I BCA-[2017-2020]
SEMESTER I

Allied: MATHEMATICAL FOUNDATIONS FOR COMPUTER APPLICATIONS-106B

MULTIPLE CHOICE QUESTIONS

1. If a compound statement is made up of three simple statements then the number of rows in the truth table is _____.
 a. 2
 b. 4
 c. 6
 d. 8
 Answer: D

2. The number of rows in the truth table of $\sim(P^\wedge(\sim Q))$ is_____
 a. 2
 b. 4
 c. 6
 d. 8
 Answer: B

3. The conditional statement P→Q is equivalent to _____
 a. PVQ
 b. ~PVQ
 c. P
 d. P ΛQ
 Answer: B

4. The total number of possible outcomes in any trial is _____.
 a.. sample space
 b. exhaustive events
 c. independent events
 d. mutually exclusive events
 Answer: A

5. The number of cases favorable to an event in a trial is the number of outcomes known as
 _____   .
 a. favorable events
 b. exhaustive events
 c. independent events
 d. mutually exclusive events
 Answer: A

6. If the happening of any one of them precludes the happening of all the other is known as _____.
 a. favourable events.

b. exhaustive events.
c. independent events.
d. mutually exclusive events.

Answer: D

7. If taking into consideration all the relevant evidences, there is no reason to expect one in preference to the others is known as _____.
 a. favourable events.
 b. exhaustive events.
 c. equally likely events.
 d. mutually exclusive events.

Answer: C

8. If the happening of an even is not affected by the supplementary knowledge concerning the occurrence of any number of the remaining events is known as _____.
   a. favourable events.
   b. exhaustive events.
   c. equally likely events.
   d. mutually exclusive events.

Answer:C

9. If P(E)=1 then E is called a _____ .
 a. favourable events.
 a. certain events.
 b. independent events.
 c. mutually exclusive events.

Answer: B

10.If P(E)=0 then E is called an _____   .
 a. favourable events.
 a. certain events.
 b. independent events.
 c. Impossible event.

Answer: D

11. Karl-Pearson's correlation co-efficient is also called_____.
 a. favourable events
 b. positive correlation
 c. rank correlation
 d. product-moment correlation

 Answer: C

12. The associative law in logic is _____.
 a. $(P \lor Q) \lor R <=> P \lor (Q \lor R)$
 b. $(P \lor Q) \land R <=> P \lor (Q \land R)$
 c. $(P \land Q) \lor R <=> P \lor (Q \lor R)$
 d. $(P \lor Q) \land R <=> P \land (Q \lor R)$

Answer: A

13.The dual of $(P \lor Q) \lor T$ is _____.
    a. $(P \land Q) \; F$
    b. $(P \lor Q) \; T$
    c. $(P \land Q) \land F$

d. (P ^ Q) V T

Answer: C

14. Join probability is the probability of the joint occurrence of ____ or more events.

   a. 2
   b. 3
   c. 4
   d. 1

Answer: A

15. What is the chance that a leap year selected at random will contain 53 Sundays?

   a. 1/7
   b. 2/7
   c. 3/7
   d. 4/7

Answer: B

16.The relative difference of a set A from another set B is denoted by _____.

   a. A+B
   b. A-B
   c. AB
   d. A/B

Answer: B

17.If f(x)=x+2 and g(x)=x-2 for all real number of x then g~f is _____.

   a. 1
   b. x
   c. x-1
   d. x-2

Answer: B

18.Let R={(1,2),(3,4),(2,2)} and S={(4,2),(2,5),(3,1)} be a relation then R.S=____

a. {(1,2),(3,4),(2,2)}
b. {(1,5),(3,2),(2,5)}
   c. {(4,2),(2,5),(3,1)}
   d. {(1,4),(3,2),(2,3)}

Answer: B

19. If R= {(x, 2x)/x∈I} and S= {(x, 4x)/ x∈I } then R.S=____

   a. {(x, 4x)/ x∈I }
   b. {(x, 2x)/ x∈I }
   c. {(x, 14x)/ x∈I}
   d. {(x, 10x)/ x∈I }

Answer: C

20. A regular grammar contain rules of the form is _____

   a. A→AB
   b. AB→a
   c. A→aB
   d. AB→CD

Answer: C

21.A type-2 grammar contain the rules of the form is____

   a. a→AB

b. AaB→a

c. A→aB

d. AB→CD

Answer: C

22. If S be a start symbol and S→aA, A→BA, A→a, B→b be the productions in a grammar then one of the string derived from the grammar is _____.

a. b a b a

b. b b a a

c. a b b a

d. a a b b

Answer: C

23.If S be a start symbol and S→AB, A→aB,B→b be a grammar then a string generated by the grammar is_____ .

