I.E.S./I.S.S. Examination, 2026

GENERAL ECONOMICS

PAPER—I

Time Allowed : Three Hours	Maximum Marks : 200

QUESTION PAPER SPECIFIC INSTRUCTIONS

Please read each of the following instructions carefully before attempting questions

There are **THIRTEEN** questions divided under **THREE** Sections.

The **ONLY** question in Section—A is **compulsory**.

In Section—B, **FIVE** out of **SEVEN** questions are to be attempted.

In Section—C, **THREE** out of **FIVE** questions are to be attempted.

Candidates should attempt questions/parts as per the instructions given in the Sections.

The number of marks carried by a question/part is indicated against it.

Candidates are required to write clear, legible and concise answers and to adhere to word limits, wherever indicated. Failure to adhere to word limits may be penalized.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly.

Any page or portion of the page left blank in the Question-cum-Answer (QCA) Booklet must be clearly struck off.

Answers must be written in **ENGLISH** only.

SECTION—A

(Compulsory Section)

1. Answer **all** the following **seven** parts : 5×7=35

(a) Given that the average revenue curve is a rectangular hyperbola, what will be the shape of the marginal revenue curve and why?

(b) Why are the assumptions of perfect competition and constant returns to scale considered inconsistent?

(c) Suppose that a monopolist faces a downward-sloping demand function $q = 15p^{-0.89}$ for its produce, where q is quantity demanded and p is price per unit of q. Should the monopolist increase its price to increase revenue? Justify your answer.

(d) What is the economic interpretation of the Lagrange's multiplier for utility maximization problem?

(e) Why does the Coase theorem fail in the presence of high transaction costs?

(f) Graphically solve the following linear programming problem :

$$\text{Minimize } C = 80X + 60Y$$

subject to

$$2X + 2Y \geq 3$$

$$2X + 0Y \geq 1$$

$$X, Y \geq 0$$

(g) If the time series data (Y_t) follows an autoregressive process of order one [i.e., AR (1)], given by $Y_t = \alpha + \beta Y_{t-1} + \varepsilon_t$, where ε_t is a pure white noise, show that the time series data (Y_t) will also follow a moving average process of order infinity [i.e., MA (∞)].

SECTION—B

Answer any **five** out of the following **seven** questions in about *200* words each : 18×5=90

2. *(a)* Distinguish between the method of compensating variation in income and that of cost difference with the help of a suitable diagram. 10

(b) Draw the compensated demand curves according to methods mentioned in part **2***(a)* and write down your interpretation. 8

3. *(a)* Consider the CES production function

$$Y = \gamma[\delta K^{-\rho} + (1-\delta)L^{-\rho}]^{-\frac{\nu}{\rho}}$$

where Y, K and L are output, capital and labour respectively. Give the economic interpretation of the parameters γ, δ, ν and ρ, and show that the value of the elasticity of substitution is $\frac{1}{1+\rho}$. 4+5=9

(b) Consider the following specific CES production function defined on $x_1 > 0,\ x_2 > 0$:

$$y = f(x_1, x_2) = [0{\cdot}3x_1^{-2} + 0{\cdot}7x_2^{-2}]^{-\frac{1}{2}}$$

(i) Find the MRTS, and show that isoquants are strictly convex to the origin.

(ii) Show that f is homogeneous, and find its degree of homogeneity.

(iii) Is the function $[0{\cdot}3x_1^{-2} + 0{\cdot}7x_2^{-2}]^{-\frac{1}{2}} + 1$ homothetic? Justify your answer. 9

4. *(a)* If the production function is linear homogeneous, show that the expansion path is a straight line passing through the origin. 9

(b) For the total cost function

$$TC(y) = y^2 + 10y + 25, \quad y > 0$$

show that—

(i) MC is less than AC, where AC is falling;

(ii) MC = AC at the point where the AC curve is horizontal;

(iii) MC exceeds AC, where AC is rising. 9

5. (a) Consider a simple model $Y_i = \alpha + u_i$, $i = 1, 2, 3, \cdots, n$, where u_i satisfies all the standard assumptions and n is the number of observations. Show that the OLS estimator of α, say $\hat{\alpha}$, is consistent. 10

(b) Explain the concept of Pareto optimality. Discuss why the provision of public goods fails to satisfy Pareto optimal conditions in a competitive market. 8

