Operation Research
Quiz Test -I

MULTIPLE CHOICE

1. Operations Research approach is ______________.

   a. multi-disciplinary
   b. scientific
   c. intuitive
   d. collect essential data

   ANS: A PTS: 1

2. 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

   ANS: A PTS: 1

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

   a. infeasible
   b. infeasible
   c. bounded
   d. no solution

   ANS: B PTS: 1

4. For any primal problem and its dual______________.

   a. optimal value of objective function is same
   b. dual will have an optimal solution iff primal does too
   c. primal will have an optimal solution if dual does too
   d. both primal and dual cannot be infeasible

   ANS: C PTS: 1

5. Operations Research (OR) , which is a very powerful tool for ----------------

   a. Research
   b. Decision – Making
   c. Operations
   d. None of the above

   ANS: B PTS: 1

6. Who coined the term Operations Research?

   a. J.F. McCloskey
   b. F.N. Trefethen
   c. P.F. Adams
   d. Both A and B

   ANS: D PTS: 1

7. This innovative science of Operations Research was discovered during -------------

   a. Civil War
   b. World War I
   c. World War II
   d. Industrial Revolution

   ANS: C PTS: 1

8. The term Operations Research was coined in the year --------------
   a. 1950
   b. 1940
   c. 1978
   d. 1960

   ANS: B PTS: 1

9. Operations Research was known as an ability to win a war without really going in to a -------------
   a. Battle field
   b. Fighting
   c. War
   d. Both A and B

   ANS: D PTS: 1

10. Who defined Operations Research as scientific method of providing executive departments with a quantitative basis for decisions regarding the operations under their control?
    a. Morse and Kimball (1946)
    b. P.M.S. Blackett (1948)
    c. E.L. Arnoff and M.J. Netzorg
    d. None of the above

    ANS: A PTS: 1

11. Who defined Operations Research as scientific approach to problem solving for executive management ?
    a. E.L. Arnoff
    b. P.M.S. Blackett
    c. H.M. Wagner
    d. None of the above

    ANS: C PTS: 1

12. Who defined Operations Research as an aid for the executive in marketing his decisions by providing him with the quantitative information based on the scientific method of analysis?
    a. C. Kitte
    b. H.M. Wagner
    c. E.L. Arnoff
    d. None of the above

    ANS: A PTS: 1

13. Operations Research has the characteristics the it is done by a team of -----------------
    a. Scientists
    b. Mathematicians
    c. Academics
    d. All of the above

    ANS: A PTS: 1

14. There is a great scope for ------------ working as a team to solve problems of defence by using the Operations Research approach
    a. Economists
    b. Administrators
    c. Statisticians and Technicians
    d. All of the above

    ANS: D PTS: 1

15. Operations Research cannot give perfect ------------------ to problems
    a. Answers
    b. Solutions
    c. Both A and B
    d. Decisions

    ANS: C PTS: 1

16. Operations Research simply helps in improving the ------------- of the solution but does not result in a perfect solution.
   a. Quality
   b. Clarity
   c. Look
   d. None of the above

   ANS: A PTS: 1

17. Operations Research involves ------------------ attack of complex problems to arrive at the optimum solution
   a. Scientific
   b. Systematic
   c. Both A and B
   d. Statistical

   ANS: C PTS: 1

18. Operations Research uses models built by quantitative measurement of the variables concerning a given problem and also derives a solution from the model using ------------ of the diversified solution techniques
   a. Two or more
   b. One or more
   c. Three or more
   d. Only One

   ANS: B PTS: 1

19. A solution may be extracted from a model either by
   a. Conducting experiments on it
   b. Mathematical analysis
   c. Both A and B
   d. Diversified Techniques

   ANS: C PTS: 1

20. Operations Research uses models to help the management to determine its ---------- scientifically
   a. Policies
   b. Actions
   c. Both A and B
   d. None of the above

   ANS: C PTS: 1

21. Operations Research is a ----------------
   a. Science
   b. Art
   c. Mathematics
   d. Both A and B

   ANS: D PTS: 1

22. What have been constructed for Operations Research problems and methods for solving the models that are available in many cases?
   a. Scientific Models
   b. Algorithms
   c. Mathematical Models
   d. None of the above

