MAHATMA GANDHI UNIVERSITY
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B.Sc Computer Science

Semester-V

BCS 501 Core -18 : Computer Aided Optimisation Techniques

Multiple Choice Questions.

1. Operations Research approach is _____.
   A. multi-disciplinary
   B. scientific
   C. intuitive
   D. collect essential data
   ANSWER: A

2. Operation research approach is typically based on the use of _____.
   A. physical model.
   B. mathematical model.
   C. iconic model.
   D. descriptive model.
   ANSWER: B

3. Mathematical model of linear programming problem is important because_____.
   A. it helps in converting the verbal description and numerical data into mathematical expression
   B. decision makers prefer to work with formal models
   C. it captures the relevant relationship among decision factors
   D. it enables the use of algebraic technique
   ANSWER: A

4. In Program Evaluation Review Technique for an activity, the optimistic time 2, the pessimistic time is 12 and most-likely time is 4. What is the expected time?
   A. 0
   B. 1
   C. 5
   D. 6
   ANSWER: C

5. Graphical method of linear programming is useful when the number of decision variable are _____.
   A. 2
   B. 3
   C. finite
   D. infinite
   ANSWER: A

6. In a given system of m simultaneous linear equations in n unknowns (m<n) there will be _____.
   A. n basic variables
   B. m basic variables
   C. (n-m) basic variables
   D. (n+m) basic variables
   ANSWER: B

7. A feasible solution to a linear programming problem _____.
   A. must satisfy all the constraints of the problem simultaneously
   B. need not satisfy all of the constraints, only some of them
   C. must be a corner point of the feasible region.
   D. must optimize the value of the objective function
   ANSWER: A

8. An Iso-profit line represents_____.
   A. an infinite number of solution all of which yield the same cost
   B. an infinite number of solutions all of which yield the same profit
   C. an infinite number of optimal solutions
   D. a boundary of the feasible region
   ANSWER: B

9. While solving a linear programming problem in feasibility may be removed by _____.
   A. adding another constraint
   B. adding another variable
   C. removing a constraint
   D. removing a variable
   ANSWER: C

10. In the optimal simplex table, Zj-Cj=0 value indicates _____.
   A. alternative solution
   B. bounded solution
   C. infeasible solution
   D. unbounded solution
   ANSWER: A

11. If any value in XB column of final simplex table is negative, then the solution is___.
A. infeasible
B. unbounded
C. bounded
D. no solution
ANSWER: A

12. If all aij values in the entering variable column of the simplex table are negative, then _____.
A. there are multiple solutions
B. there exist no solution
C. solution is degenerate
D. solution is unbounded
ANSWER: D

13. If an artificial variable is present in the basic variable column of optimal simplex table, then the solution is_____.
A. alternative
B. bounded
C. no solution
D. infeasible
ANSWER: D

14. For any primal problem and its dual_____.
A. optimal value of objective function is same
B. primal will have an optimal solution iff dual does too
C. both primal and dual cannot be infeasible
D. dual will have an optimal solution iff primal does too
ANSWER: B

15. The right hand side constant of a constraint in a primal problem appears in the corresponding dual as_____.
A. 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
ANSWER: A

16. Principle of complementary slackness states that_____.
A. primal slack*dual main=0.
B. primal main+dual slack=0
C. primal main+dual surplus=0
D. dual slack*primal main not equal to zero.
ANSWER: A

17. If primal linear programming problem has a finite solution, then dual linear programming problem should have_____.
A. finite solution
B. infinite solution
C. bounded solution
D. alternative solution
ANSWER: A

18. The initial solution of a transportation problem can be obtained by applying any known method. How-ever, the only condition is that_____.
A. the solution be optimal
B. the rim conditions are satisfied
C. the solution not be degenerate
D. the few allocations become negative
ANSWER: B

