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Semester III

Allied : Business Mathematics - 305D

Multiple Choice Question

1. The matrix is an arrangement of numbers in_____

- a. m rows & n columns
- b. n rows & m columns
- c. both a & b
- d. none of the above.

Answer: A

2. The value of the determinant $\begin{bmatrix} 5 & -2 & 3 \\ 4 & -1 & -5 \\ 6 & 7 & 9 \end{bmatrix}$; is _____.

- a. 100.
- b. 364.
- c. 14.
- d. 340.

Answer: B

3. Zero matrix is also called_____.

- a. Diagonal matrix
- b. Scalar matrix
- c. Unit matrix
- d. Null matrix

Answer: D

4. The rank of the given matrix $\begin{bmatrix} 1 & 2 & 5 \\ 0 & 0 & 0 \\ 3 & -4 & 9 \end{bmatrix}$ is_____

- a. 1
- b. 2
- c. 3
- d. 0

Answer: B

5. The order of $\begin{bmatrix} 3 & 1 & 3 \\ 6 & 5 & 6 \end{bmatrix}$ is _____

- a. 3x3
- b. 2x3
- c. 3x2
- d. 4x4

Answer: B.

6. If A is $\begin{bmatrix} 3 & 2 & 3 \\ 0 & 4 & 0 \\ 3 & 8 & 3 \end{bmatrix}$ then $\rho(A)$ is_____.

- a. 0
- b. 1
- c. 2
- d. 3

Answer: C

7. The given matrix is $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix}$ _____

- a. a scalar matrix.
- b. a unit matrix.
- c. a square matrix
- d. a rectangular matrix.

Answer: D

8. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ then $2A =$ _____

- a. $\begin{bmatrix} 2 & -4 \\ 3 & 4 \end{bmatrix}$
- b. $\begin{bmatrix} 7 & -2 \\ 3 & 4 \end{bmatrix}$
- c. $\begin{bmatrix} 2 & 4 \\ 6 & 8 \end{bmatrix}$
- d. $\begin{bmatrix} 1 & 7 \\ -2 & 10 \end{bmatrix}$

Answer: C

9. If A is a singular matrix $|A|$ is _____.

- a. 1
- b. 0
- c. any positive value.
- d. any negative value.

Answer: B

10. If $\begin{bmatrix} -3 & 2 & -5 \\ 4 & 1 & 6 \\ 7 & 8 & 7 \end{bmatrix}$ and $\begin{bmatrix} 2 & -5 \\ -3 & 2 \end{bmatrix}$ are _____.

- a. square matrices.
- b. null matrices.
- c. row matrices.
- d. zero matrices.

Answer: A

11. If A, B are two matrices and K is a scalar then _____.

- a. $K(A+B) \neq KA+KB$
- b. $K(A+B) = KA+KB$.
- c. $K(A+B) < KA+KB$.
- d. $K(A+B) > KA+KB$.

Answer: B

12. If A, B and C are matrices the associative property is _____.

- a. $(AB)C < A(BC)$.
- b. $(AB)C > A(BC)$.
- c. $(AB)C \neq A(BC)$.

d. $(AB)C=A(BC)$.

Answer: D

13. Zero matrix is otherwise known as_____.

- a.null matrix.
- b.square matrix.
- c.unit matrix.
- d.triangular matrix.

Answer: A

14. If A and B are matrices of same order then _____.

- a. $A+B=B+A$.
- b. $A+B \neq B+A$.
- c. $A+B < B+A$.
- d. $A+B > B+A$.

Answer: A

15. If A,B and C are matrices of the same order then _____.

- a. $(A+B)+C=A+(B+C)$.
- b. $(A+B)+C \neq A+(B+C)$.
- c. $(A+B)+C > A+(B+C)$.
- d. $(A+B)+C < A+(B+C)$.

Answer: A

16. The determinant value of the following matrix $\begin{bmatrix} 7 & 1 \\ 2 & 7 \end{bmatrix}$ is_____

- a.47
- b.40
- c.57
- d.-57

Answer: A

17. When the number of rows and the number of columns of a matrix are equal, the matrix is_____.

- a.square matrix .
- b.row matrix.
- c.column matrix.
- d.none of these.