   ANS: C PTS: 1

23. Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost minimization under certain constraints?
   a. Quailing Theory
   b. Waiting Line
   c. Both A and B
   d. Linear Programming

   ANS: D PTS: 1

24. Operations Research attempts to find the best and ------------ solution to a problem
   a. Optimum
   b. Perfect
   c. Degenerate
   d. None of the above

   ANS: A PTS: 1

25. The word ------------ may be defined as some action that we apply to some problems or hypothesis.
   a. Research
   b. Operation
   c. Both A and B
   d. None of the above

   ANS: B PTS: 1

26. The objective functions and constraints are linear relationship between ------------
   a. Variables
   b. Constraints
   c. Functions
   d. All of the above

   ANS: A PTS: 1

27. Graphic method can be applied to solve a LPP when there are only ------------ variable
   a. One
   b. More than One
   c. Two
   d. Three

   ANS: C PTS: 1

28. If the feasible region of a LPP is empty, the solution is -------------------
   a. Infeasible
   b. Unbounded
   c. Alternative
   d. None of the above

   ANS: A PTS: 1

29. The variables whose coefficient vectors are unit vectors are called -----------
   a. Unit Variables
   b. Basic Variables
   c. Non basic Variables
   d. None of the above

   ANS: B PTS: 1

30. Any column or raw of a simplex table is called a --------------
   a. Vector
   b. Key column
   c. Key Raw
   d. None of the above

   ANS: A PTS: 1

31. If there are 'm' original variables and 'n' introduced variables, then there will be ------------ columns in the simplex table
   a. M + n
   b. M – n
   c. 3 +m + n
   d. M + n – 1

   ANS: D PTS: 1

32. A minimization problem can be converted into a maximization problem by changing the sign of coefficients in the ------------------

a. Constraints	c. Both A and B
b. Objective Functions	d. None of the above

ANS: B PTS: 1

33. If in a LPP , the solution of a variable can be made infinity large without violating the constraints, the solution is ------------------

a. Infeasible	c. Alternative
b. Unbounded	d. None of the above

ANS: B PTS: 1

34. In maximization cases , ------------ are assigned to the artificial variables as their coefficients in the objective function

a. +M	c. 0
b. –M	d. None of the above

ANS: A PTS: 1

35. In simplex method , we add --------------- variables in the case of '='

a. Slack Variable	c. Artificial Variable
b. Surplus Variable	d. None of the above

ANS: C PTS: 1

36. In simplex method, if there is tie between a decision variable and a slack (or surplus) variable, ---------------- should be selected

a. Slack variable	c. Decision variable
b. Surplus variable	d. None of the above

ANS: C PTS: 1

37. A BFS of a LPP is said to be --------------- if at least one of the basic variable is zero

a. Degenerate	c. Infeasible
b. Non-degenerate	d. Unbounded

ANS: A PTS: 1

38. In LPP, degeneracy occurs in --------------- stages

a. One	c. Three
b. Two	d. Four

ANS: B PTS: 1

39. Every LPP is associated with another LPP is called ----------------

a. Primal	c. Non-linear programming
b. Dual	d. None of the above

ANS: B PTS: 1

40. 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

ANS: C PTS: 1

41. Linear programming has been successfully applied in -----------

a. Agricultural
b. Industrial applications
c. Both A and B
d. Manufacturing

ANS: C PTS: 1

42. Any solution to a LPP which satisfies the non- negativity restrictions of the LPP is called its --------

a. Unbounded solution
b. Optimal solution
c. Feasible solution
d. Both A and B

ANS: C PTS: 1

43. 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

ANS: A PTS: 1

44. What is also defined as the non-negative variables which are added in the LHS of the constraint to convert the inequality '< ' into an equation?

a. Slack variables
b. Simplex algorithm
c. Key element
d. None of the above

ANS: A PTS: 1

45. ------------ is another method to solve a given LPP involving some artificial variable ?

a. Big M method
b. Method of penalties
c. Two-phase simplex method
d. None of the above

