolish thoughts are enabled by inaccurate language.
(C)	Effect of an action becomes the cause in a cyclic pattern.
(D)	Drinking enables people to have foolish thoughts and slovenly language.



Q. 13	It is a pity that Caste even today has its defenders. The defences are many. It is defended on the grounds that the Caste System is but another name for division of labour, and if division of labour is a necessary feature of every civilised society, then it is argued that there is nothing wrong in the Caste System. Now the first thing to be urged against this view is that Caste System is not merely division of labour. It is also a division of labourers. Civilised society undoubtedly needs division of labour but nowhere is division of labour accompanied by this unnatural division of labourers into watertight compartments, grading them one above the other. This division of labour is not spontaneous or based on natural aptitudes. Social and individual efficiency requires us to develop the individual capacity and competency to choose and to make his own career. This principle is violated in so far as it involves an attempt to appoint tasks to individuals in advance, not on the basis of trained original capacities, but on that of birth. Industry undergoes rapid and abrupt changes and an individual must be free to change his occupation and adjust himself to changing circumstances, to gain his livelihood. (Adapted from <i>Annihilation of Caste</i> by Dr. B.R. Ambedkar.) Which of the following observations substantiate the arguments found in the passage above?
(A)	Newer generations are unable to change and move away from low-paying family professions, even with changed economic circumstances.
(B)	Sedentary desk jobs are considered to have more value and are in greater demand than those involving manual labour.
(C)	The government's jobs guarantee programme makes low-level management jobs available across all industries to all graduates in the nation.
(D)	A bus driver becomes an app creator and, in the course of one month, reaches one million downloads on Playstore with a four-star rating.



Q. 14	Imagine that you're in a game show and your host shows you three doors. Behind one of them is a shiny car and behind the others are goats. You pick one of the doors and get what lies within. After making your choice, your host chooses to open one of the other two doors, which inevitably reveals a goat. He then asks you if you want to stick with your original pick, or switch to the other remaining door. What do you do? Most people think that it doesn't make a difference and they tend to stick with their first pick. With two doors left, you should have a 50% chance of selecting the one with the car. If you agree, then you have just fallen afoul of one of the most infamous mathematical problems – the Monty Hall Problem. In reality, you should switch every time which doubles your odds of getting the car. Over the years, the problem has ensnared countless people, but not, it seems, pigeons. The humble pigeon can learn with practice the best tactic for the Monty Hall Problem, switching from their initial choice almost every time. Amazingly, humans do not! (Adapted from an article by Ed Yong in <i>Discover Magazine</i>.) Which of the following conclusions follow from the passage above?
(A)	Humans calculate the probability of independent, random events such as the opening of a door by dividing the specific outcomes by the total number of possible outcomes.
(B)	Humans find it very difficult to learn to account for the host's hand in making the event non-random and, thereby, changing the outcome of the event.
(C)	Calculating probabilities is difficult for humans but easy for pigeons; which is why the pigeons succeed where the humans fail.
(D)	Humans are governed by reason, but pigeons are irrational and only interested in the outcome and will do whatever it takes to get food.



Q. 15	The truth is that, despite the recent success of car-makers P and Q, India's automobile industry is in a state not that different from the bad old days of the license-permit quota raj when two carmakers dominated a captive domestic market with substandard vehicles and with very little, if any, research and development, and low to negligible productivity growth. High tariff barriers have certainly induced foreign automobile makers to enter the Indian market by setting up local operations, but this so-called "tariff jumping" foreign investment has produced an industry that is inefficient, operating generally at a low scale, and whose products are not globally competitive either in terms of cost or of innovation. It is noteworthy that the automobile parts industry, which has faced low tariffs (as low as 12.5%) and has been largely deregulated, has been characterised by higher productivity and much better export performance than the completely-built units' sector in the years since liberalisation. (Adapted from an Op-Ed in <i>The Mint</i>.) Which of the following statements can be inferred from the above?
(A)	Low tariff barriers increase productivity.
(B)	Tariff jumping leads to increases in productivity.
(C)	Deregulation has worked for the automotive parts industry and therefore should be applied to completely-built units.
(D)	P and Q do not invest enough in research and development.



Psychology (XH-C5)

Q.1 – Q.19 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	According to the Path-Goal theory of leadership, a style of leadership in which the leader consults with subordinates, involving them in the decision making process is _____.
(A)	participative
(B)	directive
(C)	supportive
(D)	achievement oriented

Q.2	A process to test reliability that involves creating a large 'bank' of items and then dividing it into different versions or creating two tests with items of similar difficulty is called _____.
(A)	alternate and parallel form reliability
(B)	measure of test homogeneity
(C)	test-retest
(D)	inter-rater reliability

Q.3	Delusion of 'reference' is a symptom of schizophrenia in which people _____.
(A)	believe that random events or comments are directed at them
(B)	believe that their thoughts are being broadcasted
(C)	believe they have special powers
(D)	have sensory experiences in the absence of stimulus



Q.4	A student who has prepared inadequately for an exam attributes his failing grade to an unfair test, cheating by other students or a professor who taught badly, is expressing _____.
(A)	projection
(B)	reaction formation
(C)	repression
(D)	rationalization

Q.5	Which of the following theories of emotion best fits with the statement that perception of an environmental situation results in emotions and both, felt emotion and bodily reactions in emotions are independent of each other, but triggered simultaneously?
(A)	Cannon-Bard Theory
(B)	Lazarus's Cognitive Appraisal Theory
(C)	Schachter-Singer Theory
(D)	James-Lange Theory

Q.6	The perceived fairness of the distribution of resources and rewards is described as _____.
(A)	distributive justice
(B)	procedural justice
(C)	interactional justice
(D)	informational justice



Q.7	According to Bandura's theory of personality, which one of the following is the most important <i>person variables</i> in determining personality?
(A)	Self-efficacy
(B)	Self-concept
(C)	Self-esteem
(D)	Self-determination

Q.8	Match the events in the first column with the different categories of stress in the second column.			
	Events		Stress	
	P	A young child who loses his water bottle on the school bus	(i)	Traumatic event
	Q	A person who escaped from the Taj hotel on 26 th November, 2008 around midnight and has nightmares about the same incident	(ii)	Chronic stressor
	R	Someone fearing the loss of one's job	(iii)	Major life event
	S	A woman who has her first baby	(iv)	Daily Hassle
(A)	P-(iv), Q-(i), R-(ii), S-(iii)			
(B)	P-(iv), Q-(iii), R-(i), S-(ii)			
(C)	P-(ii), Q-(i), R-(iii), S-(iv)			
(D)	P-(i), Q-(iv), R-(ii), S-(iii)			



Q.9	Which of the following types of colour blindness denotes <i>blue-yellow</i> colour deficiency?
(A)	Tritanopia
(B)	Protanopia
(C)	Dueteranopia
(D)	Ritalin

Q.10	Which of the following properties of sound is similar to the hue of light?
(A)	Pitch
(B)	Timbre
(C)	Loudness
(D)	Purity

Q.11	_____ is a reinforcement schedule, where a person or animal receives the reinforcement based on varying amount of time.
(A)	Variable-interval
(B)	Fixed-ratio
(C)	Fixed-interval
(D)	Variable-ratio



Q.12	_____ is a loss of memory of events that occurred prior to the trauma.
(A)	Retrograde amnesia
(B)	Anterograde amnesia
(C)	Infantile amnesia
(D)	Posthypnotic amnesia

Q.13	Phobias and Obsessive Compulsive Disorder fall in the category of _____.
(A)	anxiety disorders
(B)	mood disorders
(C)	somatoform disorders
(D)	psychotic disorders

Q.14	The smallest unit of speech perception that has meaning is _____.
(A)	morpheme
(B)	syntax
(C)	semantics
(D)	phoneme



Q.15	In adolescence, with the development of the stage of ‘formal operations’, we are likely to see the development of _____.
(A)	post-conventional morality
(B)	pre-conventional morality
(C)	bodily-kinesthetic intelligence
(D)	transference

Q.16	Which technique allows researchers to conduct an integrative statistical analysis of multiple independent studies addressing the same question?
(A)	Meta-analysis
(B)	Correlational analysis
(C)	Regression analysis
(D)	Bootstrapping

Q.17	The role of culture and ‘scaffolding’ are emphasized in _____.
(A)	Vygotsky’s theory of cognitive development
(B)	Piaget’s theory of cognitive development
(C)	Atkinson-Shiffrin’s information-processing model
(D)	Kamiloff-Smith’s theory of cognitive development



Q.18	Most people tend NOT to consider situational factors while judging others' behaviour because _____.
(A)	people are inclined to commit the fundamental attribution error
(B)	of the frustration-aggression relationship
(C)	people are influenced by the laws of reinforcement
(D)	of the overjustification effect

Q.19	Using archival analysis, scientists describe a culture by _____.
(A)	examining documents like magazines, diaries and newspapers
(B)	surveying a representative sample of members of the society
(C)	observing the behaviour of members of the society
(D)	comparing the direct observations of behaviour from different cultures



Q.20 Multiple Select Question (MSQ), carry ONE mark each (no negative marks).

