II Semester M.Com. Degree Examination, July 2017
(Semester Scheme) (Repeaters)
(2007-08 Scheme)
COMMERCE
Paper – 2.5 : Operation Research and Quantitative Techniques

Time : 3 Hours

Max. Marks : 80

SECTION – A

1. Answer **any ten** of the following questions in about **3-4** lines. **Each** question carries **two** marks. **(10×2=20)**

   a) What is Dummy Destination ?

   b) What is Total Slack ?

   c) Define Crashing.

   d) What is EOQ ?

   e) Define an OR Model.

   f) Define Independent Float.

   g) What is Poisson distribution ?

   h) What is Inventory Cycle ?

   i) What is Monte-Carlo Simulation ?

   j) State any two limitations of IRR.

   k) What are forward pass and backward pass ?

   l) What do you mean by Credit Default Swaps ?

SECTION – B

Answer **any three** questions in about **one** page. **Each** question carries **five** marks.

(3×5=15)

2. Explain the significance of Theory of Probability in Decision Making.

3. Write the procedure for Vogel's Approximation Method.

4. Obtain the initial basic feasible solution of a transportation problem whose cost and rim requirement table is given below.

Origin / Destination	D_1	D_2	D_3	Supply
O_1	2	7	4	5
O_2	3	3	1	8
O_3	5	4	7	7
O_4	1	6	18	14
Demand	7	9	18	34

P.T.O.

5. What is Decision Tree Analysis ? What are its pros and cons ?

6. The annual demand for an item is 4200 units. The unit cost is Rs. 8 and inventory carrying charges 20% per annum. If the cost of one procurement is Rs.125, determine :

   i) Economic Order Quantity.

   ii) No. of Orders per year.

   iii) Time between two consecutive orders and

   iv) The Optimal Cost.

SECTION – C

Answer **any three** questions in about **three** pages. **Each** question carries **fifteen** marks.   **(3×15=45)**

7. Discuss the advantages and disadvantages of simulation techniques.

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

Activity	Duration (Weeks)		Total Cost (Rs.)	
	Normal	**Crash**	**Normal**	**Crash**
1-2	3	2	300	450
2-3	2	3	33	33
2-4	4	4	45	45
2-5	3	5	300	300
3-4	4	4	100	110
4-6	5	2	120	120
5-6	6	1	90	130

   i) Draw the network and find out the critical path and the normal project duration.

   ii) Find out the total float associated with each activity.

   iii) If the indirect costs are Rs. 150 per week, find out the optimum duration by crashing and the corresponding project costs.

9. Write a short notes on :

   a) Methods of Inventory Control.

   b) Basic Rules of Probability.

   c) Risk Analysis in Capital Budgeting.

10. Solve the following problem using graphical method.

Maximum value of $Z = 7X_1 + 9X_2$

$$X_1 + X_2 \leq 5$$
$$2X_1 + 6X_2 \leq 20$$
$$5X_1 + 9X_2 \leq 25$$
$$X_1, X_2 \geq 0$$

11. Solve the following transportation problem by matrix minimum method and compute the total transportation cost.

Plants	Warehouse				Supply
	W1	W2	W3	W4	
P1	12	21	16	6	1
P2	8	13	23	10	1
P3	2	6	4	9	6
Demand	2	1	3	8	8

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