ANS: C PTS: 1

46. An optimum solution is considered the ------------- among feasible solutions.

a. Worst
b. Best
c. Ineffective
d. None of the above

ANS: B PTS: 1

47. MODI method is used to obtain ------------

a. Optimal solutions
b. Optimality test
c. Both A and B
d. Optimization

ANS: C PTS: 1

48. Any set of non-negative allocations (Xij>0) which satisfies the row and column sum (rim requirement)is called a --------------------

a. Linear programming
b. Basic feasible solution
c. Feasible solution
d. None of the above

ANS: C PTS: 1

49. If demand is lesser than supply then dummy demand node is added to make it a ---------------

a. Simple problem
b. Balanced problem
c. Transportation problem
d. None of the above

ANS: B PTS: 1

50. Basic cells indicate positive values and non- basic cells have ---------- value for flow

a. Negative
b. Positive
c. One
d. zero

ANS: D PTS: 1

51. Before starting to solve the problem, it should be balanced. If not then make it balanced by ---------- column incase demand is less than supply or by adding ----------- raw incase supply is less than the demand

a. O,D
b. m,n
c. Horizontal, Vertical
d. Unshipped supply, Shortage

ANS: D PTS: 1

52. VAM stands for ------------

a. Vogeal's Approximation Method
b. Vogel's Approximate Method
c. Vangel's Approximation Method
d. Vogel's Approximation Method

ANS: D PTS: 1

53. 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

ANS: C PTS: 1

54. One can find the initial basic feasible solution by using -------------- ?

a. VAM
b. MODI
c. Optimality test
d. None of the above

ANS: A PTS: 1

55. What do we apply in order to determine the optimum solution ?

a. LPP
b. VAM
c. MODI Method
d. None of the above

ANS: C PTS: 1

56. If the total supply is less than the total demand, a dummy source (row) is included in the cost matrix with ------------

a. Dummy Demand
b. Dummy Supply
c. Zero Cost
d. Both A and B

ANS: C PTS: 1

57. To find the optimal solution, we apply ----------

a. LPP
b. VAM
c. MODI Method
d. Rim

ANS: C PTS: 1

58. Operations research is the application of ____________methods to arrive at the optimal Solutions to the problems.

a. economical
b. scientific
c. a and b both
d. artistic

ANS: B PTS: 1

59. In operations research, the ------------------------------are prepared for situations.

a. mathematical models
b. physical models diagrammatic
c. diagrammatic models
d. both a and b

ANS: A PTS: 1

60. Operations management can be defined as the application of -------to a problem within a system to yield the optimal solution.

a. Suitable manpower
b. mathematical techniques, models, and tools
c. Financial operations
d. all of the above

ANS: B PTS: 1

61. Operations research is based upon collected information, knowledge and advanced study of various factors impacting a particular operation. This leads to more informed -----------

a. Management processes
b. Decision making
c. Procedures
d. both a and b

ANS: B PTS: 1

62. OR can evaluate only the effects of ----------------------

a. Numeric and quantifiable factors
b. Personnel factors.
c. both a and b
d. Financial factors

ANS: A PTS: 1

63. 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

   ANS: D PTS: 1

64. The objective function and constraints are functions of two types of variables, ________________ variables and _____________ variables.
   a. Positive and negative
   b. Controllable and uncontrollable
   c. Strong and weak
   d. None of the above

   ANS: B PTS: 1

65. Operations research was known as an ability to win a war without really going in to ____
   a. Battle field
   b. Fighting
   c. The opponent
   d. Both A and B

   ANS: D PTS: 1

66. Who defined OR as scientific method of providing executive departments with a quantitative basis for decisions regarding the operations under their control?
   a. Morse and Kimball (1946)
   b. P.M.S. Blackett (1948)
   c. E.L. Arnoff and M.J. Netzorg
   d. None of the above

   ANS: A PTS: 1

67. OR has a characteristics that it is done by a team of
   a. Scientists
   b. Mathematicians
   c. Academics
   d. All of the above

