

First Year MHA Degree Regular/Supplementary Examinations August 2019

Operations Research

(2013 Scheme)

Time: 3 Hours

Max Marks: 100

- Answer all the questions
- Ordinary calculator can be used

Essays: (2x20=40)

1. Give the mathematical formulation of transportation problem. How does it differ from an assignment problem.

Find an optimal solution for the following transportation problem

Sources	Destination			Supply
	X	Y	Z	
A	2	7	4	50
B	3	3	7	70
C	5	4	1	80
D	1	6	2	140
Demand	70	90	180	340

2. Write a note on group replacement and individual replacement policies

The cost of a machine is Rs.6100 and its scrap value is only Rs.100. The maintained costs are found from expenses to be

Year	1	2	3	4	5	6	7	8
Maintenance cost in Rs.	100	250	400	600	900	1250	1600	2000

When should machine be replaced

Short Essays: (2x10=20)

3. What are the advantages and limitations of using simulation
4. Describe the assignment problem giving a suitable example. Give two areas of its application

Short notes: (8x5=40)

5. PERT
6. Explain the principal of dominance
7. At a service centre customers arrive at the rate of 10 per hour and are served at the rate of 15 per hour. Their arrival follows Poisson distribution and service in exponentially distributed. Find the average queue length and average waiting time in the system.
8. Explain the types of inventory
9. Steps in Hungarian assignment method
10. Define Pure Strategy, Mixed strategy, Zero Sum Game, Non –Zero Sum Game, Pay –off, Saddle point
11. What are the characteristics of game theory
12. Phases of operation research