Answer: A

18. If all the elements of a matrix are zeros, then the matrix is a_____.

- a.unit matrix .
- b.square matrix.
- c.zero matrix.
- d.none of these.

Answer: C

19. A diagonal matrix in which all the diagonal elements are equal is a_____.
- a.scalar matrix.
 - b.column matrix.
 - c.unit matrix.
 - d.None of these.

Answer: A

20. If any two rows and columns of a determinant are identical, the value of the determinant is_____.

- a.1.
- b.0.
- c.-1.
- d.Unaltered.

Answer: B

21. .If there is only one column in a matrix, it is called_____.

- a.Row matrix .
- b.column matrix.
- c.square matrix.
- d.rectangular matrix.

Answer: B

- 22.When all the elements of a matrix are zeros, the matrix is called _____.

- a.unit matrix.
- b.square matrix.
- c.null matrix.
- d.Row matrix.

Answer: C

- 23.When the number of rows is not equal to the number of columns then the matrix is said to be _____.

- a.unit matrix.
- b. Rectangular matrix.
- c .null matrix.
- d.row matrix.

Answer: B

- 24.The Value of determinant of $\begin{vmatrix} 3 & 6 \\ 4 & -1 \end{vmatrix}$ is_____

- a. -27.
- b. 27.
- c. 24.
- d. -24.

Answer: A

25. If the number of rows of a matrix is greater than the number of columns then the matrix is called as _____

- a. a row matrix.
- b. a column matrix.
- c. a rectangular matrix.
- d. a square matrix.

Answer: C

26. Inverse of a matrix exists if and only if _____.

- a. determinant value exists.
- b. determinant value is zero.
- c. determinant value is one.
- d. determinant value is negative.

Answer: A

27. A square matrix A is an orthogonal matrix x, if _____.

- a. $AA^{-1}=I$.
- b. $AA^{-1}=I$.
- c. $A=A^{-1}$.
- d. $A=A^{-1}$.

Answer: B

28. $(3 \ 8 \ 9 \ -2)$ is a row matrix of order _____.

- a. 4×4
- b. 1×4
- c. 1×1 .
- d. 4×1 .

Answer: B

29. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ then $3A =$ _____

- a. $\begin{bmatrix} 3 & 6 \\ 9 & 12 \end{bmatrix}$
- b. $\begin{bmatrix} 2 & 2 \\ 6 & 4 \end{bmatrix}$
- c. $\begin{bmatrix} 2 & 4 \\ 6 & 8 \end{bmatrix}$
- d. $\begin{bmatrix} 7 & 10 \\ 15 & 22 \end{bmatrix}$

Answer: A

30. Cramer's Rule is also known as _____.

- a. Inverse Matrix Method
- b. Matrix Method
- c. Determinant Method
- d. Inverse Method

Answer: C

31. The _____ is the order of the largest square submatrix.

- a. Rank of a matrix
- b. Size of a matrix
- c. Both a & b
- d. None of the above.

Answer: A

32. O.R. Stands for _____

- a. Operations research
- b. Open Report
- c. Own Record
- d. On Road

Answer: A

33. If a matrix has 4 rows and 3 columns, then the size will be denoted by

- a. 3×4
- b. 3×3
- c. 4×3
- d. 4×4

Answer: C

34. I stands for _____

- a. Simple Interest
- b. Compound Interest
- c. Rate of interest
- d. No.of.years.

Answer: A

35.C.I. stands for _____.

- a. Compound Interest
- b. Simple Interest
- c. Rate Of Interest
- d. No.of.years.

Answer: A

36. Principal (or) Present Value is denoted by

- a. A
- b. n
- c. P
- d. None of the above.

Answer: C

37. The Lender's are also known as _____

- a. Creditor's
- b. Debtor's
- c. Buyer's
- d. None of the above.

Answer: A

38. The borrowers are also known as _____.

- a. Debtor's
- b. Creditor's
- c. Both a & b
- d. None of the above.

Answer: A

39. Compound Interest is always _____ the Simple Interest.

- a. Lesser than
- b. Equal to
- c. Greater than
- d. None of the above.

Answer: C

40. Simple interest will be the income for _____.

- a. lender.
- b. borrower.
- c. both .
- d. neither lender nor borrower.

Answer: A

41. The simple interest on Rs 5,000 at 10% for 3 years is _____.

- a. 500.
- b. 1000.
- c. 1500.
- d. 2000.