   ANS: D PTS: 1

68. A solution can be extracted from a model either by
   a. Conducting experiments on it
   b. Mathematical analysis
   c. Both A and B
   d. Diversified Techniques

   ANS: C PTS: 1

69. Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost reduction under certain constraints?
   a. Quailing Theory
   b. Waiting Line
   c. Both A and B
   d. Linear Programming

   ANS: D PTS: 1

70. What is the objective function in linear programming problems?

a. A constraint for available resource
b. An objective for research and development of a company
c. A linear function in an optimization problem
d. A set of non-negativity conditions

ANS: C PTS: 1

71. Which statement characterizes standard form of a linear programming problem?

a. Constraints are given by inequalities of any type
b. Constraints are given by a set of linear equations
c. Constraints are given only by inequalities of >= type
d. Constraints are given only by inequalities of <= type

ANS: A PTS: 1

72. Feasible solution satisfies __________

a. Only constraints
b. only non-negative restriction
c. [a] and [b] both
d. [a],[b] and Optimum solution

ANS: C PTS: 1

73. In Degenerate solution value of objective function _____________.

a. increases infinitely
b. basic variables are nonzero
c. decreases infinitely
d. One or more basic variables are zero

ANS: D PTS: 1

74. In graphical method the restriction on number of constraint is __________.

a. 2
b. not more than 3
c. 3
d. none of the above

ANS: D PTS: 1

75. In graphical representation the bounded region is known as _________ region.

a. Solution
b. basic solution
c. feasible solution
d. optimal

ANS: C PTS: 1

76. Graphical optimal value for Z can be obtained from

a. Corner points of feasible region
b. Both a and c
c. corner points of the solution region
d. none of the above

ANS: A PTS: 1

77. In LPP the condition to be satisfied is

a. Constraints have to be linear
b. Objective function has to be linear
c. none of the above
d. both a and b

ANS: D PTS: 1

78. Identify the type of the feasible region given by the set of inequalities
x - y <= 1
x - y >= 2
where both x and y are positive.

a. A triangle
b. A rectangle
c. An unbounded region
d. An empty region

ANS: D PTS: 1

79. Consider the given vectors: a(2,0), b(0,2), c(1,1), and d(0,3). Which of the following vectors are linearly independent?

a. a, b, and c are independent
b. a, b, and d are independent
c. a and c are independent
d. b and d are independent

ANS: C PTS: 1

80. Consider the linear equation 2 x1 + 3 x2 - 4 x3 + 5 x4 = 10
How many basic and non-basic variables are defined by this equation?

a. One variable is basic, three variables are non-basic
b. Two variables are basic, two variables are non-basic
c. Three variables are basic, one variable is non-basic
d. All four variables are basic

ANS: A PTS: 1

81. The objective function for a minimization problem is given by z = 2 x1 - 5 x2 + 3 x3
The hyperplane for the objective function cuts a bounded feasible region in the space (x1,x2,x3). Find the direction vector d, where a finite optimal solution can be reached.

a. d(2,-5,3)
b. d(-2,5,-3)
c. d(2,5,3)
d. d(-2,-5,-3)

ANS: B PTS: 1

82. What is the difference between minimal cost network flows and transportation problems?

a. The minimal cost network flows are special cases of transportation problems
b. The transportation problems are special cases of the minimal cost network flows
c. There is no difference
d. The transportation problems are formulated in terms of tableaus, while the minimal cost network flows are formulated in terms of graphs

ANS: B PTS: 1

83. The purpose of the stepping-stone method is to
   a. develop the initial solution to the transportation problem.
   b. assist one in moving from an initial feasible solution to the optimal solution.
   c. determine whether a given solution is feasible or not.
   d. identify the relevant costs in a transportation problem.

