FUNDAMENTALS OF BUSINESS STATISTICS

UNIT 1 PROBABILITY THEORY

1. Probability theory helps a decision-maker to do what?
A. Analyse a situation

B. Decide accordingly

C. Look at a situation

D. Both (a) and (b)

2. Probability theory is also called the theory of_____.

A. Frequency

B. Probability

C. Chance

D. None of the above

3. Probability theory can be mathematically derived using standard _____.
A. Ideas

B. Equations

C. Formulas

D. Amplitude

4. A probability is expressed as a real number_____.
A. $p \in [1, 0]$

B. $p \in [-1, 1]$

C. $p \in [0]$

D. $p \in [0, 1]$

5. The probability number is expressed as what?
A. Real numbers

B. Formulas

C. Decimal

D. Percentage

6. A probability of 0.55 is expressed as_____.
A. .5

B. 44

C. 55

D. 05

7. a probability of 0.33 is expressed _____.
A. 33

B. 03

C. .3

D. 330

8. When we say that the probability is 100 per cent, it means that the event is certain while 0 per cent probability means that the event is what?
A. Improbable

B. Probable

C. Possible

D. Impossible

9. The probability of an outcome can also be explained in which format?
A. Ratio

B. Percentage

C. Decimal

D. None of the above

10. We use probability in vague terms when we predict something for the_____.
A. Future

B. Present

C. Past

D. None of the above

11. When we say it will probably rain tomorrow or it will probably be a holiday the day after. This is subjective probability to the person predicting, but implies that the person believes the probability is greater than_____.
A. 30 per cent

B. 40 per cent

C. 50 per cent

D. 90 per cent

12. Which probability theory is the most general approach to probability?
A. Empirical Probability Theory

B. Classical Theory of Probability

C. Axiomatic Probability Theory

D. None of the above

13. Which probability theory is used for more difficult problems in probability?
A. Empirical Probability Theory

B. Classical Theory of Probability

C. Axiomatic Probability Theory

D. None of the above

14. The classical theory of probability is based on the number of_____.
A. Favorable outcomes

B. Total outcomes

C. Both (a) and (b)

D. Failed outcomes

15. If the number of outcomes belonging to an event *E* is *NE* , and the total number of outcomes is _____.
A. N

B. E

C. *NE*

D. None of the above

16. A standard pack of cards (without jokers) has 52 cards. If we randomly draw a card from the pack, we can imagine about each card as a possible outcome. Therefore, there are _____ total outcomes.
A. 5

B. 25

C. 52

D. 50

17. Out of the 52 cards, there are 13 clubs. Therefore, if the event of interest is drawing one club then there are 13 favorable outcomes and the probability of this event becomes_____.
A. 13/1

B. 1/13

C. 1/3

D. 1/4

18. Classical probability can be only used for conditions such as_____.
A. Drawing cards

B. Rolling dice

C. Pulling balls from urns

D. All of the above

19. We cannot calculate the probability where the outcomes are _____ probabilities.
A. Unequal

B. Equal

C. Uncertain

D. None of the above

20. Which approach is based on the idea that the underlying probability of an event can be measured by repeated trials?
A. Empirical Probability Theory

B. Classical Theory of Probability

C. Axiomatic Probability Theory

D. Frequency of Occurrence

21. Is it possible to conduct an infinite number of trails?

A. No

B. Yes

C. Somewhat yes

D. May be

22. The relationship between empirical probabilities and the theoretical probabilities is suggested by the_____.
A. Law of Large Trails
B. Law of Small Numbers

C. Law of Numbers

D. Law of Large Numbers

23. If we roll a die a number of times, each number would come up approximately _____ of the time.
A. 1/4

B. 1/5

C. 1/6

D. 1/3

24. The study of empirical probabilities is known_____.
A. Algebra

B. Mathematics

C. Statistics

D. None of the above

25. A sample space is the collection of all possible _____of an experiment
A. Events

B. Outcomes

C. Both (a) and (b)

D. Situations

26. _____ also known as a simple event, is a single possible outcome of an experiment.
A. Event

B. Joint event

C. Elementary event

D. None of the above

27. A joint event, also known as a *compound event,* has how many elementary events in it?
A. Three or more

B. One or more

C. Two or more

D. Multiple

28. What refers to a phenomenon where only a simple or elementary event occurs?
A. Intensity (volume or brightness)

B. Joint probability

C. Simple probability

D. Elementary event

29. If we toss a coin, then either event head or event tail would occur, but not both. Hence, these are mutually exclusive events. This is an example of _____.
A. Joint event