Answer: C

42. The formula for the face value A is given by _____.

- a. $(B \cdot D \times T \cdot D) / (B \cdot D - T \cdot D)$.
- b. $100T \cdot D / nr$.
- c. $100r / 100 - nr$.
- d. $Pnr / 100$.

Answer: B

43. Under annuity due, payment is due at the _____.

- a. beginning of the time.
- b. end of the time.
- c. at the middle of the time.
- d. each .

Answer: A

44. The compound interest for Rs 20000 for 3 years at 10 % is _____.

- a. 2500.

- b.2200.
- c.6000.
- d.2500.

Answer: C

45.The simple interest for Rs 10000 for 2 years at 10% is _____.

- a.200.
- b.3000.
- c.4000 .
- d.2000.

Answer: D

46. $51-46+3(5) =$ _____

- a. 40
- b. 20
- c. 41
- d.52

Answer: B

47. $3x- 4+7 = 0$, then $x = ?$

- a. -1
- b. +1.
- c. 0.
- d. 2.

Answer: A

48.Under compound interest the formula for A is given by _____.

- a. $A=P(1+ni)$.
- b. $A=P(1+i)$.
- c. $A=Pnr/100$.
- d. $A=P(1+i)^n$.

Answer: D

49.Banker's discount is given by the formula_____.

- a. $Anr/100$.
- b. $Pnr/100$.
- c.Anr.
- d.Pnr.

Answer: A

50.Face value of a bill of exchange is given by the formula _____.

- a. $100A/100+nr$.
- b. $(B.D \times T.D)/B.D-T.D$.
- c. $(B.D \times T.D)/B.D+T.D$.
- d. $(B.D+T.D)/B.D-T.D$.

Answer: B

51. When the payments are to be made at the end of each interval the annuity is called _____.

- a. immediate annuity.
- b. annuity due.
- c. both (a) and (b).
- d. present annuity.

Answer: A

52. In calculation of interest 'n' stands for

- a. Rate of interest
- b. Amount
- c. Principal
- d. No. of years

Answer: D

53. The formula for finding the compound interest is _____.

- a. $A = P(1 + ni)$.
- b. $A = P(1 + i)$.
- c. $A = Pnr/100$.
- d. $A = P(1 + i)^n$.

Answer: D

54. Under simple interest, the interest for n years is _____.

- a. $A = P(1 + ni)$.
- b. $A = P(1 + i)$.
- c. $A = Pnr/100$.
- d. $A = P(1 + i)^n$.

Answer: C

55. Under simple interest, amount or value at the end is _____.

- a. $A = P + I$.
- b. $A = P(1 + i)$.
- c. $A = Pnr/100$.
- d. $A = P(1 + i)^n$.

Answer: A

56. Under simple interest, the rate of interest is given by _____.

- a. $R = 100r - (100 - nr)$.
- b. $r = 100 I/Pn$.
- c. $Anr/100$.
- d. $A = P(1 + i)n$.

Answer: B

57. The present value under annuity due is _____.

- a. $A/i [1 - (1 + i)^{-n}]$.
- b. $A + A/i [1 - (1 + i)^{-n}]$.
- c. $A/i [(1 + i)^{-n} - 1]$.

d. $A/i (1+i)[1+i]^{-n}-1]$.

Answer: A

58. The Amount due under immediate annuity is _____.

a. $A/i [1-(1+i)^{-n}]$.

b. $A+A/i [1-(1+i)^{-n}]$.

c. $A/i [(1+i)^{-n}-1]$.

d. $A/i (1+i)[(1+i)^{-n}-1]$.

Answer: D

59. Formula for Bankers gain is _____.

a. $Anr/100$.

b. $An^2r^2/100(100+nr)$.

c. $100A/100+nr$.

d. $Anr/100+nr$.

Answer: B

60. In Graphical solution the feasible region is _____.

a. where all the constraints are satisfied simultaneously.

b. any one constraint is satisfied.

c. only the first constraint is satisfied.

d. any one of the above condition.

Answer: A

61. An LPP has _____.

a. one optimal solution.

b. two optimal solutions.

c. Three optimal solutions.

d. none of these.

Answer: D

62. An LPP deals with problems involving only _____.

a. single objective.

b. multiple objective.

c. two objective.

d. none of these.

