GATE 2024
Humanities & Social Sciences – Economics (XH-C1)

Organizing Institute: IISc Bengaluru

General Aptitude (GA)

Q.1 – Q.5 Carry ONE mark Each

1. If '→' denotes increasing order of intensity, then the meaning of the words [simmer→seethe→smolder] is analogous to [break→raze→ _____].

   (a) obfuscate (b) obliterate (c) fracture (d) fissure

   (GATE XH 2024)

   (GATE XH 2024)

2. In a locality, the house-numbers on one side are consecutive odd integers starting from 301, and on the other side, consecutive even numbers from 302. The number of houses is same on both sides. If the difference of the sum is 27, how many houses are on each side?

   (a) 27 (b) 52 (c) 54 (d) 26

   (GATE XH 2024)

3. For positive integers a and b, with $a \neq b$, $(a/b)^n = a(n-1)$. Then,

   (a) $ba = ab$ (b) $ba = ab^2$ (c) $\sqrt{b} = \sqrt{a}$ (d) $\sqrt{b^n} = \sqrt{a^m}$

   (GATE XH 2024)

4. Which of the given options is a possible value of x in the sequence: 3, 7, 15, x, 63, 127, 255?

   (a) 35 (b) 40 (c) 45 (d) 31

   (GATE XH 2024)

5. How many times will the second-hand and minute-hand of a clock cross each other between 12:05:00 and 12:55:00?

   (a) 51 (b) 49 (c) 50 (d) 55

   (GATE XH 2024)

Q.6 – Q.10 Carry TWO marks Each

1. 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) holds (ii) wait (iii) culminate (iv) pivots
   (d) (i) holds (ii) waits (iii) culminate (iv) pivots

   (GATE XH 2024)

2. Three distinct sets of indistinguishable twins are to be seated at a circular table with 8 identical chairs. Each twin must sit next to their pair. How many unique seating arrangements?

(a) 12 (b) 14 (c) 10 (d) 28

(GATE XH 2024)

3. 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:

$$capcityfactor = \frac{Electicity\ Generation\ (MWh)}{Installed\ Capacity\ (MW)*1000(h)}$$

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

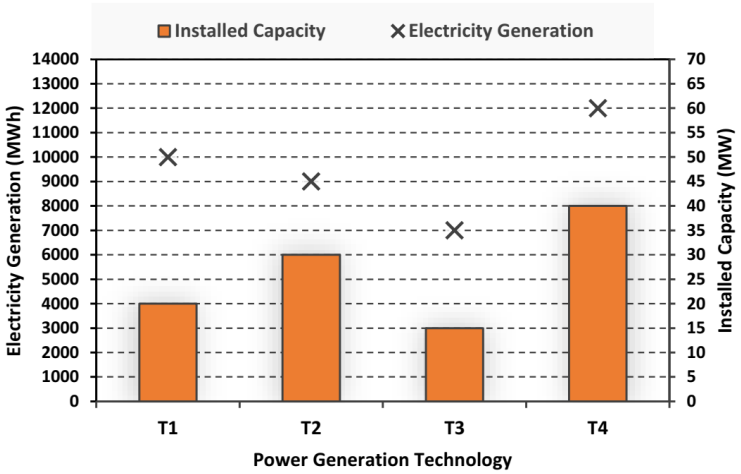

Figure 1:

(a) T1 (b) T2 (c) T3 (d) T4

(GATE XH 2024)

4. A 4x4 grid rule-based logic puzzle involving crosses and numbers, as per the given rule

1	1	2	
2	X	3	
2	X	4	
1	2	X	

Figure 2:

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

(a) 0 (b) 1 (c) 2 (d) 3

(GATE XH 2024)

5. During a half-moon phase, the Earth-Moon-Sun form a right triangle. The Moon-Earth-Sun angle is 89.85°. Estimate ratio of Earth-Sun to Earth-Moon distance.

(a) 328 (b) 382 (c) 238 (d) 283

(GATE XH 2024)

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:Amma's tone in the context of the given passage is that of: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

(GATE XH 2024)

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 the distilled and sublime truths, generalized by the supreme inquisition of the pain that my (iv)_____ suffers.

(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) bands (iii) patent-leather bands (iv) wrist
(d) (i) patent-leather shoes (ii) bands (iii) patent-leather bands (iv) wrist

(GATE XH 2024)

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

(GATE XH 2024)

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.'

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

XH-B1: Q.18 – Q26 Carry TWO marks Each

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

(GATE XH 2024)

19. If 'KARAMCHAND' is coded as 'ICPCKEFCLF' what should be the code of 'CREATION'?

(a) ATCCRKMP (b) ETGCVKQP (c) APCCRJMP (d) ETCGKRPM

(GATE XH 2024)

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 (c) Third from the right
(b) Fourth from the right (d) Seventh from the left

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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.

(GATE XH 2024)

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, through his work, wishes to offer strategies to apply our learnings to our teaching.
(b) The author wishes, through his work, to inform us about brain science and learning.
(c) The author wants to use emotions as a strategy for learning.
(d) The author feels that the newness of his approach lies in linking emotion oriented approach to brain.

(GATE XH 2024)

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

(GATE XH 2024)

Economics (XH-C1)

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

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

(a) Reduction in the bank rate
(b) Reduction in government spending
(c) Reduction in the repo rate
(d) Increase in merchandise exports

(GATE XH 2024)

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 enemployment, 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

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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.

