

2021

ECONOMICS — HONOURS

Seventh Paper

(Group - B)

Full Marks : 50

The figures in the margin indicate full marks.

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

Students will attempt either Option-A or Option-B

OPTION - A

(Application of Economics to Managerial Issues)

Section - A

1. Answer *any five* questions :

- | | |
|---|-----|
| (a) Explain discounting principle with an example. | 4 |
| (b) Explain the steps of demand forecasting. | 4 |
| (c) Distinguish between incremental cost and sunk cost. | 4 |
| (d) What is dual pricing? What are its advantages? | 2+2 |
| (e) What are the main advantages of marginal cost pricing? When is it best applied? | 2+2 |
| (f) Briefly describe the broad categories of capital budgeting. | 4 |
| (g) Explain EOQ with an example. | 4 |
| (h) Distinguish between horizontal and vertical relationships. | 4 |

Section - B

Answer *any five* questions.

2. Describe the effects of the following decision on the value of the firm :

- | | |
|---|-----|
| (a) The firm has to install new equipment to reduce air pollution. | |
| (b) There is a fall in demand following a rise in price of the commodity. | 3+3 |

Please Turn Over

3. (a) What is margin of safety?
 (b) Find the margin of safety (value) of Firms A and B from the following data :

	Firm A	Firm B
Actual Sales (₹)	1,00,000	60,000
Budgeted Sales (₹)	1,00,000	80,000
Break-even Sales (₹)	50,000	50,000

- (c) Which company is placed better with respect to its margin of safety and why? 2+2+2
4. (a) Why is break-even point an important indicator of a firm's performance?
 (b) A ship can carry a maximum of 1,00,000 passengers per month at a fare of ₹ 850. Variable cost per passenger is ₹ 100, while fixed costs are ₹ 75,00,000 per month. Find the break-even quantity and sales volume for the ship. 2+4
5. A firm may resort to 'satisfying behaviour' if necessary. Justify the statement. 6
6. What is meant by product life cycle? Can there be variation in price policy in different stages of product life cycle? Why? 2+1+3
7. Rank the following investment proposals in order of their profitability according to
 (a) Payback method
 (b) Rate of Return method
 (c) Present Value Index method
 (Cost of Capital : 10 per cent)

Project No.	Initial Outlay (₹)	Annual Cash Flow (₹)	Life in year	
A	25,000	3,000	10	
B	3,000	1,000	5	
C	12,000	2,000	8	
D	20,000	4,000	10	
E	40,000	8,000	12	2+2+2

8. What is ABC Analysis? What are the basic steps in implementing it? 2+4
9. Discuss briefly the merits and demerits of Anglo-American model of corporate governance. 6

OPTION - B

[Applied Economics (Mathematical Economics)]

Section - A

Answer *any five* questions.

1. For the following game, determine the value of the game and the optimal mixed strategies for each player : 4

	B_1	B_2
A_1	5	1
A_2	3	4

2. If θ is the elasticity of $f(x)$, then show that the elasticities of $[x.f(x)]$ and $\left[\frac{f(x)}{x}\right]$ are $(\theta + 1)$ and $(\theta - 1)$, respectively. 2+2
3. Prove or disprove that the utility maximizing quantities of x_1 and x_2 are the same whether we maximize $u(x_1, x_2)$ or $w = f[u(x_1, x_2)]$, where f is a strictly increasing function of u . 4
4. An individual lives in a two-commodity world. How will his purchase change if prices and money income are doubled? 4
5. If the utility function is $u(W) = -e^{-aW}$, show that the amount of investment in risky assets is independent of initial wealth. 4
6. Set up a first-order differential equation to show that the rate of growth of capital - labour ratio depends on marginal propensity to save and rate of growth of labour. 4
7. Find out the equilibrium prices for the following two sector static Leontief open input-output model : 4

0.3	0.3
0.2	0.5

and $(a_{01}, a_{02}) = (4, 6)$, $w = 10$.

8. If the MC function of a firm is $M = \frac{a}{\sqrt{ax + b}}$, and the cost of zero output is zero, find the TC function. 4

Please Turn Over

Section - B

Answer *any five* questions.

9. Find the general solution of $y_{t+2} + \frac{1}{4}y_t = 5$. Comment on the stability of the time path. 4+2
10. The total cost function of a firm is $c = 2q^3 - 3q^2 + 12q$. Show that at the minimum point of AC curve, $AC = MC$. 3+3
11. Let a monopolist faces a market demand curve, $p = 100 - 4q$; and his cost function is, $C = 50 + 20q$. Show that he can earn a higher profit through price discrimination, when $q = q_1 + q_2$; and
- $$q_1 = 12 - 0.20p_1$$
- $$q_2 = 13 - 0.05p_2$$
- 3+3
12. The following table gives the input-output coefficients for a two sector economy consisting of agriculture and manufacturing industry.

Industry →, Input ↓	A	M
Input to A	0.10	1.50
Input to M	0.20	0.25

The final demand for the two industries are 300 and 100 units respectively.

- (a) If the input coefficients for labour for the two industries are respectively 0.5 and 0.6, find the total units of labour required.
- (b) Check whether the system satisfies the Hawkins-Simon conditions. Give the economic interpretation of the Hawkins-Simon conditions. 3+(1½+1½)
13. Solve the differential equation $\frac{d^2y}{dt^2} + 6\frac{dy}{dt} + 9y = 27$. Comment on the stability of the time path. 4+2
14. Consider the following matrix game :

	B_1	B_2
A_1	(3, 1)	(0, 0)
A_2	(0, 0)	(1, 4)

- (a) Find the Nash equilibrium of the game.

(b) Compute the expected pay-off functions of the two players.

(c) Find all mixed strategies equilibria of the game.

2+2+2

15. Verify that a cubic function,

$$z = ax^3 + bx^2 + cx + d$$

is in general neither quasi-concave nor quasi-convex. Is it possible to impose restrictions on the parameters such that the function becomes both quasi-concave and quasi-convex for $x \geq 0$. 4+2

16. Consider the following Nation Income model (closed economy with Govt., but taxes ignored) :

$$Y - C(Y) - I(r) - G_0 = 0 \quad (0 < C' < 1; I' < 0)$$

$$M^s = h(Y) + l(r) \quad (h' > 0; l' < 0)$$

(all the symbols are of conventional meanings)

(a) Is the first equation in the nature of an equilibrium condition?

(b) What is the total quantity demanded for money in this model?

(c) Analyze the comparative statics of the model when money supply changes, and when Government expenditure changes. 1+1+(2+2)
