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Business Mathematics-II

કુલ સમય :– : ૬૦ મીનીટ કુલ પ્રશ્નો : ૫૦ વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૩૫

નોંધ : વિદ્યાર્થીએ માત્ર ૩૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૩૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

(1) A constraint in an LP model restricts
(A) value of the objective function (B) value of the decision variable
(C) use of the available resources (D) all of the above

(2) A feasible solution of LPP
(A) Must satisfy all the constraints simultaneously (B) Need not satisfy all the constraints, only some of them
(C) Must be a corner point of the feasible region (D) all of the above

(3) The objective function for a L.P model is $3x + 2y$, if $x = 20$ and $y = 30$, what is the value of the objective function?
(A) 0 (B) 50 (C) 60 (D) 120

(4) 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

(5) The first step in formulating a linear programming problem is
(A) Identify any upper or lower bound on the decision variables
(B) State the constraints as linear combinations of the decision variables
(C) Understand the problem
(D) Identify the decision variables

(6) Constraints in an LP model represents
(A) Limititations (B) Requirements (C) balancing, limitations and requirements (D) all of above

(7) The best use of linear programming is to find optimal use of
(A) money (B) Manpower (C) Machine (D) All the above

(8) Objective function of a L.P.P. is
(A) Constraint (B) A function to be optimized (C) A relation between the variables (D) None of these

(9) In. L.P.P____
(A) objective function is linear (B) constraints are linear
(C) Both objective function and constraints are linear (D) None of the above

(10) Constraints means____
(A) limitations are expressed in mathematical equalities (or inequalities) (B) Assumption
(C) goal is to be achieved (D) None of the above

(11) In .L.P.P., while drawing the graph, on the X-axis Y values always____
(A) 0 (B) 1 (C) 2 (D) None of the above

(12) The set of decision variable which satisfies all the constraints of the LPP is called as ____
(A) Solution (B) Basic Solution (C) Feasible solution (D) None of the above

(13) _____ are the restrictions or limitations imposed on the LPP.
(A) Variables (B) Costs (C) Profits (D) Constraints

(14) In linear programming _____ represents mathematical equation of the limitations imposed by the problem.
(A) Objective function (B) Decision variable (C) Redundancy (D) Constraints

(15) The region of feasible solution in LPP graphical method is called _____
(A) Infeasible region (B) Unbounded region (C) Infinite region (D) Feasible region

(16) When the constraints are a mix of 'less than' and 'greater than' it is a problem having _____.
(A) Multiple constraints (B) Infinite constraints (C) Infeasible constraints (D) Mixed constraints

(17) In case of an ' _____' constraint, the feasible region is a straight line.
(A) less than or equal to (B) greater than or equal to (C) mixed (D) equal to

(18) The incoming variable column in the simplex algorithm is called_____
(A) Key Column (B) variable column (C) important column (D) incoming column

(19) The variable added to the LHS of a less than or equal to constraint to convert it into equality is called _____
(A) Surplus variable (B) Artificial variable (C) Slack variable (D) Additional variable

(20) A resource which is completely utilized is called _____ in simplex.
(A) Null resource (B) Scarce resource (C) Zero resource (D) Abundant resource

(21) The value of one extra unit of resource is called_____in simplex.
(A) Unit price (B) Extra price (C) Retail price (D) Shadow price

(22) To find initial feasible solution of a transportation problem the method which starts allocation from the lowest cost is called _____ method.
(A) North west corner (B) Least cost (C) South east corner (D) Vogel's approximation

(23) In a transportation problem, the method of penalties is called ____ method.
(A) Least cost (B) south east corner (C) Vogel's approximation (D) North west corner

(24) When the total of allocations of a transportation problem match with supply and demand values, the solution is called___ solution.
(A) Non-degenerate (B) Degenerate (C) Feasible (D) Infeasible

(25) When the allocations of a transportation problem satisfy the rim condition (m + n – 1) the solution is called ____ solution.
(A) Degenerate (B) Infeasible (C) Unbounded (D) Non-degenerate

(26) When there is a degeneracy in the transportation problem, we add an imaginary allocation called ___ in the solution.
(A) Dummy (B) Penalty (C) Epsilon (D) Regret

(27) If M + N – 1 = Number of allocations in transportation, it means _____ . (Where 'M' is number of rows and 'N' is number of columns)
(A) There is no degeneracy (B) Problem is unbalanced (C) Problem is degenerate D) Solution is optimal