19. The dummy source or destination in a transportation problem is added to_____.
A. satisfy rim conditions
B. prevent solution from becoming degenerate
C. ensure that total cost does not exceed a limit
D. the solution not be degenerate
ANSWER: A

20. One disadvantage of using North-West Corner Rule to find initial solution to the transportation problem is that_____.
A. it is complicated to use
B. it does not take into account cost of transportation
C. it leads to a degenerate initial solution.
D. it does take into account cost of transportation.
ANSWER: B

21. The calculations of opportunity cost in the MODI method is analogous to a_____.
A. Zj-Cj value for non-basic variable column in the simplex method.
B. value of a variable in XB-column of the simplex method.
C. variable in the B-column in the simplex method.
D. Zj-Cj value for basic variable column in the simplex method.
ANSWER: A

22. An unoccupied cell in the transportation method is analogous to a_____.
A. Zj-Cj value in the simplex table.
B. variable in the B-column in the simplex table.
C. variable not in the B-column in the simplex table.
D. value in the XB column in the simplex table.
ANSWER: C

23. During iteration while moving from one solution to the next, degeneracy may occur when_____.
A. the closed path indicates a diagonal move
B. two or more occupied cells are on the closed path but neither of them represents a corner of the path.
C. two or more occupied cells on the closed path with minus sigh are tied for lowest circled value.
D. the closed path indicates a rectangle move.
ANSWER: C

24. Which of the following methods is used to verify the optimality of the current solution of the transportation problem_____.
A. Modified Distribution Method
B. Least Cost Method
C. Vogels Approximation Method
D. North West Corner Rule
ANSWER: A

25. An optimal assignment requires that the maximum number of lines which can be drawn through squares with zero opportunity cost be equal to the number of_____.
A. rows or coloumns
B. rows and coloumns.
C. rows+columns- 1
D. rows-columns.
ANSWER: A

26. While solving an assignment problem, an activity is assigned to a resource through a square with zero opportunity cost because the objective is to_____.
A. minimize total cost of assignment.
B. reduce the cost of assignment to zero
C. reduce the cost of that particular assignment to zero
D. reduce total cost of assignment
ANSWER: A

27. Maximization assignment problem is transformed into a minimization problem by_____.
A. adding each entry in a column from the maximum value in that column
B. subtracting each entry in a column from the maximum value in that column
C. subtracting each entry in the table from the maximum value in that table
D. adding each entry in the table from the maximum value in that table
ANSWER: C

28. For a salesman who has to visit n cities, following are the ways of his tour plan___.
A. n!
B. (n+a)!
C. (n-a)!
D. n
ANSWER: C

29. To proceed with the MODI algorithm for solving an assignment problem, the number of dummy allocations need to be added are_____.
A. n
B. n-1
C. 2n-1
D. n-2
ANSWER: B

30. Every basic feasible solution of a general assignment problem having a square pay-off matrix of order n should have assignments equal to_____.
A. 2n-1
B. n
C. n+1
D. n-2
ANSWER: A

31. A feasible solution to an LP problem_____.
A. must satisfy all of the problems constraints simultaneously
B. need not satisfy all of the constraints, only some of them
C. must be a corner point of the feasible region.
D. must optimize the value of the objective function.
ANSWER: A

32. An optimal solution to a maximization problem is reached if all
A. Zj-Cj>=0
B. Zj-Cj<=0
C. Zj-Cj=0
D. Zj-Cj is negative
ANSWER: A

33. Cells in the transportation table having positive allocation will be called___.
A. cells only
B. occupied
C. unoccupied
D. table
ANSWER: B

34. The solution must satisfy all the supply and demand constraints is called_____.
A. Feasible solution
B. Basic feasible solution
C. Initial basic feasible solution
D. rim conditions
ANSWER: D

35. Priority queue discipline may be classified as_____.
A. pre-emptive or non-pre-emptive
B. limited
C. unlimited
D. finite
ANSWER: C