B. Elementary event

C. Mutually exclusive events

D. None of the above

30. We can visualize the concept of events, their relationships and sample space using_____.
A. Venn diagrams

B. Benn diagrams

C. Lenn diagrams

D. None of the above

31._____ is applied when it is necessary to compute the probability if both events *A* and *B* will occur at the same time.
A. Law of mathematics

B. Law of addition

C. Multiplication rule

D. None of the above

32. In many situations, a manager may know the outcome of an event that has already occurred and may want to know the chances of a second event occurring based upon the knowledge of the outcome of the earlier event. This is known as_____.
A. Joint probability

B. Independent events

C. Conditional probability

D. None of the above

33._____ is a type of relation between different characteristics measured on the same units.

A. Statistical dependence

B. Statistical independence

C. Conditional probability

D. Marginal probability

34. If events are _____exclusive, then the occurrence of any one of the events prevents any of the other events from occurring.

A. Dependently

B. Mutually

C. Independently

D. None of the above

35. Who introduced the Bayes theorem on probability?

A. Reverend Adam Bayes

B. Reverend Theodore Bayes

C. Reverend Peter Bayes

D. Reverend Thomas Bayes

36. Bayes' theorem makes use of which probability formula?

A. Empherical

B. Marginal

C. Conditional

D. Axiomatic

37. Bayes was a _____?

A. Preacher

B. Mathematician and saint

C. Mathematician and preacher

D. None of the above

38. _____ is the unconditional probability of a given event, regardless of whether the other event did or did not occur.

A. Marginal probability

B. Conditional probability

C. Joint probability

D. None of the above

39. What is a collection of all possible events or outcomes of an experiment called?

A. Compound event

B. Addition rule

C. Sample space

D. Fundamental frequency

40. Bayes' motivation for the theorem came from his desire to prove the_____.

A. Existence of the universe

B. Belief in God

C. Existence of God

D. None of the above

UNIT 2 INTRODUCTION TO OPERATIONS RESEARCH

41. Operations Research (OR), which is a very powerful tool for_____.
A. Research

B. Decision-making

C. Operations

D. None of the above

42. Who coined the term operations research?
A. J.F. McCloskey

B. F.N. Trefethen

C. P.F. Adams

D. Both (a) and (b)

43. The term operations research was coined in the year_____.
A. 1950

B. 1940

C. 1978

D. 1960

44. This innovative science of OR was discovered during _____.
A. Civil war

B. World War I

C. World War II

D. Industrial revolution

45. OR was known as an ability to win a war without really going into a_____.
A. Battlefield

B. Fighting

C. War

D. Both (a) and (b)

46**.** Who defined OR as a 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

47. Who defined OR as a 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

48. Who defined OR as an aid for the executive in making his decisions by providing him with the quantitative information based on the scientific method of analysis?
A. C.Kittee

B. H.M. Wagner

C. E.L. Arnoff

D. None of the above

49. Operations research has the characteristics that it is done by a team of _____.
A. Scientists

B. Mathematicians

C. Academics

D. All of the above

50. There is a great scope for_____ working as a team to solve problems of defense by using the OR approach.
A. Economists

B. Administrators

C. Statisticians and technicians

D. All of the above

51. Operations research emphasizes on the overall approach to the system. This characteristic of OR is often referred as_____.
A. System orientation

B. Systems approach

C. Interdisciplinary team approach

D. Both (a) and (b)

52. Operations research cannot give perfect _____ to problems.
A. Answers
B. Solutions

C. Both (a) and (b)

D. Decisions

53. OR 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

54. Operations research involves _____attack of complex problems to arrive at the optimum solution.
A. Scientific

B. Systematic

C. Both (a) and (b)

D. Statistical

55. 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

56. 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

57. 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

58. OR is a_____.
A. Science

B. Art

C. Mathematics

D. Both (a) and (b)

59. As science, what does OR provide for solving appropriate decision problems?
A. Mathematical techniques

B. Algorithms

C. Both (a) and (b)

D. Creativity

60. The subject of OR was developed in military context during the World War, pioneered by the_____.
A. Indian scientists

