

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?

Please Turn Over

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2. Answer *any five* questions :

- (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.
- What would be the shape of the isoquants?
 - What is the degree of substitutability between the two inputs?
 - 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?
 - What would be the shapes of LAC and LMC curves in this case?
 - 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.

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

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

- Determine the profit maximizing level of output.
 - 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 i th firm and C_i its cost. There is free entry and an unlimited number of potential entrants.
- What is the equilibrium output and price? (2+3)+[(2+2)+1]
 - Find the number of firms in the industry.