Q.20	Which is/are the component(s) of Gardner's theory of multiple intelligences?
(A)	Logical-Mathematical intelligence
(B)	Linguistic intelligence
(C)	Spatial intelligence
(D)	Insight



Q.21 – Q.23 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q.21

Match the neurotransmitter in the first column with its effect in the second column.

Neurotransmitter		Effect	
P	Acetylcholine	(i)	Primarily involved in control or alertness and wakefulness.
Q	Norepinephrine	(ii)	Plays a role in the regulation of mood, eating, sleeping and arousal.
R	Serotonin	(iii)	Major inhibitory neurotransmitter in the brain.
S	Gamma-aminobutyric acid (GABA)	(iv)	Involved in muscle action, learning and memory.
		(v)	Involved in Parkinson's disease.

(A) P-(iv), Q-(i), R-(ii), S-(iii)

(B) P-(iii), Q-(i), R-(ii), S-(v)

(C) P-(i), Q-(ii), R-(iv), S-(iii)

(D) P-(iv), Q-(i), R-(v), S-(iii)



Q.22

Match the depth cues in the first column with their description in the second column.

Cues		Description	
P	Aerial perspective	(i)	The inward turning of the eyes that occurs when you look at an object that is closer to you.
Q	Motion Parallax	(ii)	The distant mountain appears fuzzy.
R	Convergence	(iii)	Parallel lines appear to converge at the horizon.
S	Linear perspective	(iv)	When we travel in a vehicle, objects that are close appear to move in the opposite direction.

(A) P-(ii), Q-(iv), R-(i), S-(iii)

(B) P-(ii), Q-(iii), R-(iv), S-(i)

(C) P-(iv), Q-(i), R-(ii), S-(iii)

(D) P-(iii), Q-(iv), R-(i), S-(ii)



Q.23

Match the concepts in the first column with the description in the second column.

Concept		Description	
P	Transience	(i)	Source of memory is confused
Q	Misattribution	(ii)	Inability to forget undesirable memories
R	Absentmindedness	(iii)	Accessibility of memory decreases over time
S	Persistence	(iv)	Forgetting caused by lapses in attention

(A) P-(iii), Q-(i), R-(iv), S-(ii)

(B) P-(i), Q-(ii), R-(iii), S-(iv)

(C) P-(ii), Q-(i), R-(iv), S-(iii)

(D) P-(iii), Q-(iv), R-(i), S-(ii)



Q.24 – Q.40 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q.24	Which of the following will hold true for a learning acquisition curve drawn for a classical conditioning experiment on eye blinking as conditioned response that plots the learning over a number of trials?
(A)	The rate of learning on earlier trials is more than that on later trials.
(B)	The learning curve is negatively accelerated.
(C)	The rate of learning in later trials will be more than that on earlier trials.
(D)	The rate of learning is proportionally increasing with increasing number of trials.

Q.25	In the situation where ‘A teenager who hates studying science but is also not able to tell his parents fearing their reaction’, what is the conflict he is facing and which of these may be his way of dealing with this situation?
(A)	Avoidance-Avoidance conflict, he will keep vacillating between telling his parents and continuing to study science.
(B)	Avoidance-Avoidance conflict, he may contemplate running away from his home.
(C)	Approach-Avoidance conflict, he will experience some emotional turmoil.
(D)	Multiple Approach-Avoidance conflict, he will be guided by internal values.



Q.26	Which of these is true about individuals high on <i>n-achievement</i> motivation?
(A)	High <i>n-achievement</i> individuals like to work on situations where they have control and can get feedback.
(B)	High <i>n-achievement</i> individuals persistently work on tasks they perceive as, either reflecting their personal characteristics like intelligence or are career-related.
(C)	High <i>n-achievement</i> individuals prefer working on extremely challenging tasks for bigger gains.
(D)	High <i>n-achievement</i> individuals avoid changing their aspiration levels.

Q.27	Which of the following is/are Allport's basic assumption(s) concerning human nature?
(A)	Human growth as an active process of "becoming".
(B)	Personality cannot be fully understood by examining each trait separately, though some system of conceptual schemata are essential for personality study and a trait must be related to the total pattern of personality.
(C)	Personality is organized in a <i>topographical model</i> .
(D)	All human events are determined by powerful instinctual forces.

Q.28	Which of the following aspects are characteristics of the group structure in an organizational context?
(A)	Task-oriented role (the activities of an individual that involve helping the group reach the goal).
(B)	Socio-emotional role (the activities of an individual that involve being supportive and nurturing of other group members).
(C)	Prescriptive norms (expectations within groups regarding what has to be done).
(D)	Monitoring (observing work performance).



Q.29	Which of the following needs/motives are proposed by Abraham Maslow?
(A)	Deficit needs.
(B)	Metaneeds.
(C)	Self-actualization needs.
(D)	Need-achievement.

Q.30	A researcher is conducting a study involving two independent variables. Which of the following Analysis of Variance (ANOVA) is/are available to him/her?
(A)	2×2 ANOVA.
(B)	4×3 ANOVA.
(C)	$3 \times 2 \times 2$ ANOVA.
(D)	One-way ANOVA.

Q.31	Which of the following statements is true about personal space?
(A)	It is silent and invisible.
(B)	It is a geographic component of interpersonal relations.
(C)	Invasions of personal space are a matter of degree.
(D)	There are no across culture variations.



Q.32	If a person got a score of 75 on a test, which of the following distributions allow(s) for the most favourable interpretation of that score? (assuming higher values are more favourable)
(A)	Mean = 55, Standard Deviation = 4
(B)	Mean = 60, Standard Deviation = 3
(C)	Mean = 65, Standard Deviation = 5
(D)	Mean = 50, Standard Deviation = 10

Q.33	A man's wife is dying. She is in dire need of a drug. The only place to get the drug is at the store of a pharmacist who is known to overcharge people for drugs. The man can only pay ₹20000 but the pharmacist wants ₹50000, and refuses to sell it to him for less, or to let him pay later. What will the man do if he is at the conventional stage of morality as per Kohlberg's theory of moral reasoning?
(A)	He would not steal the drug, as everyone will see him as a thief, and his wife would not approve of his stealing or accept the stolen drug.
(B)	No matter what, he would obey the law because stealing is a crime.
(C)	The man would not steal the drug, as he may get caught and go to jail.
(D)	The man would steal the drug to cure his wife and then tell the authorities what he has done. He may have to pay a penalty, but at least he would have saved a human life.

Q.34	According to Erik Erikson, identity versus role confusion is the fifth stage of life span development. Which of the following outcomes may emerge as a result of identity crisis?
(A)	Identity diffusion
(B)	Identity moratorium
(C)	Identity foreclosure
(D)	Identity perception



Q.35	Life span experts argue that biological aging begins at birth. Which of the following is/are explanation/s of aging?
(A)	Cells can divide to a maximum of about 75 to 80 times and that as people age, cells become less capable of dividing.
(B)	People age because when cells metabolize energy, the by-products include unstable oxygen molecules known as free radicals.
(C)	Aging is due to the decay of mitochondria.
(D)	Cell division increases as people age.

Q.36	Which of the following are involved in sympathetic nervous system activation?
(A)	Inhibited salivation
(B)	Increased heart rate
(C)	Inhibited digestion
(D)	Constricted pupils

Q.37	How is/are genetic theories of psychopathology tested?
(A)	Using twin studies
(B)	Using family history studies
(C)	Using adoption studies
(D)	Using psychodynamic studies



Q.38	An investigator approached college students who initially believed that water should be purified and asked them to compose and recite a videotaped speech against the use of water purifiers. To do this, some were offered large incentives and others were offered small incentives. Later their attitudes towards water purifiers were tested. Which of the following will be the expected finding(s)?
(A)	The smaller the incentive, the greater will be the attitude change.
(B)	All the students will change their attitudes towards water purifiers.
(C)	All the students will continue to feel favourably about water purifiers.
(D)	The larger the incentive, the greater will be the attitude change.

