Question Paper

1. In operations research, the ..... are prepared for situations.
A. mathematical models
B. physical models diagrammatic
C. diagrammatic models
D. None of the above

2. Which of the following is not the phase of OR methodology ?
A. Formulating a problem
B. Constructing a model
C. Establishing controls
D. Controlling the environment

3. Operations research is the application of ..... methods to arrive at the optimal solutions to the problems.
A. economical
B. scientific
C. Both (A) and (B)
D. artistic

4. Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost reduction under certain constraints ?
A. Queuing Theory
B. Waiting Line
C. Both (A) and (B)
D. Linear Programming

5. The operations research technique which helps in minimizing total waiting and service costs is ....
A. Queuing Theory
B. Decision Theory
C. Both (A) and (B)
D. None of the above

6. In graphical representation the bounded region is known as ..... region.
A. solution
B. basic solution
C. feasible solution
D. optimal

7. Maximize Z = 11x + 8y subject to 4,6,6,0,0.xyx yxyð£ ð£ ð+ ð£ ð³ ð³
A. 44 at (4, 2)
B. 60 at (4, 2)
C. 62 at (4, 0)
D. 48 at (4, 2)

8. The total time required to complete all the jobs in a job sequencing problem is known as .....
A. processing time
B. waiting time
C. elapsed time
D. idle time

9. The minimum number of line covering all zeros in a reduced cost matrix of order n can be ..... .
A. At least n
B. At most n
C. n – 1
D. n + 1

10. The unused materials are returned to stores with a material and ..... note.
A. Acceptance
B. Transfer
C. Return
D. None of the above

11. The optimum level of inventory is popularly referred to as the ..... .
A. Minimum stock level
B. Re-order stock level
C. Economic order quantity
D. None of the above

12. Which of the following is not an inventory ?
A. Machines
B. Raw Material
C. Finished Products
D. Consumable tools

13. The replacement policy that is imposed on an item irrespective of its failure is .....
A. Group replacement

B. Individual replacement
C. Repair spare replacement
D. Successive replacement

14. The right-hand side constant of a constraint in a primal problem appears in the corresponding dual as.....
A. coefficient in the objective function
B. a right-hand side constant of a function
C. an input output coefficient
D. a left-hand side constraint coefficient variable

15. In a transportation problem, the method which finds difference between two least cost for each row and column is .....
A. Minimum entry method
B. North-west corner method
C. North-east corner method
D. VAM method

16. In simplex method, we add ..... in the case of constraints with sign “=”.
A. Surplus variable
B. Artificial variable
C. Slack variable
D. None of the above

17. If an opportunity cost value is used for an unused cell to test optimality, it should be .....
A. Equal to zero
B. Most negative number
C. Most positive number
D. Any value

18. ..... is that element of the simplex table which is both in the key row and key column.
A. Key element
B. Pivot element
C. Both (A) and (B)
D. None of the above

19. Matrix Minima Method to find initial feasible solution to a TP is also called .....
A. NWCM
B. LCM

C. VAM
D. None of the above

20. Traffic intensity in Queuing Theory is also called .....
A. Service factor
B. Arrival factor
C. Utilisation factor
D. None of the above

21. A customer s behaviour of leaving the queue due to impatience is called .....
A. Jockying
B. Reneging
C. Collusion
D. Balking

22. Commonly assumed probability distribution of service pattern are .....
A. Poisson distribution
B. Exponential distribution
C. Erlang distribution
D. Both (B) and (C)

23. In sequencing if the smallest time belong to machine-1, then that job has to be placed ..... of the sequence.
A. in the middle
B. in the starting
C. at end
D. None of the above

24. Replacement is said to be necessary if ..... .
A. Failure rate is increasing.
B. Failure cost is increasing.
C. Failure probability is increasing.
D. Any of the above

25. In the formula of Economic Order Quantity, the alphabet „O stands for ..... .
A. Ordering Level
B. Ordering Cost
C. Ordering and Carrying Cost
D. None of the above

26. What is the first approach in optimization methods ?
A. Theory of bending
B. Theory of layout
C. Theory of elongation
D. Theory of stress

27. Initial feasible solution to a transportation problem can be found out by ..... .
A. VAM
B. MODI Method
C. Both (A) and (B)
D. None of the above

28. The coefficient of an artificial variable in the objective function of penalty method are always assumed to be .....
A. 0
B. 1
C. M
D. –M

29. The average arrival rate in a single server queuing system is 10 customers per hour and average service rate is 15 customers per hour. The average time that a customer must wait before it is taken up for service shall be ..... minutes.
A. 6
B. 8
C. 10
D. 12

30. In the optimal simplex table, Z j – C j = 0 value indicates .....
A. alternative solution
B. bounded solution
C. infeasible solution
D. unbounded solution

31. When D = 18000, holding cost = ` 1.20, set-up cost = ` 400, EOQ = ...
A. 3465
B. 3750
C. 3500
D. 4000

32. The unit of traffic intensity is ..... .
A. Poisson

B. Markow
C. Erlang
D. Kendall

33. The method used to solve LPP with use of artificial variables is called ..... .
A. Dual Simplex
B. Graphical
C. Big-M
D. Transportation Problem

