2024

ECONOMICS — HONOURS

Paper : DSCC-3

(Microeconomics - II)

Full Marks : 75

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) What is derived demand?

(b) Define an inferior good.

(c) State the Weak Axiom of Revealed Preference Approach.

(d) Distinguish between returns to scale and returns to factor.

(e) What is a 'Shut-down Point'?

(f) Define marginal revenue product of a labour.

(g) Is the firm's expansion path always a straight line? Justify your answer.

(h) The supply curve for labour is given by : $L = 20W$.

If equilibrium wage rate is 40 and equilibrium level of labour employment is 800 units, find the economic rent.

(i) If W = ₹ 50 a day and r = ₹ 100 per day, what is the equation of the isocost line, if the firm chooses to spend 10,000 a day on capital and labour? What is the slope of the isocost line?

(j) The equation of the total cost curve facing a perfectly competitive firm in the short run is $TC = 50 + 2q^2$. Explain why the firm will never shut down production in the short run.

(k) Graph the total revenue curve of a competitive firm, price being ₹ 5.

(l) What does the rectangle under Average Fixed Cost curve represent at any level of output? Does the area increase with the level of output? Justify your answer.

(m) What do you mean by sunk cost?

(n) If the utility function of an individual is given by : $u = w^2$, where w denotes wealth, comment on his attitude towards risk.

(o) A lottery has three possible outcomes. ₹ 100 will be received with probability 0.1, ₹ 50 will be received with probability 0.2 and ₹ 10 will be received with probability 0.7. What is the expected value of lottery?

Group - B

2. Answer ***any five*** questions : 5×5

(a) Distinguish between the ordinary and compensated demand curve for a normal good.

(b) "Increasing returns to scale is not consistent with a perfectly competitive market." — Justify the statement.

(c) A risk-averse person is offered a choice between a gamble paying ₹ 1000 with probability of 0.25 and ₹ 100 with a probability of 0.75 or a payment of ₹ 325. Which one would he choose?

(d) "Governments favour food subsidy programmes over cash grant programmes." — Is it true? Justify your answer.

(e) How is economic rent related to elasticity of supply?

(f) "Price control has efficiency costs."— Explain this statement by using the case of price ceiling.

(g) Contrast risk aversion with risk loving behaviour in terms of utility function of an individual.

(h) What is the role of substitution and income effect in determining the slope of the supply curve of labour?

Group - C

Answer ***any three*** questions.

3. (a) Decompose the total effect of a price change into substitution effect and income effect for a Giffen good.

(b) Determine the substitution effect and income effect if the two commodities are consumed in fixed proportions. 6+4

4. (a) If $MP_L = 3$ $MP_K = 4$ $w = ₹ 300$ $r = ₹ 480$, what will the producer do to attain the equilibrium, when MP_L, MP_K, w and r have their usual meaning?

(b) Is the customary short run average cost curve consistent with a Cobb-Douglas production function exhibiting constant returns to scale?

(c) Is it possible for a perfectly competitive firm to maximize profit by operating on the downward sloping portion of the marginal cost curve? 2+5+3

5. (a) Consider the production function : $Q = 5L + 10K$;

where Q is the total output, L is quantity of labour employed and K is the quantity of capital employed.

(i) What does the isoquant look like graphically?

(ii) Which law does it violate?

(iii) What is the slope of this isoquant?

(b) A firm produces bicycles using two variable inputs — bicycle frames and wheels.

(i) What would be the shape of the isoquants?

(ii) What is the degree of substitutability between the two inputs?

(iii) Draw the isoquants for 100 and 200 units of output. (2+1+2)+(1+1+3)

6. (a) (i) Under what conditions would the LTC curve be a positively sloped straight line through the origin?

(ii) What would be the shapes of LAC and LMC curves in this case?

(iii) Would this be consistent with the U-shaped SAC curves?

(b) 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, independent of whether it produces any output. How does this tax affect the firm's Total Cost (TC), Marginal Cost (MC) and Average Cost? (1½+2+1½)+(2+3)

7. (a) A perfectly competitive firm faces a price of ₹ 4 and its total cost function is given by

$$C = Q^3 - 7Q^2 + 12Q + 5$$

(i) Determine the profit maximizing level of output.

(ii) Find the total profit of the firm at this level.

(b) A competitive industry faces a demand : $X = 800 - 8P$.

Each firm faces identical cost conditions $C_i = 200 + 10X_i + 2X_i^2$; where X_i is the output of the ith firm and C_i its cost. There is free entry and an unlimited number of potential entrants.

(i) What is the equilibrium output and price?

(ii) Find the number of firms in the industry. (2+3)+[(2+2)+1]