   ANS: B PTS: 1

84. Which of the following is a method for improving an initial solution in a transportation problem?
   a. northwest-corner
   b. intuitive lowest-cost
   c. southeast-corner rule
   d. stepping-stone

   ANS: D PTS: 1

85. The procedure used to solve assignment problems wherein one reduces the original assignment costs to a table of opportunity costs is called __________.
   a. stepping-stone method
   b. matrix reduction
   c. MODI method
   d. northwest reduction

   ANS: B PTS: 1

86. The method of finding an initial solution based upon opportunity costs is called__________.
   a. the northwest corner rule
   b. Vogel's approximation
   c. Johanson's theorem
   d. Hungarian method

   ANS: B PTS: 1

87. ____occurs when the number of occupied squares is less than the number of rows plus
   a. Degeneracy
   b. Unboundedness
   c. Infeasibility
   d. Redundancy

   ANS: A PTS: 1

88. 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

   ANS: B PTS: 1

89. 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 degenerate initial solution
   d. all of the above

   ANS: B PTS: 1

90. In northwest corner method first allocation is made at

a. Lower right corner of the table.
b. Upper right corner of the table.
c. Highest costly cell of the table.
d. Upper left-hand corner of the table

ANS: D PTS: 1

91. In the optimal simplex table, Zj-Cj=0 value indicates _____________.

a. alternative solution
b. bounded solution
c. infeasible solution
d. unbounded solution

ANS: A PTS: 1

92. The cell without allocation is called __________.

a. Non-basic cell
b. Empty cell
c. Basic cell
d. Basic solution

ANS: A PTS: 1

93. The cell with allocation can be called ___________ .

a. Cell
b. Basic cell
c. Empty cell
d. Non-basic cell

ANS: B PTS: 1

94. The maximum value of the object function Z = 5x + 10 y subject to the constraints x + 2y = 120, x + y = 60, x – 2y = 0, x = 0, y = 0 is

a. 300
b. 600
c. 400
d. 800

ANS: B PTS: 1

95. The maximum value of Z = 4x + 2y subject to the constraints 2x + 3y = 18, x + y = 10, x, y = 0 is

a. 36
b. 40
c. 30
d. None of these

ANS: D PTS: 1

96. In equation 3x – y = 3 and 4x – 4y > 4

a. Have solution for positive x and y
b. Have no solution for positive x and y
c. Have solution for all x
d. Have solution for all y

ANS: A PTS: 1

97. The maximum value of Z = 3x + 4y subjected to contraints x + y = 40, x + 2y = 60, x = 0 and y = 0 is

a. 140
b. 100
c. 120
d. 160

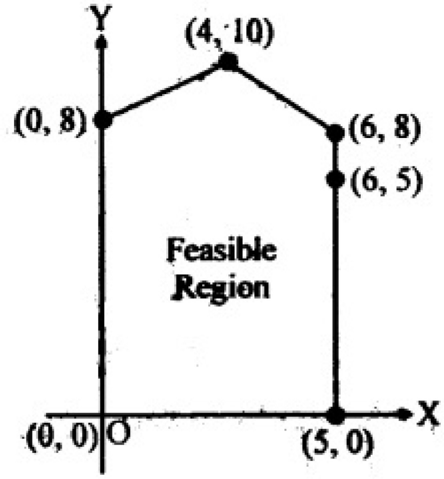
ANS: A PTS: 1

98. Maximize Z = 11 x + 8y subject to x = 4, y = 6, x + y = 6, x = 0, y = 0.

a. 62 at (4, 0)
b. 48 at (4, 2)
c. 44 at (4, 2)
d. 60 at (4, 2)

ANS: D PTS: 1

99. The feasible region for a LPP is shown shaded in the figure. Let Z = 3x – 4y be the objective function.



Minimum of Z occurs at

a. (0, 0)
b. (0, 8)
c. (5, 0)
d. (4, 10)

ANS: B PTS: 1

100. The graph of x<=2 and y>=2 will be situated in the

a. first and second quadrant
b. second and third quadrant
c. first and third quadrant
d. third and fourth quadrant

ANS: B PTS: 1

101. Which of the following method cannot be used to solve transportation problem?

a. Graphical method
b. Vogel's Approximation method
c. Matrix minima method
d. North-West corner rule

ANS: A PTS: 1

102. The total time required to complete all the jobs in a job sequence problem is known as ______

a. processing order
b. idle time
c. processing time
d. elapsed time

ANS: D PTS: 1

103. Operations Research Models in which values of all variables and all possible outcomes are known with certainty are called models.

