2020

ECONOMICS — HONOURS

Paper : CC-5

(Intermediate Microeconomics – I)

Full Marks : 65

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words
as far as practicable.

Group - A

1. Answer ***any ten*** questions : 2×10

   (a) The Government passes a law that allows a substantial subsidy for every hectare of land used to grow sugarcane. How does this programme affect the long-run supply curve for sugarcane?

   (b) Each extra worker produces an extra unit of output up to six workers. After six no additional output is produced. Draw the Total Product and Marginal Product Curves.

   (c) Define short-run in the context of production.

   (d) Why are the isocost lines straight lines?

   (e) What would be the shape of the expansion path when the production function is given by $Q = 2^{0.5} K^{0.5} L^{0.5}$, W = ₹ 50 a day and r = ₹ 100 per day?

   (f) What do you mean by economic rent?

   (g) State the range between which the marginal rate of technical substitution vary as we move along a L-shaped isoquant.— Why?

   (h) Mention how an individual's labour supply might change with the receipt of a substantial amount of outside income?

   (i) Swagota is deciding whether to buy a lottery ticket. Each ticket costs ₹ 10, and the probability of winning pay-offs is given as follows :

Probability	Return
0·5	₹ 0
0·25	₹ 10
0·2	₹ 20
0·05	₹ 75

   What is the expected value of Swagota's pay-off if she purchases a lottery ticket?

Please Turn Over

(j) Under a perfectly competitive structure, suppose MP_L is 5 units per hour and each unit is sold in the market at ₹ 6. The firm owner has to pay ₹ 40 per hour to the worker. Explain whether the owner will hire the worker.

(k) How can you relate a risk-lover with a fair gamble?

(1) The Utility function of Debasis is $U = C_1 C_2$. His income and prices of the commodities in two periods are as follows :

Period	Income	Price of C_1	Price of C_2
1	200	20	20
2	200	20	50

Calculate the Laspeyre's index.

(m) Determine the marginal rate of technical substitutions of Upper and Lower Ridge lines.

(n) 'In stage-2 of the production process, the marginal productivity of both fixed and variable factor is positive.'— Justify the statement.

(o) Study the following table and determine the amount of labour which should be employed for maximisation of profit.

Units of labour	Total Product	Price (₹)	Remuneration of labour (₹)
1	40	10	300
2	75	10	300
3	105	10	300
4	125	10	300

Group - B

2. Answer *any three* questions :

(a) 2 pens and 4 pencils are bought when prices of pens and pencils are ₹ 2 and ₹ 4 respectively. When price of pens rises to ₹ 4 and price of pencils fall to ₹ 2, the quantities of pens and pencils bought are 4 pens and 2 pencils. Do these observations indicate violation of Weak Axiom of Revealed Preference Theory?   5

(b) (i) In the short-run a firm cannot vary its capital $K = 2$, but can vary its labour L. It produces output q. Explain why the firm will not experience diminishing marginal returns to labour in the short-run, if its production function is $q = 10L + K$.

(ii) Can you think of a situation in which short-run marginal cost (SRMC) is less than the long-run marginal cost (LRMC)?   2+3

(c) A consumer survives for just two time periods 1 and 2. The consumer gets income M_1 and M_2 in the two periods and consumes C_1 and C_2. The consumer can reallocate consumption between the two periods by saving and borrowing at the market rate of interest i. If both C_1 and C_2 are normal goods and the second period's income (M_2) falls, then in which direction will the budget line shift?— Why?   5

(d) (i) Under a perfectly competitive scenario $q = 10 + 5L$ and $P = 6$, where q = level of output, P = price and L = labour employed. Find the equilibrium wage.

    (ii) The magnitude of economic rent depends on the elasticity of supply of the factor input.— Explain.   2+3

(e) When two commodity baskets are purchased by the consumer at two different points of time, explain how price weighted quantity indices may be used to verify the Weak Axiom of Revealed Preference.   5

Group - C

Answer *any three* questions.

3. (a) Suppose Natasha's utility function is given by $u(I) = \sqrt{10I}$, where I represents annual income in thousand of rupees.

    (i) Is Natasha risk-loving, risk-neutral or risk-averse?

    (ii) Suppose that Natasha is currently earning an income of ₹ 40,000 ($I = 40$) and can earn that income next year with certainty. She is offered a chance to take a new job that offers a 0·6 probability of earning ₹ 44,000 and 0·4 probability of earning ₹ 33,000. Should she take the new job?— Why?   2+(1+3)

  (b) (i) What do you mean by risk premium?

    (ii) Irma is risk-averse. She gets an expected utility of 105 utils from a lottery with expected income of ₹ 4,000. However she gets an utility of 105 utils from a certain wealth of ₹ 2,600 only. Calculate her risk premium.   2+2

4. (a) A firm has a fixed production cost of ₹ 5,000 and a constant marginal cost of production of ₹ 500 per unit produced.

    (i) What is the firm's Total Cost (TC) function? What is its Average Cost (AC) function?

    (ii) Suppose the firm must pay an annual tax which is a fixed sum, idependent of whether it produces any output. How does this tax affect the firm's Total Cost (TC), Marginal Cost (MC) and Average Cost (AC)?   5

  (b) A sales tax of ₹ 1 per unit of output is placed on a particular firm whose product sells for ₹ 5 in a competitive industry with many firms.

    (i) How will the tax affect the cost curves for the firm?

    (ii) What will happen to firm's price, output and profit?   5

5. (a) A competitive firm finds that at equilibrium level of output its AR = 20, MC = 20 and AC = 60 while AVC = 16. Will the firm produce or shut down? At what level of price will it shut down?

  (b) 'The perfect competition may come to an end if the production function is characterised by increasing returns to scale.'— Justify the statement.   (4+2)+4

Please Turn Over

6. (a) Discuss the effects of changes in income and real interest upon a consumer's intertemporal consumption pattern.

   (b) The demand for labour of an industry is given by the curve L = 1200–10W, where L is the labour demanded per day and W is the wage rate. The labour supply curve is given by L = 20W.

   What is the equilibrium wage rate and quantity of labour hired? What is the economic rent earned by the workers? 6+(2+2)

7. (a) Explain the process of long-run equilibrium in a perfectly competitive market.

   (b) Under what conditions, will the long-run industry supply curve be negatively sloped though every firm in the industry has a rising marginal cost curve? 6+4

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