SET-1

AR19

CODE: 19MOE1002

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech. II Semester Regular Examinations, December-2020
OPERATIONS RESEARCH
(OPEN ELECTIVE)

Time: 3 Hours **Max Marks:60**

Answer any FIVE questions
All questions carry EQUAL marks

1. Solve the following linear programming problem using Simplex Method to **[12 M]**

Maximize $Z = 6x_1 + 10x_2 + 2x_3$

Subject to:

$2x_1 + 4x_2 + 3x_3 \leq 40$

$x_1 + x_2 \leq 10$

$2x_2 + x_3 \leq 12$

$x_1, x_2, x_3 \geq 0$

2. Solve Graphically **[12 M]**

Minimize $Z = 50x_1 + 60x_2$

Subject to: $x_1 + x_2 \leq 12$

$2x_1 + 3x_2 \geq 60$

$x_1, x_2 \geq 0$

3. A method engineer wants to assign five new methods to Five work centres. The assignment of new methods will increase production and they are given below. If only one method can be assigned to a work centres, determine the optimum assignment. **[12 M]**

	I	II	III	IV	V
A	10	3	3	2	8
B	9	7	8	2	7
C	7	5	6	2	4
D	3	5	8	2	4
E	9	10	9	6	10

4. A company has 3 factories A,B and C which supply units to warehouses X,Y and Z every month. The capacities of the factories are 60,70 and 80 units at A,B and C respectively .The requirements of X,Y and Z per month are 50,80 and 80 units respectively. Transportation cost per unit in rupees is given in the following table. Find the optimum cost of transportation using modi method. **[12 M]**

	X	Y	Z	Supply
A	8	7	5	60
B	6	8	9	70
C	9	6	5	80
Demand	50	80	80	

5. (a) Explain the characteristics of queuing theory? **[4+8 M]**
   (b) Railwaystation marshalling yard, goods trains arrive at a rate of 30 trains per day. Assuming that the inter arrival time follows an exponential distribution and the service time (The time taken to hump train) distribution is also exponential with an average 36 minutes. Determine (a) Utilization parameter (or) Traffic intensity (b) Average number of trains in the quee (c) Expected waiting time (d) Average number of trains in the yard.
6. Solve the following game graphically and find the value of the game **[12 M]**

		Player-B		
		B_1	B_2	B_3
Player-A	A_1	1	3	-1
	A_2	2	-2	3

7. Construct the network diagram for the following data. Calculate (a) Critical path (b) Project completion time (c) Total float (d) Free float **[12 M]**

Activity	**Duration (Days)**
1-2	3
2-3	2
2-4	3
4-5	3
4-6	2
3-5	7
3-6	5
5-6	6

8. Optimize $Z=4x_1^2+2x_2^2$
   Subjected to $x_1+x_2=15$ using Lagrange method **[12 M]**

AR16 **Set-01**

Code No: 16MVL1010

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech. II Semester Supplementary Examinations, Decmber-2020

ALGORITHMS FOR VLSI DESIGN AUTOMATION
(VLSI System Design)

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

Answer any FIVE questions
All questions carry equal marks

1. (a) With neat diagram explain about Gajski's Y-Chart in VLSI? (6M)
   (b) Explain about prim's algorithm with example? (6M)

2. (a) Discuss briefly about branch and bound algorithm with example. (6M)
   (b) With neat diagram explain about Genetic algorithm? (6M)

3. (a) Explain about layout compaction in VLSI? (6M)
   (b) Discuss about various floor planning methods in VLSI? (6M)

4. Discuss about switch and gate level modeling and simulation methods in VLSI? (12M)

5. (a) Discuss briefly about ROBDD? (6M)
   (b) Write short notes on variable ordering? (6M)

6. (a) List out various scheduling algorithms? Explain about any one scheduling algorithm? (6M)
   (b) Discuss about high level transformations in VLSI? (6M)

7. (a) Explain about various routing models for FPGA's? (6M)
   (b) Explain about physical design cycle for FPGA's? (6M)

8. (a) Explain about various MCM technologies? (6M)
   (b) With neat diagrams explain about physical design cycle for MCM? (6M)

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