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**Past Year Question Paper**

# **GATE-2023 ECONOMICS**



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## GATE 2023

<b>Question - 1</b>	<b>An individual is endowed with income of Rs. 142 and has the utility function <math>U(x_1, x_2) = x_2(x_1 + 1)</math>, where <math>x_1 \geq 0, x_2 \geq 0</math>. The unit price of <math>x_1</math> is Rs. 2 and the unit price of <math>x_2</math> is Rs. 3. The utility maximizing bundle is</b>
<b>Option A</b>	$x_1 = 35, x_2 = 20$
<b>Option B</b>	$x_1 = 30, x_2 = 24$
<b>Option C</b>	$x_1 = 35, x_2 = 24$
<b>Option D</b>	$x_1 = 30, x_2 = 20$

<b>Question - 2</b>	<b>The International Monetary Fund (IMF) began operations in the year</b>
<b>Option A</b>	1942
<b>Option B</b>	1947
<b>Option C</b>	1945
<b>Option D</b>	1940

<b>Question - 3</b>	<b>According to the Working Group on Money Supply: Analytics and Methodology of Compilation (1998) constituted by the Reserve Bank of India (RBI), which of the following is NOT a component of the new monetary aggregate <math>NM_1</math>?</b>
<b>Option A</b>	Currency with the public
<b>Option B</b>	Demand deposits with the banking system
<b>Option C</b>	Short-term time deposits of residents
<b>Option D</b>	'Other' deposits with the RBI

<b>Question - 4</b>	<b>Stagflation is a situation when</b>
<b>Option A</b>	both unemployment and inflation are low
<b>Option B</b>	both unemployment and inflation are high
<b>Option C</b>	unemployment is high but inflation is low
<b>Option D</b>	unemployment is low but inflation is high

<b>Question - 5</b>	<b>Consider the Keynesian consumption function <math>C = \alpha + \beta Y</math>, where <math>C</math> is the aggregate consumption, <math>Y</math> is the aggregate income, <math>\alpha</math> is a constant (<math>\alpha &gt; 0</math>), and <math>\beta</math> is the marginal propensity to consume (<math>0 &lt; \beta &lt; 1</math>). Then, the average propensity to consume is</b>
<b>Option A</b>	$\alpha$
<b>Option B</b>	$\frac{\alpha}{Y} + \beta$
<b>Option C</b>	$\alpha Y + \beta Y^2$
<b>Option D</b>	$\alpha + \frac{\beta}{Y}$

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<b>Question - 6</b>	<b>An analyst regressed <math>Y</math> on <math>X_1</math> and <math>X_2</math>. If she later noticed that <math>X_1 = 5X_2</math>, then which of the following assumptions of the classical linear regression model was violated?</b>
<b>Option A</b>	Homoscedasticity
<b>Option B</b>	No Perfect Multicollinearity
<b>Option C</b>	No Autocorrelation
<b>Option D</b>	Linearity in parameters

<b>Question - 7</b>	<b>Which of the following is NOT an example of non-tariff barriers?</b>
<b>Option A</b>	Voluntary export restraint
<b>Option B</b>	A procurement law directing a government to buy domestically made products unless comparable foreign made products are substantially cheaper.
<b>Option C</b>	Imposition of sanitary and phytosanitary measures on agricultural produce.
<b>Option D</b>	An antidumping law

<b>Question - 8</b>	<b>Among the following, who first proposed that internal government debt does not create a burden for the future generation?</b>
<b>Option A</b>	N. Gregory Mankiw
<b>Option B</b>	Martin Feldstein
<b>Option C</b>	Harvey S. Rose
<b>Option D</b>	A. P. Lerner

<b>Question - 9</b>	<b>Which of the following is an example of direct tax?</b>
<b>Option A</b>	Sales tax
<b>Option B</b>	Customs duty
<b>Option C</b>	Individual income tax
<b>Option D</b>	Excise tax

