

(4)
Group—B

Answer any two questions.

7. Explain critically why short run average cost is always greater than long run average cost of a firm. 3
8. Derive using graphs the long run supply function of a competitive firm and industry. 3
9. What is an expansion path? Find out the equation of the expansion path for the following case :
 $y = K^{0.5} + 2L^{0.5}$, where wage rate is w , cost for per unit of capital is r . 3
10. Find out the short run supply function of a firm in a competitive with the following cost function $STC = q^3 - 2q^2 + 2q + 2$. 3

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BACHELOR OF ARTS EXAMINATION, 2025

(2nd Year, 1st Semester)

ECONOMICS

(Microeconomics BI)

Time : Two Hours

Full Marks : 30

Group—A

Answer any three questions.

1. (a) Draw the budget lines for the consumer under following cases :
- A consumer has income of ₹ 1,000. Price of first good X is 20 and that of good Y is 25.
- (i) Government charges taxes for consumption of good Y at the rate 20% for $Y \geq 10$
- (ii) And consumers receive a discount of 10% on good X for consumption over 30 units of X, or for $X > 30$.
- (b) Suppose the utility function of consumer is $u = x^\alpha + y^\alpha$ with prices p_x and p_y and money income M
- (i) Find out the indirect utility function.
- (ii) Then find out the expenditure function.
- (iii) Determine the compensated demand for the commodities. 1+1+3+1+2

(2)

2. (a) "The non-satiation axiom leads to consumption at 'bliss point' — True or False? Explain.
- (b) Consider the following utility function of an individual who consumes food (f) at price p_f and sells his labour at the wage rate w . We assume work hour is L and leisure time is l where total hour $H = L + l$. He also has an asset income A . Suppose his utility function is

$$U = l^2 + f$$

- (i) Determine his demand function for food, leisure and labour supply schedule.
- (ii) Determine how a rise in A will affect consumption of food leisure and labour supply.

(c) State and prove Shepherd's lemma. 2+3+3

3. (a) Consider the following utility function :

$$u = 4x_1^{\frac{1}{2}}x_2^{\frac{1}{4}}$$

where initially $p_1 = 4, p_2 = 2$ and $I = 200$.

Now suppose p_1 falls to 2.

Determine compensated variation and equivalent variation for above price change.

- (b) Using revealed preference theory prove the Slutsky equation. 5+3

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(3)

4. Suppose Mr. Roy survives for two periods.

His utility function is

$$U = c_1^{1/3} + \delta c_2^{1/3}, \text{ here } \delta \text{ is the discount rate. Let } \delta = 8.$$

In period 1 he earns ₹ 5,00,000. In period 2 he retires and his income drops to 50% of his present income but he receives 1.5 lakhs lump sum as retirement benefit and interest rate is 4%

- (i) Determine C_1 and C_2 . Is he a net lender or net borrower in period 1?
- (ii) How a fall in δ affects his consumptions and savings?
- (iii) If $\delta = .5$ determine the consumptions and savings and compare with case I. 4+2+2

5. (a) Validate the following statement :
Compensated demand curves are always downward sloping. True or false? Explain.
- (b) Does the following functions represent same preference? Explain with logic :

(i) $u = x + y$

(ii) $U = \ln(x) + \ln(y)$

(iii) $u = \sqrt{x} + \sqrt{y}$

(iv) $u = (\sqrt{x} + \sqrt{y})^3$

- (c) What is elasticity of substitution? Prove that the elasticity of substitution is one for Cobb-Douglas production function. 2+2+1+3

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[Turn Over]