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1. **Range of function /[f(x)=(e^x)/] is _____**

   Set of positive real numbers

2. **Composite relation symbolically written as _____**

   So R={(a,c)aeA, ceC, 3eB, (a,b)eR and (b,c)eS}

3. **If x=17(mod 5) which of the following integers are valid solution for x ?**

   12

4. **Range of the relation {(0,1),(3,22),(90,34)}**

   {1,22,34}

5. **Let A= {0,1,2} and R = {(0,2),(1,1),(2,0)} be a relation on A. The which of the following ordered pairs are needed to make it transitive?**

   (0,0) and (2,2)

6. **Operation of subtraction is a binary operation on the set of _____**

   Integers

7. **Let S=R and define the 'square' relation R= {(x,y)Ix^2=y^2}. The square relation is an _____ relation**

   Equivalence relation

8. **The logic gate NOT is a uniary operation on {0,1}.**

   True

9. **Let A= {1,2}, then P(A)=_____**

   {{},{1},{2},{1,2}}

10. **If a relation R is reflexive, anti symmetric and transitive then which of the following is not true for the inverse relation.**

    Inverse relation will be irreflexive.

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11. **Let R be a binary relation on a set A,R is anti-symmetric iff _____**

a,beA if (a,b)eR and (b,a)eR then a=b

12. **"-" is a binary operation on the set of integers Z.**

True

13. **The inverse relation R^(-1) from B to A is defined as _____**

R^(-1) = {(b,a) e B*A I (a,b)eR}

14. **Which of the following is always true for the matrix representation of a symmetric relation?**

Matrix is equal to its transpose

15. **Let A= {1,2,3,4} and let R and S be transitive binary relations on A defined as; R= {(1,2), (1,3), (2,2), (3,3), (4,2), (4,3) and S={(2,1), (2,4), (3,3)} then RuS= {(1,2), (1,3), (2,1), (2,2), (2,4), (3,3), (4,2), (4,3)}**

R union S is transitive

16. **Let S=R and define the ' square' relation R = {(x,y)Ix^2=y^2}. The square is an _____ relation.**

Equivalance relation

17. **If x=-10(mod 15). Which of the following integers are valid solution for x?**

5

18. **Let R be a binary relation on a set A. If R is anti symmetric then _____**

Inverse of R is anti symmetric

19. **If A={1,2,3} is a set and R = {(1,2),(2,2),(2,1)} is a relation on A, R is**

Symmetric

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20. **Let A={0,1} and B=(1). Let R and S be two binary relations on Cartesian product of A and B such that R={(0,1)} and S= {(1,1)}. Then R intersection S=_____**

Empty

21. **A relation R is said to be _____ iff it is reflexive, antisymmetric and transitive.**

Partial order Relation

22. **Let X={1,2,3} and Y={7,8,9} and let f be function defined from X to Y such that f is onto then which of the following statement about f is true?**

Co-domain of f must contain 1 element

23. **The function fog and gof are always equal**

False

24. **If a relation R={(1,2),(2,3),(3,4)(4,1)(2,2) is given then which of the following is true about this relation.**

R is reflexive

25. **A set is called countable if , and only if, it is_____**

finite

26. **Let f(x) = x^2-1 define function f from R to R and c=2 be any scalar, then c,f(x) is _____**

$2x^2+2$

27. **The set Z of all integers is _____**

Countable

28. **Let R be a binary relation on a set A. If R is anti symmetric then _____**

Inverse of R is symmetric

29. **For (2x-3, 4y+2) = (1,10). What will be the value of x and y ?**

(2,2)

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30. Let f and g be the two functions from R to R defined by f(x) = IxI and g(x)= square root of x^2 for all xeR. Then_____

F(x) is not equal to g(x)

31. If a set A has 15 elements then P(A) (power set of A) has _____ elements.

2^15

32. For the relation below to be a function, x cannot be what values {(12,14),(13,5),(-2,7),(x,13)}?

X cannot be 12, 13, or -2

33. Let the set A = {1,2,3,4}. Then the relation {(2,4),(4,2)} is _____

Symmetric

34. For the following relation to be a function, x can not be what values? R={(2,4),(x,1), (4,2),(5,6)}.

x cannot be 2,4 and 5

35. Vertical line test is used to determine that whether the graph of a relation is a function or not.

True

36. The properties of being symmetric and being anti symmetric are _____

Not negative of each other

37. The number of elements in AxB are _____ if A is a set with '5' elements and B is a set with '4' elements.

20

38. R={(a,1)(b,2)(c,3)(d,4)} then the inverse of this relation is _____

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

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39. **Logic gate NOT does not define a binary operation on (0,1) because _____**

It takes a single input and gives a single output

40. **How many real numbers exist between 1 and 5**

3

41. **The number pi is**

Irrational

42. **The number square root 2 is**

Irrational

43. **Range the relation {(0,1)(3,22),(90,34)}**

{0,3,90}

44. **Supherical coordinate 0 is related to the cylindrical coordinate as_____**

@=@

45. **Operation of subtraction is a binary operation on the set_____**

Integers

46. **Let A {1,2,3,4} and R={(1,2),(2,3),(3,3),(3,4)} be a relation on A. Then which one of the following ordered pair has made R not an irreflexive relation?**

(3,3)

47. **Input values of the function are called the _____**

Domain

48. **Range of function f(x)=IxI will be**

Set of positive real numbers

49. **Which of the following is not a binary operation on the set of integers?**

Division

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50. **In the matrix representation of an irreflexive relation all the entries in the main diagonal are _____**

0

51. **If the partition set of A is $\{A_1, A_2\}$ then**

$A_1 \cap A_2$= not empty set

52. **Let A= {a,b} then P(A) =**

{Non empty set, {a},{b},{a,b}}

53. **Which relations below are not functions?**

{(13,14),(13,5),(16,7),(18,13)}

54. **In the directed graph of an antisymmetric relation there is _____ pair of arrows between two distinct elements of the set.**

No

55. **If a relation R= (1,1),(2,1)(2,2) is given then which of the following is not true about this relation**

R is irreflexive

56. **Let R and S be transitive relations on a set A then _____**

Neither R union S is transitive nor R intersection S is transitive

57. **Let R={(1,2)(3,4)(5,6)(7,8)}. Domain of the inverse of the relation is _____**

{2,4,6,8}

58. **Let A={1,2,3,4,5} and B={4,9,,16,17,25}. Then the relation R={(2,4),(3,9),(4,16),93,17)} The inverse of R is'**

{(4,2),(9,3),(16,4),(17,3)}

59. **Let R be a relation on a set A. If R is symmetric then its compliment is _____**

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Irreflexive

60. **Which is not a binary operation on the set of natural numbers N?**

Subtraction

61. **If a relation R={(1,1)(2,1)(1,2)(2,2)} is given then which of the following is not true about this relation.**