a. baa

b. aba

c. abb

d. bab

Answer: C

24. A relation on a set A is said to be an _____relation if is reflexive, symmetric and transitive.

a. partial order.

b. equivalence

c. circular

d. antisymmertic

Answer: B

25.If a relation is reflexive then in the graph of a relation there must be a loop at _____node.

a.. 2

b. 1

c. 3

d. e a c h

Answer: D

26.A product of the variable and their negation in a formula is called an _____.

a. elementary sum

b. elementary product

c. well-formed formula

d. equivalence of relation formula

Answer: B

27.A sum of the variable and their negation in a formula is called an _____.

a. elementary sum

b. elementary product

c. well-formed formula

d. equivalence of relation formula

Answer: A

28.Two automata's M and M' are said to be equal if _____.

A.   they have same final state

B. they have equal number of states

C. they accept exactly the same language

D. they have same initial states

Answer: D

29. Which one of the following is a well formed formula?

 a. (PV^ Q)

 b. (PVQ)^Q)

 c. (P->))

 d . (P V Q)) ^ R ↔ Q)

Answer: B

30. If S→aS, S→a be the productions in a grammar G, then the grammar si called_____.

 a. context-sensitive grammar

 b. context-free grammar

 c. regular grammar

 d. phrase structure grammar

Answer: C

31.If f(x)=2x+1 and g(x)=x+2 then (g.f)(4)= _____.

 a. 6

 b. 9

 c. 10

 d. 11

Answer: D

32. A compound proposition which does not contain any connectives is called a ___.

 a. truth table

 b. prime position

 c. contradiction

 d. contingency

Answer: B

33. If a normal form contains all min terms, then it is _____   .

a. a tautology

b. a contradiction

c. neither tautology nor contradiction

d. both tautology & contradiction

Answer: A

34. PCNF is also called _____   .

 a. sum of product canonical form

 b. product of sum canonical form

 c. elementary sum

 d. elementary product

Answer: B

 35. The binary relation S= null set on A={1,2,3} is _____

a. neither reflexive nor symmetric

b. symmetric and reflexive

c. transitive and reflexive

d. transitive and symmetric

Answer: D

36. The 'Subset' relation on a set of sets is_____.

 a. a partial ordering

b. an equivalence relation

c. transitive and symmetric only

d. transitive and anti-symmetric only

Answer: A

37. A relation R is defined on the set of integers as xRy iff (x+y) is even. Which of the following statement is TRUE?

a. R is not an equivalence relation

b. R is an equivalence relation having one equivalence classes

c. R is an equivalence relation having two equivalence classes

d. R is an equivalence relation having three equivalence classes

Answer: C

38. Let R1 and R2 be two equivalence relations on a set.Consider the following assertions:

(i) R1UR2 is an equivalence relation.

(ii) R1nR2 is an equivalence relation.

Which of the following is correct? Let

a. Both assertions are true

b. Assertion (i) is true but assertion (ii) is not true

c. Assertion (ii) is true but assertion (i) is not true

d. Neither (i) nor (ii) is true

Answer: C

39. If R={(1,y),(1.z),(3,y)} then R^{-1}=_____.

a. { (1,1),(y,z)}

b. { (y,z),(z,1),(y,3)}

c. { (y,1),(1,z),(3,y)}

d. { (y,1),(z,1),(3,y)}

Answer: B

40. Let R ={ (a,b),(c,d),(b,b)}, S = {(d,b),(c,b),(a,d)} then R $\circ$ S = .

   a. {(a,e),(c,b),(b,e)}

   b. {(d,b),(c,b),(a,d)}

   c. {(a,b),(b,b)}

   d. {(c,b)}

Answer: A

41.Let R and s be two relations on a set of positive integers I & R = {(a,3a+1)/ a **C** I}, S = {(a,a+1)/ a **C** I} then R $\circ$ R $\circ$ R = .

a. {(a,3a+1)/ a **C** I}

b. {(a,9a+1)/ a **C** I}

c. {(a,27a+1)/ a **C** I}

d. {(a,9a+3)/ a **C** I}

Answer: C

42. The grammar P={S->0S1, S->S1} is a _____.

a. A recursively enumerable language.

b. Regular language.

c. context sensitive language.

d. context free language.