Answer: A

63. Which of the following is not associated with any LPP?

a. Feasible Solution.

b. Optimum Solution.

c. Basic solution.

d. Quadratic equation.

Answer: D

64. Which of the following is not true about feasibility?

- a.It cannot be determined in a graphical solution of an LPP.
- b.It is independent of the objective function.
- c.It implies that there must be a convex region satisfying all the constraints.
- d.Extreme points of the convex region give the optimum solution.

Answer: A

65.In Graphical solution the feasible solution is any solution to a LPP which satisfies _____.

- a.only objective function.
- b.non-negativity restriction.
- c.only constraint.
- d.all the three.

Answer: B

66.In Graphical solution the redundant constraint is _____.

- a.which forms the boundary of feasible region.
- b.which do not optimizes the objective function.
- c.which does not form boundary of feasible region.
- d.which optimizes the objective function.

Answer: C

67.Optimal solution in an LPP is _____.

- a.which maximizes or minimizes the objective function.
- b.which maximizes the objective function.
- c.which minimizes the objective function.
- d.which satisfies the non negativity restrictions.

Answer: A

68.Unbounded solution in an LPP is _____.

- a.where the objective function can be decreased indefinitely.
- b.which maximizes the objective function.
- c.where the objective function can be increased or decreased indefinitely.
- d.where the objective function can be increased indefinitely.

Answer: C

69.The two forms of LPP are _____.

- a.standard form and canonical form.
- b.standard form and general form.
- c.matrix form and canonical form.
- d.matrix form and standard form.

Answer: A

70.In the canonical form of LPP if the objective function is of maximization, then all the constraints other than non-negativity conditions are _____.

- a.greater than type.
- b.less than type.
- c.greater than or equal to type.

d. lesser than or equal to type.

Answer: D

71. In the canonical form of LPP if the objective function is of minimization then all the constraints other than non-negativity conditions are _____.

- a. greater than type.
- b. lesser than type.
- c. greater than or equal to type.
- d. lesser than or equal to type.

Answer: C

72. In an LPP the solution for the problems involving more than 2 variables can be solved using _____.

- a. graphical method.
- b. simplex method.
- c. hungarian method.
- d. all the above

Answer: B

73. In the standard form of LPP if the objective functions is of minimization then all the constraints _____.

- a. equations .
- b. inequalities.
- c. greater than or equal to type.
- d. lesser than or equal to type.

Answer: A

74. In the standard form of LPP if the objective function is of minimization then the right hand side of the constraints should be _____.

- a. positive.
- b. negative.
- c. non-negative.
- d. zero.

Answer: C

75. The non-negative variable which is added to LHS of the constraint to convert the inequality \leq into equation is called _____.

- a. random variable.
- b. decision variable.
- c. surplus variable.
- d. slack variable.

Answer: D

76. The non-negative variable which is added to LHS of the constraint to convert the inequality \geq into equation is called _____.

- a. random variable.

- b. decision variable.
- c. surplus variable.
- d. slack variable.

Answer: C

77. The test of optimality in simplex method is _____.

- a. $Z_j - C_j \geq 0$.
- b. $Z_j - C_j \leq 0$.
- c. $Z_j - C_j = 0$.
- d. $Z_j - C_j < 0$.

Answer: A

78. The Key column in simplex method is selected when the column of $Z_j - C_j$ is _____.

- a. most negative.
- b. largest negative.
- c. positive.
- d. zero.

Answer: A

79. The Key row is selected when the column of $Z_j - C_j$ is finding the ratio which is _____.

- a. maximum.
- b. minimum.
- c. largest positive.
- d. most negative.

Answer: B

80. In simplex method the LPP has unbounded solution if the variable in the key column is _____.

- a. maximum.
- b. minimum.
- c. positive.
- d. negative.

Answer: D

81. In graphical method the LPP has unbounded solution if the solution space has

- a. no upper boundary.
- b. no lower boundary.
- c. no boundary in the first quadrant.
- d. none of the above.

Answer: A

82. In a linear programming minimization model the objective function is to be _____.

- a. minimized.
- b. maximized.
- c. minimized or maximized.
- d. standardized.

Answer: A

83. Which of the following is associated with any L.P.P?

- a. feasible solution.
- b. optimum solution.
- c. basic solution.
- d. all the above.