Q.39	In which attachment style(s), do children tend to show clingy behaviour but then reject the attachment figure's attempt to interact with them?
(A)	Resistant attachment
(B)	Avoidant attachment
(C)	Secure attachment
(D)	Disorganized attachment



Q.40	A study is conducted to see the effectiveness of volume levels of commercials. In the graph given below, values of mean effectiveness (dependent variable) are presented on the Y axis, and three levels of volume, namely, soft, medium and loud are presented on the X axis. The graph shows the relationship between volume and mean effectiveness for males in the continuous line and for females in the dashed line. Which of the following interpretation(s) is/are correct from the graph? <table><thead><tr><th>Volume (X-axis)</th><th>Male (Mean Effectiveness)</th><th>Female (Mean Effectiveness)</th></tr></thead><tbody><tr><td>Soft</td><td>4</td><td>2</td></tr><tr><td>Medium</td><td>8</td><td>10</td></tr><tr><td>Loud</td><td>14</td><td>5</td></tr></tbody></table>	Volume (X-axis)	Male (Mean Effectiveness)	Female (Mean Effectiveness)	Soft	4	2	Medium	8	10	Loud	14	5
Volume (X-axis)	Male (Mean Effectiveness)	Female (Mean Effectiveness)											
Soft	4	2											
Medium	8	10											
Loud	14	5											
(A)	A linear relationship exists for males and a nonlinear relationship for females.												
(B)	The effect of increasing volume on effectiveness depends on whether the participant is a male or a female.												
(C)	No interaction effect is seen.												
(D)	A linear relationship exists for both males and females.												

END OF THE QUESTION PAPER

Graduate Aptitude Test in Engineering (GATE 2021)**Subject/Paper: Humanities and Social Sciences (XH) / Psychology (XH-C5)**

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
1	7	MCQ	GA	D	1	1/3
2	7	MCQ	GA	D	1	1/3
3	7	MCQ	GA	D	1	1/3
4	7	MCQ	GA	D	1	1/3
5	7	MCQ	GA	C	1	1/3
6	7	MCQ	GA	C	2	2/3
7	7	MCQ	GA	A	2	2/3
8	7	MCQ	GA	C	2	2/3
9	7	MCQ	GA	C	2	2/3
10	7	MCQ	GA	D	2	2/3
1	7	MCQ	XH-B1	C	1	1/3
2	7	MCQ	XH-B1	C	1	1/3
3	7	MCQ	XH-B1	C	1	1/3
4	7	MCQ	XH-B1	D	1	1/3
5	7	MCQ	XH-B1	C	1	1/3
6	7	MCQ	XH-B1	A	2	2/3
7	7	MCQ	XH-B1	C	2	2/3
8	7	MCQ	XH-B1	C	2	2/3
9	7	MCQ	XH-B1	D	2	2/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Psychology (XH-C5)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
10	7	MCQ	XH-B1	B	2	2/3
11	7	MSQ	XH-B1	C; D	2	0
12	7	MSQ	XH-B1	B; C	2	0
13	7	MSQ	XH-B1	A; B	2	0
14	7	MSQ	XH-B1	A; B	2	0
15	7	MSQ	XH-B1	A; C; D	2	0
1	7	MCQ	XH-C5	A	1	1/3
2	7	MCQ	XH-C5	A	1	1/3
3	7	MCQ	XH-C5	A	1	1/3
4	7	MCQ	XH-C5	A	1	1/3
5	7	MCQ	XH-C5	A	1	1/3
6	7	MCQ	XH-C5	A	1	1/3
7	7	MCQ	XH-C5	A	1	1/3
8	7	MCQ	XH-C5	A	1	1/3
9	7	MCQ	XH-C5	A	1	1/3
10	7	MCQ	XH-C5	A	1	1/3
11	7	MCQ	XH-C5	A	1	1/3
12	7	MCQ	XH-C5	A	1	1/3
13	7	MCQ	XH-C5	A	1	1/3
14	7	MCQ	XH-C5	A	1	1/3
15	7	MCQ	XH-C5	A	1	1/3
16	7	MCQ	XH-C5	A	1	1/3
17	7	MCQ	XH-C5	A	1	1/3
18	7	MCQ	XH-C5	A	1	1/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Psychology (XH-C5)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
19	7	MCQ	XH-C5	A	1	1/3
20	7	MSQ	XH-C5	A; B; C	1	0
21	7	MCQ	XH-C5	A	2	2/3
22	7	MCQ	XH-C5	A	2	2/3
23	7	MCQ	XH-C5	A	2	2/3
24	7	MSQ	XH-C5	A; B	2	0
25	7	MSQ	XH-C5	A; B	2	0
26	7	MSQ	XH-C5	A; B	2	0
27	7	MSQ	XH-C5	A; B	2	0
28	7	MSQ	XH-C5	A; B; C	2	0
29	7	MSQ	XH-C5	A; B; C	2	0
30	7	MSQ	XH-C5	A; B	2	0
31	7	MSQ	XH-C5	A; B; C	2	0
32	7	MSQ	XH-C5	A; B	2	0
33	7	MSQ	XH-C5	A; B	2	0
34	7	MSQ	XH-C5	A; B	2	0
35	7	MSQ	XH-C5	A; B; C	2	0
36	7	MSQ	XH-C5	A; B; C	2	0
37	7	MSQ	XH-C5	A; B; C	2	0
38	7	MSQ	XH-C5	A	2	0
39	7	MSQ	XH-C5	A	2	0
40	7	MSQ	XH-C5	A; B	2	0



General Aptitude (GA)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	Consider the following sentences: (i) After his surgery, Raja hardly could walk. (ii) After his surgery, Raja could barely walk. (iii) After his surgery, Raja barely could walk. (iv) After his surgery, Raja could hardly walk. Which of the above sentences are grammatically CORRECT?
(A)	(i) and (ii)
(B)	(i) and (iii)
(C)	(iii) and (iv)
(D)	(ii) and (iv)

Q.2	Ms. X came out of a building through its front door to find her shadow due to the morning sun falling to her right side with the building to her back. From this, it can be inferred that building is facing _____
(A)	North
(B)	East
(C)	West
(D)	South



Q.3	In the above figure, O is the center of the circle and, M and N lie on the circle. The area of the right triangle MON is 50 cm^2. What is the area of the circle in cm^2 ?
(A)	2π
(B)	50π
(C)	75π
(D)	100π

Q.4	If $\begin{cases} \text{"}\oplus\text{" means "}-\text{"}, \\ \text{"}\otimes\text{" means "}\div\text{"}, \\ \text{"}\Delta\text{" means "}\text{+}\text{"}, \\ \text{"}\nabla\text{" means "}\times\text{"}, \end{cases}$ then, the value of the expression $\Delta 2 \oplus 3 \Delta ((4 \otimes 2) \nabla 4) =$
(A)	-1
(B)	-0.5
(C)	6
(D)	7



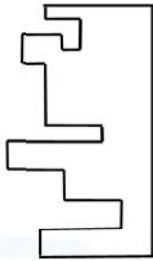
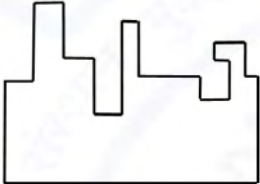
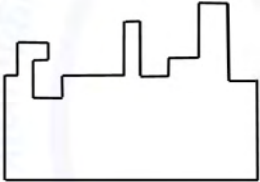
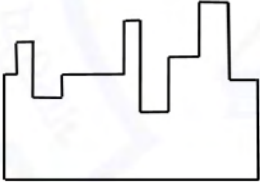
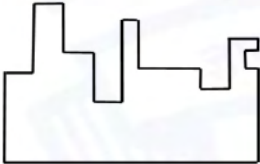
Q.5	“The increased consumption of leafy vegetables in the recent months is a clear indication that the people in the state have begun to lead a healthy lifestyle” Which of the following can be logically inferred from the information presented in the above statement?
(A)	The people in the state did not consume leafy vegetables earlier.
(B)	Consumption of leafy vegetables may not be the only indicator of healthy lifestyle.
(C)	Leading a healthy lifestyle is related to a diet with leafy vegetables.
(D)	The people in the state have increased awareness of health hazards causing by consumption of junk foods.



Q. 6 – Q. 10 Multiple Choice Question (MCQ), carry TWO marks each (for each wrong answer: – 2/3).

Q.6	Oxpeckers and rhinos manifest a symbiotic relationship in the wild. The oxpeckers warn the rhinos about approaching poachers, thus possibly saving the lives of the rhinos. Oxpeckers also feed on the parasitic ticks found on rhinos. In the symbiotic relationship described above, the primary benefits for oxpeckers and rhinos respectively are,
(A)	Oxpeckers get a food source, rhinos have no benefit.
(B)	Oxpeckers save their habitat from poachers while the rhinos have no benefit.
(C)	Oxpeckers get a food source, rhinos may be saved from the poachers.
(D)	Oxpeckers save the lives of poachers, rhinos save their own lives.



