

Final Test Paper 2 INDIAN INSTITUTE OF MATERIALS MANAGEMENT

Quantitative Techniques & Operations Research GDMM/PGDMM 3 YEARS

Instructions:

1. Answer all 50 questions. Each question carries 2 marks Total : 100 Marks
2. Duration 1 Hour.

***Required**

1. Email *

2. Name *

3. Roll Number *

4. 1. Operations Research approach is _____.

Mark only one oval.

- multi-disciplinary
- scientific
- intuitive
- collect essential data

5. 2. A feasible solution to a linear programming problem _____.

Mark only one oval.

- must satisfy all the constraints of the problem simultaneously
- need not satisfy all of the constraints, only some of them
- must be a corner point of the feasible region.
- must optimize the value of the objective function

6. 3. If any value in XB column of final simplex table is negative, then the solution is _____.

Mark only one oval.

- Option 1
- infeasible
- bounded
- no solution

7. 4. For any primal problem and its dual _____.

Mark only one oval.

- optimal value of objective function is same
- dual will have an optimal solution iff primal does too
- primal will have an optimal solution iff dual does too
- both primal and dual cannot be infeasible

8. 5. The difference between total float and head event slack is _____

Mark only one oval.

- free float
- independent float
- interference float
- linear float

9. 6. An optimal assignment requires that the maximum number of lines which can be drawn through squares with zero opportunity cost should be equal to the number of _____.

Mark only one oval.

- rows or columns
- rows and columns.
- rows+columns- 1
- rows-columns.

10. 7. To proceed with the Modified Distribution method algorithm for solving an transportation problem, the number of dummy allocations need to be added are _____.

Mark only one oval.

- n
- n-1
- 2n-1
- n-2

11. 8. Select the correct statement for EOQ

Mark only one oval.

- EOQ is that quantity at which price paid by the buyer is minimum
- If annual demand doubles with all other parameters remaining constant, the Economic Order Quantity is doubled
- Total ordering cost equals holding cost
- Stock out cost is never permitted

12. 9. Service mechanism in a queuing system is characterized by _____.

Mark only one oval.

- customers behavior
- servers behavior
- customers in the system
- server in the system

13. 10. The objective of network analysis is to _____.

Mark only one oval.

- minimize total project duration
- minimize total project cost
- minimize production delays, interruption and conflicts
- maximize total project duration

14. 11. In program evaluation review technique network each activity time assume a beta distribution because_____.

Mark only one oval.

- it is a unimodal distribution that provides information regarding the uncertainty of time estimates of activities
- it has got finite non-negative error
- it need not be symmetrical about model value
- the project is progressing well

15. 12. If there is no non-negative replacement ratio in solving a Linear Programming Problem then the solution is _____.

Mark only one oval.

- feasible
- bounded
- unbounded
- infinite

16. 13. The calling population is considered to be infinite when _____.

Mark only one oval.

- all customers arrive at once
- capacity of the system is infinite
- service rate is faster than arrival rate
- arrivals are independent of each other

17. 14. In marking assignments, which of the following should be preferred?

Mark only one oval.

- Only row having single zero
- Only column having single zero
- Only row/column having single zero
- Column having more than one zero

18. 15. A petrol pump has one pump; Vehicles arrive at the petrol pump according to poisson input process at average of 12 per hour. The service time follows exponential distribution with a mean of 4 minutes. The pumps are expected to be idle for _____.

Mark only one oval.

- 3/5
 4/5
 5/3
 6/5

19. 16. If the order quantity (size of order) is increased, _____

Mark only one oval.

- holding costs decrease and ordering costs increase
 holding costs increase and ordering costs decrease
 the total costs increase and then decrease
 storage cost as well as stock-out cost increase

20. 17. _____ is a mathematical technique used to solve the problem of allocating limited resource among the competing activities

Mark only one oval.

- Linear Programming problem
 Assignment Problem
 Replacement Problem
 Non linear Programming Problem

21. 18. A mixed strategy game can be solved by _____.

Mark only one oval.

- Simplex method
 Hungarian method
 Graphical method
 Degeneracy

22. 19. The activity cost corresponding to the crash time is called the _____.

Mark only one oval.

- critical time
- normal time
- cost slope
- crash cost

23. 20. A set of feasible solution to a Linear Programming Problem is _____.

Mark only one oval.

- convex
- polygon
- triangle
- bold

24. 21. In an Linear Programming Problem functions to be maximized or minimized are called _____.

Mark only one oval.

- constraints
- objective function
- basic solution
- feasible solution

25. 22. If the primal problem has n constraints and m variables then the number of constraints in the dual problem is _____.

Mark only one oval.

- mn
- $m+n$
- $m-n$
- m/n

26. 23. The non basic variables are called _____.

Mark only one oval.

- shadow cost
- opportunity cost
- slack variable
- surplus variable

27. 24. Key element is also known as _____.

Mark only one oval.