R is irreflexive

62. **R={(a,1)(b,2)(c,3)(d,4)} then the inverse of this relation is _____**

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

63. **For any set A, the Cartesian product of A and A is known as _____**

Universal relation

64. **Let A={p,q,r,s} and define a relation R on A by R={(p,p),(p,r),(q,r),(q,s),(r,s)} Then which one of the following is the correct statement about R:**

R is not reflexive

65. **A={1,2} B={3,4}, R={(1,3)(2,4)}. Then the complement of R is _____.**

{(1,4)(2,3)}

66. **Domain of a relation symbolically written as_____.**

Dom(R)={aeAI(a,b)eR}

67. **Let X={2,4,5} and Y={1,2,4} and R be a relation from X to Y defined by R={(2,4)(4,1)(a,2)}. For what value of 'a' the relation R is a function?**

5

68. **Let A={1,2,3,4,5,6,7,8,9}, then which of the following sets represent the partition of the set A?**

A={1,3,5,7,9}, B={2,4,6}, C={8}

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69. Let A={1,2,3} and B={2,4} then number of binary relations from A to B are _____.

64

70. A relation R is said to be _____iff it is reflexive, antisymmetric and transitivde.

Partial order Relation

71. Let f be a function from X={2,4,5} to Y={1,2,4,6} defined as:f={(2,6),(4,2),(5,1)} . The range of f is _____

{1,2,6}

72. Let A={0,1,2} and R={(0,2),(1,1),(2,0)} be a relation on A. Then which of the following statement about R is true?

R is symmetric

73. Let A={2,3,4} and B={2,6,8} and let R be the "divides" relation from A to B i.e for all (a,b) belong to (Cartesian product of A and B), a,R b iff a I b (a divides b). Then

R={(2,2),(2,6),(2,8),(3,6),(4,8)}

74. Let A={1,2,3,…,50} and B={2,4,6,8,10}. Then the Cartesian product of A and B has _____ elements.

250

75. In the matrix representation of an reflexive relation all the entries in the main diagonal are _____

1

76. Which of the following is not a type of a relation?

Permutation

77. Let X={2,4,5} and Y={1,2,4} and R be a relation from X to Y defined by R={(2,4),(4,1),(a,2)}. For what value of 'a' the relation R is a function ?

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5

78. **Which of the following is not a representation of a relation?**

Venn diagram

79. **Let A={1,2,3,4} and define the following relations on A. Then R={(1,3),(1,4),(2,3),(2,4),(3,1),(3,4)} is _____**

R is irreflexive

80. **The range of f:X-> Y is also called the image of**

True

81. **Complementary Relation symbolically written as _____**

R=A*B- R={(a,b)eA*BI (a,b)not belong to R}

82. **Let A={1,2,3,4} and R=(1,1)(2,2),(3,3),(4,4) then R is**

All options

83. **If a relation R={(1,1),(2,1),(1,2),(2,2)} is given then which of the following is not true about this relation.**

R is irreflexive

84. **Which of the following logical connective is not a binary operation ?**

Implication

85. **A set may be dividend up into its disjoint subsets, such division is called_____**

Partition

86. **If A=(1,2,3)&B=(4,5,6) and R ={(1,4)(2,5)(3,6)(3,4)} The complementary relation is _____**

A*B(difference or -) R

87. **In matrix representation of a_____ relation, the diagonal entries are always 1.**

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Reflexive

88. **R is not symmetric iff there are elements a and b in A such that _____**

(a,b) belongs to R but (b,a) does not belong to R

89. **Which relations below are functions?**

R1={(3,4),(4,5),(6,7),(8,9)}

R2={(3,4),(4,5),(6,7),(3,9)}

R3={(-3,4),(4,-5),(0,0),(8,9)}

R4={(8,11),(34,5),(6,17),(8,19)}

R1 and R3 are functions

90. **The logic gate OR and AND are uniary operation on {0,1}**

False

91. **There is atleast one loop in the graph of an irreflexive relation**

False

92. **There is atleast one loop in the graph of an reflexive relation**

True

93. **A contains 3 elements and B contains 2 elements, then number of subsets of A*B are _____**

64

94. **Let A={1,2,3} and B={0,1,2} and C={a,b} R={(1,0),(1,2),(3,1),(3,2)} S={(0,b),(1,a),(2,b)} composite of R and S=_____**

{(1,b),(1,a),(3,a),(3,b)}

95. **If R is transitive then the inverse relation will be transitive**

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True

96. The number of elements in the power set of P(not empty set) denoted by P(P(not empty set) is

2

97. The function defined from Z to Z as f(x)= 1/(x+2)(x-2) is not well defined because _____

Function is not defined at x=2 and x=-2

98. Rang of relation {(0,1),(3,22),(90,34)} is _____

{1, 22, 34}

99. The number of elements in the power set of P(not empty set) denoted by P(not empty set) is

1

100. Let R={(1,2),(3,4),(5,6),(7,8)}. Domain of inverse of the relation is _____

{2,4,6,8}

101. The relation 'divides' on the set of integers is _____

A symmetric relation

102. Operation of subtraction is a binary operation on the set of_____

Integers

103. If R is transitive then the inverse relation will be transitive.

True

104. Let A={1,2,3,4} and define the relation R on A by R={(1,2),(2,3),(3,3),(3,4)}. Then_____

R is both reflexive and irreflexive

105. A set may be divided up into its disjoints subsets,such division is called

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Partition

106. **If a set A contains is elements then the number of elements in its power set P(A) is _____**

2^n

107. **Range of a relation symbolically written as _____.**

Ran R = {b ∈ B I (a, b) ∈ R }

108. **Let R be a binary relation on a set A. IF R is anti symmetric then _____.**

Inverse of R is anti symmetric

109. **Let A be a set with m elements and B be a set with n elements then the number of elements in A*B are _____**

m.n

111. **Let A{1,2,3,4} and define the following relation on A. Then R={(1,3),(2,2),(2,4),(3,1),(4,2)} Is _____**

R is symmetric

110. **If A={1,2,3}& B={4,5,6} and R={1,4},{2,5},{3,6},{3,4}. The complementary relation is _____**

A*B (difference or -) R

111. **Let R be a relation on a set A. If R is reflexive then its compliment is _____**

Irreflexive

112. **25=1(mod 3) means that 3 divides _____**

25-1

113. **Let R be the universal relation on a set A then which one of the following statement about R is true ?**

R is reflexive, symmetric and transitive

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114. Domain of a relation symbolically written as _____

