Reg. No. | | | | | | | | |

G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.

UG DEGREE END SEMESTER EXAMINATIONS - NOVEMBER 2025.
(For those admitted in June 2023 and later)

PROGRAMME AND BRANCH: B.B.A.

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
IV	PART-III	ELECTIVE GENERIC - 4	U23BB4A4	OPERATIONS RESEARCH

Date & Session: 10.11.2025/FN **Time : 3 hours** **Maximum: 75 Marks**

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer ALL Questions.
CO1	K1	1.	The main objective of Linear Programming is to: a) Minimize or maximize a linear function subject to constraints b) Solve nonlinear equations c) Determine random variables d) Calculate probability distribution
CO1	K2	2.	In the graphical method of solving an LPP, the optimal solution lies: a) Anywhere in the feasible region b) At a corner point (vertex) of the feasible region c) At the origin d) Along the X-axis
CO2	K1	3.	The main objective of a transportation problem is to: a) Maximize profit b) Minimize transportation cost c) Maximize the number of routes d) Minimize production time
CO2	K2	4.	The North-West Corner Rule is used to: a) Find an initial basic feasible solution b) Find the optimal solution c) Check degeneracy d) Balance the transportation table
CO3	K1	5.	The Hungarian method is used to solve: a) Linear Programming problems b) Assignment problems c) Transportation problems d) Network problems
CO3	K2	6.	In sequencing problems, processing n jobs on 2 machines is solved by: a) Johnson's rule b) Hungarian method c) Vogel's approximation d) Monte Carlo simulation

CO4	K1	7.	The Critical Path in a network is: a) The shortest path in the network b) The path with the least number of activities c) The longest path determining project duration d) The path with zero floats
CO4	K2	8.	PERT is mainly used for: a) Deterministic time estimates b) Probabilistic time estimates c) Economic forecasting d) Linear programming
CO5	K1	9.	In a two-player zero-sum game, the maximin value represents: a) The minimum loss the player can ensure b) The maximum profit guaranteed c) The total profit of both players d) The difference between gains and losses
CO5	K2	10.	In Decision Theory, the Bayes theorem helps in: a) Calculating critical paths b) Evaluating expected payoffs under uncertainty c) Minimizing total transportation cost d) Allocating resources in LPP
Course Outcome	**Bloom's K-level**	**Q. No.**	**SECTION – B (5 X 5 = 25 Marks)** **Answer ALL Questions choosing either (a) or (b)**
CO1	K3	11a.	Define Operations Research and explain its scope. **(OR)**
CO1	K3	11b.	List the steps involved in the formulation of a Linear Programming Problem (LPP).
CO2	K3	12a.	Distinguish between a balanced and unbalanced transportation problem. **(OR)**
CO2	K3	12b.	What are the methods used to find the initial basic feasible solution (IBFS) in a transportation problem?
CO3	K4	13a.	What is the difference between sequencing 'n jobs on 2 machines' and 'n jobs on 3 machines'? **(OR)**
CO3	K4	13b.	What are the main characteristics of an assignment problem?
CO4	K4	14a.	Differentiate between PERT and CPM. **(OR)**
CO4	K4	14b.	Define the terms: Critical Path and Float.
CO5	K5	15a.	Explain the Maximin and Minimax principles in Game Theory. **(OR)**
CO5	K5	15b.	What are decision trees and how are they used in decision-making?

Course Outcome	Bloom's K-level	Q. No.	**SECTION – C (5 X 8 = 40 Marks)** **Answer ALL Questions choosing either (a) or (b)**
CO1	K3	16a.	Explain the concept and scope of Operations Research. **(OR)**
CO1	K3	16b.	Solve the following LPP graphically. Maximize Z = 3x + 2y Subject to: x + y ≤ 4 x + 2y ≤ 6 x, y ≥ 0
CO2	K4	17a.	Explain Vogel's Approximation Method (VAM) for finding an initial basic feasible solution. **(OR)**
CO2	K4	17b.	Solve the following transportation problem using North-West Corner Rule (NWCR). Source D1 D2 D3 Supply S1 2 3 1 30 S2 5 4 8 50 S3 5 6 8 20 Demand 20 40 40
CO3	K4	18a.	Explain the steps in the Hungarian Method for solving an assignment problem. **(OR)**
CO3	K4	18b.	Solve the following assignment problem (Minimization). M1 M2 M3 A 8 6 10 B 9 12 7 C 14 9 8
CO4	K5	19a.	Differentiate between PERT and CPM. **(OR)**
CO4	K5	19b.	Find the critical path and project duration for the following network: Activity Predecessor Duration (Days) A — 3 B A 5 C A 2 D B, C 4
CO5	K5	20a.	Explain the Dominance Property in Game Theory. **(OR)**
CO5	K5	20b.	Solve the following 2×2 game using Maximin–Minimax principle. B1 B2 A1 3 2 A2 5 4