- slack
- surplus
- artificial
- pivot

28. 25. The solution to a transportation problem with m-sources and n-destinations is feasible if the numbers of allocations are _____.

Mark only one oval.

- m+n
- mn
- m-n
- m+n-1

29. 26. The allocation cells in the transportation table will be called _____ cell

Mark only one oval.

- occupied
- unoccupied
- no
- finite

30. 27. To resolve degeneracy at the initial solution, a very small quantity is allocated in _____ cell

Mark only one oval.

- occupied
- unoccupied
- no
- finite

31. 28. The assignment algorithm was developed by _____ method.

Mark only one oval.

- HUNGARIAN
- VOGELS
- MODI
- TRAVELING SALES MAN

32. 29. An assignment problem is a particular case of _____.

Mark only one oval.

- transportation Problem
- assignment Problem
- travelling salesman problem
- replacement Problem

33. 30. The coefficient of slack\surplus variables in the objective function are always assumed to be _____.

Mark only one oval.

- 0
- 1
- M
- M

34. 31. Using _____ method, we can never have an unbounded solution

Mark only one oval.

- Simplex
- Dual simplex
- Big M
- Modi

35. 32. The customers of high priority are given service over the low priority customers is _____.

Mark only one oval.

- Pre emptive
- FIFO
- LIFO
- SIRO

36. 33. A queuing system is said to be a _____ when its operating characteristic are independent upon time

Mark only one oval.

- pure birth model
- pure death model
- transient state
- steady state

37. 34. An activity which does not consume neither any resource nor time is known as _____.

Mark only one oval.

- predecessor activity
- successor activity
- dummy activity
- activity

38. 35. The difference between total and free float is _____.

Mark only one oval.

- total
- free
- independent
- interference

39. 36. The number of time estimates involved in Program Evaluation Review Technique problem is _____.

Mark only one oval.

- 1
- 2
- 3
- 4

40. 37. The assignment problem is always a _____ matrix.

Mark only one oval.

- circle
- square
- rectangle
- triangle

41. 38. The slack variables indicate _____.

Mark only one oval.

- excess resource available.
- shortage of resource
- nil resource
- idle resource

42. 39. If the net evaluation corresponding to any non -basic variable is zero, it is an indication of the existence of an _____.

Mark only one oval.

- initial basic feasible solution
- optimum basic feasible solution
- optimum solution.
- alternate optimum solution

43. 40. Mathematical model of linear programming problem is important because _____.

Mark only one oval.

- it helps in converting the verbal description and numerical data into mathematical expression
- decision makers prefer to work with formal models
- it captures the relevant relationship among decision factors
- it enables the use of algebraic technique

44. 41. While solving a linear programming problem infeasibility may be removed by _____.

Mark only one oval.

- adding another constraint
- adding another variable
- removing a constraint
- removing a variable

45. 42. The right hand side constant of a constraint in a primal problem appears in the corresponding dual as _____.

Mark only one oval.

- a coefficient in the objective function
- a right hand side constant of a function
- an input output coefficient a left hand side constraint
- coefficient variable

46. 43. During iteration while moving from one solution to the next, degeneracy may occur when_____

Mark only one oval.

- the closed path indicates a diagonal move
- two or more occupied cells are on the closed path but neither of them represents a corner of the path.
- two or more occupied cells on the closed path with minus sign are tied for lowest circled value.
- the closed path indicates a rectangle move.

47. 44. Maximization assignment problem is transformed into a minimization problem by_____.

Mark only one oval.

- adding each entry in a column from the maximum value in that column
- subtracting each entry in a column from the maximum value in that column
- subtracting each entry in the table from the maximum value in that table
- adding each entry in the table from the maximum value in that table

48. 45. Priority queue discipline may be classified as_____.

Mark only one oval.

- pre-emptive or non-pre-emptive
- limited
- unlimited
- finite

49. 46. Replace an item when_____.

Mark only one oval.

- average cost upto date is equal to the current maintenance cost
- average cost upto date is greater than the current maintenance cost
- average cost upto date is less than the current maintenance cost.
- next year running cost in more than average cost of nth year

50. 47. In time cost trade off function analysis_____.

Mark only one oval.

- cost decreases linearly as time increases
- cost increases linearly as time decreases
- cost at normal time is zero
- cost increases linearly as time increases

51. 48. The transportation problem deals with the transportation of _____.

Mark only one oval.

- a single product from a source to several destinations
- a single product from several sources to several destinations
- a single product from several sources to a destination
- a multi-product from several sources to several destinations

52. 49. The minimum number of lines covering all zeros in a reduced cost matrix of order n can be _____.

Mark only one oval.

- at the most n
- at the least n
- n-1
- n+1

53. 50. For a 2.5% increase in order quantity (under fundamental EOQ problem) the total relevant cost would _____.

Mark only one oval.

- increase by 2.5%.
- decrease by 2.5%.
- increase by 0.25%.
- decrease by 0.25%.

Google Forms