B. American scientists

C. British scientists

D. None of the above

61. Successful innovations of which teams included the development of new flight patterns, planning sea mining and effective utilization of electronic equipment?
A. US teams

B. British teams

C. Canadian teams

D. French teams

62. Until which year was the use of operations research mainly confined to military purposes?
A. 1990s

B. 1960s

C. 1950s

D. 1930s

63. The Operations Research Society of America was formed in_____.
A. 1965

B. 1935

C. 1953

D. 1895

64. The International Federation of Operational Research Societies was established in_____.
A. 1989

B. 1966

C. 1957

D. 1975

65. Courses and curricula in operations research in different universities and other academic institutions began to proliferate in which country?
A. China

B. UK

C. US

D. France

66.What have been constructed for OR 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

67. Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost minimization under certain constraints?
A. Queuing theory

B. Waiting line

C. Linear programming

D. Both (a) and (b)

68. Which technique concerns itself with the random arrival of customers at a service station where the facility is limited?
A. Queuing theory

B. Waiting line

C. Both (a) and (b)

D. Linear programming

69. What aims at optimizing inventory levels?
A. Inventory control

B. Inventory capacity

C. Inventory planning

D. None of the above

70. What can be defined as a useful idle resource which has economic value, e.g., raw materials, spare parts, finished products, etc.,?
A. Inventory control

B. Inventory

C. Inventory planning

D. None of the above

71. Which theory concerns making sound decisions under conditions of certainty, risk and uncertainty?
A. Game theory

B. Network analysis

C. Decision theory

D. None of the above

72. Key concepts under which technique are network of events and activities, resource allocation, time and cost considerations, network paths and critical paths?
A. Game theory

B. Network analysis

C. Decision theory

D. None of the above

73. Which technique is used to imitate an operation prior to actual performance?
A. Simulation

B. Integrated production models

C. Inventory control

D. Game theory

74. In which form of programming some or all of the variables are curvilinear?
A. Dynamic programming

B. Linear programming

C. Non-linear programming

D. All of the above

75. What is concerned with the prediction of replacement costs and determination of the most economic replacement policy?
A. Search theory

B. Theory of replacement

C. Probabilistic programming

D. None of the above

76. What refers to linear programming that includes an evaluation of relative risks and uncertainties in various alternatives of choice for management decisions?
A. Probabilistic programming

B. Stochastic programming

C. Both (a) and (b)

D. Linear programming

77. What enables us to determine the earliest and the latest times for each of the events and activities and thereby helps in the identification of the critical path?
A. Program Evaluation

B. Review Technique (PERT)

C. Both (a) and (b)

D. Deployment of resources

78. Linear programming technique is used to allocate scarce resources in an optimum manner in problems of_____?
A. Schedule

B. Product mix

C. Both (a) and (b)

D. Servicing cost

79. OR techniques help the directing authority in optimum allocation of various limited resources, such as,_____.
A. Men and machine

B. Money

C. Material and time

D. All of the above

80. OR study generally involves how many phases?
A. Three

B. Four

C. Five

D. Two

UNIT 3 MATHEMATICAL MODELS

81. In a manufacturing process, who takes the decisions as to what quantities and which process or processes are to be used so that the cost is minimum and profit is maximum?
A. Supervisor

B. Manufacturer

C. Producer

D. Production manager

82. Linear programming has been successfully applied in_____.

A. Agricultural

B. Industrial applications

C. Both (a) and (b)

D. Manufacturing

83. The term linearity implies _____ among the relevant variables:
A. Straight line

B. Proportional relationships

C. Linear lines

D. Both (a) and (b)

84. Process refers to the combination of _____inputs to produce a particular output.
A. One or more

B. Two or more

C. One

D. None of the above

85. What has always been very important in the business and industrial world, particularly with regard to problems concerning production of commodities?
A. Linear programming

B. Production

C. Decision-making

D. None of the above

86. What are the main questions before a production manager?
A. Which commodity/commodities to produce

B. In what quantities

C. By which process or processes

D. All of the above

87. Who pointed out that the businessman always studies his production function and his input prices and substitutes one input for another till his costs become the minimum possible?
A. Alan Marshall

B. Alfred Marsh

C. Alfred Marshall

D. None of the above

88. Who invented a method of formal calculations often termed as?
A. A.V. Kantorovich

B. L.V. Kantorovich

C. T.S. Kantorovich

D. Alfred Marshall

89. Who developed Linear Programming for the purpose of scheduling the complicated procurement activities of the United States Air Force?
A. George B. Dantzig

