

કુલ સમય:- : ૩૦ મીનીટ

કુલ પ્રશ્નો : ૩૫

વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૧૮

નોંધ : વિદ્યાર્થીએ માત્ર ૧૮ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૧૮ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

- 1 Alternative solution exist in a linear programming problem when.
(A) One of the constraint is redundant. (B) Objective function is parallel to one of the constraints.
(C) Two constraints are parallel. (D) All of the above.
- 2 A basic solution is called non-degenerate, if
(A) All the basic variables are zero (B) None of the basic variables is zero
(C) At least one of the basic variables is zero (D) None of these
- 3 The linear function of the variables which is to be maximize or minimize is called
(A) Constraints (B) Objective function (C) Decision variable (D) None of the above
- 4 The maximum value of $4x + 3y$ subject to the constraints
 $x \geq 0, y \geq 0, 3x + 2y \geq 160, 5x + 2y \geq 200, x + 2y \geq 80$ is
(A) 320 (B) 300 (C) 230 (D) None of these
- 5 The solution for minimizing the function $Z = x + y$ under a LPP with constraints
 $x + y \geq 1, x + 2y \leq 10, y \leq 4$ and $x, y \geq 0$ is
(A) $x = 0, y = 0, z = 0$ (B) $x = 3, y = 3, z = 6$ (C) There are infinite solution (D) None of these
- 6 Two tailors A and B earns Rs.15 and Rs. 20 per day respectively, A can make 6 shirts and 4 pants in a day while B can make 10 SHIRTS and 3 pants. To spend minimum on 60 shirts and 40 pants, A and B working x and y respectively. Then linear constraints accept $x \geq 0, y \geq 0$ and objective function are respectively
(A) $15x + 20y \geq 60, 60x + 40y \geq 0, Z = 4x + 3y$ (B) $15x + 20y \geq 0, 6x + 10y = 10, Z = 60x + 60y$
(C) $6x + 10y \geq 60, 4x + 3y \geq 40, Z = 15x + 20y$ (D) $6x + 10y \leq 60, 4x + 3y \leq 40, Z = 15x + 20y$
- 7 Linear Programming is a
(A) Constraints optimization technique (B) Technique for economic allocation of limited sources
(C) Mathematical technique (D) All of the above
- 8 The optimal value of the objective function is attained at the points
(A) Given by intersection of in equation with axes only (B) Given by intersection of in equation with x- axes only
(C) Given by corner points of the feasible region (D) None of these
- 9 For maximization LP model, the simplex method is terminated when all values (A)
(A) $C_j - Z_j \leq 0$ (B) $C_j - Z_j \geq 0$ (C) $C_j - Z_j = 0$ (D) $Z_j \leq 0$
- 10 A variable which does not appear in the basic variable column of simplex table is
(A) Never equal to zero (B) Always equal to zero (C) Called a basic variable (D) Non of the above
- 11 The necessary and sufficient condition for a feasible solution to the transportation problem is that
(A) The solution be optimal (B) The rim conditions are satisfied (C) The solution be not degenerate (D) All of the above
- 12 The occurrence of degeneracy while solving transportation problem means that
(A) Total supply equals total demand (B) The solution so obtained is not feasible
(C) The few allocations becomes negative (D) None of the above
- 13 The calculation of opportunity cost in the MODI method is analogous to a
(A) $C_j - Z_j$ value for non-basic variable columns in the simplex method (B) Value of a variable in C_B column of the simplex method
(C) Variable in the B- column in the simplex table (D) None of the above
- 14 During an iteration while moving from one solution to the next, degeneracy occur when
(A) The closed path indicates a diagonal move
(B) Two or more occupied cells are on the closed path but neither of them represents a corner of the path
(C) Two or more occupied cells on the closed path with minus sign are tied lowest circled value
(D) Either of the above
- 15 Solve the following transportation problem using NWCM:

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

(A) 814 (B) 1015 (C) 779 (D) 743
- 16 Solve the following transportation problem using LCM