Answer: D

84. Linear programming is_____.

- a. a constraint optimization model.
- b. a constraint decision making model.
- c. a mathematical programming model.
- d. all the above.

Answer: D

85. Which of the following is not true about feasibility?

- a. it cannot be determined in a graphical solution of an L.P.P.
- b. it is independent of the objective function.
- c. it implies that there must be a convex region satisfying all the constraints.
- d. extreme points of the convex region gives the optimum solution.

Answer: A

86. Graphical method can be used only when the decision variables is_____.

- a. more than 3.
- b. more than 1.
- c. two.
- d. one.

Answer: C

87. The region on the graph sheet which satisfies the constraints including the non-negativity restrictions is called the _____ space

- a. solution.
- b. interval.
- c. concave.
- d. convex.

Answer: A

88. The _____ is the method available for solving an L.P.P.

- a. graphical method.
- b. least cost method.
- c. MODI method
- d. hungarian method.

Answer: A

89. The graphical method is applicable to solve an L.P.P when there is _____.

- a. Only one variable.
- b. Two variables.
- c. More than two variables
- d. None of the above.

Answer: B

90. The objective of network analysis is to _____.

- a. Minimize total project duration.
- b. Minimize total project cost.
- c. Minimize product delays, interruption and conflicts
- d. All the above.

Answer: A

91. Network models have advantage in terms of project _____

- a. Planning
- b. Scheduling.
- c. Controlling.
- d. All the above.

Answer: D

92. The slack for an activity is equal to _____

- a. LF-LS.
- b. EF-ES.
- c. LS-ES.
- d. None of the above.

Answer: C

93. The another term commonly used for activity slack time is _____

- a. Total float.
- b. Independent float.
- c. Free float.
- d. All the above.

Answer: D

94. Generally the PERT technique deals with the project of _____

- a. Repetative nature.
- b. Non-repetative nature.
- c. Deterministic nature.
- d. None of the above.

Answer: B

95. In PERT the span of time between the optimistic and pessimistic time estimates of an activity is _____

- a. 3σ .
- b. 12σ .
- c. 6σ
- d. None of the above.

Answer: B

96.If an activity has zero slack,it implies that _____

- a.It lies on the critical path.
- b.It is a dummy activity.
- c.The project is progressing well.
- d.None of the above.

Answer: A

97.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 event yet be independent by themselves.
- c.Both a & b
- d.None of the above.

Answer:C

98.While drawing the network diagram for each activity project we should look_____

- a.What activities precede this activity .
- b. What activities follow this activity.
- c.What activity can concurrently take place with this activity.
- d.All the above.

Answer:D

99.In the PERT network each activity time assumes a Beta distribution because_____

- a.It is a unimodal distribution that provides information regarding the uncertainty of time estimates of activities.
- b.It has got finite non-negative error.
- c.It need not be symmetrical about model value .
- d.All the above

Answer:D

100.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. $L_j-E_i= L_i- L_j=d(\text{constant})$.
- d.All the above.

Answer:A

101.Float or slack analysis is useful for _____

- a.Projects behind the schedule only.
- b.Projects ahead of the schedule only.
- c.Both a & b.
- d.None of the above.

Answer:A

102. The activity that can be delayed without affecting the execution of the immediate succeeding activity is determined by _____

- a. Total float.
- b. Independent float.
- c. Free float.
- d. None of the above.

Answer: B

103. In time cost trade off function analysis _____

- a. Cost decreases linearly as time increases.
- b. Cost at normal time is zero.
- c. Cost increases linearly as time increases.
- d. None of the above.

Answer: A

104. Activity-on-arrow (AOA) diagram is preferred over Activity-on-node (AON) diagram because _____

- a. AOA diagrams are simple to construct.
- b. AOA diagrams give a better sense of the flow of time throughout a project.
- c. AOA diagrams do not involve dummy activities
- d. ALL the above.

Answer: B

105. Resource leveling is the process of _____ the utilization of resources in a project.

- a. Emerging
- b. Smoothing out.
- c. Minimize
- d. Maximize

Answer: B

106. Crashing is the process of reducing the total time that it takes to complete a project by expanding _____

- a. Additional funds.
- b. No. of days
- c. Both a & b
- d. None of the above

Answer: A

107. _____ is the time consuming job (or) task that is a key subpart of the total project .

