

[This question paper contains 3 printed pages]

Your Roll No

7237

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M.Sc. / I

OPERATIONAL RESEARCH—Course IX

(Marketing Management)

(Admissions of 2001 and onwards)

Time 3 Hours

Maximum Marks 75

*(Write your Roll No. on the top immediately
on receipt of this question paper)*

Attempt any five questions

All questions carry equal marks

- 1 (a) Discuss the growing relevance of marketing in India, given the present scenario of liberalized economy
- (b) Classify the market structure depending upon the nature of competitive conditions
2. What is Marketing Mix ? Explain how the marketing mix has to be changed during the different stages of the product life cycle
- 3 Describe the sales response model to estimate the effectiveness of the advertising in the presence of competition Explain advertising pulse

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- 4 (a) A sales manager has fixed funds to be allocated for promoting sales of a single product in market. He estimates that marginal selling expense function for the i^{th} market as

$$a f_i(X) = a_i x^{\alpha}, \quad i = 1, 2, \dots, n$$

Obtain the optimal allocation of promotional efforts.

- (b) Taking marginal selling expense curves as

$$y_1 = ax_1^\alpha \text{ and } y_2 = bx_2^\alpha$$

give the optimal allocation of Rs. 15,000 to two districts having the following past data

$$\text{Sales} \quad x_1 = 60,000 \quad x_2 = 50,000$$

$$\text{Total promotional efforts} = P_1 = 7,500, P_2 = 7,500$$

$$\text{and } \alpha = 1$$

- 5 (a) Give mathematical model for joint-optimization of price and quality keeping promotional effort fixed.
- (b) Determine the critical prices for the following probability density for price x

$$f(x) = \frac{1}{150}, \quad 900 \leq x \leq 1050$$

with three purchase opportunities

- 6 (a) Discuss the media allocation problem to decide upon the number of insertions in each media in order to maximise the total effective exposure
- (b) What are the objectives of fixing the market price of a product ? How is the price set in practice ?
- 7 Write short notes on
- (a) Distribution decision
- (b) Optimal location of company's warehouses