Code No. D-0448

FACULTY OF INFORMATICS

M.C.A. (NON-CBCS) II Year I - Semester (Backlog) Examination, April 2022

Subject: Operations Research

Time: 3 Hours **Max. Marks: 80**

(Missing data, if any, may be suitably assumed)

Note: Answer any five questions from the following.
All questions carry equal marks.

1 Solve the LPP using graphical method.
Maximize $z=6x+4y$
Subject to constraints $2x+3y\leq100$
$4x+2y\leq120$
$x,y\geq0$

2 Use simplex method to solve the following LPP,
Maximize $z=5x+3y$
Subject to constraints $x+y\leq2$
$5x+2y\leq10$
$3x+8y\leq12$
$x,y\geq0$

3 Solve the following transportation problem for optimality

		To				
From		**D1**	**D2**	**D3**	**D4**	**Supply**
	F1	11	13	17	14	250
	F2	16	18	14	10	300
	F3	21	24	13	10	400
	Demand	200	225	275	250	950

4 (a) Write about north west corner rule method.
(b) Obtain initial basic feasible solution (IBFS) of following transportation problem.

	D1	**D2**	**D3**	**D4**	**Supply**
01	1	2	1	4	30
02	3	3	2	1	50
03	4	2	5	9	20
Demand	20	40	30	10	100

..2

5 Find the optimal solution to the assignment problem.

Machine

Operators	A	B	C	D	E
1	52	58	58	53	54
2	52	50	55	60	60
3	55	56	57	58	59
4	56	51	51	56	59
5	50	52	53	56	59

6 Find the optimal integer solution to the following linear programming problem.

Maximize $Z=x+2y$

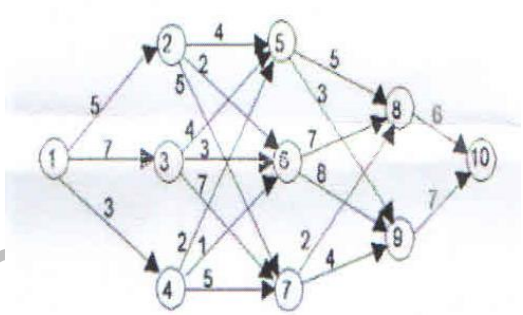
Subject to $2y \leq 7$

$x+y \leq 7$

$2x \leq 11$

$x, y \geq 0$ and integers.

7 Find the shortest path from city 1 to city 10 in the diagram shown below using dynamic programming.



8 Define (a) Principle of optimality (b) Recursive function (c) Stages (d) State variable (e) Backward Recursion.

9 Solve the game by using dominance property

	Player B				
Player A	2	2	1	-2	-3
	4	3	4	-2	0
	5	1	2	5	6

10 Solve the following game graphically.

B

A				
	2	1	2	-2
	1	0	3	2

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