Answer: D

43. Consider the following language L={$a^n b^n c^n d^n$/n>=1}

a. CFL but not regular.
b.context sensitive language but not context free language.
c. regular.
d. type o language but not type 1.
Answer: B
44. Any subset L of A* is called ____ over A.
 a. language
 b. grammar
 c. syntax
 d. alphabet
Answer: A
45. The word 'formal 'in formal languages means _____
 a. the symbols used have well-defined meaning
 b. they are unnecessarily in reality
 c. only the form of the string of symbols is significant
 d. none of the above.
Answer: C
46. The set of all strings over the alphabet Σ = {a, b} (including ε) is denoted by one-way finite tape.
 a. (a + b)*
 b. (a + b)+
 c. ab
 d. a*b*
Answer: A
47. A language L is accepted by a FSA if and only if it is
 a. recursive
 b. context sensitive grammar
 c. context free grammar
 d. regular grammar
Answer: D
48. Which one of the following statement is FALSE?
 a. context-free languages are closed under union
 b. context-free languages are closed under concatenation
 c. context-free languages are closed under intersection
 d. context-free languages are closed under Kleene closure
Answer: C
49. If M is a finite state automata, then a regular grammar can be constructed such that _____.
a. . L(G) = T(M)
 b. L(G) > T(M)
 c. L(G) < T(M)
 d. L(G) = 2T(M)
Answer: A
50. _____is defined as a process for which its result is well-defined
 a. An experiment
 b. deterministic experiment
 c. random experiment

d. sample space

Answer: A

51. An experiment whose outcomes can be predicted with certain, under identical conditions is known as_____ .

a. An experiment

b. deterministic experiment

c. random experiment

d. sample space

Answer: B

52. The conjunction of the statement is formed by introducing

a. OR

b. NOT

c. AND

d. Negation.

Answer: C

53. If the statements are given by P:It is raining today, Q: There are 20 tables in this room. Then P ∧Q is

a. If it is raining today then there are 20 tables in this room

b. It is raining today and there are 20 tables in this room

c. It is raining today or there are 20 tables in this room

d. It is raining today but there are 20 tables in this room

Answer: B

54. If the statements are given by P: It is raining today, Q: London is a city. Then P∧¬ Q is ____ .

a. It is raining today and London is a city

b. It is raining today but London is not a city

c. It is raining today and London is not a city

d. If it is raining today then London is not a city.

Answer: C

55. If the statements P has the truth value T and Q has the truth value F then P∨Q is_____ .

a. T

b. F

c. T and F

d. T or F

Answer: A

56. If the statements P has the truth value T and Q has the truth value F then P∧Q is___ .

a. F

b. T and F

c. T or F

d. T.

Answer: B

57. The negation of ¬(P ∧ Q)∨ R is ___ .

a. ¬(P ∧ Q)∧ R

b. ¬(P ∨ Q)∨ R

c. ¬(P ∧ Q)∨¬R

d. (P ∧ Q)∨ R

Answer: C

58. The negation of $(P \land Q) \lor (Q \land R)$ is_____.

a. $\neg (P \land Q) \lor \neg (Q \land R)$
b. $\neg (P \land Q) \land \neg (Q \lor R)$
c. $\neg (P \lor Q) \land \neg (Q \land R)$
d. $\neg (P \land Q) \lor \neg (Q \lor R)$

Answer: A

59. For every possible truth values of P, the truth value of $P \land \neg P$ is_____.

a. T
b. F
c. T and F
d. T or F

Answer: B

60. Which of the following statement is tautology?

a. $(P \land Q) \lor Q$
b. $(P \lor Q) \land Q$
c. $(P \lor Q) \land \neg P$
d. $(P \lor Q) \lor \neg P$

Answer: D

61. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the 61. probability that the ticket drawn has a number which is a multiple of 3 or 5?

a. 1/20.
b. 3/20.
c. 7/20.
d. 9/20.

Answer: D

62. A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

a. 10/21.
b. 9/7.
c. 12/7.
d. 15/7.

Answer: A

63. In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?

a. 1/3.
b. 3/4 .
c. 9/21 .
d. 8/21

Answer: A

64. What is the probability of getting a sum 9 from two throws of a dice?

a. 1/6.
b. 3/8 .
c. 1/9 .
d. 8/21.

Answer: C

65. Three unbiased coins are tossed. What is the probability of getting at most two heads?
 a. 1/3 .
 b. 3/8 .
 c. 7/8 .
 d. 8/21.
Answer: C

66. Let R = {(1, 3), (4, 2), (2, 4), (2, 3), (3, 1)} be a relation on the set A = {1, 2, 3, 4}.
 The relation R is_____.
a. a function.
b. reflexive.
c. not symmetric.
d. transitive.
Answer: C

67. If f(x)=X2+2x+5 and g(x)=x-1 , then f(g(x)) is _____.
a. x2+3x+4.
b. x2+4.
c.x2+4x-1.
d. x2-1.
Answer: B

68.The real number x when added to its inverse gives the minimum value of the sum when x is equal to_____.
 a. 2
 b. 1
 c. -1
 d. -2
Answer: B

69. Which function is not one-to-one?
a. {(0,1), (1,2), (2,3), (3,4)}
b. {(0,1), (1,1), (2,3), (3,0)}
c. {(0,1), (1,1), (2,2), (3,4)}
d. {(0,1), (1,0), (2,0), (3,2)}.
 Answer: D

70. Five horses are in a race. Mr. A selects two of the horses at random and bets on them. The probability that Mr. A selected the winning horse is _____.
 a. 4/5.
 b. 3/5.
 c. 1/5.
 d. 2/5.
 Answer: D

71. Bayes theroem provides us with another formula for computing__probability.
 a. prior.
 b. posterior.
 c. join.
 d. conditional.
 Answer: D

72. Much of the development in the theory of probability is associated with the name of   .

a. Fisher.
b. Karl-Pearson.
c. Spearman's.
d. Baye's.