Dom(R)= {aeR I (a,b) e R}

115. Let R be a relation on a set A. R is transitive if and only if for all a,b,ceA then

(a,b)eR and (b,c)eR then (a,c)eR

116. Let A be a non-empty set and P(A) the power set of A Deifne the ' subset' relation ,c as follows for all X,Y e P(A), XcY <-> for all x, iff xeX then xeY . Then c is _____

c is partial order relation

117. Define a relation R={(1,1),(2,2),(3,3),(1,3) the relation is

R is reflexive and transitive

118. Let R be a relation on a set A. R is transitive if and only if for all a,b,ceA then.

(a,b)eR and (b,c)eR then (a,c)eR

119. Let R and S be reflexive relations on a set A then R intersection S is reflexive

True

Quiz 2 spring 2021

1. **A function whose range consists of only one element is called_____**

One to one function

2. **The set Z of all integers is _____**

Countable

3. **One-to-one correspondence means the condition of _____**

Both (a) and (c)

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4. **Let X={1,5,9} and Y={3,4,7}, Define a function f from X to Y such that f(1)=7,f(5)=3,f(9)=_____. Which is true f(9) to make it a one-to-one (injective) function?**

4

5. **What will be the fourth term of the following sequence 1/2,2/3,3/4 _____?**

4/5

6. **The value of 6!=**

720

7. **A constant function is one to one iff its _____ is a singleton.**

Domain

8. **A constant function is onto iff its _____ is a singleton.**

Co-domain

9. **Number of one to one functions from X={a,b} to Y={u,v} are equal to _____-**

2

10. **If f is defined recursively by f(0) = -1 and f(n+1)=f(n)+3, then f(2)=_____.**

5

11. **A function whose inverse function exists is called a/an_____**

Invertible function

12. **Let f(2)=3, g(2)=3, f(4)=1 and g(4)=2 then the value of fog(4) is……**

3

13. **Let A={1,2,3,4} and B={7} then the constant function from A to B is _____.**

Onto

14. **Composition of a function is a commutative operation.**

False

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15. **Composition of a function is not a commutative operation**

    True

16. **The sum of first five whole number is _____.**

    10

17. **If f and g are two one-to-one functions, then their composition that is gof is one-to-one.**

    True

18. **Inverse of a surjective function is always a function.**

    False

19. **Inverse of a surjective function may not be a function**

    True

20. **Let X={1,2,3,4} and Y={7,8,9} and let f be function defined from X to Y such that f is onto then which of the following statement about f is true?**

    Co-domain of f must contain 3 elements

21. **If f; X->Y and g; Y->Z are both onto functions. Then gof; X->Z is _____**

    onto

22. **If f and g are two one-to-one functions, then their composition gof is_____**

    One-to-one

23. **If f: W →X, g:X →Y, and h:Y →Z are functions, then_____**

    (hog)of = ho(gof)

24. **Cardinality of positive prime numbers less than 20 is _____.**

    8

25. **IF $f(x)=\sin^{-1}(x)$ and g(x)=sin x then gof(x) is _____.**

    X

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26. 0!=_____.

1

27. An important data type in computer programming consists of _____.

Finite sequences

28. Let f(x)=2x and g(x)=x+2 define functions f and g from R to R, then (f-g)(x) is _____.

x-2

29. The total number of terms in an arithmetic series 0+5+10+15+….50 are _____.

11

30. 9!/6!=_____

504

31. Let f(x)=3x and g(x)=3x-2 define functions f and g from R to R, THEN (F+G)(X) is _____

6x-2

32. If f is a bijective function then ($f^{-1}f(x)$) is equal to

X

33. A sequence whose terms alternate in sign is called an_____

Alternating sequence

34. Common ration in the sequence "4, 16, 64, 256,…" is…..12.

4

35. 0.8181818181 is a infinite geometric series.

True

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36. **The word 'algorithm' refers to a step-by-step method for performing some action.**

True

37. **A predicate become _____ when its variables are given specific values**

Sentence

38. **The sum of two irrational numbers must be an irrational number.**

False

39. **The sum of two irrational numbers need not be irrational number**

True

40. **The division by zero is allowed in mathematics.**

Fasle

41. **The product of any two consecutive positive integers is divisible by 2**

True

42. **If 'n' is an odd integer then n^3+n is _____.**

Even

43. **For integers a,b,c, If divides b and a divides c, then a divides (a+b).**

False

44. **Quotient remainder theorem states that for any positive integer d, there exist unique integer q and r such that _____ and 0<r<d**

N=d.q+r

45. **A rule that assigns a numerical value to each outcome in a simple space is called**

Random variable

46. **If A and B are two disjoint (mutually exclusive) events then P(AB)=**

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P(A) + P(B)

47. **How many ways are there to select five players from a 10 member tennis team to make a trip to a match to another school?**

C(10,5)

48. **The expectation of x is equal to**

Sum xf(x)

49. **If P(A intersection B) = P(A) P(B) THEN THE events A and B are called**

Independent

50. **A walk that starts and ends at the same vertex is called.**

None optins

51. **How many integers from 1 through 1000 are neither multiple of 3 nor multiple of 5**

497

52. **What is the probability of getting a number greater than 4 when a die is thrown?**

3/5

53. **Eater formula for graphs is_____.**

F=e-v+2

54. **X+a,x+3a,x+5a…..is an_____**

Arithmetic sequence

55. **Composition of a function is a commutative operation.**

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False

56. **Real valued function is a function that assigns _____ to each member of its domain.**

Only a real number

57. **Let X={1,2,3,4} and a function 'f' defined on X f(1)=1,f(2)=2,f(3)=3,f(4)=4 then _____**

F is an identity function

58. **A constant function is surjective if and only if _____**

The co-domain consists of a single element

59. **Cardinality means the total number of elements in a set.**

True

60. **If f(x)=2x and g(x)=x then g(f(x)) is _____.**

$2x^2$

61. **Let f:R->R is one to one function then c,f, c is not equal 0 is also one to one function.**

True

62. **Let X={1,2,3,4} and a function 'f' defined from X to X by f(1)=1, f(2)=1, f(3)=1, f(4)=1 then which of the following is true?**

F is a constant function

63. **If f and g are two one-to-one functions, then their composition that is gof is one-to-one.**

True

64. **Which of the following is not correct for a 'sequence'?**

A sequence is a relation whose domain is the set of natural numbers

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65. **F(x)=x^2 is not one to one function from R to R^+**

True

66. **Let f: R->R is one to one function then c,f c is not equal to is also one to one function.**

True

67. **Let f(x)=x+2 then f^{-1}(x) is_____**

x-2

68. **Let f(x)=x^2+1 define functions f from R to R and c=2 be any scalar, then c,f(x) is _____.**

$2x^2$-1

69. **One to one correspondence means the condition of _____.**

Both (a)and (c)

70. **A function F: R-> R defined by f(x) = square root x is a real valued function.**

False

71. **If g:R->R defined by g(x)=e^2 is a real valued function of a real variable.**