B. James B. Dantzig

C. George B. Dante

D. George V. Dantzig

90. This method of formal calculations often termed as Linear Programming was developed later in which year?
A. 1947

B. 1988

C. 1957

D. 1944

91. What is being considered as one of the most versatile management tools?
A. Electronic computers

B. Linear Programming

C. Computer programming

D. None of the above

92. LP is a major innovation since _____in the field of business decision-making, particularly under conditions of certainty.
A. Industrial Revolution

B. World War I

C. World War II

D. French Revolution

93. The word ‘Linear’ means that the relationships are represented by_____.
A. Diagonal lines

B. Curved lines

C. Straight lines

D. Slanting lines

94. The word ‘Programming’ means taking decisions _____.
A. Systematically

B. Rapidly

C. Slowly

D. Instantly

95. Who originally called it ‘programming of interdependent activities in a linear structure’ but later shortened it to ‘Linear Programming’?
A. Dantzig

B. Kantorovich

C. Marshall

D. None of the above

96. LP can be applied in farm management problems as it relates to the allocation of resources such as _____, in such a way that is maximizes net revenue.
A. Acreage

B. Labour

C. Water supply or working capital

D. All of the above

97. LP model is based on the assumptions of_____.
A. Proportionality

B. Additivity

C. Certainty

D. All of the above

98._____ assumption means the prior knowledge of all the coefficients in the objective function, the coefficients of the constraints and the resource values.
A. Proportionality

B. Certainty

C. Finite choices

D. Continuity

99. Simple linear programming problem with _____variables can be easily solved by the graphical method.

A. One decision

B. Four decisions

C. Three decisions

D. Two decisions

100. 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)

101. 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

102. A non-degenerate basic feasible solution is the basic feasible solution which has exactly *m* positive *Xi* (*i* = 1, 2, ..., *m*), i.e., none of the basic variables is _____.
A. Infinity

B. One

C. Zero

D. X

103. 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

104. Which method is an iterative procedure for solving LPP in a finite number of steps?
A. Simplex algorithm

B. Slack variable

C. M method

D. Simplex method

105. In simplex algorithm, which method is used to deal with the situation where an infeasible starting basic solution is given?
A. Slack variable

B. Simplex method

C. M-method

D. None of the above

106. How many methods are there to solve LPP?
A. Three
B. Two

C. Four

D. None of the above

107. _____ 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

108. Which variables are fictitious and cannot have any physical meaning?
A. Optimal variable

B. Decision variable

C. Artificial variable

D. None of the above

109. An objective function which states the determinants of the quantity to be either maximized or minimized is called_____.
A. Feasible function

B. Optimal function

C. Criterion function

D. None of the above

110. An assumption that implies that finite numbers of choices are available to a decision-maker and the decision variables do not assume negative values is known as_____.
A. Certainty

B. Continuity

C. Finite choices

D. None of the above

111. A set of values $X1, X2, ..., Xn$ which satisfies the constraints of the LPP is called_____.
A. Solution

B. Variable

C. Linearity

D. None of the above

112. A basic solution which also satisfies the condition in which all basic variables are non-negative is called _____.
A. Basic feasible solution

B. Feasible solution

C. Optimal solution

D. None of the above

113. All the constraints are expressed as equations and the right hand side of each constraint and all variables are non-negative is called_____.
A. Canonical variable

B. Canonical form

C. Canonical solution

D. Both (a) and (b)

114. An objective function is maximized when it is a _____ function.
A. Passive

B. Profit

C. Cost

D. None of the above

115. LPP is extensively used in solving what kind of resource allocation problems?
A. Production planning and scheduling

B. Transportation

C. Sales and advertising

D. All of the above

116. Currently, LPP is used in solving a wide range of practical_____.
A. Business problems

B. Agricultural problems

C. Manufacturing problems

D. None of the above

117. _____ refers to the combination of one or more inputs to produce a particular output.
A. Solution

B. Variable

C. Process

D. None of the above

118. An optimum solution is considered the _____ among feasible solutions.
A. Worst

B. Best

C. Ineffective

D. None of the above

119. Please state which statement is true.
(i) All linear programming problems may not have unique solutions
(ii) The artificial variable technique is not a device that does not get the starting basic feasible solution
A. Both (i) and (ii)
B. (ii) only

C. (i) only

D. Both are incorrect

120. Please state which statement is incorrect.
(i) Linear Programming was first formulated by an English economist L.V. Kantorovich
(ii) LP is generally used in solving maximization or minimization problems subject to certain assumptions.
A. (ii) only

B. (i) only

C. Both (i) and (ii)

D. Both are correct

UNIT 4 LINEAR PROGRAMMING: TRANSPORTATION AND ASSIGNMENT MODELS

121. _____which is a subclass of a Linear Programming Problem (LPP).

