

**MASTER OF BUSINESS  
ADMINISTRATION (RETAIL SERVICES)  
(MBARS)**

**Term-End Examination**

**December, 2012**

**MRS-009 : OPERATIONS RESEARCH**

*Time : 3 hours*

*Maximum Marks : 100*

*Note : Attempt any five questions.*

1. Describe the graphic and simplex methods of solving a linear programming problem. Why simplex method is considered superior to graphic method ? 20
2. What is operation research ? Define operation research and explain its application in detail. 20
3. Consider the following data for a transportation problem. 20

Factory	Destination			Supply
	1	2	3	
A	5	1	7	10
B	6	4	6	80
C	3	2	5	15
Demand	75	20	50	

Since there is not enough supply, some of the demands may not be satisfied. For the unsatisfied demands let the penalty costs be Rs. 1, 2 and 3 for destinations 1, 2 and 3 respectively. Find the optimal allocation that minimises the transportation and penalty costs.

4. Five candidates are approved for appointment as personal secretaries to five members of the board of a company. The preferences of each member are given below. How would you make allocations so that satisfaction level is maximised ? 20

Candidates \ Board Members	Board Members				
	1	2	3	4	5
A	1	2	1	2	3
B	2	3	3	1	1
C	4	1	5	3	4
D	5	4	2	5	5
E	3	5	4	4	2

5. What is integer programming ? Discuss in detail the uses and applications of integer programming. 20
6. Differentiate between decision making under risk and decision making under uncertainty. 20

7. In what areas of management can Markov processes be used for analysis ? Explain how it can be used for predicting sales force requirements ? 20
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