36. The calling population is assumed to be infinite when_____.
A. arrivals are independent of each other
B. capacity of the system is infinite
C. service rate is faster than arrival rate
D. all customers arrive at once
ANSWER: A

37. Service mechanism in a queuing system is characterized by_____.
A. customers behavior
B. servers behavior
C. customers in the system
D. server in the system
ANSWER: B

38. The problem of replacement is felt when job performing units fail_____.
A. suddenly and gradually
B. gradually
C. suddenly
D. neither gradually nor suddenly
ANSWER: A

39. Replace an item when_____.
A. average annual cost for n years becomes equal to current running cost
B. next year running cost in more than average cost of nth year
C. present years running cost is less than the previous years average cost
D. average cost to date is equal to the current maintenance cost
ANSWER: A

40. The average annual cost will be minimized by replacing a machine when_____.
A. average cost to date is equal to the current maintenance cost
B. average cost to date is greater than the current maintenance cost
C. average cost to date is less than the current maintenance cost.
D. next year running cost in more than average cost of nth year
ANSWER: A

41. The group replacement policy in suitable for identical low cost items which are likely to_____.
A. fail suddenly
B. fail completely and suddenly
C. fail over a period of time
D. progressive and retrogressive
ANSWER: C

42. The objective of network analysis is to_____.
A. minimize total project duration
B. minimize toal project cost
C. minimize production delays, interruption and conflicts
D. maximize total project duration
ANSWER: A

43. A activity in a network diagram is said to be _____ if the delay in its start will further delay the project completion time.
A. forward pass
B. backward pass
C. critical
D. non critical
ANSWER: C

44. If an activity has zero slack, it implies that_____.
A. the project is progressing well
B. it is a dummy activity
C. it lies on the critical path
D. it lies a non critical path
ANSWER: C

45. In program evaluation review technique network each activity time assume 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. the project is progressing well
ANSWER: A

46. Float analysis in useful for_____.
A. projects behind the schedule only
B. projects ahead of the schedule only
C. cost at normal time is zero
D. the chain of activities may have a common event yet be independent by themselves
ANSWER: A

47. The activity which can be delayed without affecting the execution of the immediate succeeding activity is determined by_____.
A. total float
B. free float
C. independent float
D. variance of each float
ANSWER: B

48. In time cost trade off function analysis_____.
A. cost decreases linearly as time increases
B. cost increases linearly as time decreases
C. cost at normal time is zero
D. cost increases linearly as time increases
ANSWER: A

49. A degenerate solution is one that _____.
A. gives an optimum solution to the Linear Programming Problem
B. gives zero value to one or more of the basic variables
C. yields more than one way to achieve the objective
D. makes use of all the available resources
ANSWER: B

50. If there is no non-negative replacement ratio in solving a Linear Programming Problem then the solution is ____.
A. feasible
B. bounded
C. unbounded
D. infinite
ANSWER: C

51. When we solve a system of simultaneous linear equations by using two-phase method, the values of decision variables will be _____.
A. positive
B. negative
C. zero
D. positive and/or negative
ANSWER: D

52. The transportation problem deals with the transportation of _____.
A. a single product from a source to several destinations
B. a single product from several sources to several destinations
C. a single product from several sources to a destination
D. a multi -product from several sources to several destinations
ANSWER: A

53. The transportation problem is balanced, if _____.
A. total demand and total supply are equal and the number of sources equals the number of destinations.
B. none of the routes is prohibited
C. total demand equals total supply irrespective of the number of sources and destinations
D. number of sources matches with number of destinations
ANSWER: C

54. The calling population is considered to be infinite when _____.
A. all customers arrive at once
B. capacity of the system is infinite
C. service rate is faster than arrival rate
D. arrivals are independent of each other
ANSWER: B

55. The assignment problem is a special case of transportation problem in which _____.
A. number of origins are less than the number of destinations
B. number of origins are greater than the number of destinations
C. number of origins are greater than or equal to the number of destinations
D. number of origins equals the number of destinations
ANSWER: D

