0004702   IES/ISS EXAM, 2015

A-KGU-O-HFA

GENERAL ECONOMICS

Paper I

Time Allowed : Three Hours   Maximum Marks : 200

INSTRUCTIONS

Please read each of the following instructions carefully before attempting the questions :

There are ELEVEN questions divided under THREE sections.

The ONLY question in Section A is compulsory.

In Section B, FIVE out of SIX questions are to be attempted.

In Section C, THREE out of FOUR questions are to be attempted.

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

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

All parts and sub-parts of a question are to be attempted together in the answer book.

Attempts of questions shall be counted in chronological 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 answer book must be clearly struck off.

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.

Answers must be written in ENGLISH only.

SECTION A

*Answer any **ten** of the following questions. Each answer should be in about 75 words.*   10×5=50

1. (a)   State and explain Kaldor – Hicks compensation principle.

    (b)   The demand function $Q_1 = 50 - P_1$ intersects another demand function Q_2 at price $P = 10$. The elasticity of demand for Q_2 is six times larger than that of Q_1 at that point. Find out the demand function for Q_2.

    (c)   Suppose the Government as a monopolist firm produces electricity and sells it to people at price per unit 'p'. The demand function for the electricity, of the people is $q = \alpha p^{-\beta}$. If the elasticity of demand for electricity in absolute sense is found to be 0·894, should the Government increase the price per unit to increase the revenue ? Justify your answer.

    (d)   Suppose that there are two goods, namely chocolate cake and ice-cream, such that there might well be some optimal amount of chocolate cake and ice-cream that a consumer would want to eat per week. Any less than that amount would make her worse off, but any more than that amount would also make her worse off. Find the shape of the indifference curve and justify your answer.

(e) Define consumer's and producer's surplus Given the demand function $p_c = 113 - q^2$ and the supply function $p = (q + 1)^2$ under perfect competition, find out the consumers' surplus and producers' surplus.

(f) Elucidate the statement that no economic rent is earned when the supply of a factor is perfectly elastic.

(g) Explain the concept of social welfare. Does perfect competition ensure maximum social welfare ?

(h) Show that in a translog production function, elasticity of substitution is not constant.

(i) Define and distinguish between level of significance and confidence interval. What do you mean by 'power of the test' ?

(j) Find out the total demand for industries 1, 2 and 3, if the coefficient matrix A and final vector B are given as

$$A = \begin{bmatrix} 0.3 & 0.4 & 0.1 \\ 0.5 & 0.2 & 0.6 \\ 0.1 & 0.3 & 0.1 \end{bmatrix} \quad \text{and} \quad B = \begin{bmatrix} 20 \\ 10 \\ 30 \end{bmatrix}.$$

(k) Explain the distinction between the parametric and non-parametric tests.

SECTION B

*Answer any **five** of the following questions. Each answer should be in about 200 words.*   *5×15=75*

2. Consider the utility function as $U = \sqrt{q_1 q_2}$, where q_1 and q_2 are two commodities on which the consumer spends his entire income of the month. Let the price per unit of q_1 and q_2 be ₹ 40 and ₹ 16 respectively and the monthly income of the consumer be ₹ 4,000. Find out the optimal quantities of q_1 and q_2.   *15*

3. Define Linear homogenous production function and give an example. Show that in the case of the linear homogenous production function the expansion path must be a straight line passing through the origin.   *6+9=15*

4. How can you graphically derive the long-run marginal cost curve from the short-run marginal cost curves ?   *15*

5. What is meant by excess capacity ? Why is it bad ? Are there any benefits of the excess capacity associated with monopolistic competition ?   *6+9=15*

6. How is the monopoly power measured ? State Lerner's measure of degree of monopoly power. Show that the degree of monopoly power is the inverse of the price elasticity of demand.   *4+5+6=15*

7. Derive the long-run supply curve in the constant cost industry under perfect competition. Under what conditions can the long-run supply curve of a competitive industry slope downward ?   *6+9=15*

SECTION C

*Answer any **three** of the following questions. Each answer should be in about 300 words.* $3 \times 25 = 75$

8. Consider the competitive market with excise tax such that the supplier receives the price netted of tax. Answer the following questions.

    (i)   What is the equilibrium price in the presence of tax ?   *4*

    (ii)   Under which condition will the price be undefined ?   *3*

    (iii)   Show that the market price is totally unaffected in the case of perfectly inelastic supply curve.   *4*

    (iv)   If the tax yield (T) is a fraction (t > 0, which is the rate of tax) of quantity (q), find out the tax yield and the conditions under which tax yield varies directly with the rate of tax (t).   *8*

    (v)   Find out the value of the rate of tax such that the tax yield is maximum.   *6*

9. What do you mean by collusive oligopoly ? Distinguish between cartel and price-leadership with respect to the determination of price and quantity. Write a note on barometric price-leadership model.   *5+15+5=25*

10. Consider a simple model of classical regression as $Y_i = \beta X_i + u_i$, where u_i stands for random disturbance term with the standard assumptions and $u_i \sim N(0, \sigma^2)$, and X_i is non-stochastic and $i = 1, 2, ..., n$.

(a) Find out the OLS estimator for β, say $\hat{\beta}_{OLS}$. 5

(b) Show that the OLS estimator for β is BLUE. Prove ab-initio. 10

(c) Prove that $\bar{\beta} = \dfrac{\bar{Y}}{\bar{X}}$, where $\bar{Y}$ and $\bar{X}$ are means respectively, is unbiased but less efficient estimator of β than $\hat{\beta}_{OLS}$. 10

11. (a) Consider the Leontief static input-output model along with its assumptions. How can you confirm that the model is either open or closed ? State the fundamental objective of Leontief static open input-output model. 8

(b) State the Hawkins-Simon condition and explain its economic meaning and significance. 8

(c) Derive the consumption possibility locus. 9

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