

322742(22)

B. E. (Seventh Semester) Examination, April-May 2020/

NOV-DEC 2020

(New Scheme)

(CSE, IT Engg. Branch)

OPERATION RESEARCH

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) is compulsory, attempt any two parts from (b), (c) and (d) part of each question.

1. (a) Explain the different phases operation research model.
- (b) Solve the following L. P. P. by graphical method :

Minimize $Z = 20x_1 + 10x_2$

S.T.C. $x_1 + 2x_2 \leq 40$

$3x_1 + x_2 \geq 30$

$4x_1 + 3x_2 \geq 60$

$x_1, x_2 \geq 0$

(c) Use the simplex method to LPP problem :

Max. $Z = 3x_1 + 2x_2$

S.T.C. $x_1 + x_2 \leq 4$

$x_1 - x_2 \leq 2$

$x_1, x_2 \geq 0$

2. (a) Solve the transportation problem with optimal solution.

	D ₁	D ₂	D ₃	Supply
O ₁	2	7	4	5
O ₂	3	3	1	8
O ₃	5	4	7	7
O ₄	1	6	2	14
Demand	7	9	18	

(b) Solve with assignments method :

Job	MACHINES				
	A	B	C	D	E
1	13	8	16	18	19
2	9	15	24	9	12
3	12	9	4	4	4
4	6	12	10	8	13
5	15	17	18	12	20

(c) Find the maximum goods early by students by using dynamic programming :

Study day/course	Subjects		
	x	y	z
0	1	2	1
1	2	2	2
2	2	4	4
3	4	5	4

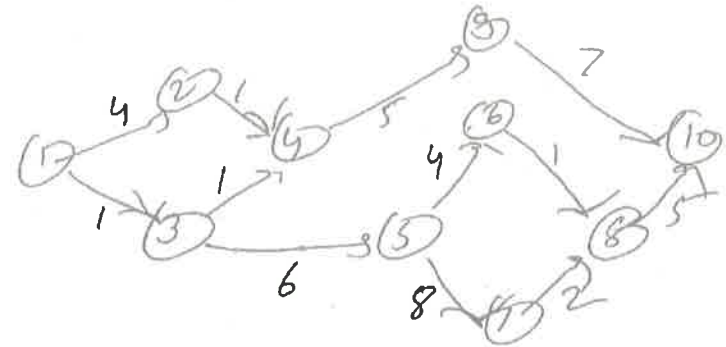
3. (a) Solve the following problem by job sequencing methods :

[4]

Job	1	2	3	4	5
Machine A	5	1	9	3	10
Machine B	2	6	7	8	4

- (b) Explain the different costs involved in inventory problem.
- (c) Explain the classification of Queuing model with suitable example.
4. (a) Make the difference between linear programming problem and dynamic programming.
- (b) Explain the principal assumptions of an assignment problem.
- (c) Explain the characteristics of a good model.
5. (a) Explain the steps to construct a network.
- (b) Find the different floats of given network :

[5]



- (c) Explain the basic concepts of term analysis in CPM.