6. (a) Distinguish between Marshallian and Walrasian stability analysis. 6

(b) Discuss the welfare implications of pricing under incomplete information. Do you think regulatory intervention can improve outcomes? Justify your answer. 8+4=12

7. (a) Under perfect competition, find out graphically the conditions for normal profit, supernormal profit and the loss in equilibrium without using the average cost curve. 8

(b) Explain the equilibrium of a firm which has a monopoly in the domestic market but perfect competition in the world market. 10

8. *(a)* Let $x_i = X_i - \bar{X}$ and $y_i = Y_i - \bar{Y}$ be the ith observation on X_i and Y_i $(i = 1, 2, 3, \cdots, n)$ in deviation form. Let $\bar{X}$ and $\bar{Y}$ be the respective means, s_x^2 and s_y^2 be the variances of X_i and Y_i respectively, and let r_{XY} stand for correlation coefficient between X_i and Y_i. Prove that

$$r_{XY} = 1 - \frac{1}{2n}\sum_{i=1}^{n}\left[\frac{x_i}{s_x} - \frac{y_i}{s_y}\right]^2 = -1 + \frac{1}{2n}\sum_{i=1}^{n}\left[\frac{x_i}{s_x} + \frac{y_i}{s_y}\right]^2$$

and hence $-1 \le r_{XY} \le +1$. 6+3=9

(b) Derive the angle between the two regression lines and interpret the angle when $r_{XY} = 0$ and $r_{XY} = \pm 1$. 6+3=9

SECTION—C

Answer any **three** out of the following **five** questions : 25×3=75

9. *(a)* Consider a duopoly market with linear demand

$$P = 180 - 4Q;\ Q = Q_1 + Q_2$$

and asymmetric cost structures given by $C_1 = 4Q_1$ and $C_2 = 10Q_2$. If the firms collude and agree to divide the market equally—

(i) find out the equilibrium price and output levels of each firm;

(ii) explain why the low-cost firm sets market price. 5+5=10

(b) What is monopoly power? Show that the monopoly power varies inversely with the price elasticity of demand. 2+3=5

(c) Solve the following game by using a suitable method :

		Player B			
		B_1	B_2	B_3	B_4
Player A	A_1	−2	4	−1	6
	A_2	3	−1	5	10

10

10. *(a)* What do you mean by heteroscedasticity? Why does it come? 5

(b) What will be the consequences if you apply the OLS technique to estimate a linear model in the presence of heteroscedasticity? 7

(c) Consider a simple linear model $Y_i = \alpha + \beta X_i + u_i$, $i = 1, 2, \cdots, n$, where the disturbance term is heteroscedastic. How should you proceed to estimate the parameters if you know about the nature of heteroscedasticity, that the variance of the disturbance term varies directly with the squares of the explanatory variable, that is, $\sigma_u^2 = \sigma^2 X_i^2$, where σ^2 is a constant? Compare this result with the result if you ignore heteroscedasticity. 9+4=13

11. *(a)* How does Kalecki's theory of distribution highlight the role of monopoly power, institutional factors, and class structure in shaping income distribution? 10

(b) Do you accept that Kalecki's distribution represents a powerful alternative to the neoclassical marginal productivity theory? 10

(c) What are the important differences between Kalecki's theory of distribution and Kaldor's theory of distribution? 5

12. *(a)* Discuss Pareto's law of income distribution and its empirical evidence. 9

(b) Derive the Lorenz curve and Gini coefficient for the theory of the Pareto distribution and explain their implications for inequality measurement. 9

(c) If the Pareto exponent (α) is 1·5, compute the Gini coefficient and interpret the degree of inequality. 7

13. *(a)* Distinguish between Leontief's closed and open input-output models. 5

(b) Derive Hawkins-Simon conditions in the static open input-output model and give their economic interpretations. 10

(c) A three-sector input-output matrix is given as

$$\begin{bmatrix} 1{\cdot}0 & -0{\cdot}5 & 0 \\ -0{\cdot}2 & 1{\cdot}0 & -0{\cdot}5 \\ -0{\cdot}4 & 0 & 1{\cdot}0 \end{bmatrix}$$

The primary input labour coefficients (per unit of output) are given as 0·4, 0·7 and 1·2, and the household demands for the output of three sectors are 1000, 5000 and 4000. Determine the level of employment and the volume of outputs. 10

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