

First Year MHA Degree Supplementary Examinations March 2021

Operations Research

(2013 Scheme)

Time: 3 Hours

Max Marks: 100

- Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space
- Answer all parts of a single question together • Leave sufficient space between answers
- Draw table/diagrams/flow charts wherever necessary • Ordinary calculator can be used

Essays:

(2x20=40)

1. Write a note on network analysis. Consider the following project:

| Activity | A | B | C | D | E | F | G | H | I | J |
|---------------|----|---|---|---|----|----|---|-----|-----|-----|
| Procedure act | - | A | A | A | B | C | C | E,F | D,G | H,I |
| Time week | 12 | 8 | 4 | 3 | 12 | 18 | 5 | 4 | 9 | 6 |

- Draw the network diagram.
 - Find the critical path and project completion time
 - Calculate the ES, LS, EF, LF
 - Calculate total float, free float and independent float
2. Explain the replacement policy with an example of 500 MA X-ray machine whose performance has deteriorated over time

Short Essays:

(2x10=20)

3. Describe operations research as a scientific approach to problem solving.
4. Consider 4 jobs which have to be processed on the three machines. The processing times for each jobs on each of the three machines are given in the table. Sequence the following jobs.

| | A | B | C | D |
|-----------|----|---|---|---|
| Machine 1 | 12 | 6 | 7 | 8 |
| Machine 2 | 6 | 4 | 5 | 3 |
| Machine 3 | 10 | 8 | 6 | 7 |

Short notes:

(8x5=40)

5. Describe the types of problem that can be formulated as transportation assignment problem.
6. Decision tree.
7. Explain any one inventory control method.
8. What is float and slack. What is its role in the analysis of CPM and PERT network.
9. Define linear programming problem.
10. Queuing models.
11. Monte Carlo simulation.
12. Application of EOQ in production process.