Answer: D

73. The statement $p \rightarrow (q \rightarrow p)$ is equivalent to_____.
a. $p \rightarrow (p \rightarrow q)$.
b. $p \rightarrow (p \wedge q)$.
c. $p \rightarrow (p\ q)$.
d. $p \rightarrow (p \leftrightarrow q)$.

Answer: B

74. A student is to answer 10 out of 13 questions in an examination such that he must choose at least 4 from the first five questions. The number of choices available to him is _____
a. 140.
b. 196 .
c. 280 .
d. 346.

Answer: B

75. An unbiased coin is tossed four times. The probability that the number of heads exceeds the number of tails is_____ .
a. 1/12
b. 3/4
c. 3/8
d. 5/16

Answer: D

76. Principle of least squares provides
a. unique set of values
b. different values
c. positive values
d. negative values

Answer: A

77. Let R = {(3, 3), (6, 6), (9, 9), (12, 12), (6, 12), (3, 9), (3, 12), (3, 6)} be a relation on the set A = {3, 6, 9, and 12}. The relation is
a. reflexive and transitive.
b. reflexive .
c. an equivalence relation.
d. reflexive and symmetric.

Answer: A

78. In curve fitting, we get _____
a. the exact curve
b. approximating curve
c. a scatter diagram
d. a straight line

Answer: B

79. Which one of the following is a method of curve fitting?
a. Graphical method

b. Method of group average
c. Method of least square
d. All of these.
Answer: B

80. In Lanrange's interpolation formula, the value of $l_0(x)=$_____.
a. (x1-x0)/(x-x0).
b. (x-x1)/(x0-x1).
c. (x1-x)/(x-x0).
d. (x1-x0)/(x2-x0).
Answer: B

81. In lagrange's interpolation formula, the valur of l1(x1)= _____.
a. 0.
b. 1.
c. 2.
d.3.
Answer: B

82. Delta power 2 is called the _____order difference operator.
a. first
b. second
c. third
d. fourth
Answer: B

84. An unequal intervals, we can use _____ to get the derivative value.
   a. Newton Forward Interpolation Formula.
   b. Newton Backward Interpolation Formula .
   c. Newton Forward Difference Formula.
   d. Lagrange's Interpolation Formula.
Answer: D

85. The derivative at the end of the table we use _____ formula.
   a. Newton Forward Interpolation Formula.
   b. Newton Backward Interpolation Formula .
   c. Newton Forward Difference Formula.
   d. Lagrange's Interpolation Formula.
Answer: B

86. If the derivative is required at a point to the starting value in the table, we use_____
   formula.
a. Newton Forward Interpolation Formula.
b. Newton Backward Interpolation Formula.
c. Newton Forward Difference Formula.
d. Lagrange's Interpolation Formula.
Answer: A

87. If the value of derivative is required near the middle of the table we use one of the ___ interpolation formula.
   a. Newton Forward Interpolation Formula.
   b. Central difference formula.
   c. Newton Forward Difference Formula.

    d. Lagrange's Interpolation Formula.
Answer: B
88. _____ rule is derived from Newton's Cotes Formula.
 a. Trapezoidal rule.
 b. Simpson's (1/3)rd rule.
 c. Romberg's Integration.
 d. Simpson's (3/8)th rule.
Answer: A
89. Modification of _____rule is called Romberg's method.
 a. Trapezoidal rule.
 b. Simpson's (1/3)rd rule.
 c. Romberg's Integration.
 d. Simpson's (3/8)th rule.
Answer: A
90. The degree of y(x) in Trapezoidal Rule is .
 a. 1
 b. 2
 c. 3
 d. 4
Answer: A
91. The degree of y(x) in Simpson's (1/3)rd Rule is _____.
 a. 1
 b. 2
 c. 3
 d. 4
Answer: B
92. If Yx is assumed to be a polynomial of the nth degree then delta power n+1 Y0 and higher differences will be _____.
 a. 1
 b. 0
 c. -1
d. 2
Answer: B
93. In Simpson's (1/3)rd Rule the number of intervals is _____.
 a. odd.
 b. even.
 c. multiple of 3.
 d. multiple of 6.
Answer: B
94. Interpolating polynomial is also known as_____.
 a. smoothing function.
 b. interpolating function.
 c. collocation polynomial.
 d. interpolating formula.
Answer: C
95. Shifting operation is also known as_____.

a. averaging operator.
b. unit operator.
c. translation operator.
d. forward difference operator.

