MASTER OF BUSINESS ADMINISTRATION (RETAIL) (MBARS)

00513

Term-End Examination

June, 2012

MRS-009 : OPERATIONS RESEARCH

Time : 3 hours   *Maximum Marks : 100*

Note : *Attempt any five questions.*
All questions carry equal marks.

1. What is Linear programming ? Explain the   20
    different types of problems that linear
    programming can help in solving. What
    characteristics must a problem have if linear
    programming is to be used ?

2. A company makes two kinds of leather belts. Belt   20
    A is high quality belt, and belt B is of lower quality.
    The respective profits are Rs. 0.40 and Rs 0.30 per
    belt. Each belt of type A requires twice as much
    time as belt of type B, and if all the belts were of
    type B, the company could make 1000 belts per
    day. The supply of leather is sufficient for only
    800 belts per day (Both A and B combined). Belt
    A requires a fancy buckle and only 400 of them
    are available per day. There are only 700 buckles
    a day available for belts B. What should be the
    daily production of each type of belts ? Form a
    linear programming problem and solve it by using
    simplex method.

3. Solve the following transportation problem. **20**

From	To				Supply
	1	2	3	4	
1	8	8	5	12	7
2	6	9	11	9	7
3	10	15	6	13	10
4	6	8	7	8	6
5	11	10	11	13	5
6	8	14	5	12	6
Demand	9	10	8	14	

4. What is an assignment problem ? Give two areas **20**
   of its application. How can you maximise an
   objective function in an assignment problem ?

5. What is goal programming ? What are its **20**
   assumptions ? Differentiate between linear
   programming and goal programming.

6. A merchant buys strawberries for Rs. 20 per case **20**
   and sells them Rs. 50 per case. As strawberries
   are highly perishable, any unsold quantity must
   be thrown away at the end of the day. The
   merchant wants to know how many cases he
   should stock at the beginning of the day ? The
   past 100 days sales are given below :
   Daily sales (cases)   10   11   12   13
   No. of days   15   20   40   25

7. What is Monte Carlo simulation ? Discuss the **20**
   advantages and disadvantages of Monte Carlo
   simulation as a problem solving technique.