	D_1	D_2	D_3	Demand
S_1	16	20	12	200
S_2	14	8	18	160
S_3	26	14	16	90
Supply	180	120	150	

(A) 5920 (B) 6800 (C) 6460 (D) 6240

- 17 An optional assignment requires that the maximum number of lines that can be drawn through squares with zero opportunity cost be equal to the number of
 (A) Rows or columns (B) Rows and columns (C) Rows+columns-1 (D) None of the above
- 18 The method used for solving an assignment problem is called
 (A) Reduced matrix method (B) Hungarian Method (C) MODI Method (D) None of these
- 19 An assignment problem can be solved by
 (A) Simplex Method (B) Transportation Method (C) Both ((A) and ((B) (D) None of these
- 20 Which of the following method is used to verify the optimality of the current solution of the transportation problem
 (A) Least Coast Method (B) Vogel's Approximation Method
 (C) Modified distribution method (D) North-West corner Method
- 21 What happen when maximin and minimax values of the game are same?
 (A) No solution exist (B) Solution is mixed (C) Saddle point exist (D) None of the above
- 22 When the sum of gains of one player is equal to the sum of losses to another player in a game, this situation is known as
 (A) Biased game (B) Zero-Sum game (C) Fair game (D) All of the above
- 23 A saddle point exists when
 (A) Maximin Value = Minimax Value (B) Maximin Value = Minmin Value
 (C) MinimaxVlaue = Maximax Value (D) None of the above
- 24 A particular strategy that a player chooses to play again and again regardless of other player's strategy, is referred as
 (A) Mixed Strategy (B) Pure Strategy (C) Simple Strategy (D) None of the above
- 25 Which of the following is not true
 (A) A game sometimes doesn't have a saddle point (B) A game may have more than one saddle point
 (C) A game is always fair to both the players (D) All of the above
- 26 Determine the value of the game for the payoff matrix:
 Company Strategies
 Union Strategies B_1 B_2 B_3 B_4
 A_1 20 15 12 35
 A_2 25 14 8 10
 A_3 40 2 10 5
 A_4 -5 4 11 0
 (A) 15 (B) 12 (C) 10 (D) 5
- 27 Determine the value of λ for which the game is strictly determinable
 Player B
 Player A B_1 B_2
 A_1 2 6
 A_2 -2 λ
 (A) λ must be positive (B) λ must be negative (C) $\lambda > 6$ (D) For any value of λ
- 28 Use Matrix method to find the optimal strategies for player B:
 Player B
 Player A B_1 B_2
 A_1 1 7
 A_2 6 2
 (A) $\frac{[5 \ 5]}{10}$ (B) $\frac{[4 \ 6]}{10}$ (C) $\frac{[7 \ 3]}{10}$ (D) $\frac{[2 \ 8]}{10}$
- 29 What is true for the value of the game V from the following
 (A) $Maximin \ value \leq V \leq Minimax \ value$ (B) $Minimax \ value \leq V \leq Maximin \ value$
 (C) Both ((A) and ((B) (D) None of above
- 30 In a pure strategy game
 (A) Any strategy may be selected arbitrarily (B) A particular strategy is selected by each player
 (C) Both players selects their optimal strategy (D) None of the above
- 31 A dummy activity is used in the network diagram when
 (A) Two parallel activities have the same tail and head events
 (B) The chain of activities may have a common events yet be indepedment by themselves
 (C) Both (A) and (B)
 (D) None of the above
- 32 The objective of network analysis is to
 (A) Minimize total project duration (B) Minimize total project cost
 (C) Minimize production delays,interruption and conflicts. (D) All of the above.
- 33 The activity which can be delayed without affecting the execution of the immediate succeeding activity is determined by
 (A) Total float (B) Free float (C) Independent float (D) None of the above
- 34 Network models have advantage in terms of project
 (A) Planning (B) Scheduling (C) Controlling (D) All of the above
- 35 The critical path satisfy the condition that
 (A) $E_i = L_i$ and $E_j = L_j$ (B) $L_j - E_i = L_i - L_j$ (C) $L_j - E_i = L_i - E_j = d(constant)$ (D) All of the above