Answer: C

96. A die is thrown. Let A be the event that the number obtained is greater than 3. Let B be the event that the number obtained is less than 5. Then P (A ∩ B) is _____

a. 3/5.
b. 0.
c. 1.
d. 5/2.

Answer: C

97. Let R be the real line. Consider the following subsets of the plane R × R. S = {(x, y) : y = x + 1 and 0 < t =" {(x,">0)} then _____

a. neither S nor T is an equivalence relation on R.
b.   both S and T are equivalence relations on R.
c. S is an equivalence relation on R but T is not.
d. T is an equivalence relation on R but S is not.

Answer: D

98. Five horses are in a race. Mr. A selects two of the horses at random and bets on them. The probability that Mr. A selected the winning horse is

a. 4/5.
b. 3/5.
c. 1/5 .
d. 2/5.

Answer: D

99. A state from which deterministic finite state automata can never come out is called a ____.
a. transition table.
b. transition diagram.
c. trape state.
d. starting symbol.

Answer: C

100. Probability ranges from_____.
a. 0 & 1.
b. -1 & 1.
c. 1 &2.
d. -1& 0.

Answer: C

101. If A and B are mutually exclusive events then P(AB)=_____.
a.1.
b.P(A)P(B).
c.P(A)+P(B).
d.0.

Answer: B

102. Which of the following is true?
a. r= square root of b(xy)b(yx).

b. r2=square root of b(xy)b(yx).
c. 1/r= square root of b(xy)b(yx).
d. r= b(xy)b(yx).
Answer: A

103. If a card is drawn from a pack of cards, the probability of getting either a king or queen is_____.
a.4/13.
b.2/13.
c.4/40.
d.2/40.
Answer: B

104. If two events A and B are dependent, the conditional probability of A given B is_____.
a. P (B/A) P (B).
b. P (B)/P (A).
c. P (AB)/P (A).
d. P   (AB)/P (B).
Answer: D

105.If P (AB) =0.24 P (A) =0.6 then P (A/B) =_____.
a. 0.16.
b. 0.36.
c. 0.84.
d. 0.4.
Answer: C

106.correlation coefficient lies between_____.
A. 0 & 1.
B. 0 & 2.
C. -1 & 1.
D. 1 & 2.
Answer: C

107.If one of the rank correlations is greater than unity, then the other must be _____.
a. less than unity.
b. greater than unity.
c. zero.
d. one.
Answer: A

108.Regression coefficient is independent of _____.
a. origin.
b. scale.
c. origin & scale.
d. neither origin nor scale.
Answer: A

109.A correlation coefficient is independent of_____.
a. origin.
b. scale.
c. origin & scale.
d. neither origin nor scale.

Answer: C

110. A correlation is perfect and positive, if r=   .

a . - 1

b . 0

c . 2

d . 1

Answer: D

111. The product moment correlation coefficient is obtained by the formula_____ .

    a. r=summation of (xy)/xy.

    b. r=(summation of xy / N summation of X summation of Y).

    c. r= (summation of xy/N summation of X).

    d. r= (summation of xy/N summation of Y).

Answer: B

112. Both the regression coefficient cannot exceed____.

a. maximum.

b. -1.

c. minimum.

d.0.

Answer: A

113. The statements that do not have any of the connectives are called_____.

    a. object language.

    b. metalanguage.

    c. alphabet.

    d. atomic statements.

Answer: D

114.The negation symbol is denoted by_____.

a. ~.

b. ↔.

c. V.

d.0.

Answer: A

115. $P \wedge \neg P$ is a _____.

a. contradiction.

b. tautology.

c. conditional.

d. biconditional.

Answer: B

116. The error in the trapezoidal rule is of the order .

a. h

b. h^2

c. h^3

d. h^4

Answer: B

117. The error in the Simpson's rule is of the order .

a. h

b. h^2

c.h3
d.h4
Answer: D
118. Romberg's method is also known as ____ .
    a. Trapezoidal rule.
    b. Simpson's (1/3)rd rule.
    c. Romberg's Integration.
    d. Simpson's (3/8)th rule.
Answer: C
119. In Simpson's 1/3rd rule of integration is exact for all polynomials of degree not   .
exceeding_____.
a. 2
b. 0
c. 3
d. 4
Answer: A
120. In Simpson's 1/3rd rule the number of intervals must be _____.
 a. multiple of 3.
 b. multiple of 6.
 c. odd.
 d. even
Answer: D
121. To solve a system simultaneous linear equations are known as_____methods
 a. direct.
 b. indirect.
 c. iterative.
 d. interpolation.
Answer: A
122.____is used to denote the process of finding the values inside the interval (x0,Xn).
 a. Interpolation.
 b. Extrapolation.
 c. Iterative.
 d. Polynomial equation.
Answer: A
123. The forward difference operator denoted by the symbol is   .
a. Delta.
b. Omega.
c. Gamma.
d. Alpha
Answer: A
124. Lagrange's interpolation is used to interpolate with ____ interval.
 a. equal.
 b. unequal
 c. open
 d. closed
Answer: B