Q.7	 A jigsaw puzzle has 2 pieces. One of the pieces is shown above. Which one of the given options for the missing piece when assembled will form a rectangle? The piece can be moved, rotated or flipped to assemble with the above piece.
(A)	
(B)	
(C)	
(D)	

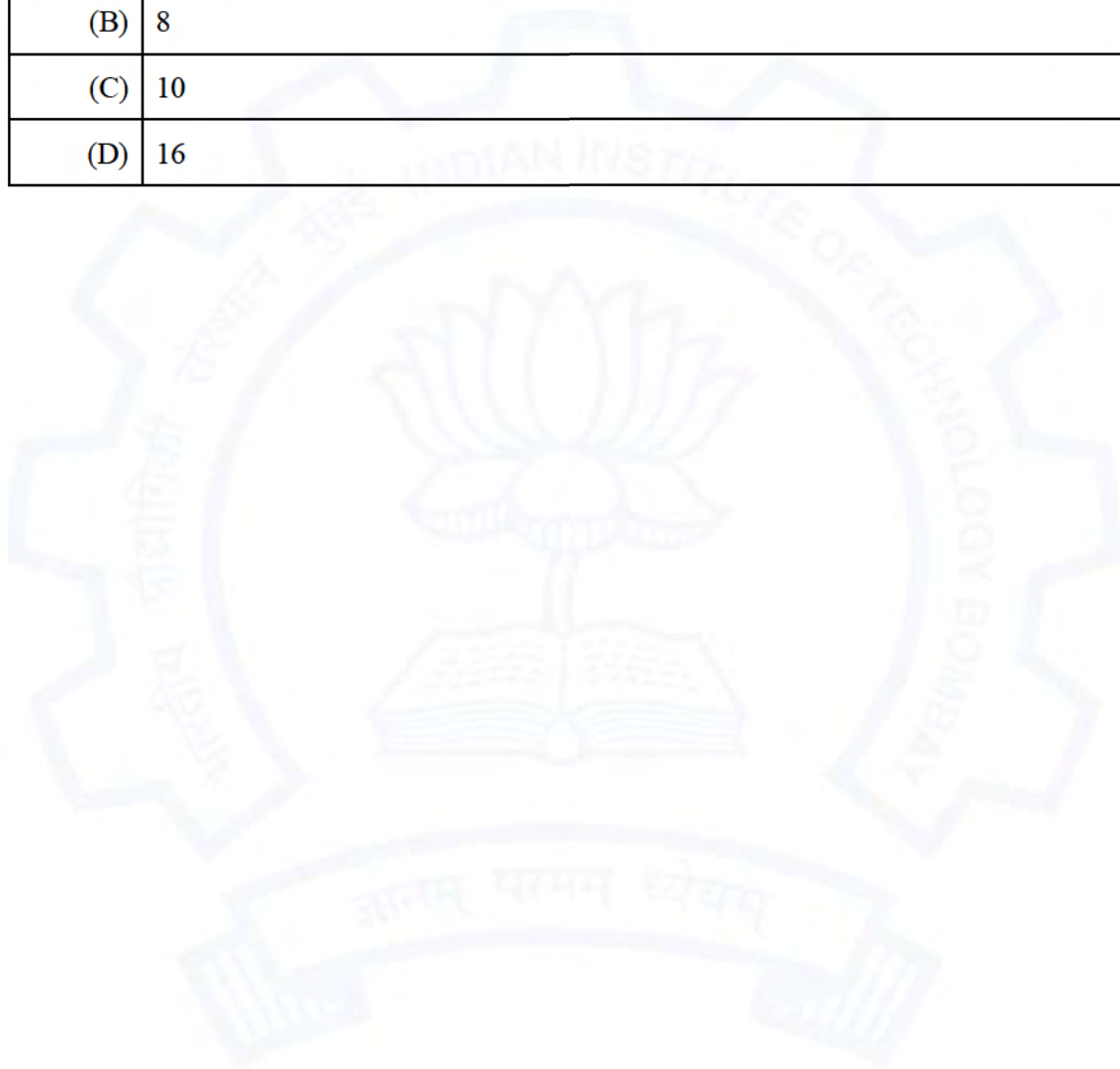


Q.8	The number of hens, ducks and goats in farm P are 65, 91 and 169, respectively. The total number of hens, ducks and goats in a nearby farm Q is 416. The ratio of hens:ducks:goats in farm Q is 5:14:13. All the hens, ducks and goats are sent from farm Q to farm P. The new ratio of hens:ducks:goats in farm P is _____
(A)	5:7:13
(B)	5:14:13
(C)	10:21:26
(D)	21:10:26

Q.9	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Company</th><th>Ratio</th></tr> </thead> <tbody> <tr> <td>C1</td><td>3:2</td></tr> <tr> <td>C2</td><td>1:4</td></tr> <tr> <td>C3</td><td>5:3</td></tr> <tr> <td>C4</td><td>2:3</td></tr> <tr> <td>C5</td><td>9:1</td></tr> <tr> <td>C6</td><td>3:4</td></tr> </tbody> </table> The distribution of employees at the rank of executives, across different companies C1, C2, ..., C6 is presented in the chart given above. The ratio of executives with a management degree to those without a management degree in each of these companies is provided in the table above. The total number of executives across all companies is 10,000. The total number of management degree holders among the executives in companies C2 and C5 together is _____.	Company	Ratio	C1	3:2	C2	1:4	C3	5:3	C4	2:3	C5	9:1	C6	3:4
Company	Ratio														
C1	3:2														
C2	1:4														
C3	5:3														
C4	2:3														
C5	9:1														
C6	3:4														
(A)	225														
(B)	600														
(C)	1900														
(D)	2500														



Q. 10	Five persons P, Q, R, S and T are sitting in a row not necessarily in the same order. Q and R are separated by one person, and S should not be seated adjacent to Q. The number of distinct seating arrangements possible is:
(A)	4
(B)	8
(C)	10
(D)	16





Reasoning and Comprehension (XH-B1)

Q.1 – Q.5 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	According to a recent article in a medical journal, consuming curcumin (from turmeric) significantly lowers the risk of COVID-19. The researchers draw this conclusion from a study that found that people who consumed one or more teaspoons of curcumin extract everyday were half as likely to be diagnosed with the disease as people who did not consume curcumin. Which of the following, if true, most weakens the argument in the article?
(A)	In another study, people who were given a zinc supplement everyday were more than four times less likely to be diagnosed with COVID-19 as those who did not.
(B)	All the participants in this study were from the same state where no other spices or herbs are consumed.
(C)	The participants who consumed curcumin were also more likely to exercise than those who did not.
(D)	In another study, COVID-19 patients who were given curcumin were no more likely to recover than others.

Q.2	Froot Inc. carried out an internet advertisement campaign for its new beverage CocoLoco. After the campaign, the director of the advertising company conducted a survey and found that the CocoLoco sales were higher than that of TenderJoos a competing product from Joos Inc. The agency concluded that the internet advertising campaign is more effective than advertising through other media. Which of the following statements could strengthen the conclusion above by the agency?
(A)	A ₹2 discount was offered on CocoLoco during the campaign period.
(B)	CocoLoco sales were higher than those of TenderJoos before the internet campaign.
(C)	A newspaper advertisement campaign the previous year did not increase CocoLoco sales.
(D)	During the campaign for CocoLoco, Joos Inc. did not advertise TenderJoos at all.



Q.3	An e-commerce site offered a deal last month conditional on the customer spending a minimum of ₹500. Any customer who buys 2 kg of fresh fruit will receive a hand mixer and any customer who buys 2 kg of fresh vegetables will receive a vegetable chopper. Which of the following is NOT a possible outcome of the above?
(A)	A customer purchased 3 kg of fresh fruit and did not receive a vegetable chopper.
(B)	A customer purchased items for ₹500 which included 1 kg of vegetables and received a hand mixer.
(C)	A customer purchased items for ₹500 which included 2 kg of vegetables and 1 kg of fruit and received a hand mixer.
(D)	A customer purchased items for ₹300 which included 2 kg of fruit and received neither a hand mixer nor a vegetable chopper.

Q.4	Writers of detective fiction often include an incompetent detective as a foil for the brilliant investigator-protagonist as they follow different paths in trying to solve the crime. In the individual accounts, the incompetent detective is frequently distracted by the culprit's careful plans, while the competent investigator solves the case after a final confrontation. Analysts of such fiction believe that the authors select this story-telling technique to provide readers with more complexities in the form of misleading clues, while figuring out the crime. Which of the following statements most logically follows from the passage above?
(A)	A detective story is considered well-written if the brilliant investigator is accompanied by an incompetent detective.
(B)	Writers of detective fiction use the contrast of an incompetent detective to mainly show how complex the investigation is.
(C)	Writers of detective fiction never write stories where the incompetent detective solves the case.
(D)	Writers of detective fiction use two investigative accounts to make it difficult for the reader to figure out the outcome.