True

72. **A function F:R-> R defined by f(x) = log x is a real valued function**

True

73. **½, then 3rd term of sequence is _____.**

1/2

74. **The process of defining an object in terms of smaller versions of itself is called recursion.**

True

75. **Which of the following is not correct for a 'sequence'?**

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A sequence is a relation whose domain is the set of natural numbers

76. A set is called countable if, and only if, it is _____.

Finite and countable infinite…..both

77. A set that is not countable is called _____.

Uncountable

78. A sequence whose terms alternate in sign is called an _____.

Alternating sequence

79. Let f: R->R is one to one function then c,f is also one to one function for _____.

C is not equal 0

80. Let f(x) = x+3 then $f^{-1}(x)$ is _____-

x-3

81. Let f and g be two functions defined by f(x) = x+2 and g(x)= 2x+1. Then the composition of f and g is_____.

2x+3

82. Number of one to one functions form X={a,b} to Y={u,v} are equal to _____

2

83. The flbonacci sequence is deined as $F_0=1$,$F_1=1$, $F_k=F_{k-1}+F_{k-2}$ for all integers k≥ 2 then which of the following is true for F_2

$F_2-F_1= 2+1=3$

84. x+a, x+3a, x+5a,…… is a/an_____.

Arithmetic sequence

85. Inverse of a function may not be a function.

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True

86. **In the following sequence a_k=K/(k+1), for k=1, a_1 will be _____.**

½

87. **If f(x)=x and g(x)= -x are both one to one function then (f+g)(x) is also one to one function.**

False

88. **If f(x)=x and g(x)= -x are both one to one function then (f+g)(x) is not one to one function.**

True

89. **The function 'f' and 'g' are inverse of each other if and only if their composition gives_____.**

Identity function

90. **Which of the following set is the domain of a sequence?**

Set of real numbers

91. **Let C is defined as the set of all countries in the world then C is a _____.**

Finite set

92. **A constant function is surjective if and only if_____.**

The co domain consists of a single element

93. **The sum of the series $a_1 + a_2 + a_3 + \ldots\ldots$ can be written as _____.**

$$\sum_{i=1}^{\text{inf inity}} a_k$$

94. **Inverse of a function may not be a function.**

True

95. $If\ _F_k = F_k - 1 + F_k - 2\ _then\ _F_0 = 1, _\ f_1 = 2, then\ _F_2 =$ _____

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96. Let X={1,2,3,4} and a function 'f' defined from X to X by f(1)=1, f(2)=1, f(3)=1, f(4)=1 then which of the following is true?

F is a constant function

97. The composition of function is always

Associative

98. A set is countably infinite if, and only if, it has the same cardinality as the set of

Positive integers

99. Two functions 'f' and 'g' from 'X' to 'Y' are said to be equal if and only if _____.

F(x)=g(x) for all 'x' belongs to X

100. $Y=x^3$ is a graph of bijective function from R to R.

True

101. Domain and range are same for_____.

Identity funtion

102. Let X={1,2,3,4} and a function 'f' defined on X by f(1)=1,f(2)=2,f(3)=3

F is an identity function

103. Composition of a function is a commutative operation.

True

104. Inverse of a surjective function is always a function.

False

105. A function whose inverse function exists is called a/an_____.

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Invertible

106. Given a set X define a function I from X to X by i(x)=x from all x belonging to X . Then_____.

I is both injective and surjective

107. Let f: R->R is a one to one function then c,f is also one to one function for.

C is not equal 0

108. Let X={1,5,9} and Y={3,4,7}. Define a function f from X to Y such that f(1)=7, f(5)=3, f(9)=_____. Which is true for f(9) to make it a one-to-one (injective) function?

4

109. Which of the following is not a predecessors of ak?

A_k+1

110. Two functions 'f' and 'g' from X to Y are said to be equal if and only if_____.

F(x)=g(x) for all 'x' belongs to x

111. The two functions 'f' and 'g' are equal if _____.

F(x) =3x and g(x)= $6x^2$+3x/$2x^2$+1 for all xeR

112. If first term of a geometric sequence is 2 and common ratio is ½, then 3^{rd} ter, of sequence.

¼

113. Y= squre root x is an _____function form R^+ to R

One to one function

114. Y= x^2 is an _____function form R to R^+

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NOT ONE TO ONE FUNTION

115. If a function (gof)(x) : X->Z is defined as (gof)(x)=g(f(x)) for all xeX, Then the function_____---.

(gof)

116. If 0 is the first term and -2 be the common difference of an arithmetic series, then the sum of first five terms of series is _____.

-20

117. If $f(x)=\sin^{-1}(x)$ and g(x) = sin x then gof(x) is _____.

X

118. F: X->Y that is both one to one and onto is called a _____.

Bijective function

119. What does 'y' denotes in a geometric sequence?

Common ratio

120. Let g be a function defined by g(x)=x+1. Then the composition of (gog).

X+2

121. A graph of a function f is one to one iff every horizontal line intersects the graph in at most one point.

True

122. Which of the following is true for the following sequence?

If n is even, then Cn=2 and if n is odd, then Cn = 0

123. The function 'f' and 'g' are inverse of each other if and only if their composition gives_____.

Identity function

124. N! is defined to be _____.

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The product of the integers from 1 to n

125. **Let A = {1,2,3,4} and B={7} then the constant function from A to B**

Both one to one and onto

126. **A set is called countable if, and only if, it is _____.**

Countably infinite and finite

127. **If f(x) = x and g(x) = -x are both one to one functions then (f+g)(x) is also one to one function.**

False

128. **If a is the 1st term and d be the common difference of an arithmetic sequence then the sequence is a, a+d, a+2d, a+3d….**

True

129. **x+a, x+3a, x+5…… is a/an_____.**

Arithmetic sequence

130. **inverse of an injective function may not be a function.**

True

131. $y=x^3$ **is a graph of bijective function form R to R**

False

132. **Two functions 'f' and 'g' from x to y are said to be equal if and only if _____.**

F(x)=g(x) for all 'x' belongs to x

133. **Common ration in sequence '36, 12, 4 , 4/3, …..' is ……**

1/3

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134. **A set is called finite if, and only if, is the _____ or there is ---------.**

Empty set or one-to-one

135. **Let $f(X)=x^2-1$ and $g(x)=x+1$ define functions f and g from R to R, then (f/g)x**

x-1

136. **A graph of a function f is one to one iff every horizontal line intersects the graph in at most one point.**

True

137. **Let g be a function defined by g(x) = x+1. Then the composition of (gog).**

X+2

138. **F:X->Y that is both one to one and onto is called a _____.**

Bijective function

139. **What does 'I' denotes in a geometric sequence?**

Common ratio

140. **Let A={1,2,3,4} and B={7} then the constant function from A to B is _____.**

Both one to one and onto

141. **N! is defined to be _____.**

The product of the integers from 1 to n

142. **A set is called countable if, and only if, it is _____.**

Both b and c

143. **Which of the following is the example of an alternating sequence?**

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$C_n=n/n+1$ for $n \geq 0$

144. X+a, x+3a, x+5a….. is an_____

Arithmetic sequence

145. 0, -5, -10, -15, … is an _____.