a. physical
b. symbolic
c. deterministic
d. probabilistic

ANS: C PTS: 1

104. When it is not possible to find solution in LPP, it is called as solution

a. infeasible
b. unbounded
c. improper
d. unknown

ANS: A PTS: 1

105. When the total of allocations of a transportation problem match with supply and demand values, the solution is called solution.

a. infeasible solution
b. feasible solution
c. optimum solution
d. degenerate solution

ANS: B PTS: 1

106. If the number of rows and columns in an assignment problem are not equal than it is called problem.

a. balanced
b. unbalanced
c. infeasible
d. unbounded

ANS: B PTS: 1

107. When a maximization assignment problem is converted in minimization problem, the resulting matrix is called matrix.

a. cost
b. regret
c. profit
d. dummy

ANS: B PTS: 1

108. The order in which machines are required for completing the jobs is called

a. machines order
b. job order
c. processing order
d. working order

ANS: C PTS: 1

109. The time during which a machine remains waiting or vacant in sequencing problem is called time.

a. processing
b. idle
c. waiting
d. free

ANS: B PTS: 1

110. The region of feasible solution in LPP graphical method is called region

a. infeasible
b. infinite
c. feasible
d. unbounded

ANS: C PTS: 1

111. The value of one extra unit of resource is called in simplex.

a. unit price
b. extra price
c. retail price
d. shadow price

ANS: D PTS: 1

112. If $5y = 30$, then the line is

a. parallel to x axis
b. parallel to y axis
c. passes through the origin
d. intersects both the axis

ANS: A PTS: 1

113. Identify the type of the feasible region given by the set of inequalities
x - y <= 1
x - y >= 2
where both x and y are positive.

a. A triangle
b. A rectangle
c. An unbounded region
d. An empty region

ANS: D PTS: 1

114. In the optimal simplex table, Cj -Zj value indicates

a. Unbounded solution
b. Cycling
c. Alternative solution
d. None of these

ANS: B PTS: 1

115. In simplex, a minimization problem is optimal when all Delta J, i.e. Cj – Zj values are .

a. either zero or positive
b. either zero or negative
c. only positive
d. only negative

ANS: A PTS: 1

116. In a prohibited AP. a penality cost M is used such that

a. aij+M = Aij
b. M+aij = M
c. M-aij = aij
d. M+aij = 0

ANS: B PTS: 1

117. In a maximization case of A.P. we convert it to minimization case by

a. adding every cell value to highest among them
b. subtracting every cell value from highest among them
c. dividing every cell value with lowest among them
d. subtracting least value of each row in the corresponding row

ANS: B PTS: 1

118. If number of rows exceeds the number of columns by 2, then we add

a. a dummy row
b. 2 dummy rows
c. a dummy column
d. 2 dummy columns

ANS: D PTS: 1

119. The files x1,x2,x3 are 3 files of length 30,20,10 records each. What is the optimal merge pattern value?

a. 110
b. 60
c. 90
d. 50

ANS: C PTS: 1

120. The optimal merge pattern is based on _________ method

a. greedy method
b. dynamic programming
c. knapsack method
d. branch and bound

ANS: A PTS: 1

121. 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 degenerate initial solution
d. all of the above

ANS: B PTS: 1

122. The only restriction we place on the initial solution of a transportation problem is that: we must have nonzero quantities in a majority of the boxes.

a. all constraints must be satisfied**.**
b. demand must equal supply.
c. we must have a number (equal to the number of rows plus the number of columns minus one) of boxes which contain nonzero quantities.
d. None of the above

ANS: A PTS: 1

123. The smallest quantity is chosen at the corners of the closed path with negative sign to be assigned at unused cell because

a. It improve the total cost
b. It does not disturb rim conditions
c. It ensure feasible solution
d. All of the above

ANS: C PTS: 1

124. 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

ANS: B PTS: 1

125. In case of an unbalanced problem, shipping cost coefficients of ______ are assigned to each created dummy factory or warehouse.

a. very high positive costs
b. very high negative costs
c. zero
d. 10

ANS: C PTS: 1

126. Both transportation and assignment problems are members of a category of LP problems called ______.

a. generalized flow problems
b. shipping problems
c. routing problems
d. network flow problems

ANS: D PTS: 1

127. The purpose of a dummy source or dummy destination in a transportation problem is to
a. prevent the solution from becoming degenerate.
b. obtain a balance between total supply and total demand.
c. make certain that the total cost does not exceed some specified figure.
d. provide a means of representing a dummy problem.

