Roll No.

Total No. of Questions : 09

B.Com (Hons.) (Sem.-6) OPERATION RESEARCH Subject Code : BCOM-602-18 M.Code : 79471

# Date of Examination : 03-01-23

Time: 3 Hrs.

Max. Marks : 60

# **INSTRUCTIONS TO CANDIDATES :**

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTIONS-B consists of FOUR Sub-sections : Units-I, II, III & IV.
- 3. Each Sub-section contains TWO questions each, carrying TEN marks each.
- 4. Student has to attempt any ONE question from each Sub-section.

## **SECTION-A**

- 1. Answer Briefly :
  - a) Hungarian Method
  - b) What is infeasible solution?
  - c) Significance of Operations Research
  - d) Degeneracy in Transportation Problem
  - e) Assumptions of LLP.
  - f) Slack and Float.
  - g) Pure and Mixed strategy games.
  - h) Probabilistic Model.
  - i) Limitations of Dominance method in game theory.
  - j) Define Activity and Event

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#### **SECTION-B**

# UNIT-I

- 2. Discuss in detail the scope, objectives and limitations of Operations Research.
- 3. Solve the following problem :

Minimize  $Z = 2x_1 + 3x_2$ Subject to :  $x_1 + x_2 \le 1$ 

 $\mathbf{u}_1 \cdot \mathbf{u}_2 = \mathbf{1}$ 

 $3x_1+x_2\leq 4,$ 

 $x_1, x_2 \ge 0$ 

#### UNIT-II

4. Solve the following game, whose pay of matrix is :

			В	
		Ι	II	III
A	Ι	-2	15	-2
	II	-5	-6	-4
	III	-5	20	-8

5. What do you understand by Decision Tree analysis? What is a node in a decision tree? What is backward pass?

#### UNIT – III

- 6. What is the difference between PERT & CPM ? Discuss the merits and demerits of PERT.
- 7. Explain characteristics and classification of Queuing Models.

## UNIT-IV

- 8. What is meant by Economic Ordered Quantity? Discuss its utility in Inventory Control.
- 9. Find the cost per period of individual replacement policy of an installation of 300 bulbs, given the following :
  - a) Cost of individual replacement of bulb is Rs. 2/- per bulb.
  - b) Conditional probability of failure of bulbs is as follows :

Weekend :	0	1	2	3	4
<b>Probability of Failure :</b>	0	0.1	0.3	0.7	1.0

# NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.