Arithemetic sequence

146. 5, 9, 13, 17, … is an _____.

Arithemetic sequence

147. An important data type in computer programming consists of _____.

Finite sequence

148. One-to-one correspondence means the condition of _____.

One-one and onto ….both

149. Cardinality means the total number of elements in a set.

True

150. Inverse of a function may not be a function.

True

151. The functions 'f' and 'g' are inverse of each other if and only if their composition gives _____.

Identity function

152. A set is called finite if , and only if, it is the _____ or there is _____.

Empty set or one-to-one

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153. **Let f and g be the two functions from R to R defined by f(x) = IXI and g(x) = square root x^2 for all xeR, then _____.**

F(x) is not equal to g(x)

154. **If $f^{-1}(x)$ = 6-x/2 then f^{-1} (2) is _____.**

2

155. **Let f(2)=3, g(2)=3, f(4)=1 and g(4)=2 then the value of fog(4) is _____.**

3

156. **An important date type in computer programming consists of _------.**

Finite sequence

157. **Let f(x)=x+3 then f^{-1}(x) is _____.**

X-3

158. **If f:X->Y amd g:Y->Z are both onto function. Then gof : X->Z is _____.**

One-to-one function

159. **The functions 'f' and 'g' are inverse of each other if and only if their composition gives**

Identity function

160. **The two function 'f' and 'g' are equal if _____.**

F(x) = 3x and g(x) = $6x^2$+3x/2x+1 for all xeR

161. **Two functions 'f' and 'g' from X To Y are said to be equal if and only if------.**

F(x) and g(x) for all 'x' belongs to X

162. **Which of the following set is the domain of a sequence?**

Set of natural numbers

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163. **If 1st term of a geometric sequence is 2 and common ratio is 1/2 , then 3rd term of sequence is _____.**

1/2

164. **Composition of a function is a commutative operation.**

True

165. **If a function (gof)(x): X-> Z is defined as (gof)(x)=g(f(x)) for all xeX. Then the function _____ is known as composition of f and g.**

(g o f)

166. **A set is countably infinite if and only if and only if, it has the same cardinality as the set of _____.**

Positive integers

167. **The 3rd term of the sequence $b_n=5^n$ is _____.**

125

168. **If f is a bijective function then $(f^{-1}(f(x))$ Is equal to _____.**

X

169. **Let f(x) = x and g(x) = -x for all xeR, then (f+g)(x) is ____.**

0

170. **An infinite sequence may have only a finite number of values.**

True

171. **The functions fog and gof are always equal .**

False

172. **If f and g are two one-to-one functions, then their composition that is gof is one-to-one.**

True

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173. **A function whose range consists of only one element is called _____.**

Constant function

174. **Let X ={1,5,9} and Y={3,4,7}. Define a function f from X to Y such that f(1)=7, f(5)=3, f(9)=4 then which of the following statement about 'f' is true?**

F is both one-to-one and onto

175. **$Y=x^3$ is a graph of bijective function from R to R.**

True

176. **A function whose inverse function exists is called a/an_____.**

Invertible

177. **Let F and g be two functions defined by f(x)= x+2 and g(x)= 2x+1. Then the composition of f and g is _____.**

2x + 5

178. **If r is a positive real number, then the value of r in 3, r,r=-27r is**

-9

179. **The _____ of the terms of a sequence forms a series.**

Sum

180. **The sum of first five whole number is _____.**

10

181. **If $f_k=f_k\text{-}1+f_k\text{-}2$then $f_0=1$, $f_1=2$, then f_2= _____.**

3

182. **Let f(x) = 3x and g(x) = x + 2 define functions f and g from R to R, then (f.g)(x) is _____.**

$3x^2 + 6x$

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183. Let R be a relation on a set A. If R is reflexive then its compliment is _____ .

Irreflexive

184. **If A = Set of students of virtual university then A has been written in the _____.**

Descriptive form

185. **If a function (g o f)(x):X→Z is defined as (g o f)(x) = g(f(x)) for all x ∈ X. Then the function _____ is known as composition of f and g.**

(g o f)

186. If X and Y are independent random variables and a and b are constants, then Var(aX + bY)is equal to

aVar(X) + bVar(Y)

187. Let A = {1, 2, 3} and B = {2, 4} then number of functions from A to B are _____.

8

188. **p is equivalent to q' means _____.**

p is necessary and sufficient for q.

189. **Let A and B be subsets of U with n(A) = 12, n(B) = 15, n(A') = 17, and n(A intersection B) = 8, then n(U)=_____ .**

29

190. For the following relation to be a function, x can not be what values? R = {(2,4), (x,1), (4,2), (5,6)}

x cannot be 2, 4 or 5

191. Find the number of the word that can be formed of the letters of the word "ELEVEN".

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192. 120

193. There are three bus lines between A and B, and two bus lines between B and C. Find the number of ways a person can travel round trip by bus from A to C by way of B?

6

194. **Among 20 people, 15 either swim or jog or both. If 5 swim and 6 swim and jog, how many jog?**

16

195. **A predicate becomes _____ when its variables are given specific values.**

statement

196. **Find the number of distinct permutations that can be formed using the letters of the word "BENZENE"**

420

197. **Suppose there are 8 different tea flavors and 5 different biscuit brands. A guest wants to take one tea and one brand of biscuit. How many choices are there for this guest?**

40

197. **In how many ways a student can choose one of each of the courses when he is offered 3 mathematics courses, 4 literature courses and 2 history courses.**

24

198. **If $p \leftrightarrow q$ is True, then _____.**

p and q both are True.

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199. If A and B be events with P(A) = 1/3, P(B) = 1/4 and P(A ∩ B) = 1/6, then P(A ∪ B) = _____ .

5/12

200. **An integer n is a perfect square if and only if _____ for some integer k.**

n = k^2

201. **If A and B are disjoint finite sets then n(A ∪ B) = _____.**

n(A) + n(B)

202. **Let X = {2, 4, 5} and Y= {1, 2, 4} and R be a relation from X to Y defined by R = {(2,4), (4,1), (a,2)}. For what value of 'a' the relation R is a function ?**

5

203. ~(P → q) is logically equivalent to _____.

p ∧ ~q

204. **A tree is normally constructed from _____.**

left to right

205. A Random variable is also called a _____.

Chance Variable

206. **The conjunction p ∧ q is True when _____.**

p is True, q is True

207. **The logical statement p ∧ q means _____.**

p AND q

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208. **Which of the followings is the factorial form of 5 . 4?**

5!/3!