Q.5	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled (L,M,N,O). Reorder these parts so that the sentence can be read through correctly and select one of the options given. <i>P1: Studies of several Sahitya Akademi award winners show that...</i> L: or encounter professional M: and invariably develop a strained relationship with other literary figures N: they often publish very little O: after winning the prize <i>P6: ...envy and rivalry.</i> The correct order is:
(A)	NOLM
(B)	MLON
(C)	ONML
(D)	MOLN



Q.6 – Q.10 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 6	Gerrymandering refers to the targeted redrawing of election constituencies so as to benefit a particular party. This is especially important where the electoral system is “first past the post” in each constituency (i.e. one winner is selected in each constituency based on a majority of votes won) and where there is no other provision for proportional representation (as for example in the German system). For a simple illustration of gerrymandering, if a region consists of districts 1, 2, 3, ..., 9 with districts 1, 2, 3, 4, 5, 6 favouring party P and 7, 8, 9 favouring party Q, then grouping of districts to constituencies as {1,2,3}, {4,5,6}, {7,8,9} will give two seats to party P and one seat to party Q, whereas the grouping {1,2,7}, {3,4,8}, {5,6,9} will give all three seats to party P, as they will secure a majority in each constituency. Which of these statements can be deduced from the above?
(A)	Gerrymandering implies that constituency boundaries can sometimes be drawn to favour one party over the other.
(B)	Gerrymandering implies that proportional representation is impossible when districts are grouped to form constituencies.
(C)	To counteract gerrymandering political parties should concentrate on districts where they are favoured.
(D)	The grouping of districts to constituencies has very little impact on proportional representation.



Q. 7	X-ray examination of a recently discovered painting that some authorities judge to be a self-portrait by Michelangelo revealed an under-image of a woman's face. Either Michelangelo or some other artist must have repainted over the first painting that had now been seen on the canvas. Because the woman's face also appears on other paintings by Michelangelo, this painting is determined to indeed be an authentic painting by Michelangelo. Which of the following assumptions must be made in reaching the conclusion above?
(A)	When an already painted canvas of an artist is used, the second artist using that canvas for a new painting is usually influenced by the artistic style of the first.
(B)	Several painted canvases that art historians attribute to Michelangelo contain under-images that appear on at least one other of Michelangelo's paintings.
(C)	Subject or subjects that appear in authenticated paintings of Michelangelo are rather unlikely to show up as under-images on painted canvases not attributed to Michelangelo.
(D)	No painted canvas can be attributed to a particular artist with certainty without an X-ray analysis.

Q. 8	This season _____ tourists visited Ladakh than last season; however, _____ to be the biggest tourist destination in India. The tourism department explains that the number of tourists to India has _____ relative to previous years, _____ have chosen to visit Ladakh. Select the correct sequence of phrases to fill in the blanks to complete the passage above.
(A)	more / for the first time in many seasons it does not appear / increased / and it seems that most
(B)	fewer / as in the past, it appears / in fact decreased / but it seems that only a small proportion
(C)	fewer / for the first time in many seasons it appears / in fact decreased / but it seems that most
(D)	more / this season as well, it appears / in fact decreased / but it seems that a large proportion



Q. 9	Reorder the sentences in (1) – (5) such that they form a coherent paragraph. (1) In fact, dozens of languages today have only one native speaker still living, and that person's death will mean the extinction of the language: It will no longer be spoken, or known, by anyone on earth. (2) Many languages are falling out of use and are being replaced by others that are more widely used in the region or nation, such as English in Australia or Portuguese in Brazil. (3) Many other languages are no longer being learned by new generations of children or by new adult speakers. (4) An endangered language is one that is likely to become extinct in the near future. (5) Unless the trends are reversed, these endangered languages will become extinct by the end of the century. (Adapted from <i>What is an Endangered Language</i> by A. Woodbury.)
(A)	2 3 1 4 5
(B)	2 3 5 4 1
(C)	4 1 5 2 3
(D)	4 2 3 1 5



Q. 10	The first (P1) and the last (P6) parts of a single sentence are given to you. The rest of the sentence is divided into four parts and labelled L,M,N,O. Reorder these parts so that the sentence can be read correctly and select one of the sequences below. <i>P1: For a little while...</i> L: it was a common belief M: right after the treaty of Versailles N: that Germany had caused World War I not just by her actions O: held by analysts and politicians alike <i>P6: ... but by also encouraging Italy in her own aggressions.</i>
(A)	LMNO
(B)	MLON
(C)	LNMO
(D)	MOLN



Q.11 – Q.15 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 11	After Florentino Ariza saw her for the first time, his mother knew before he told her because he lost his voice and his appetite and spent the entire night tossing and turning in his bed. But when he began to wait for the answer to his first letter, his anguish was complicated by diaorrhea and green vomit, he became disoriented and suffered from sudden fainting spells, and his mother was terrified because his condition did not resemble the turmoil of love so much as the devastation of cholera. Florentino Ariza's godfather, an old homeopathic practitioner who had been Tránsito Ariza's confidant ever since her days as a secret mistress, was also alarmed at first by the patient's condition, because he had the weak pulse, the hoarse breathing, and the pale perspiration of a dying man. But his examination revealed that he had no fever, no pain anywhere, and that his only concrete feeling was an urgent desire to die. All that was needed was shrewd questioning, first of the patient and then of his mother, to conclude once again that the symptoms of love were the same as those of cholera. He prescribed infusions of linden blossoms to calm the nerves and suggested a change of air so he could find consolation in distance, but Florentino Ariza longed for just the opposite: to enjoy his martyrdom. (Adapted from <i>Love in a Time of Cholera</i> by Gabriel García Márquez.) The author of the passage is implying that:
(A)	Homeopathy cures love.
(B)	The doctor could not distinguish between love and cholera.
(C)	The doctor could distinguish between love and cholera.
(D)	The symptoms of love and cholera are similar.



Q. 12	Now, it is clear that the decline of a language must ultimately have political and economic causes: it is not due simply to the bad influence of this or that individual writer. But an effect can become a cause, reinforcing the original cause and producing the same effect in an intensified form, and so on indefinitely. A man may take to drink because he feels himself to be a failure, and then fail all the more completely because he drinks. It is rather the same thing that is happening to the English language. It becomes ugly and inaccurate because our thoughts are foolish, but the slovenliness of our language makes it easier for us to have foolish thoughts. (Adapted from <i>Politics and the English Language</i> by George Orwell.) The illustration of the man who takes to drink is used to underscore which of the following ideas in the passage above?
(A)	Political and economic causes control deterioration of language.
(B)	Foolish thoughts are enabled by inaccurate language.
(C)	Effect of an action becomes the cause in a cyclic pattern.
(D)	Drinking enables people to have foolish thoughts and slovenly language.



Q. 13	It is a pity that Caste even today has its defenders. The defences are many. It is defended on the grounds that the Caste System is but another name for division of labour, and if division of labour is a necessary feature of every civilised society, then it is argued that there is nothing wrong in the Caste System. Now the first thing to be urged against this view is that Caste System is not merely division of labour. It is also a division of labourers. Civilised society undoubtedly needs division of labour but nowhere is division of labour accompanied by this unnatural division of labourers into watertight compartments, grading them one above the other. This division of labour is not spontaneous or based on natural aptitudes. Social and individual efficiency requires us to develop the individual capacity and competency to choose and to make his own career. This principle is violated in so far as it involves an attempt to appoint tasks to individuals in advance, not on the basis of trained original capacities, but on that of birth. Industry undergoes rapid and abrupt changes and an individual must be free to change his occupation and adjust himself to changing circumstances, to gain his livelihood. (Adapted from <i>Annihilation of Caste</i> by Dr. B.R. Ambedkar.) Which of the following observations substantiate the arguments found in the passage above?
(A)	Newer generations are unable to change and move away from low-paying family professions, even with changed economic circumstances.
(B)	Sedentary desk jobs are considered to have more value and are in greater demand than those involving manual labour.
(C)	The government's jobs guarantee programme makes low-level management jobs available across all industries to all graduates in the nation.
(D)	A bus driver becomes an app creator and, in the course of one month, reaches one million downloads on Playstore with a four-star rating.