ANS: B PTS: 1

128. In Degenerate solution value of objective function _____________.
a. increases infinitely
b. basic variables are nonzero
c. decreases infinitely
d. One or more basic variables are zero

ANS: D PTS: 1

129. Operations Research (OR) , which is a very powerful tool for ----------------
a. Research
b. Decision – Making
c. Operations
d. None of the above

ANS: B PTS: 1

130. The transportation method assumes that
a. there are no economies of scale if large quantities are shipped from one source to one destination.
b. the number of dummy sources equals the number of dummy destinations
c. the number of occupied squares in any solution must be equal to the number of rows
in the table plus the number of columns in the table plus 1
d. there is only one optimal solution for each problem.

ANS: A PTS: 1

131. When a particular assignment in the given problem is not possible or restricted as a condition, it is called a problem.
a. degenerate
b. prohibited
c. infeasible
d. unbalanced

ANS: B PTS: 1

132. What is the difference between minimal cost network flows and transportation problems?
a. The minimal cost network flows are special cases of transportation problems
b. The transportation problems are special cases of the minimal cost network flows
c. There is no difference
d. The transportation problems are formulated in terms of tableaus, while the minimal cost network flows are formulated in terms of graphs

ANS: B PTS: 1

133. 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

ANS: C PTS: 1

134. Identify the type of the feasible region given by the set of inequalities
x - y <= 1
x - y >= 2
where both x and y are positive.

a. A triangle
b. A rectangle
c. An unbounded region
d. An empty region

ANS: D PTS: 1

135. In the optimal simplex table, Cj -Zj value indicates

a. Unbounded solution
b. Cycling
c. Alternative solution
d. None of these

ANS: B PTS: 1

136. Pick the wrong relationship:

a. interfering float = total float – free float
b. total float =free float + independent float
c. total float = free float = independent float
d. free float = total float – head event slack

ANS: B PTS: 1

137. The maximum value of Z = 3x + 4y subjected to contraints x + y = 40, x + 2y = 60, x = 0 and y = 0 is

a. 140
b. 100
c. 120
d. 160

ANS: A PTS: 1

138. In LPP the condition to be satisfied is

a. Constraints have to be linear
b. Objective function has to be linear
c. none of the above
d. both a and b

ANS: D PTS: 1

139. Operations research is based upon collected information, knowledge and advanced study of various factors impacting a particular operation. This leads to more informed -----------

a. Management processes
b. Decision making
c. Procedures
d. both a and b

ANS: B PTS: 1

140. The cell without allocation is called __________.

a. Non-basic cell
b. Empty cell
c. Basic cell
d. Basic solution

ANS: A PTS: 1

141. The graph of x<=2 and y>=2 will be situated in the

a. first and second quadrant
b. second and third quadrant
c. first and third quadrant
d. third and fourth quadrant

ANS: B PTS: 1

142. In case of an unbalanced problem, shipping cost coefficients of ______ are assigned to each created dummy factory or warehouse.

a. very high positive costs
b. very high negative costs
c. zero
d. 10

ANS: C PTS: 1

143. ____occurs when the number of occupied squares is less than the number of rows plus

a. Degeneracy
b. Unboundedness
c. Infeasibility
d. Redundancy

ANS: A PTS: 1

144. In northwest corner method first allocation is made at

a. Lower right corner of the table.
b. Upper right corner of the table.
c. Highest costly cell of the table.
d. Upper left-hand corner of the table

ANS: D PTS: 1

145. In the optimal simplex table, Cj -Zj value indicates

a. Unbounded solution
b. Cycling
c. Alternative solution
d. None of these

ANS: B PTS: 1