<b>Question - 10</b>	<b>In the context of endogenous growth theory, the Nobel laureate Paul Romer emphasized that "ideas" are</b>
<b>Option A</b>	non-rival
<b>Option B</b>	rival with medium degree of excludability
<b>Option C</b>	rival with high degree of excludability
<b>Option D</b>	rival with low degree of excludability

<b>Question - 11</b>	<b>In the Human Development Index (HDI), the longevity is measured by</b>
<b>Option A</b>	child survival rate
<b>Option B</b>	healthy life expectancy
<b>Option C</b>	disability-adjusted life years
<b>Option D</b>	life expectancy at birth

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<b>Question - 12</b>	<b>Which of the following statements is correct about the Fourteenth Finance Commission?</b>
<b>Option A</b>	The Commission was chaired by Dr. C. Rangarajan.
<b>Option B</b>	The Commission recommended achieving 90 percent metering of electricity by the end of the year 2012.
<b>Option C</b>	The Commission recommended an increase in the share of tax devolution to states to 42 percent of the divisible pool.
<b>Option D</b>	The Commission was mandated to make recommendations for the period 2010-2015.

<b>Question - 13</b>	<b>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?</b>
<b>Option A</b>	The study used the data on monthly per capita consumption expenditure (MPCE) from the 1960-61 round of the National Sample Surveys.
<b>Option B</b>	The study used the identical calorie norm for rural and urban areas.
<b>Option C</b>	The poverty head count ratio estimated by the study was higher for rural areas than that for urban areas.
<b>Option D</b>	The study used the same poverty line for all states.

<b>Question - 14</b>	<b>Which of the following statements is/are correct about the Pradhan Mantri Kaushal Vikas Yojana (PMKVY)?</b>
<b>Option A</b>	It has been a flagship scheme of the Ministry of Education.
<b>Option B</b>	It was launched in the year 2010.
<b>Option C</b>	The National Skill Development Corporation has been responsible for its implementation.
<b>Option D</b>	One of the objectives of PMKVY has been to enable a large number of Indian youths to take up industry-relevant skill training.

<b>Question - 15</b>	<b>Which of the following is/are used for testing the assumption of normality?</b>
<b>Option A</b>	Shapiro-Wilk test
<b>Option B</b>	Breusch-Godfrey test
<b>Option C</b>	Jarque-Bera test
<b>Option D</b>	Park test

<b>Question - 16</b>	<b>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 _____ (round off to one decimal place).</b>
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Question - 17	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 _____ (in integer).
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Question - 18

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

Age group	Population (2010)	Population (2017)
0 -14 years	201630	213609
15-64 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).

Q.19– Q.39 Carry Two marks Each

Question - 19	<p>A firm in a market with perfect competition has the following total cost (<math>TC</math>) function:</p> $TC(Q) = a + b(Q)$ <p>where <math>Q</math> is the quantity produced by the firm, <math>a</math> is the fixed cost and <math>b(Q)</math> is the variable cost. What will happen if the fixed cost increases?</p>
Option A	In the short-run, the firm's Average Variable Cost (AVC) curve will shift upwards.
Option B	In the short-run, the firm's Average Total Cost (ATC) curve will shift upwards.
Option C	The firm will earn higher profits.
Option D	In the short-run, the firm's Marginal Cost (MC) curve will shift upwards.

Question - 20	The emission of greenhouse gases is an example of "bads" that are
Option A	rival and excludable
Option B	non-rival and excludable
Option C	rival and non-excludable
Option D	non-rival and non-excludable

Question - 21	<p>Consider a closed-economy IS-LM model. The IS and LM equations are</p> $Y = C(Y) + I(z) + \bar{G}$ $\bar{M} = kY - li$ <p>where <math>Y</math> is the output, <math>C</math> is the consumption (<math>C' &gt; 0</math>), <math>I</math> is the investment (<math>I' &lt; 0</math>), <math>z \equiv i - \pi^e</math>, <math>i</math> is the nominal interest rate, <math>\pi^e</math> is the expected inflation, <math>\bar{G}</math> is the government purchases, <math>\frac{\bar{M}}{r}</math> is the fixed real money balances, and <math>k</math> and <math>l</math> are positive constants.</p>
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	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?
Option A	Equilibrium Y increases.
Option B	Aggregate demand remains unchanged.
Option C	Equilibrium Y remains unchanged.
Option D	Aggregate demand shifts down.