A. Programming problem

B. Transportation problem

C. Computer problem

D. None of the above

122. The solution of any transportation problem is obtained in how many stages?
A. Five

B. Four

C. Three

D. Two

123. An optimal solution is the _____ stage of a solution obtained by improving the initial solution.
A. Third

B. First

C. Second

D. Final

124. MODI method is used to obtain_____.
A. Optimal solutions

B. Optimality tests

C. Both (a) and (b)

D. Optimization

125. For solving an assignment problem, which method is used?
A. Hungarian

B. American

C. German

D. None of the above

126. To make an unbalanced assignment problem balanced, what are added with all entries as zeroes?
A. Dummy rows

B. Dummy columns

C. Both (a) and (b)

D. Dummy entries

127. 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

128. A feasible solution is called a basic feasible solution if the number of non-negative allocations is equal to _____.
A. $m - n + 1$,

B. $m - n - 1$

C. $m + n - 1$

D. None of the above

129. Any feasible solution to a transportation problem containing *m* origins and *n* destinations is said to be_____.
A. Independent

B. Degenerate

C. Non-degenerate

D. Both (a) and (b)

130. A path formed by allowing horizontal and vertical lines and the entire corner cells of which are occupied is called a_____.
A. Occupied path

B. Open path

C. Closed path

D. None of the above

131. Transportation algorithm can be used for minimizing the transportation cost of _____ from *O* origins to *D* destinations.
A. Goods

B. Products

C. Items

D. None of the above

132. 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

133. Basic cells indicate positive values and non-basic cells have _____ value for flow.
A. Negative

B. Positive

C. One

D. Zero

134. According to transportation problem number of basic cells will be exactly_____.
A. $m + n - 0$

B. $n + m - 1$

C. $m + n - 1$

D. None of the above

135. Before starting to solve the problem, it should be balanced. If not then make it balanced by _____column in case demand is less than supply or by adding _____row in case supply is less than the demand.
A. O, D

B. m, n

C. Horizontal, vertical

D. Unshipped supply, shortage

136. In which phase is optimization done and how does that phase also checks for optimality conditions?
A. Phase II

B. Phase I

C. Phase II

D. None of the above

137. Optimality conditions are expressed as _____in case of all non-basic cells?
A. Negligent costs

B. Advanced costs

C. Reduced costs

D. None of the above

138. A _____ has rows/column having non-basic cells for holding compensating (+) or (–) sign.
A. Cycle

B. Dead-end

C. Back track

D. None of the above

139. After determining every basic cell within this cycle, adjustment is obtained as minimum value in basic cells. This is known as_____.
A. Adjustment amount

B. aa

C. Both (a) and (b)

D. Alternatives

140. Optimal solution is a feasible solution (not necessarily basic) which minimizes the_____.
A. Time taken

B. Partial cost

C. Total cost

D. None of the above

141. State which of the two statements is correct.
(i) The cells in the transportation table can be classified into occupied cells and unoccupied cells.
(ii) Optimal solution is a feasible solution (not necessarily basic) which maximizes the total cost
A. Both (i) and (ii) are correct

B. (ii) only

C. (i) only

D. Both (i) and (ii) are incorrect

142. The allocated cells in the transportation table are called_____.
A. Occupied cells

B. Empty cells

C. Both (a) and (b)

D. Unoccupied cells

143. VAM stands for_____.
A. Vogeal's Approximation Method

B. Vogel's Approximate Method

C. Vangel's Approximation Method

D. Vogel's Approximation Method

144. 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

145. One can find the initial basic feasible solution by using_____-?
A. VAM

B. MODI

C. Optimality test

D. None of the above

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

A. LPP

B. VAM

C. MODI method

D. None of the above

147. In a TP, if the number of non-negative independent allocations is _____than $m + n - 1$.
A. Equivalent

B. Greater

C. Less

D. None of the above

148. A given TP is said to be unbalanced, if the total supply is not equal to the total_____.
A. Optimization

B. Demand

C. Cost

D. None of the above

149. 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)

150. To find the optimal solution, we apply_____.
A. LPP

B. VAM

C. MODI method

D. Rim

151. For maximization in TP, the objective is to maximize the total _____.
A. Solution

B. Profit matrix

C. Profit

D. None of the above

152. _____ is one of the fundamental combinatorial optimization problems.