56. Identify the correct statement
A. an assignment problem may require the introduction of both dummy row and dummy column
B. an assignment problem with m rows and n columns will involves a total of m x n possible assignments
C. an unbalanced assignment is one where the number of rows is more than, or less than the number of columns
D. balancing any unbalanced assignment problem involves adding one dummy row or column
ANSWER: C

57. The minimum number of lines covering all zeros in a reduced cost matrix of order n can be _____.
A. at the most n
B. at the least n
C. n-1
D. n+1
ANSWER: A

58. In an assignment problem involving 5 workers and 5 jobs, total number of assignments possible are _____.
A. 5
B. 10
C. 15
D. 25
ANSWER: A

59. In marking assignments, which of the following should be preferred?
A. Only row having single zero
B. Only column having single zero
C. Only row/column having single zero
D. Column having more than one zero
ANSWER: C

60. 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. 12
D. 20
ANSWER: B

61. Customers arrive at a box office window, being manned ny single individual, according to Poisson input process with mean rate of 20 per hour, while the mean service time is 2 minutes. Which of the following is not true for this system?
A. E(n) = 2 customers
B. E(m) = 4/3 customers
C. E(v) = 6 minutes
D. E(w) = 16 minutes
ANSWER: A

62. A petrol pump has two pumps; Vehicles arrive at the petrol pump according to poison 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 _____.
A. 33%
B. 43%
C. 53%
D. 65%
ANSWER: B

63. The initial solution of a transportation problem can be obtained by applying any known method. However, the only condition is that____.
A. the solution be optimal
B. the rim conditions are satisfied
C. the solution not be degenerate
D. the solution be degenerate
ANSWER: B

64. An assignment problem can be solved by_____.
A. Simplex Method
B. Transportation Method
C. Dual simplex method

D. Simplex and Transportation Method
ANSWER: D

65. A game is said to be fair if___
A. both upper and lower values of the game are same and zero
B. upper and lower values of the game are not equal
C. upper values is more than lower value of the game
D. lower values is more than upper value of the game
ANSWER: A

66. A mixed strategy game can be solved by ____.
A. Simplex Method
B. Dual Simplex Method
C. Transportation Method
D. Graphical Method
ANSWER: D

67. When the sum of gains of one player is equal to the sum of losses to another player in a game, this situation is known as_____.
A. two person game
B. zero-sum game
C. two person zero sum game
D. non zero sum game
ANSWER: B

68. The critical path satisfy the condition that _____.
A. Ei=Li and Ej=Lj
B. Ei-Li=Ej-Lj
C. Lj-Ei=Li-Ej
D. Lj+Ei=Li+Ej
ANSWER: A

69. In Program Evaluation Review Technique the maximum time that is required to perform the activity under extremely bad conditions is known as_____.
A. normal time
B. optimistic time
C. most likely time
D. pessimistic time
ANSWER: D

70. ._____is a mathematical technique used to solve the problem of allocating limited resource among the competing activities
A. Linear Programming problem
B. Assignment Problem
C. Replacement Problem

D. Non linear Programming Problem
ANSWER: A

71. The Hungarian method used for finding the solution of the assignment problem is also called _____.
A. Vogel's Approximation Method
B. Modi Method
C. Simplex Method
D. Dual Simplex Method
ANSWER: B

72. Traveling salesman problem will have a total of _____different sequences.
A. n!
B. n-1
C. (n-a)!.
D. n
ANSWER: D

73. In the production lot size model, increasing the rate of production _____ .
A. increase the optimal number of orders to place each year
B. does not influence the optimal number of orders
C. decrease the optimal number of orders to place each year
D. exactly the optimal number of orders to place each year.
ANSWER: A

74. The _____ time for an activity can be reduced by using increased resources.
A. normal
B. optimistic
C. pessimistic
D. most likely
ANSWER: A

