

2008

COMMERCE

(*Marketing Management and
Operations Management*)

PAPER—II

Full Marks : 100

Time : 4 hours

The figures in the right-hand margin indicate marks

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

Illustrate the answers wherever necessary

FIRST HALF

(*Marketing Management*)

[*Marks* : 50]

Answer **Q. No. 1** and any *two* from the rest
taking *one* from each Group

(*Turn Over*)

1. Answer any *four* of the following: 5 × 4

- (a) What is test marketing? Explain its importance.
- (b) What do you understand by total market potential? How is it measured?
- (c) 'A company can lengthen its product line in two ways: by line stretching or by line filling'— Briefly discuss.
- (d) What is cost-based pricing and how does it differ from value-based pricing?
- (e) Why do companies use marketing channel?
- (f) "All organisations need marketing." Do you agree? Give justifications with relevant examples.
- (g) Describe the strategies usually formulated by the market challengers.
- (h) Discuss the different components of promotion-mix.

GROUP—A

Answer any *one* question

2. (a) What are the points of difference between routine and extended decision-making?
- (b) What role does social factor play in influencing consumer decision-making?
- (c) You have gone to an electronics shop to purchase a television. How would you evaluate the different brands available in the shop? 5 + 5 + 5
3. (a) Explain the concept of Product Life Cycle.
- (b) Describe the appropriate strategies at the Introduction and Growth stage of the Product Life Cycle. 5 + 5 + 5

GROUP—B

Answer any *one* question

4. (a) Describe the factors that affect a firm's pricing decisions.
- (b) How does Market-Skimming Pricing Strategy differ from Market-Penetration Pricing Strategy? 10 + 5

5. (a) What do you mean by sales promotion ?
- (b) Why is it used instead of advertising and personal selling ?
- (c) Describe the various steps involved in personal selling process. 3 + 6 + 6

SECOND HALF

(*Operations Management*)

[*Marks : 50*]

Answer Q. No. 6 and any other *two* questions

6. Answer any *four* of the following: 5 × 4
- (a) How would you test the optimality in the solution of a transportation problem ?
- (b) What do you mean by shadow price ? Where is it found in the simplex table ?

- (c) What is traffic intensity in single-channel Poisson - exponential queuing model? How does it measure the probability of the customer having to wait on arrival?
- (d) Explain 'Ordering cost' and 'Carrying cost' in inventory management. What are the common compositions of these costs?
- (e) How would you resolve a tie situation while selecting the departing variable in LPP?
- (f) Can there be multiple optimal solutions to an assignment problem? How would you identify the existence of multiple solutions, if any?
- (g) Discuss in brief (i) total float and (ii) free float as used in network analysis.
- (h) What do you mean by queue discipline?

7. A company has 3 plants and 5 warehouses. The supply and demand in units and the corresponding transportation costs in rupees are given. A table taken from the solution procedure is given below.

To From	W_1	W_2	W_3	W_4	W_5	Supply
P_1	<u>20</u> (50)	<u>28</u>	<u>32</u>	<u>55</u>	<u>70</u>	50
P_2	<u>48</u> (30)	<u>36</u> (70)	<u>40</u>	<u>44</u>	<u>25</u>	100
P_3	<u>35</u> (20)	<u>55</u>	<u>22</u> (50)	<u>45</u> (40)	<u>48</u> (40)	150
Demand	100	70	50	40	40	300

Determine the optimum transportation schedule and the total minimum transportation cost.

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8. The following table gives data on normal time and cost and crash time and cost for a project :

Activity	Duration (Days)		Total Cost (Rs.)	
	Normal	Crash	Normal	Crash
1 - 2	3	2	300	450
2 - 3	3	3	75	75
2 - 4	5	3	200	300
2 - 5	4	4	120	120
3 - 4	4	1	100	190
4 - 6	3	2	90	130
5 - 6	3	1	60	110

- (i) Draw the network and find out the critical path and the normal project duration. If the indirect cost is Rs. 120 per day, what is the normal project cost ?
- (ii) Determine the optimum project duration by crashing the activities systematically. What is the optimum project cost ?
- (iii) If you continue crashing the activities to the maximum extent possible ignoring the indirect cost and optimisation, what would be the minimum project duration and the corresponding cost ?

- (iv) Compute different types of floats for each of the activities taking their normal durations into consideration. 4 + 5 + 3 + 3

9. (a) Find the optimal order quantity for the price-break inventory problem as given below :

Quantity (Q)	Price (Rs./Unit)
$Q \leq 50$	10
$50 < Q \leq 100$	9
$100 < Q$	8

Annual demand : 324 units

Carrying charges : 10% p.a.

Ordering cost : Rs. 5 per order.

- (b) At a certain Petrol pump, customers arrive in a Poisson process with an average time of 10 minutes between one arrival and the next. The time intervals between services follow exponential distribution with a mean time of 3 minutes taken to service a unit.

- (i) What is the probability that a customer will have to wait on arrival?
- (ii) The management is willing to open a second service point when convinced that an arrival would expect waiting for at least 3 minutes for service. By how much should the flow of customers increase to justify the opening of the second service point. 15

10. (a) Demonstrate graphical method of solving linear programming problem with the help of the following problem:

$$\begin{aligned} \text{Max } Z &= 4x_1 + 8x_2 \\ \text{s.t. } 2x_1 + x_2 &\leq 30 \\ x_1 + 2x_2 &\leq 50 \\ \text{where } (x_1, x_2) &\geq 0. \end{aligned}$$

Use manually drawn rough graph paper.

- (b) One unit of product A contributes Rs. 7 and requires 3 units of raw material and 2 hours of labour. One unit of product B contributes

Rs. 5 and requires one unit of raw material and one hour of labour. Availability of raw material at present is 72 units and there are 60 hours of labour.

(i) Formulate it as a linear programming problem.

(ii) Solve the problem by simplex method and find the optimal product mix.

(iii) Write down its dual. 5 + 10