(28) Which of the following considers difference between two least costs for each row and column while finding initial basic feasible solution in transportation?
(A) North west corner rule (B) Least cost method
(C) Vogel's approximation method (D) Row minima method

(29) If the number of rows and columns in an assignment problem are not equal than it is called___problem.
(A) Prohibited (B) Infeasible (C) Unbounded (D) Unbalanced

(30) The method of solution of assignment problems is called _____ method.
(A) NWCR (B) VAM (C) LCM (D) Hungarian

(31) When a maximization assignment problem is converted in minimization problem, the resulting matrix is called____.
(A) Cost matrix (B) Profit matrix (C) Regret matrix (D) Dummy matrix

(32) In an AP, if $d = -4$, $n = 7$, $an = 4$, then a is
(A) 6 (B) 7 (C) 20 (D) 28

(33) In an AP, if $a = 3.5$, $d = 0$, $n = 101$, then an will be
(A) 0 (B) 3.5 (C) 103.5 (D) 104.5

(34) The first four terms of an AP, whose first term is –2 and the common difference is –2, are
(A) – 2, 0, 2, 4 (B) – 2, 4, – 8, 16 (C) – 2, – 4, – 6, – 8 (D) – 2, – 4, – 8, –16

(35) The famous mathematician associated with finding the sum of the first 100 natural numbers is
(A) Pythagoras (B) Newton (C) Gauss (D) Euclid

(36) The 21st term of the AP whose first two terms are –3 and 4 is
(A) 17 (B) 137 (C) 143 (D) –143

(37) Let the sequence be 2, 8, 32, 128,…… then this sequence is _____
(A) An arithmetic sequence (B) A geometric progression (C) A harmonic sequence (D) None of the mentioned

(38) In the given Geometric progression find the number of terms. 32, 256, 2048, 16384,.....,2^{50}.
(A) 11 (B) 13 (C) 15 (D) None of the mentioned

(39) For the given Geometric progression find the position of first fractional term? 2^{50}, 2^{47}, 2^{44},.....
(A) 17 (B) 20 (C) 18 (D) None of the mentioned

(40) The function $f'(x) = \lim_{h \to ?} \frac{f(x+h)-f(x)}{h}$ is called derivative with respect to x, if the limit h
(A) h→0 (B) h→-∞ (C) h→∞ (D) h→Z; where Z is an integer

(41) If $y = \frac{4}{x^2} + \sqrt{x} - \frac{1}{\sqrt{x}}$ $then\ y' = ?$
(A) $\frac{8}{x^3} + \frac{2}{\sqrt{x}} + \frac{2}{x^{3/2}}$ (B) $-\frac{8}{x^3} + \frac{1}{2\sqrt{x}} + \frac{1}{2x^{3/2}}$ (C) $-\frac{8}{x^3} + 2\sqrt{x} + 2x^{3/2}$ (D) None of these

(42) If $f(x) = x^3 - 2x + 10$, then $f'(2) = ?$
(A) 10 (B) 12 (C) 14 (D) 16

(43) If $y = 4^x, then\ y' = ?$
(A) $x\ In\ 4$ (B) $4\ In\ x$ (C) $4^x\ In\ 4$ (D) $4^x\ In\ x$

(44) If $y = \sqrt{x+1}, then\ y' = ?$
(A) $2\sqrt{x+1}$ (B) $\frac{2}{\sqrt{x+1}}$ (C) $\frac{1}{\sqrt{x+1}}$ (D) $\frac{1}{2\sqrt{x+1}}$

(45) From a group of 7 men and 6 women, five persons are to be selected to form a committee so that at least 3 men are there on the committee. In how many ways can it be done?
(A) 564 (B) 645 (C) 735 (D) 756

(46) In how many different ways can the letters of the word 'LEADING' be arranged in such a way that the vowels always come together?
(A) 360 (B) 480 (C) 720 (D) 5040

(47) Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed?
(A) 210 (B) 1050 (C) 25200 (D) 21400

(48) In how many ways can the letters of the word 'LEADER' be arranged?
(A) 72 (B) 144 (C) 360 (D) 720

(49) If the common difference of an AP is 5, then what is ? $a_{18} - a_{13}$
(A) 5 (B) 20 (C) 25 (D) 30

(50) The sum of first five multiples of 3 is
(A) 45 (B) 55 (C) 65 (D) 75