- a. Activity.
- b. Event.
- c. Node.
- d. All the above.

Answer: A

108. Earliest finish time that an activity can be finished without _____ of precedence requirements.

- a. Planning.
- b. Violation..
- c. Both a&b
- d. None of the above

Answer: B

109. _____ is the point in time that marks the beginning or ending of an activity.

- a. Event.
- b. Node.
- c. Activity.
- d. Dummy activity.

Answer: A

110. If an activity has a zero slack, it implies that

- a. It lies on the critical path
- b. It is a dummy activity
- c. Both a & b
- d. None of the above

Answer: A

111. Network is the graphical display of a project that contains both _____ and _____

- a. Activities and events.
- b. Activities and dummy activities.
- c. Both (a) & (b).
- d. Neither (a) nor (b).

Answer: A

112. A small circle or rectangle that is known as _____ serves as a junction point in the project network.

- a. Event.
- b. Node.
- c. Slack.
- d. Variables.

Answer: B

113. Latest finish time that an activity can be finished without _____ the entire project.

- a. Delaying.
- b. Planning
- c. Both a&b
- d. None of the above

Answer: A

114. The amount of time that is expected to complete the activity is called _____

- a. Latest time.
- b. Earliest time.
- c. Most likely time.

d.Both a & b .

Answer:C

115.PERT is a tool for _____ and control time.

- a. Delaying.
- b.Planning.
- c. Both a&b
- d. None of the above

Answer:B

116.The CPM is used for completing the project that involves _____of repetitive nature.

- a.Activities
- b.Node.
- c.Event.
- d.Dummy activity.

Answer:A

117.Project _____phase allocates resources to work packages.

- a. Planning.
- b.Scheduling.
- c.Controlling.
- d.Both b&c.

Answer:A

118. _____phase identify manpower that will be responsible for each task.

- a. Planning.
- b.Scheduling.
- c.Controlling.
- d.All the above.

Answer:B

119.A _____ is an endeavour to create a unique product service.

- a.Project.
- b.Network.
- c.Activity.
- d.Node.

Answer:A

120. Transportation problem is a special class of _____.

- a.LPP.
- b.assignment problem.
- c.none of the two.
- d.both 1 and 2.

Answer: A

121.The Objective function of Transportation problem is to _____.

- a.maximize the total cost.

- b.minimize or maximize the total cost.
- c.minimize the total cost.
- d.total cost should be zero.

Answer: C

122. In Transportation problem the preferred method of obtaining either optimal or very close to the optimal solution is _____.

- a..north west corner rule.
- b.least cost method.
- c.vogel's approximation method.
- d.simplex method.

Answer: C

123.In Transportation problem the improved solution of the initial basic feasible solution is called _____.

- a.basic solution.
- b.optimal solution.
- c.degenerate solution.
- d.non-degenerate solution.

Answer: B

124.In Transportation problem optimal solution can be verified by using _____.

- a.north west corner rule.
- b.least cost method.
- c.MODI method.
- d.matrix method.

Answer: C

125.The cells in the Transportation problem can be classified as _____.

- a.assigned cells and empty cells.
- b.allocated cells and un allocated cells.
- c.occupied and unoccupied cells.
- d.assigned and unoccupied cells.

Answer: C

126.In North West corner rule the allocation is done in _____

- a.upper right corner.
- b.middle cell in the transportation table.
- c.cell with the lowest cost.
- d.Upper left corner.

Answer: D

127.In Least cost method the allocation is done by selecting _____.

- a.upper left corner.
- b.upper right corner.
- c.middle cell in the transportation table.

d.cell with the lowest cost.

Answer: D

128. Transportation problem is said to be balanced if _____.

- a. total supply is not equal to total demand.
- b. total supply is greater than total demand.
- c. total supply is lesser than total demand.
- d. total supply is equal to total demand.

Answer: D

129. Transportation problem is said to be unbalanced if _____.

- a. total supply is not equal to total demand.
- b. Total supply is greater than total demand.
- c. total supply is lesser than total demand.
- d. All the above

Answer: D

130. The basic feasible solution to a transportation problem is said to be optimal if it _____.

- a. maximizes or minimizes the transportation cost.
- b. maximizes the transportation cost.
- c. minimizes the transportation cost.
- d. has degenerate solution.

