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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

**MBA I Year II Semester (R16) Regular Examinations May/June 2017
OPERATIONS RESEARCH FOR MANAGERS**

(For Students admitted in 2016 only)

Time: 3 hours

Max. Marks: 60

SECTION – A

(Answer all Five Units 5 x 10 = 50 Marks)

1 Discuss the importance of Operations Research in decision-making process. 10M

OR

2 What are the characteristics of Operations Research? Discuss. 10M

UNIT-II

3 Solve the following problem by Simplex method.

Maximize $Z = 10x_1 + 15x_2 + 20x_3$

Subject to

$2x_1 + 4x_2 + 6x_3 \leq 24,$

$3x_1 + 9x_2 + 6x_3 \leq 30,$

$x_1, x_2, x_3 \geq 0.$

10M

OR

4 Find Initial basic feasible solution for the below problem through VAM.

	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	

10M

UNIT-III

5 There are nine jobs, each of which must go through two machines P and Q in the order PQ, the processing times (in hours) are given below:

Machine	Job(s)								
	A	B	C	D	E	F	G	H	I
P	2	5	4	9	6	8	7	5	4
Q	6	8	7	4	3	9	3	8	11

Find the sequence that minimizes the total elapsed time T. Also calculate the total idle.

time for the machines in this period.

10M

OR

6 What is Game Theory? explain its strategies with examples. 10M

UNIT-IV

7 Explain about characteristics of waiting line theory. 10M

OR

8 A road transport company has one reservation clerk on duty at a time. She handles information of bus schedules and makes reservations. Customer arrive at a rate of 8 per hour and the clerk can service 12 customers on an average per hour. Answer the following.

What is the length of the system?
What is the length of queue?

What is the waiting time of the queue?
What is the waiting time of the system?

10M

UNIT-V

9 What is a project? Explain the rules for drawing a network. 10M

OR

10 Draw the network and identify the critical path.

Activity	Duration
1-2	7
1-3	7
2-3	8
2-4	6
3-6	9
4-5	3
5-6	5

10M

SECTION – B

(Compulsory Question)

1 x 10 = 10 Marks

11. Case Study

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 *****