

First Year MHA Degree Supplementary Examinations February 2019

Operations Research

(2013 Scheme)

Time: 3 Hours

Max Marks: 100

- Answer all the questions
- Ordinary calculator can be used

Essays:

(2x20=40)

1. What are the advantages and disadvantages of simulation. Describe Monte Carlo method of simulation.
2. Consider the following project:

Activity	1-5	1-2	2-3	3-4	5-6	4-12	5-7	6-8	8-9	9-10	7-10	10-11	11-12
Time (weeks)	6	5	2	2	2	1	6	5	6	2	4	3	1

- Draw the network diagram.
- Find the critical path and project completion time
- Calculate the EST, LST, EFT, LFT.
- Calculate total float, free float and independent float

Short Essays:

(2x10=20)

3. The process times for the five jobs A,B, C, D, E and the due date of the jobs are given below. Schedule the jobs according to various rules:

Jobs	Due Date (Days)	Process Time (Days)
A	16	9
B	20	7
C	25	5
D	15	11
E	40	6

4. Briefly explain sensitivity analysis.

Short notes:

(8x5=40)

5. What are the categories of the replacement problems
6. Lead time, safety stock reorder point.
7. Explain North – West corner rule of transportation model.
8. Features of a queuing system.
9. Application of assignment model.
10. Explain the use of slack, surplus and artificial variables in simplex method.
11. The steps of the graphical method to obtain an optimal solution to a linear programming problem.
12. A company has 4 machines to do 3 jobs. Each job can be assigned 1 & only 1 machine. The cost of each job on each machine is given in the following table:

Jobs	Machine			
	W	X	Y	Z
A	18	24	28	32
B	8	13	17	18
C	10	15	19	22

What are the job assignments which will minimize the cost