125. In Newton forward interpolation formula, the first and second terms will give the _____ interpolation.
 a. linear.
 b. parabolic.
 c. hyperbolic.
 d. non-linear.
Answer: A

126. Newton forward interpolation used for_____ intervals.
       a. equal.
       b. unequal
       c. open
       d. closed
Answer: A

127. If there are n distinct components in a statement then there are _ combinations of values in the Truth table.
 a. $n+1$.
 b. $n2$
 c. $2n$
 d. $n+2$
Answer: C

128. If p then q is called _____statement.
       a. conjunction.
       b. disjunction.
       c. conditional.
       d. bi-conditional.
Answer: C

129. $(P{-}{>}Q){-}{>}({\wedge}Q)$ is _____.
 a. tautology.
 b. contradiction.
 c. well formed formula.
 d. not a well formed formula.
Answer: D

130. Which one of the Idempotent law?
a. PVF=P.
b. P^T=P.
c. P^P=P.
d. P^F=F.
Answer: C

131. The duality law of (P^Q)VT is _____.
a. (P^Q)VT
b. (PVQ)VF
c. (P^Q)VT
d. (PVQ)VF
Answer: D

132. A product of the variables and their negations in a formula is called
 a. elementary product.

b. elementary sum.

c. disjunctive Normal Form.

d. conjunctive Normal Form.

Answer: B

133. A premise may be introduced at any Point in the derivation is called _____

 a. rule CP.

 b. rule T .

 c. rule P .

 d. both rule P & rule T .

Answer: C

134. If there are _____ distinct components in a statement then 2n combinations of values in the Truth table.

a. n+1.

b. n2

c. 2n

d. n+2.

Answer: B

135. A relation R in a set x is symmetric if _____.

 a. xRx.

 b. xRy =>yRx.

 c. xRy,yRz => xRz.

 d. xRy.

Answer: B

136. If a relation is reflexive, then all the diagonal entries must be_____.

 a. 0

 b. 1

 c. 2

d. 3

Answer: B

137. If R is Reflexive, Symmetric and Transitive then a relation is said to be_____.

a. irreflexive.

b. compatibility relation.

c. equivalence relation.

d. partial order relation.

Answer: C

138. Surjective function is also called_____function.

 a. one-one.

 b. one to one.

 c. into.

 d. onto.

Answer: D

139. One to one onto function is also called_____function.

a. bijective.

b. injective.

c. surjective.

d. composition function.

Answer: D

140. $(g.f)^{-1}=$ _____.

a. g

b. f

c. $f^{-1}.g^{-1}$

d. $g^{-1}.f^{-1}$

Answer: D

141. The composition of function is Associative but not .

a. idempotent.

b. commutative.

c. distributive

d. demorgan's law

Answer: B

142. A mapping x into itself is called .

a. relation.

b. equivalence relation.

c. reflexive.

d. transformation.

Answer: D

143. If f(x)=2x+1 and g(x)=x2-2 the f.g is _____.

a. 4x2+4x+1

b. 2x2-3

c. 2x2+3

d. 2x

Answer: B

Answer: B

144. S→ aAB, AB→bB, B→b, A→aB is satisfied type of ___ grammars.

a. 0

b. 1

c. 0 , 1

d. 2

Answer: C

145. If more than 2 LMD for the word then it is said to be .

a. language.

b. not ambiguous.

c. ambiguous.

d. finite state automata.

Answer: C

146. A class of machine which excepts a __ language is called finite state automata.

a. type 0.

b. type 1.

c. type 2.

d. type 3.

