Q.P. Code: 16MB708

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Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
MBA I Year II Semester Supplementary Examinations April 2021
OPERATIONS RESEARCH FOR MANAGERS

Time: **3 hours** Max. Marks: **60**

SECTION – A
(Answer all Five Units **5 x 10 = 50** Marks)

UNIT-I

1 Discuss the importance of OR in decision-making process. **10M**

OR

2 a Describe briefly the different phases of operation research. **5M**
b What are the characteristics of operations research? Discuss. **5M**

UNIT-II

3 Find Initial basic feasible solution for the below problem through VAM. **10M**

	W1	W2	W3	W4	Supply
F1	10	0	20	11	20
F2	12	7	9	20	25
F3	0	14	16	18	15
Demand	10	15	15	20	

OR

4 Find Assignment cost for the below problem through HAM method. **10M**

	1	2	3	4
A	10	12	9	11
B	5	10	7	8
C	12	14	13	11
D	8	15	11	9

UNIT-III

5 a There are five jobs (namely 1,2,3,4 and 5), each of which must go through machines A, B and C in the order ABC. Processing Time (in hours) are given below: **5M**

Jobs	1	2	3	4	5
Machine A	5	7	6	9	5
Machine B	2	1	4	5	3
Machine C	3	7	5	6	7

b Calculate the value of the game and find the best strategies for player A and Player B. **5M**

$$\begin{bmatrix} 1 & 3 & 6 \\ 2 & 1 & 3 \\ 6 & 2 & 1 \end{bmatrix}$$

OR

6 a Explain the procedure of finding a job sequence for n jobs two machines. **5M**
b Use Dominance rule to determine the value of the game and optimal strategies for both players. **5M**

	I	II	III
I	-4	6	3
II	-3	-3	4
III	2	-3	4

UNIT-IV

7 a Define Queuing Theory. Explain about its characteristics. **5M**

b Weavers in a textile mill arrive at a department store room to obtain spare parts needed for keeping the looms running. The store is manned by one attendant. The average arrival rate of weavers per hour is 10 and service rate per hour is 12. **5M**

1. What is the length of the system?
2. What is the length of queue?

OR

8 TV repairman finds that the time spent on his jobs has an exponential distribution with mean 30 minutes. If he repairs sets in the order in which they come in , and if the arrival of sets is approximately poison with an average rate of 10 per 8 hour day. **10M**

1. What is the length of the system?
2. What is the length of queue?
3. What is the waiting time of the queue?
4. What is the waiting time of the system?

UNIT-V

9 What is a project? explain rules for drawing a network **10M**

OR

10 A Fleet owner finds from this past experience that the cost/year of running the truck whose purchase price rises to Rs 60000/- are given below Solutions; given C= 60000/- **10M**

Year	1	2	3	4	5	6	7	8
Maintenance	10000	12000	14000	18000	23000	28000	34000	40000
Depreciation	30000	45000	52500	56250	58000	58000	58000	58000

SECTION – B

(Compulsory Question)

1 x 10 = 10 Marks

11. Find the probability of completing the below project within 34 days.

Activity	To	Tm	Tp
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	1	6	15

*** END ***