Question - 22	<p>Consider the following simultaneous equations model:</p> $Y_t = \beta_1 + \beta_2 X_t + \beta_3 X_{t-1} + \beta_4 Z_t + \mu_{1t} \dots (1)$ $Z_t = \delta_1 + \delta_2 Y_t + \delta_3 W_t + \mu_{2t}$ <p>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)?</p>
Option A	Two-Stage Least Squares
Option B	Indirect Least Squares
Option C	Weighted Least Squares
Option D	Ordinary Least Squares

Question - 23	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 $p$
Option A	must be positive
Option B	must be negative
Option C	must be zero
Option D	can be any value except zero

Question - 24	<p>Match the following:</p> <table border="1"> <thead> <tr> <th>Demographic Transition Stage</th><th>Feature</th></tr> </thead> <tbody> <tr> <td>I</td><td>P.High fertility and high Mortality</td></tr> <tr> <td>II</td><td>Q.Declining Fertility</td></tr> <tr> <td>III</td><td>R.Stationary Population</td></tr> <tr> <td>IV</td><td>S.Declining Mortality</td></tr> </tbody> </table>	Demographic Transition Stage	Feature	I	P.High fertility and high Mortality	II	Q.Declining Fertility	III	R.Stationary Population	IV	S.Declining Mortality
Demographic Transition Stage	Feature										
I	P.High fertility and high Mortality										
II	Q.Declining Fertility										
III	R.Stationary Population										
IV	S.Declining Mortality										
Option A	I → P; II → Q; III → R; IV → S										
Option B	I → P; II → S; III → Q; IV → R										
Option C	I → R; II → S; III → Q; IV → P										
Option D	I → S; II → P; III → R; IV → Q										

Question - 25	Consider two countries, India and Bangladesh, and two goods, Glass Bottle and Ceramic Plate, with labor requirements of production for a unit of each good given below:
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	Labor 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?			
Option A	India has an absolute advantage in Glass Bottle production and a comparative disadvantage in Glass Bottle production.		
Option B	India has an absolute advantage in Ceramic Plate production and a comparative disadvantage in Ceramic Plate production.		
Option C	India has an absolute advantage in Ceramic Plate production and a comparative disadvantage in Glass Bottle production.		
Option D	India has an absolute advantage in Glass Bottle production and a comparative disadvantage in Ceramic Plate production.		

Question - 26	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.
Option A	If $1 < e_p < \infty$ , the demand is price inelastic.
Option B	Luxury goods are more price inelastic and the necessities are price elastic.
Option C	Luxury goods have $e_I > 1$ .
Option D	If $0 < e_p < 1$ , the demand is price elastic.

Question - 27	Let $\pi^e$ 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?
Option A	For small values of $r$ and $\pi^e$ , $r \approx i - \pi^e$ .
Option B	When real interest rate is low, there are greater incentives to borrow and fewer incentives to lend.
Option C	Real interest rate reflects the real cost of borrowing
Option D	If $i = 8\%$ and $\pi^e = 10\%$ , then $r$ is approximately (+) 2%.

Question - 28	Which of the following models explain(s) the upward-sloping aggregate supply curve in the short-run?
Option A	Sticky-wage model
Option B	Worker-misperception model
Option C	Imperfect-information model
Option D	Solow model