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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

(GATE XH 2024)

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

(a) $\hat{\sigma}^2_{MLE} = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2$ which is a biased estimator of σ^2

(b) $\hat{\sigma}^2_{MLE} = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2$ which is a consistent estimator of σ^2

(c) $\hat{\sigma}^2_{MLE} = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2$ which is an unbiased estimator of σ^2

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

(GATE XH 2024)

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 (c) Unbiased but consistent

(b) Inconsistant (d) Unbiased but efficient

(GATE XH 2024)

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 demand for investment goods
(c) Level of government spending
(d) Technological progress

(GATE XH 2024)

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). $f(x) = \begin{cases} \frac{c}{\sqrt{x}}; 0 < x < 4 \; and \; c > 0 \\ 0; \quad otherwise \end{cases}$ (GATE XH 2024)

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). (GATE XH 2024)

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 H is the wage rate per hour. If $a = \frac{1}{2}$, then the corresponding labour supply (in hours) is _____ (in integer). (GATE XH 2024)

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). (GATE XH 2024)

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

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 of the following options correctly contains all the Nash Equilibria?

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

Table 1:

(a) $(p = 0, q = 0); (p = 1, q = 1); (p = \frac{2}{3}, q = \frac{1}{3})$
(b) $(p = 0, q = 1); (p = 1, q = 0); (p = \frac{2}{3}, q = \frac{1}{3})$
(c) $(p = 0, q = 0); (p = 1, q = 1); (p = \frac{1}{3}, q = \frac{2}{3})$
(d) $(p = 0, q = 1); (p = 1, q = 0); (p = \frac{1}{3}, q = \frac{2}{3})$

(GATE XH 2024)

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? (GATE XH 2024)

(a) 6 apricots and 9 bananas
(b) 9 apricots and 9 bananas
(c) 4 apricots and 10 bananas
(d) 0 apricots and 12 bananas

(GATE XH 2024)

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 $O_M LS_M$ 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_A (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 $L_A LS_M$

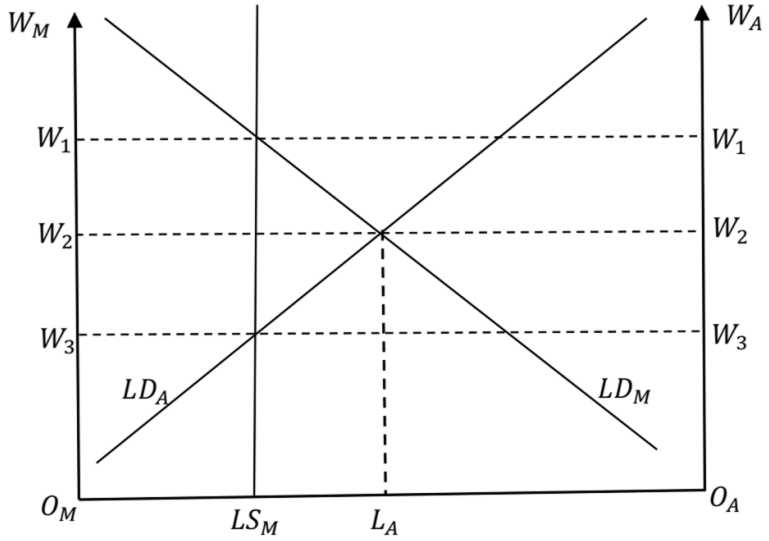

Figure 3:

(b) Total amount of labour that will migrate from the manufacturing sector to the agricultural sector will be $LS_M L_A$

(c) The wage in the manufacturing sector will be W_3

(d) The wage in the agricultural sector will be W_1

(GATE XH 2024)

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

$$f(x,y) = \begin{cases} \frac{2}{3}(x+2y); \text{for } 0 < x, y < 1 \\ 0; \quad \text{otherwise} \end{cases}$$

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

(a) $\frac{5}{9}$ (b) $\frac{4}{9}$ (c) $\frac{1}{3}$ (d) $\frac{2}{3}$

(GATE XH 2024)

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) $\frac{2}{3}$

(GATE XH 2024)

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

(GATE XH 2024)

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?

(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

(GATE XH 2024)

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

Table 2:

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 I, 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

(GATE XH 2024)

53. For the function $F; \mathbb{R}^2 \to \mathbb{R}$ 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 maximmum
(d) one global maxium

(GATE XH 2024)

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

(GATE XH 2024)

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.

(GATE XH 2024)

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). (GATE XH 2024)

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). (GATE XH 2024)

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 $TC_2 = 4q_1$ 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) (GATE XH 2024)

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).

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

Table 3:

(GATE XH 2024)

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

Table 4:

(GATE XH 2024)

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 $e_i(W_i, W_o) = \sqrt{W_i - W_0}$
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
$F(e_i N_i) = \ln(e_i N_i)$
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). (GATE XH 2024)

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 then the total number of firms in this industry in the long-run will be _____ (in integer). (GATE XH 2024)

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	probablity
Constant	-0.064	0.399	-0.161	0.871
X	0.029	0.010	2.916	0.003

Table 5:

(GATE XH 2024)

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%

Table 6:

(GATE XH 2024)

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). (GATE XH 2024)