Answer: C

131. The necessary and sufficient condition for the existence of a feasible solution to a transportation problem is a solution that satisfies all the conditions of _____.

- a. supply.
- b. demand.
- c. supply and demand.
- d. either supply or demand.

Answer: C

132. Purpose of MODI method is to get _____.

- a. degenerate solution.
- b. non-degenerate solution.
- c. optimal.
- d. basic feasible solution.

Answer: C

133. In transportation problem the solution is said to non-degenerate solution if occupied cells is _____.

- a. greater than $m+n-1$.
- b. lesser than $m+n-1$.
- c. greater than or equal to $m+n-1$.
- d. lesser than or equal to $m+n-1$.

Answer: C

134. In transportation problem the solution is said to degenerate solution if occupied cells is
- a. greater than $m+n-1$.
 - b. lesser than $m+n-1$.
 - c. greater than or equal to $m+n-1$.
 - d. lesser than or equal to $m+n-1$.

Answer: B

135. In transportation problem if total supply $>$ total demand we add _____.
- a. dummy row with cost 0.
 - b. dummy column with cost 0.
 - c. dummy row with cost 1.
 - d. dummy column with cost 1.

Answer: B

136. In transportation problem if total supply $<$ total demand we add _____.
- a. dummy row with cost 0.
 - b. dummy column with cost 0.
 - c. dummy row with cost 1.
 - d. dummy column with cost 1.

Answer: A

137. In North West corner rule if the demand in the column is satisfied one must move to the _____.
- a. left cell in the next column.
 - b. right cell in the next row.
 - c. right cell in the next column.
 - d. left cell in the next row.

Answer: C

138. In North West corner rule if the supply in the row is satisfied one must move _____.
- a. down in the next row.
 - b. up in the next row.
 - c. right cell in the next column.
 - d. left cell in the next row.

Answer: A

139. The objective of the transportation problem which is to be maximized is to
- a. maximize the total profit.
 - b. minimize the total loss.
 - c. neither maximize nor minimize.
 - d. optimal cost.

Answer: A

140. In Maximization case of transportation problem we convert into minimization by subtracting all the elements from the _____.

- a. zero.
- b. one.
- c. highest element.
- d. lowest element.

Answer: C

141. The application of assignment problems is to obtain _____.

- a. only minimum cost.
- b. only maximum profit.
- c. minimum cost or maximum profit.
- d. assign the jobs.

Answer: D

142. The assignment problem is said to be unbalanced if _____.

- a. number of rows is greater than number of columns.
- b. number of rows is lesser than number of columns.
- c. number of rows is equal to number of columns.
- d. both 1 and 2.

Answer: D

143. The assignment problem is said to be balanced if _____.

- a. number of rows is greater than number of columns.
- b. number of rows is lesser than number of columns.
- c. number of rows is equal to number of columns.
- d. if the entry of row is zero.

Answer: C

144. The assignment problem is said to be balanced if it is _____.

- a. square matrix.
- b. rectangular matrix.
- c. unit matrix.
- d. triangular matrix.

Answer: A

145. In assignment problem if number of rows is greater than column then _____.

- a. dummy column is added .
- b. dummy row added .
- c. row with cost 1 is added.
- d. column with cost 1 is added.

Answer: A

146. In assignment problem if number of column is greater than row then _____.

- a. dummy column is added.
- b. dummy row added .

- c. row with cost 1 is added.
- d. column with cost 1 is added.

Answer: B

147. The transportation technique or simplex method cannot be used to solve the assignment problem because of _____.

- a. degeneracy.
- b. non-degeneracy.
- c. square matrix.
- d. any one of the above.

Answer: A

148. The objective of Transportation problem is to allocate _____.

- a. number of origins to equal number of destinations at minimum cost .
- b. number of origins to equal number of destination at maximum cost.
- c. only to maximize cost .
- d. only to maximize the profit.

Answer: A

149. In transportation problem 'NWC' stands for _____.

- a. North West Corner
- b. Net Working Capital
- c. Naval Weapons Center
- d. Nuclear Weapons Convention

Answer: A

150. Vogel's approximation method is also known as _____.

- a. Penalty method
- b. North west method.
- c. Least cost method
- d. None of the above.

Answer: A

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