Answer. B

147. Accepting states denoted by .

a. arrow mark.

b. double arrow mark.
c. double circle.
d. straight line.
Answer: C

148. For converting NDFA to DFA we can ____all the states which have no incoming.
a. add.
b. multiply.
c. start.
d. delete.
Answer: D

149. The set of all finite word over E is denoted by_____.
a. E
b. E+
c. E*
d. Y
Answer: B

150. The symbolic form for the statement, Mark is poor or he is both rich and unhappy is __ .
a. $R^{\vee}(R^{\wedge}\neg H)$
b. $R^{\wedge}\neg (R^{\wedge}\neg H)$
c. $R^{\vee} (R^{\vee}\neg H)$
d. $\neg R^{\wedge} (R^{\wedge}\neg H)$
Answer: A

151. The conditional statement is formed by introducing .
a. P and Q
b. P or Q
c. P iff Q
d. If P then Q
Answer: D

152. The Bi-conditional statement is formed by introducing .
a. P and Q
b. P or Q
c. P iff Q
d. If P then Q
Answer: C

153. If P has the truth value t and q has truth value F then P→Q is .
a. T
b. F
c. T or F
d. T and F
Answer: B

154. Which one of the following statement is example of P→Q?
a. The sun is shining today but 2+7>4
b. If the sun is shining today, then 2+7>4
c. The sun is shining today and 2+7>4
d. The sun is shines today iff 2+7>4
Answer: B

155. Which one of the following is the example of P↔Q?
 a. The sun is shining today but 2+7>4
 b. If the sun is shining today, then 2+7>4
 c. The sun is shining today and 2+7>4
 d. The sun is shines today iff 2+7>4
Answer: D

156. P is equivalent to ___ .
 a. $\neg\neg P$
 b. $P^\vee P$
 c. $P^\wedge P$
 d. Both (1) and (2)
Answer: D

157. $(P^\wedge\neg P)^\vee P$ is equivalent to _____ .
   a. P
   b. Q
   c. $\neg P$
   d. $^\vee Q$
Answer: B

158. $P^\vee\neg P$ is equivalent to ___ .
 a. $P^\vee\neg P$
 b. $P^\wedge\neg P$
 c. $Q^\vee\neg Q$
 d. $Q^\wedge\neg Q$
Answer: C

159. Which one of the following is well formed formula?
 a. (P→Q)→(^Q)
 b. (P^Q)→Q
 c. (P^Q)→Q)
 d. ((P^Q)→Q)
Answer: D

160. A statement formula which is true regardless of the truth vale of the statements which replace the variable in it is called ___ .
 a. universally valid formula
 b. logical truth
 c. tautology
 d. all the above
Answer: D

161. A statement formula which is false regardless of the truth vale of the statements which replace the variable in it is called ___ .
 a. tautology
 b. contradiction
 c. contingency
 d. valid formula
 Answer: B

162. The statement $P^\vee\neg P$ is _____ .
 a. tautology

b. contradiction
c. contingency
d. valid formula
Answer: A

163. The dual of (P∧Q)∨(P∧R) is_____ .
a. (P∧Q) ∧ (P∧R)
b. (P∨Q)∨(P∨R)
c. (P∨Q) ∧(P∨R)
d. (P∨Q) ∨(P∧R)
Answer: B

164. The statement P∧¬P is_____ .
a. tautology
b. contradiction
c. contigency
d. valid formula
Answer: B

165. ~(P^Q)<=>~PV~Q is called
a. Commutative law
b. Distributive law
c. Associative law
d. DeMorgan's law
Answer: D

166. The dual of (P∧Q)∨T is_____
a. (P∨Q)∧F
b. (P∨Q)∧T
c. (P∧Q)∧T
d. (P∧Q)∧F
Answer: A

167. For any two formulas P and Q (P nand Q) biconditional is _____.¬
a. (P∨Q)
b. (P∧Q)
c. (P∨Q)
d.(P∧Q)
Answer: B

168. A formula which consists of a sum of elementary products is called
a. disjunctive normal forms
b. conjunctive normal forms
c. conditional statement
d. biconditional statement
Answer: A

169. The minterms for two variables P and Q are _
a. P∧¬Q
b. P∧Q
c.P∧¬Q
d.All the above
Answer: D

170. A formula which consists of product of elementary sum is called
a. disjunctive normal forms
b. conjunctive normal forms
c. conditional statement
d. biconditional statement
Answer: B

171. If the range R=Y then the mapping f: X→Y is called
a. onto
b. into
c. one-one
d. one to one onto
Answer: A

172. The mapping is called one to one if and only if
a. x1=x2 => f(x1)≠f(x2)
b. x1≠x2 => f(x1)≠f(x2)
c. x1=x2 => f(x1)=f(x2)
d. all the above
Answer: C

173. Let X = {a,b,c} and Y = {0,1} then X x Y=
a. {<a,0>,<b,0>,<c,0>,<a,1>,<b,1>,<c,1>}
b. {<a,0>,<a,1>,<a,2>,<b,1>,<b,0>,<b,2>}
c. {<b,0>,<b,1>,<b,2>,<c,0>,<c,1>,<c,2>}
d. {<c,0>,<c,1>,<c,2>,<a,0>,<a,1>,<a,2>}
Answer: A