75. Graphical method of linear programming is useful when the number of decision variable are _____
A. 2
B. 3
C. 4
D. 1
ANSWER: A

76. The activity cost corresponding to the crash time is called the _____.
A. critical time
B. normal time
C. cost slope

D. crash cost
ANSWER: D

77. The irreducible minimum duration of the project is called_____.
A. critical time
B. crashed duration
C. cost slope
D. crash cost
ANSWER: B

78. In the network, only one activity may connect any _____nodes
A. 1
B. 2
C. 3
D. 4
ANSWER: B

79. If the constraints of an Linear Programming Problem has an in equation of greater than or equal to type, the variable to be added to are _____
A. slack
B. surplus
C. artificial
D. decision
ANSWER: B

80. If the constraint of an Linear Programming Problem has an in equation of less than or equal to type, the variables to be added are_____
A. slack
B. surplus
C. artificial
D. decision
ANSWER: A

81. A feasible solution of an Linear Programming Problem that optimizes then the objective function is called _____
A. basic feasible solution
B. optimum solution
C. feasible solution
D. solution
ANSWER: B

82. A set of feasible solution to a Linear Programming Problem is _____
A. convex
B. polygon
C. triangle

D. bold
ANSWER: A

83. The cost of a slack variable is _____.
A. 0
B. 1
C. 2
D. -1
ANSWER: A

84. The cost of a surplus variable is _____.
A. 0
B. 1
C. 2
D. -1
ANSWER: A

85. If all the constraints of the primal problem in equations are of type less than or equal to then the constraints in the dual problem is _____.
A. less than or equal to
B. greater than or equal to
C. equal to
D. 0
ANSWER: B

86. In an Linear Programming Problem functions to be maximized or minimized are called _____.
A. constraints
B. objective function
C. basic solution
D. feasible solution
ANSWER: B

87. Linear Programming Problem that can be solved by graphical method has_____.
A. linear constraints
B. quadratic constraints
C. non linear constraints
D. bi-quadratic constraints
ANSWER: A

88. Charnes method of penalty is called _____
A. Simplex Method
B. Dual Simplex Method
C. Big-M Method

D. Graphical Method
ANSWER: C

89. If the primal problem has n constraints and m variables then the number of constraints in the dual problem is _____.
A. mn
B. m+n
C. m-n
D. m/n
ANSWER: A

90. Graphical method is also known as _____.
A. Simplex Method
B. Dual Simplex Method
C. Big-M Method
D. Search Approach Method
ANSWER: D

91. The area bounded by all the given constraints is called _____.
A. feasible region
B. basic solution
C. non feasible region
D. optimum basic feasible solution
ANSWER: A

92. If one or more variable vanish then a basic solution to the system is called _____.
A. non feasible region
B. feasible region
C. degenerate solution
D. basic solution
ANSWER: C

93. The non basic variables are called _____.
A. shadow cost
B. opportunity cost
C. slack variable
D. surplus variable
ANSWER: A

94. If the given Linear Programming Problem is in its canonical form then primal-dual pair is _____.
A. symmetric
B. unsymmetric
C. square

D. non square
ANSWER: B

95. If the given Linear Programming Problem is in its standard form then primal-dual pair is _____.
A. symmetric
B. unsymmetric
C. slack
D. square
ANSWER: B

96. The dual of the dual is _____.
A. dual-primal
B. primal-dual
C. dual
D. primal
ANSWER: D

97. Key element is also known as _____.
A. slack
B. surplus
C. artificial
D. pivot
ANSWER: D

98. _____ method is an alternative method of solving a Linear Programming Problem involving artificial variables
A. Simplex Method
B. Big-M Method
C. Dual Simplex Method
D. Graphical Mehtod
ANSWER: B

99. The method used to solve Linear Programming Problem without use of the artificial variable is called _____.
A. Simplex Method
B. Big-M Method
C. Dual Simplex Method
D. Graphical Mehtod
ANSWER: C

