2022

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 marginal product of labour in production of computer chips is 50 chips per hour. The marginal rate of technical substitution of hours of labour for hours of machine capital is $^1/_4$. What is the marginal product of capital?

(b) Do the following functions exhibit increasing, constant or decreasing returns to scale?

(i) $q = 3LK^2$

(ii) $q = (2L + 2K)^{½}$

(c) Why are isoquants downward sloping?

(d) Suppose capital and labour are found to be perfect substitutes in a production process. Draw the isoquant. Which axiom does it violate?

(e) A firm has a fixed production cost of ₹ 5,000 and a constant marginal cost of ₹ 500 per unit of output. What is the firm's Total cost function and Average cost function?

(f) State whether the following statements are true or false :

(i) A firm that has positive accounting profit does not necessarily have positive economic profit.

(ii) If a firm hires a currently unemployed worker, the opportunity cost of utilising the worker's service is zero.

(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) What is the marginal product of labour for $L = 8$ in the production function $Q = K^{2/3}L^{1/3}$, if K is fixed at 27?

(j) 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?

(k) 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.

(l) What do you mean by quasi rent?

(m) What is risk premium?

(n) What does Laspeyres price index depict?

(o) When does the labour supply curve become backward bending?

Group - B

2. Answer ***any three*** questions :

(a) With the help of Weak Axiom of Revealed preference show that the substitution effect of a price change is always negative. 5

(b) Can a perfectly competitive firm ever maximize profit by operating on the downward sloping portion of it's MC curve? 5

(c) Is there any compatibility of constant returns to scale with diminishing returns to the factors? 5

(d) Derive the long run average cost curve under constant returns to scale. What will be the shape of long run marginal cost curve in this context? 3+2

(e) What is the role of substitution and income effect in determining the slope of the supply curve of labour? 5

Group - C

Answer ***any three*** questions.

3. (a) Constrast risk aversion with risk loving behaviour in terms of utility function of an individual.

(b) A person has an expected utility function of the form $u(w) = \sqrt{w}$. He initially has a wealth of ₹ 4. He has a lottery ticket that will be worth ₹ 9 with probability $^1/_2$ and will be worth ₹ 0 with probability $^1/_2$.

(i) Will he accept the lottery?

(ii) What is the expected value of wealth from the lottery?

(iii) Draw his utility function and comment on his attitude towards risk. 5+(2½+1+1½)

4. (a) Suppose that a firm's production function is $q = 10L^{½}k^{½}$. The cost per unit of labour is ₹ 20 and the cost of a unit of capital is ₹ 80. If the marginal rate of technical substitution is $^K/_L$.

(i) Find the optimal level of capital and labour required to produce 140 units of output.

(ii) Determine the cost function.

(b) (i) Under what condition would the long run total cost curve be positively sloped straight line through the origin?

(ii) What would be the shapes of long run average cost and long run marginal cost curves?

(iii) Would this be consistent with the u-shaped short run average cost curve? (3+2)+(1+2+2)

5. (a) A firm produces a product in a competitive industry and has a total cost :

$C = 50 + 4q + 2q^2$.

(i) At the given market price of ₹ 20, the firm is producing 5 units of output in the short run. Is the firm maximising its profit?

(ii) What quantity of output should it produce in the long run?

(iii) What would be the long run equilibrium price?

(b) Why would a firm that incurs losses chooses to produce rather than shutting down? (2+2+2)+4

6. (a) Suppose that the wage rate is ₹ 16 per hour and the price of the product is ₹ 2. Values for output (q) and labour (L) are in units per hour :

q	L
0	0
20	1
35	2
47	3
57	4
65	5
70	6

(i) Find the profit maximising employment level.

(ii) Suppose that the price of the product rises to ₹ 3 and the wage rate falls to ₹ 15 per hour. Find the new profit maximising level of labour employment.

(iii) If the price of product remains constant at the initial level, will a technological upgradation increase or decrease the profit maximising level of employment? Why?

(b) Rock musicians sometimes earn several crores of rupees per year. Can you explain such large incomes in terms of economic rent? (3+2+2)+3

7. (a) Suppose Rihu lives in a world of two periods – totay and tomorrow. She earns ₹ 630 at the beginning of each period. If the interest rate is 0.5 in each period what is the present value of her life-time income? Draw her intertemporal budget constraint.

(b) A consumer who is initially a lender, remains a lender even after a decline in interest rate. Is this consumer better-off or worse-off after the change in the interest rates? If the consumer becomes a borrower after the change, is he better-off? (2+3)+5