34. Which of the followings is an assumption of Linear Programming Technique ?
A. Divisibility
B. Additivity
C. Proportionality
D. All of the above

35. The occurrence of degeneracy while solving a transportation problem means that .....
A. total supply equals total demand
B. the solution so obtained is not feasible
C. the few allocations become negative
D. None of the above

36. Column in simplex initial table used to represent new basic variable is classified as .....
A. column variable
B. key column
C. key row
D. row variable

37. In simplex method, slack, surplus and artificial variables are restricted to be .....
A. multiplied
B. negative
C. non-negative
D. divided

38. In simplex method basic solution set as (n – m), all variables other than basic are classified as ..... .
A. constant variable
B. non-positive variables

C. basic variables
D. non-basic variable

39. In simplex method, we add variables in the case of „=
A. Slack Variable
B. Surplus Variable
C. Artificial Variable
D. None of the above

40. ..... is another method to solve a given LPP involving some artificial variable.
A. MODI method
B. Method of penalties
C. Two-phase simplex method
D. None of the above

41. In transportation models designed in linear programming, points of demand is classified as ..... .
A. ordination
B. transportation
C. destinations
D. origins

42. In less than or equal to constraint equations, variable which is used to balance both side of equations is classified as ..... .
A. solving variable
B. condition variable
C. slack variable
D. positive variable

43. If in a LPP, the solution of a variable can be made infinity large without violating the constraints, the solution is .....
A. Infeasible
B. Unbounded
C. Alternative
D. None of the above

44. A BFS of a LPP is said to be ..... if at least one of the basic variable is zero.
A. Degenerate
B. Non-degenerate
C. Infeasible

D. Unbounded

45. Which of the following is a type of Linear Programming Problem ?
A. Manufacturing problem
B. Diet problem
C. Transportation problems
D. All of the above

46. Cells in the transportation problem having positive allocation will be called .....
A. cells
B. occupied
C. unoccupied
D. table

47. ..... are expressed is the form of inequities or equations.
A. Constraints
B. Objective Functions
C. Both (A) and (B)
D. None of the above

48. The objective, functions and constraints are linear relationship between ..... .
A. Variables
B. Constraints
C. Functions
D. All of the above

49. Graphic method can be applied to solve a LPP when there are only ..... variable.
A. One
B. More than one
C. Two
D. Three

50. In LPP, degeneracy occurs in ..... stages.
A. One
B. Two
C. Three
D. Four

51. If there are more than one optimum solution for the decision variable the

solution is .....
A. Infeasible
B. Unbounded
C. Alternative
D. None of the above

52. The word “Linear” means that the relationships are represented by ..... .
A. Diagonal lines
B. Curved lines
C. Straight lines
D. Slanting lines

53. Any feasible solution which optimizes (minimizes or maximizes) the objective function of the LPP is called its .....
A. Optimal solution
B. Non-basic variables
C. Solution
D. Basic feasible solution

54. A set of values X l , X 2 , ..., X n which satisfies the constraints of the LPP is called .....
A. Solution
B. Variable
C. Linearity
D. None of the above

55. An objective function is maximized when it is a ..... function.
A. Passive
B. Profit
C. Cost
D. None of the above

56. PP is exactly used in solving what kind of resource allocation problems ?
A. Production planning and scheduling
B. Transportation
C. Sales and advertising
D. All of the above

57. ..... which is a subclass of a Linear Programming Problem (LPP).
A. Programming problem
B. Transportation problem
C. Computer problem

D. Both (A) and (B)

58. MODI method is used to obtain .....
A. Optimal solutions
B. Optimality test
C. Both (A) and (B)
D. Optimization

59. For solving an assignment problem, which method is used ?
A. Hungarian
B. American
C. German
D. Both (A) and (B)

60. To make an unbalanced assignment problem balanced, what are added with all entries as zeroes ?
A. Dummy rows
B. Dummy columns
C. Both (A) and (B)
D. Dummy entries

61. Any feasible solution to a transportation problem containing m origins and n destinations is said to be ..... .
A. Independent
B. Degenerate
C. Non-degenerate
D. Both (A) and (B)

62. A path formed by allowing horizontal and vertical lines and the entire corner cells of which are occupied is called a ..... .
A. Occupied path
B. Open path
C. Closed path
D. None of the above

63. Once the initial basic feasible solution has been computed, what is the next step in the problem ?
A. VAM
B. Modified distribution method
C. Optimality test
D. None of the above

64. The variables whose coefficient vectors are unit vectors are called ..... .
A. Unit Variables
B. Bask Variables
C. Non-basic Variables
D. None of the above

65. The ..... variable is used for the greater than or equal to ð(ð) ð³ type of constraint.
A. Only Slack
B. Surplus and Artificial
C. Only Artificial
D. Basic

66. The time period between placing an order its receipt in stock is known as ..... .
A. Lead time
B. Carrying time
C. Shortage time
D. Overtime