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Past Year Question Paper

GATE-2024
ECONOMICS

GATE 2024

Question - 1	**Which one of the following measures in the Keynesian framework is adopted to tame inflation in an economy?**
Option A	Reduction in government spending
Option B	Reduction in the bank rate
Option C	Reduction in the repo rate
Option D	Increase in merchandise exports

Question - 2	**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**
Option A	Okun's law
Option B	New Keynesian aggregate supply curve
Option C	Taylor Rule
Option D	New Keynesian Phillips curve

Question - 3	**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**
Option A	horizontal
Option B	vertical
Option C	steeper than it would be if some firms had flexible prices
Option D	upward sloping to the right

Question - 4	**When transfer of income happens from the "not richer" individual to the "not poorer" individual, then such a transfer is known as**
Option A	Regressive transfer
Option B	Additive transfer
Option C	Direct transfer
Option D	Indirect transfer

Question - 5	**In the context of the Harris-Todaro model of rural-urban migration, which one of the following is TRUE?**
Option A	Unemployment in the urban sector emerges because rural-urban migration occurs primarily due to the higher expected wage income in the urban sector
Option B	Unemployment in the urban sector emerges because rural workers migrate to the cities and towns due to the expected shortage of unskilled labor in the urban sector
Option 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
Option 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

Question - 6	The Minimum Support Prices in India are notified based on the recommendations of which one among the following Commissions?
Option A	Commission for Agricultural Costs and Prices
Option B	Commission for Farmers' Benefits and Costs
Option C	Commission for Agricultural Subsidy Costs and Prices
Option D	Commission for Agricultural Subsidy Benefits and Costs

Question - 7	In an economy, the dependency ratio is the ratio of
Option A	non-working age group population to the working age group population
Option B	number of children to adults in the total population
Option C	number of unemployed to employed workers in the total labor force
Option D	total foreign aids and grants to the total (net) factor income from abroad.

Question - 8	Which one of the following is NOT a source of finance of the Government of India?
Option A	Land revenue
Option B	Income tax
Option C	Corporate tax
Option D	Import duty

Question - 9	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
Option A	relatively steeper if the interest elasticity of investment is low
Option B	relatively steeper, the higher the marginal propensity to save
Option C	relatively steeper if the interest elasticity of investment is very high
Option D	relatively flatter when the interest elasticity of money demand is very high

Question - 10	In the Keynesian system, the speculative demand for money arises because of
Option A	uncertainty of future interest rates
Option B	uncertainty regarding bond prices and associated capital gains
Option C	unexpected out-of-pocket expenditure
Option D	the gap that emerges between income and sudden eventual expenditure

Question - 11	Which of the following statements is/are TRUE?
Option 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
Option B	A firm experiences economies of scope when an increase in its range of goods produced brings down the average total cost of production
Option 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

Option 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

Question - 12	**Let $x_1, x_2, \cdots, x_n$ 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 $\hat{\sigma}^2_{MLE}$ is/are then characterized by**
Option 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
Option B	$\hat{\sigma}^2_{MLE} = \frac{1}{n}\sum_{i=1}^{n}(x_i^2 - \bar{x})^2$ which is a consistent estimator of σ^2
Option C	$\hat{\sigma}^2_{MLE} = \frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2$ which is an unbiased estimator of σ^2
Option D	$\hat{\sigma}^2_{MLE} = \frac{1}{n-1}\sum_{i=1}^{n-1}(x_i - \bar{x})^2$ which is an unbiased and consistent estimator of σ^2

Question - 13	**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**
Option A	biased
Option B	inconsistent
Option C	unbiased but consistent
Option D	unbiased but efficient

Question - 14	**Which of the following factor(s) do NOT affect output and employment in the classical macroeconomic model?**
Option A	Quantity of money
Option B	Level of government spending
Option C	Level of demand for investment goods
Option D	Technological progress

Question - 15	**For the following function $f(x)$ to be a probability density function, the value of c will be _____ (rounded off to two decimal places).** $$f(x) = \begin{cases} \frac{c}{\sqrt{x}}; 0 < x < 4 \text{ and } c > 0 \\ 0; otherwise \end{cases}$$

Question - 16	**A six-face fair dice 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).**

Question - 17	**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 = ½ then the corresponding labor supply (in hours) is_____ (in integer).**

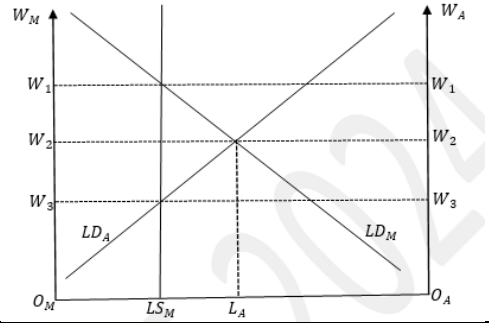
Question - 18	**For a given foreign currency, if the forward exchange rate of delivery is 20 and the current value of spot exchange rate is 8, then the forward premium will be _____ (rounded off to two decimal places).**

