Enrollment No: _____

GANPAT UNIVERSITY

U. V. PATEL COLLEGE OF ENGINEERING

B. TECH (CSBS)

SEM – IV FIRST INTERNAL EXAMINATION – MARCH 2023

2CSBS4106: OPERATIONS RESEARCH

Time: 1 Hour **Total: 20 Marks**

Instructions: (1) All questions are Compulsory.

(2) The text just below marks indicates the Course Outcomes Nos, (CO) followed by the Bloom's taxonomy level of the question, i.e.,

R: Remember, U: Understand, A: Apply, N: Analyse, E: Evaluate, C: Create

Q1 Solve the LPP by using simplex method. [4]

Maximize $z = 5x + 7y$ subject to constraints $x + y \leq 70$, $x + 2y \leq 100$, $2x + y \leq 120$ and $x, y \geq 0$ 4A

Q2 Solve the LPP by using graphical method. [4]

Minimize $z = 4x - 2y$ subject to constraints $x + y \leq 14$, $3x + 2y \geq 36$, $2x + y \leq 24$ and $x, y \geq 0$ 4E

Q3 Solve the LPP by using Big - M method or Two-phase method for the optimal solution: [4]

Minimize $z = 4x_1 + 3x_2 + x_3$ subject to constraints $x_1 + 2x_2 + 4x_3 \geq 12$, $3x_1 + 2x_2 + x_3 \geq 8$, 4N

and $x_1, x_2, x_3 \geq 0$

Q4 Apply Modi Method to obtain optimal solution. [4]

4C

	D_1	D_2	D_3	D_4	*Supply*
S_1	19	30	50	10	7
S_2	70	30	40	60	9
S_3	40	8	70	20	18
Demand	5	8	7	14	34

Q5 [4]

4U

		Employees				
		I	*II*	*III*	*IV*	*V*
Jobs	*A*	10	5	13	15	16
	B	3	9	18	13	6
	C	10	7	2	2	2
	D	7	11	9	7	12
	E	7	9	10	4	12

How should the jobs be allocated, one per employee, so as to minimize the total man-hours?