

Roll No



**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF MANAGEMENT
MID TERM EXAMINATION - OCT 2023**

Semester : Semester V - 2023

Course Code : MAT2029

Course Name : Sem V - MAT2029 - Optimization Technique

Program : BBA

Date : 30-OCT-2023

Time : 11:30AM - 1:00PM

Max Marks : 50

Weightage : 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

(5 X 1 = 5M)

1. Operations Techniques (OT) , which is a very powerful tool for _____
(CO1) [Knowledge]
2. List the two advantages of Optimization Techniques?
(CO1) [Knowledge]
3. For solving an assignment problem, which method is used?
(CO2) [Knowledge]
4. What are all methods in the transportation problem to find initial basic solution?
(CO2) [Knowledge]
5. What is term "Unbalanced" in the Transportation Problem?
(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(3 X 10 = 30M)

6. List the phases of Operations Research and explain them.
(CO1) [Comprehension]

7. Using Hungarian Method, find the optimal solution for the given assignment problem.

| | A | B | C | D | E |
|---|-----|-----|-----|-----|-----|
| P | 160 | 130 | 175 | 190 | 200 |
| Q | 135 | 120 | 130 | 160 | 175 |
| R | 140 | 110 | 155 | 170 | 185 |
| S | 50 | 50 | 80 | 80 | 110 |
| T | 55 | 35 | 70 | 80 | 105 |

(CO2) [Comprehension]

8. Find the initial basic feasible solution for the TP by any two methods of your choice.

| | D1 | D2 | D3 | D4 | Supply |
|--------|----|----|----|----|--------|
| O1 | 19 | 30 | 50 | 10 | 7 |
| O2 | 70 | 30 | 40 | 60 | 9 |
| O3 | 40 | 8 | 70 | 20 | 18 |
| Demand | 5 | 8 | 7 | 14 | |

(CO2) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

(1 X 15 = 15M)

9. Briefly explain the formulation of Linear Programming Problem using Graphical Method.

$$\text{Maximize } Z = 5x + 4y$$

Subject to the constraints

$$6x + 4y \leq 24;$$

$$x + 2y \leq 6;$$

$$-x + y \leq 1;$$

$$y \leq 2;$$

$$\text{where } x \geq 0, y \geq 0.$$

(CO1) [Application]