Q. 14	Imagine that you're in a game show and your host shows you three doors. Behind one of them is a shiny car and behind the others are goats. You pick one of the doors and get what lies within. After making your choice, your host chooses to open one of the other two doors, which inevitably reveals a goat. He then asks you if you want to stick with your original pick, or switch to the other remaining door. What do you do? Most people think that it doesn't make a difference and they tend to stick with their first pick. With two doors left, you should have a 50% chance of selecting the one with the car. If you agree, then you have just fallen afoul of one of the most infamous mathematical problems – the Monty Hall Problem. In reality, you should switch every time which doubles your odds of getting the car. Over the years, the problem has ensnared countless people, but not, it seems, pigeons. The humble pigeon can learn with practice the best tactic for the Monty Hall Problem, switching from their initial choice almost every time. Amazingly, humans do not! (Adapted from an article by Ed Yong in <i>Discover Magazine</i>.) Which of the following conclusions follow from the passage above?
(A)	Humans calculate the probability of independent, random events such as the opening of a door by dividing the specific outcomes by the total number of possible outcomes.
(B)	Humans find it very difficult to learn to account for the host's hand in making the event non-random and, thereby, changing the outcome of the event.
(C)	Calculating probabilities is difficult for humans but easy for pigeons; which is why the pigeons succeed where the humans fail.
(D)	Humans are governed by reason, but pigeons are irrational and only interested in the outcome and will do whatever it takes to get food.



Q. 15	The truth is that, despite the recent success of car-makers P and Q, India's automobile industry is in a state not that different from the bad old days of the license-permit quota raj when two carmakers dominated a captive domestic market with substandard vehicles and with very little, if any, research and development, and low to negligible productivity growth. High tariff barriers have certainly induced foreign automobile makers to enter the Indian market by setting up local operations, but this so-called "tariff jumping" foreign investment has produced an industry that is inefficient, operating generally at a low scale, and whose products are not globally competitive either in terms of cost or of innovation. It is noteworthy that the automobile parts industry, which has faced low tariffs (as low as 12.5%) and has been largely deregulated, has been characterised by higher productivity and much better export performance than the completely-built units' sector in the years since liberalisation. (Adapted from an Op-Ed in <i>The Mint</i>.) Which of the following statements can be inferred from the above?
(A)	Low tariff barriers increase productivity.
(B)	Tariff jumping leads to increases in productivity.
(C)	Deregulation has worked for the automotive parts industry and therefore should be applied to completely-built units.
(D)	P and Q do not invest enough in research and development.



SOCIOLOGY (XH-C6)

Q.1 – Q.12 Multiple Choice Question (MCQ), carry ONE mark each (for each wrong answer: – 1/3).

Q.1	The term <i>kulak</i> refers to
(A)	a type of hoe used in agriculture.
(B)	a form of property right over agrarian produce.
(C)	a rich farmer.
(D)	the Russian word for peasant uprising.

Q.2	M.N. Srinivas' principal work was built around the method of
(A)	conjectural history.
(B)	archival research.
(C)	fieldwork.
(D)	content analysis.

Q.3	In an experimental design, the dependent variable is
(A)	the one that is not manipulated and in which any changes are observed.
(B)	the one that is manipulated in order to observe any effects on the other.
(C)	the unknown variable that emerges from the analysis of the data.
(D)	the variable whose meaning depends on how informants perceive it.



Q.4	The avunculate refers to the relationship between
(A)	virilocal and neolocal families.
(B)	matrilateral cross cousins.
(C)	members of a matrilineal <i>tharavad</i> .
(D)	mother's brother and sister's son.

Q.5	Who among the following Indian sociologists argued against Verrier Elwin's proposal of preserving the 'tribal way of life' on the grounds that the Indian tribes are not 'aborigines' but are "imperfectly integrated classes of Hindu society" or are 'Backward Hindus'?
(A)	Irawati Karve
(B)	A.R. Desai
(C)	G.S. Ghurye
(D)	D.D. Kosambi

Q.6	M.N. Srinivas called his work on Rampura 'The Remembered Village' because
(A)	'collective memory' is the concept he used to understand Rampura.
(B)	his experience in Rampura was memorable.
(C)	the village Headman had forbidden Srinivas from taking any notes forcing him to write this account solely from memory.
(D)	he lost his field material in a fire and had to rely on his memory to write the book.



Q.7	“An ideal society should be mobile, should be full of channels for conveying a change taking place in one part to other parts. In an ideal society there should be many interests consciously communicated and shared. There should be varied and free points of contact with other modes of association. In other words there must be social endosmosis.” On the basis of the above statement, which one of the following can be asserted?
(A)	This is M.K. Gandhi describing his vision of Rama Rajya in ‘Hind Swaraj’.
(B)	This is V.D. Savarkar describing caste equality in ‘Essentials of Hindutva’.
(C)	This is Jawaharlal Nehru describing socialist society in ‘The Discovery of India’.
(D)	This is B.R. Ambedkar describing fraternity in ‘The Annihilation of Caste’.

Q.8	‘The City and the Grassroots’ authored by _____ is among the most important books published on urban social movements.
(A)	Michel Foucault
(B)	Charles Tilly
(C)	Manuel Castells
(D)	Veena Das



Q.9	A fisherman in southwest Sri Lanka has received a warning that a cyclone may hit his coastal region and he has to decide whether to evacuate or stay put. He knows that the probability of the cyclone striking is 70%. He has the means to evacuate and his property is worth three times the cost of evacuation. He calculates accurately that his best chance to protect himself and his assets lies in evacuation. At a later meeting of the whole community, the village elders decide that no one will evacuate because the village shrines cannot be left unattended indefinitely. Hence in deference to the elders, the fisherman decides to stay put. In Max Weber's terms, his decision is closest to
(A)	value rational action.
(B)	instrumental rational action.
(C)	traditional action.
(D)	affective action.

Q.10	The Jonestown massacre of 1978 in the United States saw the death of 900 persons including children. Reverend Jones, leader of an American cult, ordered his followers 'The Peoples Temple' to kill a US Congressman and several journalists and then commit mass suicide by drinking fruit punch laced with cyanide. In Durkheim's view, this would be a case of
(A)	anomic suicide.
(B)	altruistic suicide.
(C)	egoistic suicide.
(D)	fatalistic suicide.



Q.11	Pierre Bourdieu defined _____ as “Systems of durable dispositions, structured structures predisposed to function as structuring structures ... collectively orchestrated without being the product of the orchestrating action of a conductor.” Which of the following completes the above sentence?
(A)	social capital
(B)	culture
(C)	habitus
(D)	field

Q.12	Read the following statements: (1) Throughout the developing world, poverty rates among households headed by women are higher than those headed by men. (2) The greater ‘investment value’ associated with the survival of boys in a household in comparison with girls leads to discrimination against girl children and adult women. (3) The unequal allocation of resources within households results in differential allotments of nutrition and healthcare that reflect the perceived inferior short-term and long-term value of females. (4) In all transitional economies, an increase in prostitution and trafficking of women has been observed. The above statements are all examples of
(A)	the ‘feminisation of poverty’ thesis.
(B)	labour market informalisation.
(C)	the ‘culture of poverty’ thesis.
(D)	differences in bargaining power between advanced and transitional economies.



Q.13 – Q.20 Multiple Select Question (MSQ), carry ONE mark each (no negative marks).

Q.13	In which of the following ways did the founding scholars usually distinguish New Social Movements (NSMs) from Old Social Movements?
(A)	NSMs are devoted to changing cultural norms concerning individual dignity rather than bringing about structural transformation.
(B)	NSMs are based in social class and not on social identities.
(C)	NSMs reject hierarchical organisational structures and prefer flexible, horizontal participation.
(D)	NSMs are all revolutionary in their mode of action.

Q.14	Which of the following option(s) correctly applies/apply to a key informant in sociological research?
(A)	One who intentionally restricts a researcher's access to participants.
(B)	One with in-depth knowledge of the community.
(C)	One who refers the researcher to those knowledgeable about the subject of the research.
(D)	One who because of her social position provides a deeper understanding of her society.

Q.15	For Karl Marx, which statement(s) below define(s) absolute surplus value?
(A)	It is value extracted by using technology in the labour process.
(B)	It is value saved by technology.
(C)	It is value created over and above worker subsistence.
(D)	It is value extracted by means of extending the working day.



Q.16	Who among the following sociologist(s) use(s) a Marxist framework to understand Indian society and history?
(A)	Yogendra Singh
(B)	A.K. Saran
(C)	Leela Dube
(D)	A. R. Desai

Q.17	Which of the following reverse(s) the process of primitive accumulation in India?
(A)	NREGA
(B)	The Land Acquisition Act of 1894
(C)	Special Economic Zones
(D)	Microfinance lending

Q.18	Which of the following applies/apply to Lévi-Strauss' fundamental unit of kinship?
(A)	It is constituted by the father and mother and their children.
(B)	It is constituted by the nuclear family and the wife's brother.
(C)	It is the basis of alliance theory.
(D)	It is based on the universal incest taboo.