Question - 19	**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 favor of the movie and concert, respectively. Similarly, q and $(1 - q)$ are the probabilities that Raju will decide in favor of the movie and concert, respectively. Which one of the following options correctly contains all the Nash Equilibria?**
Option A	(p = 0, q = 0); (p = 1, q = 1); (p = 2/3, q = 1/3)
Option B	(p = 0, q = 1); (p = 1, q = 0); (p = 2/3, q = 1/3)
Option C	(p = 0, q = 0); (p = 1, q = 1); (p = 1/3, q = 2/3)
Option D	(p = 0, q = 1); (p = 1, q = 0); (p = 1/3, q = 2/3)

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

Question - 20	**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?**
Option A	6 apricots and 9 bananas
Option B	9 apricots and 9 bananas
Option C	4 apricots and 10 bananas
Option D	0 apricots and 12 bananas

Question - 21	**A dual economy consisting of a manufacturing sector (M) and an agricultural sector (A) is depicted in the figure below. O_MO_A is the total labor available in the economy of which O_MLS_M is the labor supply in the manufacturing sector before any migration was allowed among the laborers. 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 labor in the manufacturing (agricultural) sector with respect to**

	$O_M(O_A)$ as the origin. If wages are flexible, and labor is allowed to migrate between these two sectors, then it will be TRUE that 
Option A	Total amount of labor that will migrate from the agricultural sector to the manufacturing sector will be $LALSM$
Option B	Total amount of labor that will migrate from the manufacturing sector to the agricultural sector will be $LSMLA$
Option C	The wage in the manufacturing sector will be $W3$
Option D	The wage in the agricultural sector will be $W1$

Question - 22	**If X and Y are two random variables with the joint probability density function** $$f(x,y) = \begin{cases} \frac{2}{3}(x+2y); for\ 0 < x,y < 1 \\ 0; otherwise \end{cases}$$ **Then $E\left[X\middle|Y=\frac{1}{2}\right]$ will be.**
Option A	5/9
Option B	4/9
Option C	1/3
Option D	2/3

Question - 23	**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**
Option A	1/2
Option B	1/5
Option C	1/4
Option D	2/3

Question - 24	**Assume the following probabilities for two events, A and B: $P(A)$ = 0.50, $P(B)$ = 0.70, and P (A U B) = 0.85. Then we can conclude that**
Option A	A and B are mutually independent
Option B	A and B are equally likely
Option C	A and B are not mutually independent
Option D	A and B are mutually exclusive

Question - 25	**The following table provides different statistical model specifications along with the elasticity of yt with respect to xt. 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	$\ln(y_t) = \beta_1 + \beta_2 x_t + \varepsilon_t$	$\beta_2 \frac{1}{\exp(x_t)}$

Option A	Only rows 3 and 4 are correct
Option B	Only rows 1 and 2 are correct
Option C	Only rows 3 and 5 are correct
Option D	Only rows 4 and 6 are correct

Question - 26	**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?**
Option A	enter; accommodate
Option B	enter; fight
Option C	not enter; accommodate
Option D	not enter; fight

Question - 27	**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**
Option A	one saddle point
Option B	one strict local minimum
Option C	one strict local maximum
Option D	one global maximum

Question - 28	**A decrease in the income tax rate has an _____ effect on the labour supply if the _____effect dominates.**
Option A	negative; income

Option B	positive; substitution
Option C	positive; income
Option D	negative; substitution

Question - 29	**Which of the following statements is/are FALSE?**
Option 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
Option B	The interest rate parity theory says that the interest rates on similar assets in two countries will always be the same
Option 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
Option 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

Question - 30	**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 labor used in the production process, and t depicts time. The depreciation is given by K_t, where = 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 labor is_____ (*in integer*).**

Question - 31	**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).**

Question - 32	**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*).**

Question - 33

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

Question - 34

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

Question - 35

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 labor employed by the firm is e_iN_i. The production is based on only the efficiency unit of labor, and the production function is given by

$$F(e_iN_i) = log_e(e_iN_i)$$

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*).

Question - 36	**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*).**

Question - 37	**The estimated results of a Probit model are 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

Question - 38	**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%

Question - 39	**Consider a duopoly market where Firm 1 and Firm 2 produce differentiated products such that the demand function of each firm is given by:** **$q1(p1, p2) = 18 - p1 + p2$** **$q2(p1, p2) = 18 + p1 - p2$** **Here, $q1$ and $q2$ are the outputs produced by Firm 1 and Firm 2, respectively, and $p1$ and $p2$ are the corresponding per unit prices.** **Cost of production for the ith firm is given by $Ci(qi) = 2qi \; \forall \; i = 1, 2$** **The firms compete in prices. The price set by Firm 2 such that the market is in Nash equilibrium will be_____(in integer).**

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