209. **What is the minimum number of students in a class to be sure that two of them are born in the same month?**

13

210. If p is false and q is true, then ~p ↔ q is _____.

True

211. If f and g are two one-to-one functions, then their composition that is gof is one-to-one.

TRUE

212. **(p ∨ ~p) is the _____.**

Tautology

213. **(-2)! = _____ ?**

Undefined

214. If p = It is raining, q = She will go to college
"It is raining and she will not go to college"
will be denoted by

p ∧ ~q

215. Let X = {1, 2, 3}, then 2-combinations of the 3 elements of the set X are _____?

{1, 2}, {1, 3} and {2, 3}

216. **Let $f(x) = x^2 + 1$ define functions f from R to R and c = 2 be any scalar, then c.f(x) is _____.**

$2x^2 + 2$

217. The disjunction of p and q is written as _____.

p ∨ q

218. **If X and Y are independent random variables, then E(XY) is equal to**

E(x)E(y)

219. **How many possible outcomes are there when a fair coin is tossed four times?**

16

220. Which of the followings is the product set A * B * C ? where A = {a}, B = {b}, and C = {c, d}.

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

221. **The number of the words that can be formed from the letters of the word,"COMMITTEE" are**

9! / (2!2!2!)

222. **One-to-One correspondence means the condition of _____.**

One-One and onto

223. The functions f o g and g o f are always equal.

FALSE

224. If order matters and repetition is allowed, then which counting method should be used in order to select 'k' elements from a total of 'n' elements?

K-Sample

225. **Determine values of x and y, where (2x, x + y) = (8, 6).**

x = 4 and y = 2

226. **Let g be a function defined by g(x) = x + 1. Then the composition of (g o g)(x)is _____.**

x + 2

227. **What is the truth value of the sentence?**
'It rains if and only if there are clouds.'

False

228. **Reductio and absurdum' is another name of _____.**

Proof by contradiction

229. **X belongs to A or x belongs to B, therefore x belongs to _____.**

A union B

230. **Which of the followings is the product set A * B * C? Where A = {a}, B = {b}, and C = {c, d}.**

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

231. **Real valued function is a function that assigns _____ to each member of its domain.**

Only a real number

232. **The negation of "Today is Friday" is**

Today is not Friday

233. **A non-zero integer d divides an integer n if and only if there exists an integer k such that _____.**

n = d k

234. **The statement p → q is logically equivalent to ~q → ~p**

True

235. **Let R be the universal relation on a set A then which one of the following statement about R is true?**

R is reflexive, symmetric and transitive.

236. **Let f(x)=3x and g(x) = 3x − 2 define functions f and g from R to R. Then (f+g)(x) = _____.**

6x − 2

237. **The switches in parallel act just like _____.**

OR gate

238. **The converse of the conditional statement p → q is**

q → p

239. **If X and Y are random variables, then E(aX) is equal to**

aE(X)

240. **Which of the following statements is true according to the Division Algorithm?**

17 = 5 x 3 + 2

241. **Let p → q be a conditional statement, then the statement q → p is called _____.**

Converse

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242. The disjunction p ∨ q is False when _____.

P is False, q is False.

243. A student can choose a computer project from one of the two lists. The two lists contain 12 and 18 possible projects, respectively. How many possible projects are there to choose from?

30

244. The converse of the conditional statement 'If I live in Quetta, then I live in Pakistan' is _____.

If I live in Pakistan, then I live in Quetta.

245. The functions 'f' and 'g' are inverse of each other if and only if their composition gives _____.

Identity function

246. P (0, 0)=_____?

1

247. **Let p1, p2, p3 be True premises in a given Truth Table. If the conjunctions of the Conclusion with each of p1, p2, p3 are True, then the argument is _____.**

Valid

248. **If p is false and q is false, then ~p implies q is _____.**

False

249. **A box contains 5 different colored light bulbs. Which of the followings is the number of ordered samples of size 3 with replacement?**

125

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250. Let A = {2, 3, 5, 7}, B = {2, 3, 5, 7, 2}, C = Set of first five prime numbers. Then from the following which statement is true ?

A = B

251. **The set of prime numbers is _____.**

Infinite set

252. The contrapositive of the conditional statement 'If it is Sunday, then I go for shopping' is _____.

I do Not go for shopping, then it is Not Sunday.

253. **Let p be True and q be True, then (~p ∧ q) is _____.**

False

254. In how many ways a student can choose a course from 2 science courses,3 literature courses and 5 art courses.

30

255. The method of loop invariants is used to prove _____ of a loop with respect to certain pre and post-conditions.

correctness

256. **A student is to answer five out of nine questions on exams. Find the number of ways that can choose the five questions**

126

257. **If A and B are any two sets, then A − B = B – A**

False

258. **There are 5 girls students and 20 boys students in a class. How many students are there in total?**

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25

A = {x:x is a natural number less than 1 } is _____.

Empty Set

How many methods are used for representing a set _____.

3

Which of the following is a conditional statement?

P ∧ q

Set of prime numbers is _____.

{2,3,5,7,11,...}

p ---> q is logically equivalent to ----------

~ p v q

(p∨q)∧(p∨r)is logically equivalent to

P ∨(p ∧ r)

'p is equivalent to q' means -------

p is necessary and sufficient for q.

Which of the following is a continuous set?

Real

In conditional statement p → q, the statement p is called.....

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Conclusion

Let p = It is Monday, q = Ahmed is at home. Then p ^ ~ q means --------

It is Monday AND Ahmed is NOT at home.

(p∧q)∨(p∧r) is logically equivalent to..

~p∧(q∨r)

Which of the following is not a predecessor of ak?

ak+1

A={Birds living on the earth} is ------- set.

an infinite

The disjunction p v q is False when -------

Both false

p <--> q is true when ---------

false if **p** and **q** have opposite **truth** values

If the switch P is closed and Q is open, the state of light bulb in "OR" gate will be _____.

on

Let p = Akram is rich, q = Akram is helpful. Then ~ p ^ q means ----------

Akram is not rich BUT he is helpful.

If p is false and q is true, then ~p^q is _____.

T

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Y+ 7 =10 is a proposition?

F

In conditional statement p → q, the statement p is called.....

Conclusion

A constant function is a one to one function if and only the …….

domain has at least one element

Negation of tautology is contradiction.

True

Every Set has necessarily two subsets ∅ and the Set itself. These two subset are known as _____.

Proper Subset

Composition of a function is a commutative operation.

False

If A={x,y}

B={x}

then,A-(A-B)=.....?

The set of integers "Z" is a subset of the set of _____.