174. If f(x) = x+2, g(x) = x-2 for x ε R then gof is _
a. x
b. 2
c. 2x
d. 3x
Answer: A

175. Let f:x→y be f= {<1,p>,<2,p>,<3,q>} and g:y→z be g={<p,b>,<q,b>};then gof is
a. {<1,b>,<2,b>,<3,b>}
b. {<b,1>,<b,2>,<b,3>}
c. {<p,b>,<q,b>,<1,p>}
d. {<p,1>,<p,2>,<p,3>}
Answer: A

176. A binary relation R in a set X is reflexive if
a. <x,y>ε R
b. <x,y>ε R => <y,x>ε R
c. <x,x>ε R
d. <x,x>ε R => <x,y>ε R
Answer: D

177. R is called symmetric whenever .
a. xRy then yRx
b. xRx then xRy
c. yRy then yRx

d. xRx then yRy

Answer: D

178. If R = {<a,1>,<b,0>,<c,2>} and S = {<c,d><0,1>} then RoS is
a. {<b,1>}
b. {<b,2>}
c. {<c,2>}
d. {<b,0>}

Answer: A

179. In the graph of relation the elements are represented by points are called_____.
a. nodes
b. vertices
c. both (1) and (2)
d. none

Answer: C

180. If a relation is reflexive then
a. one of the diagonal element is 1
b. one of the diagonal element is 1
c. all the diagonal elements must be 0
d. one of the diagonal element is 0

Answer: A

181. The simplest of all interpolations in which the interpolating formula is linear is known as
a. Linear interpolation formula
b. Newton's interpolation formula
c. Newton's divided difference formula
d. Lagrange's interpolation formula

Answer: A

182. For interpolating the values of y, near the beginning of a set of tabular values the formula which is

   mainly used is   .
a. Newton's forward difference formula
b. Newton's backward difference formula
c. Newton's forward interpolation formula
d. Newton's backward interpolation formula

Answer: C

183. The term which is used to denote the process of finding the values outside the interval is   .
a. Interpolation
b. Linear interpolation
c. Neither (a) nor (b)
d. Extrapolation

Answer: D

184. If 'a' is the actual value and 'e' is it's estimated value, the absolute error is .
a. a-e
b. |a-e|
b. a/e
c. (a-e)/e

Answer: A

185. In interpolation, for any real number n, we define the operator E is such that____
a. $E^2f(x) = f(x+2h)$
b. $Ef(x) = f(x+h)$
c. $E^3f(x) = f(x+3h)$
d. $Enf(x) = f(x+nh)$
Answer: D

186. In a singular sense the word statistics stands for
a. Aggregate of facts
b. A branch of science
c. Collection of data
d. All of these
Answer: C

187. The minimum value that Karl pearson's coefficient of Correlation can take is _____
a . + 1
b . 0
c . -1
d . none of these
Answer: D

188. Simple random sampling is an example for _ sampling method
a. probability
b. events
c. correlation
d. regression
Answer: A

189. What is the lower limit of spearman's coefficient of rank correlation?
a . + 1
b . - 1
c . 0
d . 0.5
Answer: B

190. When the correlation coefficient value is +1, the we say that the two variables are   .
a. positive correlation
b. negative correlation
c. perfectively negatively correlated
d. perfectively positively correlated
Answer: D

191. If the regression coefficient of the line of regression between two variables is positive then it indicates what type of relationship between two variables?
a. positive
b. negative
c. perfect positive
d. perfect negative
Answer: C

192. Karl Pearson's coefficient of correlation is independent of change of
a. Only scale
b. only orign

c. both origin and scale

d. neither origin nor scale

Answer:

193. To the given set of points, a smooth curve is drawn passing through the plotted points, by the method of curve fitting, we get a

a. the exact curve

b. approximating curve

c. a scatter diagram

d. cannot say

Answer: B

194. To the given set of points, the number of fitted curve may be   .

a. one

b. two

c. three

d. infinite

Answer: D

195. The word statistics is used as __

a. singular

b. plural

c. singular and plural

d. none of the above

Answer: B

196. Any smooth curve passing through the plotted point is known as approximating curve and its equation is known as   .

a. identity

b. unique equation

c. fitting equation

d. empirical equation

Answer: D

197. Statistics deals with ___ .

a. qualitative information

b. quantitative information

c. both (a) and (b)

d. none of the above

Answer: B

198. Probability is expressed as _____.

a. ratio

b. proportion

c. percentage

d. all the above

Answer: D

199. If A is an event, the conditional probability of A given A is equal to _____.

A. zero

B. one

C. infinite

D. indeterminate quantity

Answer: B

200. For any two events A and B, P(A-B) is equal to ___
    a. P(A)-P(B)
    b.P(B)-P(A)
    b. P(B)-P(AB)
    c. P (A)-P(AB)

Answer: D

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