Q.19	Which statement(s) correctly explain(s) why feminists and women's rights activists are uncomfortable with the term 'honour killings'?
(A)	It has been defined variously across disciplines from law to sociology to philosophy.
(B)	It has become associated with the 'uniqueness' of Asian societies and cultures.
(C)	The idea that women embody male honour makes violence against them and even their murder justifiable.
(D)	It has become associated with communities that retain archaic patriarchal practices and refuse to modernise.

Q.20	Which of the following is/are Louis Dumont's formulation(s)?
(A)	Indian sociology must lie at the confluence of Indology and anthropology.
(B)	The ideological principle that religion is always superior to power is at all times found exhibited at the empirical level in India.
(C)	Equality runs contrary to the general tendencies of societies.
(D)	Traditional Indian ideology allows only 'surreptitious' entry of economic and political power.



Q.21 – Q.28 Multiple Choice Question (MCQ), carry TWO mark each (for each wrong answer: – 2/3).

Q. 21	The Latin American system of <i>compadrazgo</i> or ‘godparenthood’ is one in which, at the time of baptism of a child into the Christian church, a relationship is set up between the child’s biological mother and father and possibly unrelated persons who become the child’s spiritual parents. This may be understood as a form of
(A)	fictive kinship.
(B)	cognatic kinship.
(C)	mystical kinship.
(D)	bilateral kinship.

Q. 22	The Self-Employed Women’s Association (SEWA) is
(A)	a trade union for self-employed women workers in the informal economy.
(B)	not a trade union as its members have no employer.
(C)	an association of all home-based women workers across India.
(D)	a trade union for all self-employed women workers outside the agrarian sector.



Q. 23	Match statements (P), (Q), (R), (S) to names (1), (2), (3), (4): (P) “Today, Indians no longer idealise hierarchy. What they ... idealise is equality.” (Q) “[We] do not argue that non-dalit feminists can ‘speak as’ or ‘for the’ dalit women but they can ‘reinvent themselves as dalit feminists’.” (R) “[From] the point of view of people at the lowest end of the scale, caste has functioned (and continues to function) as a very effective system of economic exploitation.” (S) “The pure hierarchy that Louis Dumont wrote so compellingly about a few decades ago ... now stands bereft of empirical support from practically every quarter of Hindu India.” (1) Dipankar Gupta (2) Sharmila Rege (3) André Béteille (4) Joan P. Mencher
(A)	(P)-(3), (Q)-(2), (R)-(4), (S)-(1)
(B)	(P)-(4), (Q)-(2), (R)-(3), (S)-(1)
(C)	(P)-(3), (Q)-(1), (R)-(4), (S)-(2)
(D)	(P)-(4), (Q)-(1), (R)-(2), (S)-(3)



Q. 24	Match statements (P), (Q), (R), (S) to names (1), (2), (3), (4): (P) “The executive of the modern state is but a committee for managing the common affairs of the whole bourgeoisie.” (Q) The state is “an institutional association of rule, which within a given territory has succeeded in gaining a monopoly of legitimate physical force as a means of ruling.” (R) “It is only through the State that individualism is possible, although it cannot be the means of making it a reality, except in certain precise conditions. We might say that in the State we have the prime mover. It is the State that has rescued the child from patriarchal domination and from family tyranny; it is the State that has freed the citizen from feudal groups and later from communal groups; it is the State that has liberated the craftsman and his master from guild tyranny.” (S) “The family is indeed a fiction, a social artefact, an illusion in the most ordinary sense of the word, but a ‘well-founded illusion’, because, being produced and reproduced with the guarantee of the state, it receives from the state at every moment the means to exist and persist.” (1) Pierre Bourdieu (2) Emile Durkheim (3) Karl Marx and Friedrich Engels (4) Max Weber
(A)	(P)-(3), (Q)-(4), (R)-(2), (S)-(1)
(B)	(P)-(3), (Q)-(4), (R)-(1), (S)-(2)
(C)	(P)-(3), (Q)-(1), (R)-(2), (S)-(4)
(D)	(P)-(4), (Q)-(2), (R)-(3), (S)-(1)



Q. 25	Read the abstract of the article titled “‘Taming’ Arab social movements: Exporting neoliberal governmentality” (2013). “In the wake of the recent Arab revolutions, the European Union (EU) has sought to provide genuine and substantial support to a range of Arab social movements in the region’s emerging polities...We argue, however, that the EU’s attempts at democracy promotion in the Middle East and North Africa (MENA) region may be understood through a governmentality framework, despite the limitations of such an approach. Specifically, the EU is actively promoting neoliberal policies in the aftermath of the Arab Spring in order to foster a mode of subjectivity that is conducive to the EU’s own norms and interests. What we observe are not just innocent attempts at democracy promotion, but a form of politics and economics that seeks to subject the agency on the ‘Arab street’ to EU standards. We conclude by going over the radical plurality of the Arab street, and show how it was in fact earlier neoliberal reforms by their former regimes that created the conditions of possibility for the recent revolutions in Tunisia and Egypt.” On the basis of the above statement, which of the following can be asserted? (1) Social movements can no longer be understood as a purely intra-national phenomenon. (2) Local social movements for democratisation have little to do with the transnationalisation of the practices of neoliberal governmentality.
(A)	Both the statements are correct
(B)	Both the statements are incorrect
(C)	Only (1) can be asserted
(D)	Only (2) can be asserted



Q. 26	According to Karl Marx, the socially necessary labour time to produce a commodity will directly vary with
(A)	the particular time period and place.
(B)	the annual rainfall.
(C)	the average productivity of agrarian workers.
(D)	the output of natural resources.

Q. 27	Imagine there is a spiritual leader from any religion who has a huge estate, organisation, publications etc. In Weberian terms, this could be considered an example of
(A)	patrimonial power.
(B)	bureaucratized patrimonial power.
(C)	charismatic power.
(D)	bureaucratized charismatic power.

Q. 28	Which of the following is a proposed explanation for a group of facts or phenomena that provides the basis for empirical testing?
(A)	An ideal type
(B)	A logical framework matrix
(C)	A hypothesis
(D)	A sampling procedure



Q.29 – Q.40 Multiple Select Question (MSQ), carry TWO mark each (no negative marks).

Q. 29	To which of the following option(s) does C. Wright Mills' 'Grand Theory' NOT apply?
(A)	A theory proposed by one of classical sociological theorists.
(B)	A highly abstract theory making broad generalisations about the social world.
(C)	An accurate theoretical explanation of observed empirical regularities.
(D)	An intellectually satisfying theory of social knowledge.

Q. 30	Which statement(s) about contemporary India is/are endorsed by recent sociological research?
(A)	The skewed sex ratio at birth is enabling cross-regional marriages that may breach caste boundaries.
(B)	The skewed sex ratio at birth means that women are valued more for their roles in reproduction, domestic and care work.
(C)	The skewed sex ratio at birth reduces the supply of women and improves their life chances throughout society.
(D)	The skewed sex ratio at birth is causing a male marriage squeeze due to the female deficit.

Q. 31	Which of the following statements is/are representation(s) of the 'modernisation theory' of the mid-twentieth century?
(A)	All versions of this theory could be summarised as the attempt to understand how traditional societies modernise.
(B)	This theory saw the developmental efforts of all decolonised nations through the binary of communist or capitalist.
(C)	Ashis Nandy termed this theory as a "secular theory of salvation".
(D)	The theory seeks to understand macro changes in terms of 'development' and not how to make individuals develop modern values and sensibilities.



Q. 32	“We demanded changes that would make the law more sensitive to the cultural and economic contexts of women’s lives. Women’s groups investigating ‘dowry deaths’ demonstrated how the designation of the family as the private domain restricted women’s access to protection against domestic violence. They exposed the collusion of the law, police, medical system, and the family in classifying these deaths as suicides. Feminist scholars worked to salvage gender and women’s issues from being subsumed by class analysis, sought to extend the Marxist understanding of labour to include domestic production, and pointed out the marginality and vulnerability of women in the workforce”. (Susie Tharu and Tejaswini Niranjana (1996), ‘Problems for a Contemporary Theory of Gender’) Which among the following statements can be asserted from the above excerpt?
(A)	Women’s lives have contexts that are peculiar/unique.
(B)	The division of domains into public and private allows women’s specific concerns to be foregrounded.
(C)	Marxist understanding of labour is not gender-sensitive.
(D)	The classification of dowry deaths as suicide lowers the institutional and social protection of women against violence.