Natural Numbers

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Compliment of (A union B) = (Compliment of A) intersection (Compliment of B), is called _____ .

Complement Law

0! = 1!

True

The set of Natural numbers is the discrete set.

False

Complement Law is _____.
Both b and c

Let X = {1,2,3,4} and a function 'f 'defined from X to X by f(1) = 1 , f(2) = 1, f(3) = 1, f(4) = 1 then which of the following is true?

f is a constant function

worrk by .

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Every Set is ---------- of itself.

A well defined collection of objects is called _____.

Which of the following is not a binary operation on the set of Integers?

Division

1. "+" is a____ operator. None of the above
2. Which of the followings is the truth value of compound statement, if 3+4 = 6, then 4+1 = 3. True
3. A function $f : X \to Y$ that is both one to one is called a __Bijective Function
4. The logical expression p<--> q is equal to____ $(p \to q) \wedge (q \to p)$
5. X belongs to A or x belongs to B, therefore x belongs to____ A union B
6. If a function is recursively defined as f(0) = 4 &

   f(n+1) = 3f (n) + 3 then f(2)=_____ 15

7. Let $f(x) = 3x$ and $g(x) = x + 2$ define functions f and g from R to R, then $(f, g)(x)$ is _____ $3x^2 + 6x$
8. A function whose inverse function exists is called a/an_____ Invertible
9. Let X = $\{1, 2, 3, 4\}$ and a function 'f' defined from X to X by f(1) = 1, f(2) = 1, f(3) = 1, f(4) = 1 then which of the following is true? F is a constant function
10. What is the truth value of the sentence?

    "It rains if and only if there are clouds" False

11. If p = true, then the truth value of

    $(pV \backslash -q) \to \square\ p$ will be True

12. Two functions 'f and g' from X to Y are said to be equal if and only if____ f(x) = g(x) for some 'x' belongs to X

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13. Which of the followings is the truth value of compound statement, if 6+7 = 13, then 5+2 = 6. True

14. A statement that no objects belong to the set, belongs to,____ Restiction

15. Let R ={(1,2), (3,4), (5,6), (7,8)} Range of the inverse of the relation is___ {1,3,5,7}

16. Let f(2) = 3, g(2) = 3 ,f(4) = 1 and g(4) = 2 then the value of fog(4) is___ 3

17. Let $p \to q$ be a conditional statement then the statement $q \to p$ is called _____ Contrapositive

18. Let A,B,C be subset of universal set U then the Idempotent Law is__ $A \cap A = A$

19. The statement 'Beijing is the capital of China AND Cairo is the capital of Egypt' is a _____ Conjunction

20. The converse of the conditional statement 'If I live in Quetta, then I live in Pakistan' is____ If I live in Pakistan, then I live in Quetta.

21. In conditional statement $p \to q$, the statement p is called ____ Hypothesis

22. X+2=3 is a proposition? False

23. Negative of tautology is contradiction True

24. Complements of U is___ U

25. Let A = {p,q,r,s} and define a relation R on A by R = {(p,p), (p,r), (q,r), (q,s), (r,s)} then which one of the following is the correct statement about R:

R is transitive

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26. Let R be a binary relation on a set A if R is anti symmetric then____
Inverse of R is a anti symmetric

27. Input values of the function are called the___

Domain

50. Let A, B, C be subset of Universal Set ∪ then the Idempotent Law is

A ∩ A = A

51. Compliment of (A Union B) = (Compliment of A) intersection (Compliment of B), is Called___

52. The total number of terms in an arithmetic series 0 + 5 + 10 + 15 +.... + 50 are

11

53. In General, n! = n (n+1)! For all integers in. **True**

54. An important data type in computer programming consists of **Finite Sequences**

55. If f and g are two one-to-one functions, then their composition that is gof is one-to-one.

True

56. If a relation R is Reflexive, anti-symmetric and transitive then which of the following is not true for the inverse relation. **Inverse relation will be Irreflexive**

57. The converse of the conditional statement 'If I live in Quetta, then I live in Pakistan' is _____ **If I live in Pakistan, then I live in Quetta.**

58. An integer n is a perfect square if and only if _____ for some integer k. **n = k^2**

59. Let P = I am a student; and q = I love to study mathematics, then the symbolic from the statement "I am not a student but I love to study mathematics is_____

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60. Inverse of Subjective function is always a function

61. Let p= Islamabad is the capital of Pakistan and q = 17 is Divided by 3 then which of the followings represent p ^ q?

62. Let $f(x) = x^2 + 1$ define function f from R to R and c=2 by any scalar, then c f(x) is

63. If the Conclusion is true when the premises are true, the argument will be_____

64. Let R be a relation on a set A. If R is reflexive then its compliment is _____
Irreflexive

65. Let A = {1, 2, 3……50} and B = {2, 4, 6, 8, 10} Then the Cartesian product of A and B has____ elements

66. The bicondtional statement of the following statement will be_____

67. Let f: R → R is a one-to-one function then c, f is also one to one function is_____

68. Universal Bound Law state that_____

69. 'P is equivalent to q' means _____. P is necessary and sufficient for q.

70. The converse of the conditional statement, "if i live in Lahore, then I live in Punjab is_____

If I live in Punjab, then I live in Lahore

71. Complementary Relation symbolically written as_____

72. (s v ~ s) is the_____

73. Let f(x) –x + 2 then f^{-1} (x) is_____

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74. let p be true and q be true, then (~p ∧ q) is _____. **False**

75. Domain and range are same for_____. **Identity Function**

76. For the following relation to be a function, x cannot be what values? {(12, 14), (13, 5), (-2, 7), (x, 13)}

77. Set Difference Law is

78. Neither Ali is a student, nor he is from Lahore, in the logical sentences, it can be written as_____

79. If a is the 1st term and d be the common difference of an arithmetic sequence then the sequence is a, a+d, a+2d, a+3d….
True

80. Range of a Relation Symbolically written as_____

81. The set Z of all integers is _____ **Countable**

82. Let A and B the subset of Universal set U then the differential A and B or A – B =

83. Let R be a Binary Relation on a set A. if R is Symmetric then_____

84. Let A = {a, e, I, o, u} B ={a,b,c,d,e…….z} Then A U B =……?

85. Let A=(1,2,3,4,5,6,7,8,9} then which of the following sets represents the portion of the set A?

86. Elements of a set are listed in pair of brackets and separated by Commas is_____

87. A well-defined collection of objects is called _____

88. Let f(x) =3x and g(x) =x+2 define functions f and g from R to R, then (f-g)(x) is

89. "-"is a Binary operation on the set of integers of Z **True**

90. Every Set is not proper subset of it self _____

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91. Let A be subset of Universal set U then double Complement law is

92. The Relation "Divides" on the set of integer's is_____

93. The logical statement p ∧ q means _____. **P AND q**

94. While of the logical expressions represents the sentences "if you read daily stories daily, then you vocabulary will increase and conversely?