A. Assignment problem

B. Transportation problem

C. Optimization problem

D. None of the above

153. Assignment problem helps to find a maximum weight identical in nature in a weighted_____.
A. Tripartite graph

B. Bipartite graph

C. Partite graph

D. None of the above

154. As for maximization in assignment problem**,** the objective is to maximize the_____.
A. Profit

B. Optimization

C. Cost

D. None of the above

155._____ is basically the planning of the jobs in a sequential manner.
A. Job search

B. Job planning

C. Job sequencing

D. Job planning

156. What is an essential part of any work?
A. Job output

B. Job scheduling

C. Job planning

D. Job sequencing

157. Without what one cannot achieve the desired output and profit?
A. Planning
B. Scheduling

C. Both (a) and (b)

D. Sequencing

158. For sequencing a job, generally, how many techniques are used?
A. Four

B. Three

C. Two

D. One

159. What gives the guidelines for properly sequencing the job?

A. Priority rules

B. Johnson's rules

C. Output and profit

D. None of the above

160. What is used to minimize the completion time for a set of jobs to be done on two different machines?
A. Priority rules

B. Johnson's rules

C. Output and profit

D. Product and profit

161. In Priority rules, what is given prime importance?
A. Job processing time

B. Due dates

C. FCFS

D. Both (a) and (b)

162. Priority rules are very useful for process-focused amenities, for example_____.
A. Health clinics

B. Print shops

C. Manufacturing industries

D. All of the above

163. Which priority rule follows in the job to be processed first is the job that has earliest due date?
A. Critical Ratio (CR)

B. Shortest Processing Time (SPT)

C. First Come First Serve (FCFS)

D. Earliest Due Date (EDD)

164. The job to be processed first is the job that is very important or of high priority though it can take longer processing time. The priority rule that is followed is _____.
A. Longest Processing Time (LPT)

B. Shortest Processing Time (SPT)

C. First Come First Serve (FCFS)

D. Earliest Due Date (EDD)

165. Which priority rule follows in the job to be processed first and completed is the job that is shortest in nature; in other words the job can be processed in short time?
A. Critical Ratio (CR)

B. Shortest Processing Time (SPT)

C. First Come First Serve (FCFS)

D. Earliest Due Date (EDD)

166. An assignment problem is said to be unbalanced if the cost matrix is not a_____.
A. Square matrix

B. Cost matrix

C. Profit matrix

D. None of the above

167. In which problem, we cannot choose the element along the diagonal and this can be avoided by filling the diagonal with infinitely large elements?
A. Unbalanced assignment problem

B. Assignment model

C. Travelling salesman

D. None of the above

168. In which problem, shipments are allowed only between source-sink pairs, there is a possibility of existing points via which units of a goods/merchandise may be transshipped from a source to a sink?
A. Travelling salesman problem

B. Transportation problem

C. Transshipment problem

D. None of the above

169. In a transshipment model, what are supplied from various specific sources to various specific destinations?
A. Products

B. Shipments

C. Objects

D. None of the above

170. In the transshipment problem, the main goal is to reduce the _____of shipments.
A. Total time

B. Total size

C. Total cost

D. None of the above

UNIT 5 PROBABILISTIC MODELS

171. How many types of decisions are there?
A. Two

B. Three

C. Four

D. One

172. To take a right decision, who must resort to statistical methods to analyse factors that affect the business as a whole?
A. Managers

B. Mathematicians

C. Programmers

D. None of the above

173. What criteria does a decision-making process adopt for uncertain situations which involve risk?
A. EMV (Expected Monetary Value)