Q. 33	“The claim, made by structuralism and dependency theory, that subordination to the world market seals the fate of nations is wrong. Inequality, poverty, low productivity and sluggish growth in the periphery, their propensity to import luxury goods and transfer profits to the centre, and the lack of coordination of economic activity in many countries, are due primarily to the social structures prevailing in the periphery, rather than their international trade relations.” (Alfredo Saad-Filho (2005), ‘The Rise and Decline of Latin American Structuralism and Dependency Theory’) Which among the following statements can be asserted from the above excerpt?
(A)	Underdevelopment is mainly due to the balance of political forces within the periphery.
(B)	Trade patterns between core and periphery follow from “the social structures prevailing in the periphery”.
(C)	Unequal exchange between core and periphery inhibits development of the latter.
(D)	There is a pathway to development through the world market.



Q. 34	There is scholarly controversy over the role of the middle peasants in peasant movements in India. In this regard, which of the following statements is/are true?
(A)	Hamza Alavi argued that the middle peasants are more likely to initiate and actively participate in peasant movements.
(B)	Dhanagare argued that the middle peasants are weaker and more heterogeneous than other agrarian classes.
(C)	Kathleen Gough argued that poor peasants and agricultural labourers have the potential for organising peasant movements.
(D)	Gail Omvedt argued that caste is the basis of peasant mobilisation, not class.

Q. 35	In ‘The Nation and its Fragments’ (1993), Partha Chatterjee observes that “By the 1940s, the dominant argument of nationalism against colonial rule was that the latter was impeding the...development of India....A developmental ideology...was a constituent part of the self-definition of the postcolonial state. The state was connected to the people not simply through the procedural forms of representative government; it also acquired its representativeness by directing a program of economic development on behalf of the nation.” In what way(s) was the connection between development and the representativeness of the Indian state achieved, for Chatterjee?
(A)	Colonialism had demonstrated the benefits of free trade and globalisation.
(B)	Colonialism stood for economic exploitation, therefore liberty meant the reverse.
(C)	The procedural forms of government would by themselves be insufficient to drive development.
(D)	The procedural forms of government would inevitably fall to corruption.

The diagram shows a circuit with the following components and connections:

- Top Left Branch:** A resistor (circle) in series with a lamp (triangle).
- Top Right Branch:** A lamp (triangle) in series with a resistor (circle).
- Middle Section:** A lamp (triangle) in series with a resistor (circle).
- Bottom Section:** A lamp (triangle) in series with a resistor (circle).

The connections are as follows:

- The top left branch and the top right branch are connected in parallel.
- The middle section is connected in series with the bottom section.
- The entire circuit is a single loop.

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Q. 38	Which of the following statement(s) correctly applies/apply to reflexivity in sociological research?
(A)	A researcher can take a bird's eye perspective of research subjects.
(B)	A researcher reflects on how her position impacts her research and findings.
(C)	A researcher considers how her biases and values bear on her interpretations and analyses.
(D)	A researcher reflects on how she in turn can help the community she is studying.

Q. 39	"If we make abstraction from its use value, we make abstraction at the same time from the material elements and shapes that make the product a use value; we see in it no longer a table, a house, yarn, or any other useful thing. Its existence as a material thing is put out of sight. Neither can it any longer be regarded as the product of the labour of the joiner, the mason, the spinner, or of any other definite kind of productive labour. Along with the useful qualities of the products themselves, we put out of sight both the useful character of the various kinds of labour embodied in them, and the concrete forms of that labour; there is nothing left but what is common to them all; all are reduced to one and the same sort of labour, human labour in the abstract." (Karl Marx, 'Capital') Which statement(s) can be asserted from the above excerpt?
(A)	Abstraction refers to a material process that occurs in production.
(B)	Abstraction refers to an analytical operation.
(C)	Abstraction refers to the reduction of material products to their common element.
(D)	Abstraction refers to a mathematical operation.



Q. 40	“The capitalistic economy of the present day is an immense cosmos into which the individual is born, and which presents itself to him, at least as an individual, as an unalterable order of things in which he must live...In order that a manner of life so well adapted to the peculiarities of capitalism could be selected at all, i.e. should come to dominate others, it had to originate somewhere, and not in isolated individuals alone, but as a way of life common to whole groups of men. This origin is what really needs explanation...The question of the motive forces in the expansion of modern capitalism is not in the first instance a question of the origin of the capital sums which were available for capitalistic uses, but, above all, of the development of the spirit of capitalism. Where it appears and is able to work itself out, it produces its own capital and monetary supplies as the means to its ends, but the reverse is not true.” (Max Weber, ‘The Protestant Ethic and the Spirit of Capitalism’) Which among the following is/are Weber’s argument(s) in the above excerpt?
(A)	The origins of capitalism cannot be explained by purely material factors.
(B)	Before it is mature, capitalism does not drive individual behaviour.
(C)	Before it is fully functional, capitalism needed the support of an ethic.
(D)	Capitalism requires greed to be adopted by all as “a manner of life”.

END OF THE QUESTION PAPER

Graduate Aptitude Test in Engineering (GATE 2021)**Subject/Paper: Humanities and Social Sciences (XH) / Sociology (XH-C6)**

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
1	7	MCQ	GA	D	1	1/3
2	7	MCQ	GA	D	1	1/3
3	7	MCQ	GA	D	1	1/3
4	7	MCQ	GA	D	1	1/3
5	7	MCQ	GA	C	1	1/3
6	7	MCQ	GA	C	2	2/3
7	7	MCQ	GA	A	2	2/3
8	7	MCQ	GA	C	2	2/3
9	7	MCQ	GA	C	2	2/3
10	7	MCQ	GA	D	2	2/3
1	7	MCQ	XH-B1	C	1	1/3
2	7	MCQ	XH-B1	C	1	1/3
3	7	MCQ	XH-B1	C	1	1/3
4	7	MCQ	XH-B1	D	1	1/3
5	7	MCQ	XH-B1	C	1	1/3
6	7	MCQ	XH-B1	A	2	2/3
7	7	MCQ	XH-B1	C	2	2/3
8	7	MCQ	XH-B1	C	2	2/3
9	7	MCQ	XH-B1	D	2	2/3

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Sociology (XH-C6)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
10	7	MCQ	XH-B1	B	2	2/3
11	7	MSQ	XH-B1	C; D	2	0
12	7	MSQ	XH-B1	B; C	2	0
13	7	MSQ	XH-B1	A; B	2	0
14	7	MSQ	XH-B1	A; B	2	0
15	7	MSQ	XH-B1	A; C; D	2	0
1	7	MCQ	XH-C6	C	1	1/3
2	7	MCQ	XH-C6	C	1	1/3
3	7	MCQ	XH-C6	A	1	1/3
4	7	MCQ	XH-C6	D	1	1/3
5	7	MCQ	XH-C6	C	1	1/3
6	7	MCQ	XH-C6	D	1	1/3
7	7	MCQ	XH-C6	D	1	1/3
8	7	MCQ	XH-C6	C	1	1/3
9	7	MCQ	XH-C6	C	1	1/3
10	7	MCQ	XH-C6	B	1	1/3
11	7	MCQ	XH-C6	C	1	1/3
12	7	MCQ	XH-C6	A	1	1/3
13	7	MSQ	XH-C6	A; C	1	0
14	7	MSQ	XH-C6	B; C; D	1	0
15	7	MSQ	XH-C6	D	1	0
16	7	MSQ	XH-C6	D	1	0
17	7	MSQ	XH-C6	A; D	1	0

GATE 2021 Answer Key- Humanities and Social Sciences (XH) / Sociology (XH-C6)

Q. No.	Session	Question Type MCQ/MSQ/NAT	Section Name	Answer Key/Range	Marks	Negative Marks
18	7	MSQ	XH-C6	B; C; D	1	0
19	7	MSQ	XH-C6	B; C; D	1	0
20	7	MSQ	XH-C6	A; C; D	1	0
21	7	MCQ	XH-C6	A	2	2/3
22	7	MCQ	XH-C6	A	2	2/3
23	7	MCQ	XH-C6	A	2	2/3
24	7	MCQ	XH-C6	A	2	2/3
25	7	MCQ	XH-C6	C	2	2/3
26	7	MCQ	XH-C6	A	2	2/3
27	7	MCQ	XH-C6	D	2	2/3
28	7	MCQ	XH-C6	C	2	2/3
29	7	MSQ	XH-C6	A; C; D	2	0
30	7	MSQ	XH-C6	A; B; D	2	0
31	7	MSQ	XH-C6	A; B; C	2	0
32	7	MSQ	XH-C6	A; C; D	2	0
33	7	MSQ	XH-C6	A; B; D	2	0
34	7	MSQ	XH-C6	A; B; C	2	0
35	7	MSQ	XH-C6	B; C	2	0
36	7	MSQ	XH-C6	A; B	2	0
37	7	MSQ	XH-C6	B; C; D	2	0
38	7	MSQ	XH-C6	B; C	2	0
39	7	MSQ	XH-C6	B; C	2	0
40	7	MSQ	XH-C6	A; B; C	2	0