100. All the basis for a transportation problem is _____.
A. square
B. rectangle
C. triangle

D. polygon
ANSWER: C

101. The solution to a transportation problem with m-sources and n-destinations is feasible if the numbers of allocations are _____.
A. m+n
B. mn
C. m-n
D. m+n-1
ANSWER: D

102. Solution of a Linear Programming Problem when permitted to be infinitely large is called _____.
A. unbounded
B. bounded
C. optimum solution
D. no solution
ANSWER: A

103. The server utilization factor is also known as _____
A. erlang distribution
B. poisson distribution
C. exponential distribution
D. traffic intensity
ANSWER: D

104. When the total demand is equal to supply then the transportation problem is said to be _____
A. balanced
B. unbalanced
C. maximization
D. minimization
ANSWER: A

105. When the total demand is not equal to supply then it is said to be _____.
A. balanced
B. unbalanced
C. maximization
D. minimization
ANSWER: B

106. The allocation cells in the transportation table will be called _____ cell
A. occupied
B. unoccupied
C. no

D. finite
ANSWER: A

107. In the transportation table, empty cells will be called _____.
A. occupied
B. unoccupied
C. basic
D. non-basic
ANSWER: B

108. In a transportation table, an ordered set of_____or more cells is said to form a loop
A. 2
B. 3
C. 4
D. 5
ANSWER: C

109. Closed loops may be _____ in shape
A. square
B. rectangle
C. triangle
D. diagonal
ANSWER: A

110. To resolve degeneracy at the initial solution, a very small quantity is allocated in _____ cell
A. occupied
B. basic
C. non-basic
D. unoccupied
ANSWER: D

111. For finding an optimum solution in transportation problem _____ method is used.
A. Modi
B. Hungarian
C. Graphical
D. simplex
ANSWER: A

112. _____ is a completely degenerate form of a transportation problem
A. Assignment
B. Least Cost Method
C. North West Corner

D. Vogel's Approximation
ANSWER: A

113. The assignment algorithm was developed by _____.
A. MODI
B. HUNGARIAN
C. HUHN
D. VOGELS
ANSWER: B

114. An Linear Programming Problem have _____ optimal solution
A. 1
B. 2
C. more than 1
D. more than 2
ANSWER: C

115. All equality constraints can be replaced equivalently by _____ inequalities
A. 1
B. 2
C. 3
D. 4
ANSWER: B

116. Linear Programming Problem is a technique of finding the _____.
A. optimal value
B. approximate value
C. initial value
D. infeasible value
ANSWER: A

117. The linear function to be maximized or minimized is called _____.
A. injective function
B. surjective function
C. bijective function
D. optimal function
ANSWER: D

118. An assignment problem is a particular case of _____.
A. linear programming problem
B. transportation problem
C. replacement problem

D. network problme
ANSWER: B

119. An n-tuple of real numbers which satisfies the constraints of Linear Programming Problem is called _____
A. solution
B. basic solution
C. feasible solution
D. basic feasible solution
ANSWER: A

120. Any solution to a Linear Programming Problem which also satisfies the non- negative notifications of the problem has _____.
A. solution
B. basic solution
C. feasible solution
D. basic feasible solution
ANSWER: C

121. If the primal has an unbound objective function value then the other problem has _____ .
A. solution
B. basic solution
C. feasible solution
D. no feasible solution
ANSWER: D

122. The coefficient of slack\surplus variables in the objective function are always assumed to be _____.
A. 0
B. 1
C. M
D. -M
ANSWER: A

123. The coefficient of an artificial variable in the objective function of penalty method are always assumed to be _____.
A. 0
B. 1
C. -1
D. -M
ANSWER: D

124. Chose the correct statement: A degenerate solution is one that_____.
A. gives an optimum solution to the Linear Programming Problem
B. gives zero value to one or more of the basic variables
C. yields more than one way to achieve the objective