Question - 29	Consider a Mundell-Fleming model for a small open economy with perfect capital mobility. The goods market equation is $Y = C(Y) + I(r^*) + G + NX(e)$
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	<p>where <math>Y</math> is the output, <math>C</math> is the consumption (<math>C' &gt; 0</math>), <math>I</math> is the investment (<math>I' &lt; 0</math>), <math>G</math> is the government purchases, and <math>NX</math> is the net exports (<math>NX' &lt; 0</math>), <math>r^*</math> is the fixed world interest rate, and <math>e</math> is the exchange rate.</p> <p>The money market equation is</p> $\frac{M}{P} = kY - lr^*$ <p>where <math>M</math> is the money supply, <math>\bar{P}</math> is the fixed price level, and <math>k</math> and <math>l</math> are positive constants. Which of the following policies is/are ineffective (i.e., have no impact on income) in the short-run?</p>
Option A	Expansionary fiscal policy under floating exchange rate
Option B	Expansionary monetary policy under floating exchange rate
Option C	Expansionary fiscal policy under fixed exchange rate.
Option D	Expansionary monetary policy under fixed exchange rate.

Question - 30	In the context of Balance of Payments accounting, which of the following transactions is/are NOT recorded under the Current Account?
Option A	Merchandise trade
Option B	Unilateral transfer payments
Option C	Purchase of international financial assets
Option D	Purchase of foreign currency by the central bank

Question - 31	<p>The demand and supply functions for a commodity are given by:</p> $D(p) = 10 - 2p \text{ and } S(p) = -2 + p$ <p>where <math>D(p)</math> and <math>S(p)</math> are the quantity demanded and supplied, respectively, and <math>p</math> (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).</p>
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Question - 32	<p>A duopoly faces the inverse market demand function <math>p = 120 - Q</math>, where <math>p</math> is the unit price (in Rs.) of the good being sold by firms A and B, and <math>Q</math> 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, <math>Q</math> is _____ (in integer).</p>
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Question - 33	<p>Consider the following short-run cost function:</p> $C(q) = 10q^3 - 80q^2 + 300q + 50$ <p>At the minimum average variable cost (AVC), the value of marginal cost (MC) is _____ (in integer).</p>
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Question - 34	<p>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.</p>
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	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).
Question - 35	<p>Using the Ordinary Least Squares (OLS) method, a researcher estimated the relationship between initial salary (<math>S</math>) of MBA graduates and their cumulative grade point average (<math>CGPA</math>) as</p> $S_i = \beta_0 + \beta_1 CGPA_i$ <p style="text-align: center;"><math>i=1, 2, \dots, 100</math></p> <p>where <math>\beta_0 = 4543</math> and <math>\beta_1 = 645.08</math>. The standard errors of <math>\beta_0</math> and <math>\beta_1</math> are 921.79 and 70.01, respectively. The t-statistic for testing the null hypothesis <math>\beta_1 = 0</math> is _____ (round off to two decimal places).</p>
Question - 36	<p>Let <math>X</math> be a random variable with the probability density function <math>f(x)</math> such that</p> $f(x) = \begin{cases} \frac{1}{2\sqrt{3}} & \text{if } -\sqrt{3} < x < \sqrt{3} \\ 0 & \text{otherwise} \end{cases}$ <p>Then, the variance of <math>X</math> is _____ (in integer).</p>
Question - 37	<p>Suppose from the estimation of a linear regression model</p> $Y_i = \beta_0 + \beta_1 X_i + e_i$ <p>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).</p>
Question - 38	<p>A labor-augmenting production function is</p> $Y = K^{0.33} (A L)^{0.67}$ <p>where <math>Y</math> = output, <math>K</math> = capital, <math>L</math> = labor, and <math>A</math> = technology.</p> <p>Assume that the growth rate of <math>L</math> is 1.2 percent per annum, the growth rate of <math>K</math> is 3 percent per annum, and the growth rate of <math>A</math> is 1.5 percent per annum. Using the growth-accounting approach, the growth rate of <math>Y</math> in percent per annum is _____ (round off to two decimal places).</p>
Question - 39	<p>A monopolist is facing the demand function <math>Q = 100 / (P-1)</math>, where <math>Q</math> is the quantity demanded and <math>P</math> is the price per unit of the good (<math>P &gt; 1</math>). The average variable cost for the monopolist is <math>4 / \sqrt{Q}</math> and the fixed cost is 10. The profit maximizing price is _____ (in integer).</p>

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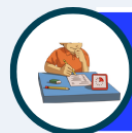
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