

Roll No.

Total No. of Questions : 13]

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J-3081[S-81]

[2037]

MBA (Semester - 3rd)

APPLIED OPERATION RESEARCH (MB - 301)

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 x 2 = 30)

- a) Define operation research.
- b) Can we solve a 3-dimensional problem with Graphical method?
- c) Explain unrestricted variable.
- d) What are redundant constraints?
- e) Explain principle of dominance in Game Theory?
- f) What is the importance of Mixed Strategy?
- g) Write limitations of operation research.
- h) What do you mean by Convex set?
- i) What is non-degenerate basic feasible solution?
- j) What is structure of LPP?
- k) What is looping in transportation problem?
- l) What is free float?
- m) What are artificial variables?
- n) What do you mean by objective function?
- o) What is dynamic programming?

P.T.O.

Section - B

(9 x 5 = 45)

- Q2)** Discuss the various models & methods used in operation research.
- Q3)** Write a note on any two of the following:
- (a) Discuss the role of LPP as a decision making tool.
 - (b) Unbalanced transportation problem.
 - (c) Multiple optimal solution & infeasibility.
- Q4)** Maximize $Z = 5x + 8y$,
Subject to $3x + 5y = 18$
 $5x + 3y = 14$
 x, y are greater or equal to zero.
- Q5)** Discuss briefly the Hungarian method for solving an assignment problem.
- Q6)** What is the difference b/w degeneracy in simplex & degeneracy in transportation?
- Q7)** Explain Traveling Salesmen Problem with example.
- Q8)** Write five-difference b/w PERT/CPM.
- Q9)** Write a short note on Transshipment problem.
- Q10)** A company uses 3000 units of a product, its carrying cost is 30 % of average inventory. Ordering cost is Rs. 100 per order. Unit cost is Rs. 20. Calculate EOQ & total cost.
- Q11)** Explain the terms, set up cost, holding cost & shortage or penalty cost as applied to an inventory problem.

Q12) A truck owner from his past experience estimates that the maintenance cost per year of a truck whose purchase price is Rs. 150000 & resale value of the truck will be given as in table.

Determine at which time it is profitable to replace the truck.

Year	1	2	3	4	5	6	7	8
Maintenance	10,000	50,000	20,000	25,000	30,000	40,000	45,000	50,000
Resale value	13,0000	12,0000	11,5000	10,500	90,000	75,000	60,000	50,000

Q13) What is replacement? Describe some important replacement situations & replacement policies.

