Operations Research 35 Important 1 Marks Questions With Answers (Book Back and Creative)

12th Standard

Business Maths and Statistics

Total Marks : 35

Multiple Choice Question

35 x 1 = 35

1) The transportation problem is said to be unbalanced if _____.

   (a) Total supply ≠ Total demand   (b) Total supply = Total demand   (c) m = n   (d) m+n–1

2) In a non – degenerate solution number of allocations is _____.

   (a) Equal to m+n–1   (b) Equal to m+n+1   (c) Not equal to m+n–1   (d) Not equal to m+n+1

3) In a degenerate solution number of allocations is _____.

   (a) equal to m+n–1   (b) not equal to m+n–1   **(c) less than m+n–1**   (d) greather than m+n–1

4) The Penalty in VAM represents difference between the first _____.

   (a) Two largest costs   (b) Largest and Smallest costs   **(c) Smallest two costs**   (d) None of these

5) Number of basic allocation in any row or column in an assignment problem can be _____.

   (a) Exactly one   (b) at least one   (c) at most one   (d) none of these

6) North-West Corner refers to _____.

   (a) top left corner   (b) top right corner   (c) bottom right corner   (d) bottom left corner

7) Solution for transportation problem using _____method is nearer to an optimal solution.

   (a) NWCM   (b) LCM   **(c) VAM**   (d) Row Minima

8) In an assignment problem the value of decision variable x_{ij} is _____.

   (a) 1   (b) 0   **(c) 1 or 0**   (d) none of them

9) If number of sources is not equal to number of destinations, the assignment problem is called_____.

   (a) balanced   (b) unsymmetric   (c) symmetric   **(d) unbalanced**

10) The purpose of a dummy row or column in an assignment problem is to _____.

   (a) prevent a solution from becoming degenerate   **(b) balance between total activities and total resources**

   (c) provide a means of representing a dummy problem   (d) none of the above

11) The solution for an assignment problem is optimal if _____.

   (a) each row and each column has no assignment   (b) each row and each column has atleast one assignment

   (c) each row and each column has atmost one assignment   **(d) each row and each column has exactly one assignment**

12) In an assignment problem involving four workers and three jobs, total number of assignments possible are _____.

   (a) 4   **(b) 3**   (c) 7   (d) 12

13) Decision theory is concerned with _____.

   (a) analysis of information that is available   (b) decision making under certainty

   (c) selecting optimal decisions in sequential problem   **(d) All of the above**

14) A type of decision –making environment is _____.

a) certainty   (b) uncertainty   (c) risk   **(d) all of the above**

15) A set of non-negative values that satisfies the constants in a transportation problem is a _____

(a) Basic feasible solution   **(b) Feasible solution**   (c) Optimal solution   (d) Non degenerate basic feasible solution

16)

	A	B	C
1	(5) 2	7	4
2	(2) 3	(6) 3	1
3	5	4	(3) 7

The total transportation cost is _____

(a) 55   (b) 102   (c) 101   (d) 50

17) In least cost method if the minimum cost is not unique then the choice can be made as _____

(a) arbitrarily   (b) unique   (c) difference   (d) summation

18) Vogel's approximation method yields an initial basic feasible solution which is very close to the solution.

(a) maximum   (b) minimum   **(c) optimum**   (d) unique

19) To assign different jobs to the different machines to minimize the overall cost is _____

(a) transportation problem   **(b) assignment problem**   (c) minimax principle   (d) maximin principle

20) The optimum_____schedule remains, unaltered if we add or subtract a constant from all the elements of the row or which of the cost_____matrix.

(a) transportation   **(b) assignment**   (c) unique   (d) optimal

21) If the number of rows is____tothenumber of columns, then the assignment problem is said to be balanced.

(a) equal   (b) less   (c) more   (d) not equal

22) _____ method provides optimum assignment schedule in an assignment problem.

(a) North West Corner   (b) Least cost   (c) Vogel's Approximation Method   **(d) Hungarian Method**

23) _____determines the lowest out comes for each alternative.

(a) Least cost   (b) Minimax criteria   **(c) Maximin criteria**   (d) Payoff matrix

24) Operation research is an analytical method of _____

(a) problem solving   (b) decision making   (c) optimal cost of transportation   **(d) unit cost of transportation**

25) The given data is a balanced transportation problem

	A	B	C	Supply
1	2	7	4	5
2	3	3	1	8
3	5	4	7	7
4	1	6	2	14

Then total demand

(a) 7 + 9 + 18   **(b) 9 + 7 + 10 + 8**   (c) 15+ 15 + 4   (d) 10+ 10+ 14

26) The least cost method is more economical than North West Corner Rule, since it starts with the _____

(a) least cost   (b) minimum cost   **(c) maximum cost**   (d) lower beginning cost

27) The penalty is the difference between the ___ costs in each row and column.

(a) smallest   **(b) biggest**   (c) minimum   (d) least

28) If for an assignment problem all $C_{ij} > 0$, then an assignment schedule x_{ij} will be optimal of $\sum C_{ij}x_{ij} =$

(a) 0   (b) 1   (c) 2   (d) none of these

29) In a assignment problem involving four workers and 2 jobs, the total number of assignments possible are _____

(a) 4   (b) 3   **(c) 2**   (d) 12

30) If number of sources is equal to number of destination, the assignment problem is called_____

(a) balanced   (b) unsymmetric   (c) symmetric   (d) unbalanced

31) Hungarian method is used to solve_____problems

(a) Transportation   **(b) Assignment**   (c) Linear programming   (d) None of these

32) In an assignment problem if i^{th} job is assigned to j^{th} machine then the value of x_{ij} =

(a) 1   (b) 0   (c) -1   (d) ∞

33) In an assignment problem if i^{th} job is not assigned to j^{th} machine then the value of x_{ij} =

(a) 1   **(b) 0**   (c) -1   (d) ∞

34) If abasic feasible solution to a transportation problem contains less' than m + n - 1 allocations, it is called a_____basic feasible solution

(a) Optimum   (b) Degenerate   **(c) Non-degenerate**   (d) Balanced

35) The criterion which maximizes the minimum possible pay-off is known as

(a) Minimax criteria   **(b) Maximin criteria**   (c) Minimum criteria   (d) Optimum criteria