D. makes use of all available resources
ANSWER: B

125. If there is no non-negative replacement ratio in a sllution which is sought to be improved, then the solution is_____.
A. bounded
B. unbounded
C. basic solution
D. non-basic solution
ANSWER: B

126. At any iteration of the usual simplex method, if there is at least one basic variable in the basis at zero level and all the index numbers are non-negative, the current solution is_____.
A. degenerate
B. non-degenerate
C. basic solution
D. non-basic solution
ANSWER: A

127. Using _____method, we can never have an unbounded solution
A. Simplex Method
B. Dual Simplex Method
C. Big-M Method
D. Search Approach Method
ANSWER: B

128. The process that performs the services to the customer is known as _____.
A. queue
B. service channel
C. customers
D. server
ANSWER: B

129. The customers of high priority are given service over the low priority customers is_____.
A. pre emptive
B. non pre emptive
C. FIFO
D. LIFO
ANSWER: A

130. Given arrival rate = 15/hr, service rate = 20/hr, the value of traffic intensity is _____.
A. 4/3
B. 3/4

C. 3/2
D. 5
ANSWER: B

131. The model in which only arrivals are counted and no departure takes place are called _____.
A. pure birth model
B. pure death model
C. birth-death model
D. death-birth model
ANSWER: A

132. A queuing system is said to be a _____ when its operating characteristic are dependent upon time
A. death model
B. birth model
C. transient state
D. steady state
ANSWER: C

133. A queuing system is said to be a _____when its operating characteristic are independent upon time
A. death model
B. birth model
C. transient state
D. steady state
ANSWER: D

134. _____ of a queuing system is the state where the probability of the number of customers in the system depends upon time
A. death model
B. birth model
C. transient state
D. steady state
ANSWER: D

135. An activity is represented by _____.
A. a straight line
B. a curve
C. an arrow
D. a circle
ANSWER: C

136. An activity which does not consume neither any resource nor time is known as_____.
A. activity
B. predecessor activity

C. successor activity
D. dummy activity
ANSWER: D

137. The initial event which has all outgoing arrows with no incoming arrow is numbered _____.
A. 0
B. 1
C. 2
D. -2
ANSWER: A

138. Slack is also known as _____.
A. activity
B. event
C. float
D. time
ANSWER: C

139. An activity is critical if its _____float is zero
A. total
B. free
C. independent
D. interference
ANSWER: A

140. The difference between total and free float is _____.
A. total
B. free
C. independent
D. interference
ANSWER: D

141. What type of distribution does a time follow in program evaluation review technique model?
A. Poisson
B. Exponential
C. Normal
D. Unimodel
ANSWER: C

142. In a network diagram an event is denoted by the symbol _____.
A. circle
B. arrow

C. dotted arrow
D. double circle
ANSWER: A

143. A project consists of a number of tasks which are called _____.
A. activities
B. events
C. dummy activity
D. successor
ANSWER: A

144. The number of time estimates involved in Program Evaluation Review Technique problem is _____.
A. 1
B. 2
C. 3
D. 4
ANSWER: C

145. An _____ represent the start or completion of some activity and as such it consumes no time
A. event
B. activity
C. floats
D. time
ANSWER: A

146. A activity in a network diagram is said to be _____ if the delay in its start will further delay the project completion time.
A. critical
B. non critical
C. PERT
D. crash
ANSWER: A

147. _____ is used for non-repetitive jobs
A. network
B. critical
C. PERT
D. CPM
ANSWER: D

148. _____ is employed in construction and business problems
A. network
B. critical

C. PERT
D. CPM
ANSWER: C

149. The assignment problem is always a _____matrix.
A. square
B. sub
C. unit
D. null
ANSWER: A

150. The similarity between assignment problem and transportation problem is _____.
A. both are rectangular matrices
B. both are square matrices
C. both can be solved y graphical method
D. both have objective function and non-negativity constraints
ANSWER: D