B. EOL (Expected Opportunity Loss)

C. Both (a) and (b)

D. Tactical and strategic

174. What is used as an alternative to EMV or EOL?
A. Strategic decisions

B. Tactical decisions

C. Marginal analysis

D. None of the above

175. Marginal analysis starts by considering whether the additional units bought will be_____.
A. Easy to use

B. Tedious

C. Involve lot of computations

D. Sold or not

176. Decision-making is an everyday process in_____.
A. Everything

B. Office

C. Life

D. None of the above

177. Which of the following statement is correct?

(i) Decision-making constitutes one of the highest forms of human activity.
(ii) These days, in every organization whether large or small, the person at the top management has to no role in taking decisions.
A. (ii) only

B. (i) only

C. Both are correct

D. None is correct

178. What provides tools for making wise decisions in the face of uncertainty?
A. Tactical

B. Statistics

C. Strategic

D. None of the above

179. _____ are the occurrences which affect the achievement of the objectives.
A. Events

B. Outcomes

C. Acts

D. None of the above

180. A pay-off table represents the economics of a problem, i.e., the_____associated with any action with a particular outcome.
A. Revenue

B. Costs

C. Time

D. Both (a) and (b)

181. An _____ is the loss incurred because of failure to take the best possible action.
A. Opportunity loss

B. Pay-off table

C. The acts

D. None of the above

182. The decision-maker knows with certainty the consequences of every_____.
A. Alternative choice

B. Decision choice

C. Both (a) and (b)

D. Uncertainty

183. The choice of decision largely depends on the personality of the_____.
A. Manager

B. Decision maker

C. Statistician

D. None of the above

184. Application of the minimax criteria requires a table of_____.
A. Losses

B. Gains

C. Uncertainties

D. None of the above

185. Which method is a combination of maximum criterion and maximax criterion?
A. Maximin criterion

B. Laplace criterion

C. Hurwicz alpha criterion

D. None of the above

186. Which criterion of decision-making stands for choice between alternative courses of action assuming pessimistic view of nature?
A. Maximin criterion

B. Laplace criterion

C. Hurwicz alpha criterion

D. Minimax criterion

187. In which situation, the decision-maker has to face several states of nature?
A. Decision-making under risk

B. Decision-making under certainty

C. Decision-making under uncertainty

D. None of the above

188. For decision problems under risk, the most popular methods used are?
A. EMV

B. EVPI

C. EOL

D. All of the above

189. The calculation of EOL is similar to that of _____.
A. OLT

B. EVPI

C. EMV

D. Events

190. A decision-maker apart from selecting the decision model which can fit into his problem, what are the other steps involved?
A. Find the objective

B. Discover alternative strategies

C. Know the decision-making environments

D. All of the above

191. Deterministic model is related to_____.
A. Deterministic problems

B. Deterministic situation

C. Deterministic decision pay-offs

D. None of the above

192. The objectives and strategies in which model has to be listed and then the pay-off for each strategy towards each objective is further determined?
A. Deterministic decision model

B. Decision-making under certainty

C. Probabilistic

D. Both (a) and (b)

193. Which model is related to risks?
A Probabilistic Decision Model

B. Stochastic Decision Model

C. Both (a) and (b)

D. Deterministic decision model

194. Decision pay-offs are not fixed but generally happens to be a_____.
A. Risk variable

B. Partial variable

C. Random variable

D. None of the above

195. Under which rule the decision-maker selects the most likely alternative?
A. Utility functions or the utility curves

B. Decision trees

C. Maximum Likelihood Rule

D. Bayesian decision rule

196. For a probabilistic decision model the usual criterion is that of_____.

A. EMV

B. EVPI

C. EOL

D. All of the above

197. _____ means that the decision-maker knows the demand when he orders the goods.
A. Perfect knowledge

B. Perfect information

C. Perfect timing

D. Both (a) and (b)

198. In many problems, the procedure to find out the best action either through EMV or through EOL would be a tedious one because of the number of computations required. What provides the alternative to this?
A. Expected opportunity loss (EOL) criterion

B. Salvage value

C. Marginal analysis

D. None of the above

199. Which of the statement is correct?
(i) In real life, any unsold quantity of goods, may have some value known as the *'salvage value'*.
(ii) The effect of such salvage value is that it increases the profit from overstocking.
A. Both (i) and (ii) are correct

B. Only ii is correct

C. Only i is correct

D. Both of them are incorrect

200. Which rule is also known as the criterion of pessimism?
A. Maximax (or minimin) decision rule

B. Maximin (or minimax) decision rule

C. Savage decision rule

D. Hurwicz decision rule