95. Vertical Line is used to determine that whether the graph of a relation is a function or not.

96. Let p be true and q be true, then (~ p and q) is…….

97. Numbers of one to one function from X={x,y} to Y={u,v} are equal to

98. p <…> q is true when _____ **~ (p XOR q)**

99. The Set of all Vowels in the English alphabets V= {a, e, i. o. u} is _____

1. Let P=akram is rich, q=Akram is helpful. Then ~p means?

Ans: Akram is not rich but helpful.

2.which of the following is truth value of compound statement, if 10+5=15, then 2+3=5?

True

3.Let f and g be two functions denoted by f(x)=x+2 and g(x)=2x+1, then the composition of f and g is…?

2x+5

4.The negation of (p AND t) is------, where t is tautology.

P

work by

5.An Argument is a list of statement which is followed by conclusion.

True

6. 0! =…….?

Undefine.

7.N! is defined to ….?

The product of integers from 1 to n

8. if the conclusion is true when the premises are true, the argument will be……?

Valid

9.The logic gates OR and AND are uniary operation on {0,1}.

True

10.Y+7 is a preposition?

True

11.Let X={1,2,3,4} and function "f" defined on X by

F (1) =1

F (2) =2

F (3) =3

F (4) =4

F is an identity function.

12. R is not Symmetric iff there are elements a and b in A such that----------?

(a, b) belongs to R but (b, a) does not belong to R

13.The statement "Islamabad is the capital of Pakistan and Abu Dhabi is the capital of U.A.E" is a…….?

Conjunction

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14.Which of the logical expression represents the sentence "If you read stories daily, then your vocabulary will increase and conversely?

P→q

15. if f is defined recursively by f(0)=-1 and f(n+1)-f(n)+3, then f(2)……?

5

16.Vertical line test is used to determine that weather the graph of a relation is a function or not?

True

17.Let A and B be subset of Universal set of U then A-(A-B) =…?

A∩B

18.A set is accountably infinite if and only if it has the same cardinality as the set of ….?

Positive Integers.

19.~P is true when …?

P is false

20.In the matrix representation of an irreflexive relation all the entries in the main diagonal are…?

0

21. A function whose range consist of only one element is called….?

Constant function

22.A graph of a function f is onto if every horizontal line intersects the graph at least one point.

True.

23.An Integer n is perfect square if and only if ----------for some integer k.

n=square-root of k

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24.Let f be a function from x={2, 4, 5} to y={1,2,4,6} defined as f={{2, 6} , {4, 2} , {5, 1} then range of f is..?

{1, 2, 6}

25.Let f(x)=2x and g(x)=x+2 define the functions f and g from R to R, then (f-g) (x) is……?

x-2

25.How many methods are used for representing a set----------?

3

27.Truth value of 1vq will be……..?

1

28.if A ={xI3x+4=-8}, x belongs to real numbers. then the tabular form is…….

A={-4}

29.The number of elements are in the power set of (Θ) is…?

1

30.find x and y given (2x, x+y) =(6,2).

X=3, y=-1.

31. the tabular form of set of prime number is….?

{2,3,5,7,11, 13,}

32.An argument is a list of statements which is followed by conclusion

True

33.if f is defined by f(0)=-1and f(n+1)=f(n)+3, then f(2)=….?

5

34.A set is countably infinit if and only if ,it has same coordinately as a set of….?

Positive integers.

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35. Let A and B be subset of universal set U then A-(A-B) =

A∩B

36. if the Conclusion is true when the premises are true, the argument will be…?

Valid

37.At least one Loop in the graph of an irreflexive relation.

True

38.Complent of U is

Θ

39.Let c is defined as the set of all countries in the world then C is a……?

Finite set

40.Let A = {1 ,2}, then P(A)=……?

{{} {1}, {2} {1, 2}}

41.If R is Transitive then the inverse relation will be transitive..?

True

42.The Logical expression P<-->q is equal to----------?

(p→q)^(q→p)

43. For any set A, the Cartesian product of A and A is Known as ----------?

Universal

44.25=1(mod3) means that 3 Divides--------?

25-1

45. A constant function is surjective if and only if----------?

The domain consists of a single element.

46.Let p→q be a conditional statement, then ~p→~q is called--?3

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Converse

47.Neither Ali is student, nor he is from Lahore, in the logical sentence, it can be written as-----?

~p^~q

48.the Negation of (p OR ~p) is---?

P

49.For the relation below to be a function, x cannot be what values? {(12, 14), (13, 5) (-2, 7), (x,13)}

X Can not be 12, 13 or -2

50.The negation of (p AND t) is ----------where t is tautology.

P

Let A be Subset of Universal set U then A^c=---?

$A \cap A^c$

1 . Y+ 7 is a proposition?

True

2. which of the following is the example of an alternating?

$C_n = (-1)^n/n+2$ For n>0

3. If A=(1,2,3)& B={(4,6,6) and R=(1,4)(2,5)(3,6)(3,4)} The complementary relation is

A X B (difference or-)R

4. The disjunction of P and q is written as----------

P v q

5. If A= set of prime numbers less 2

B=set of which number between 0 and 1 then.

All of the above

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6. p is sufficient for q mean "p → q"

True

7. Domain of the relation {(0,1),(3,22),(90,34)

{0,3,90}

8. An argument is alist of statements which is followed by a conclusion.

True

9. Let S = R and define the "square" relation R = {(x,y)[$x^2 = y^2$} .. The square relation is an _____relation.

Equivalence relation

10. Which of the following is always true for the matrix representation of a symmetric relation?

Matrix is equal to its transpose.

11. Set of prime number is _____

{2,3,5,7,11,…}

12. A constant function is surjective if and only if……..

The co domain consists of a single element

13. If A-B= A, which of the following statement is true?

All the given statement are false

14. A function f : R⟶R defined by f(x) = √x is real valued function.

False

15. Let A= {1,2,3,4} and let R and S be transitive binary relations on A defined as:

R= {(1,2) , (1,3) , (2,2) , (3,3) , (4,2) , (4,3)} and S = {(2,1), (2,4), (3,3)} Then

R∪S= {(1,2), (1,3), (2,1), (2,2), (2,4), (3,3), (4,2), (4,3)}

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Ans: R union S is transitive

16. ˜(p→q) is logically equivalent to……

P AND ˜q

17. If f(x)= 2x and g(x)= x then g (f(x)) is…….

2x

18. If A= (1,2,3)& B=(4,5,6) and R={(1,4)(2,5)(3,6)(3,4)} the complementary relation is …….

A X B (difference or -)R

19. Let A = {1,2}, then P(A)=_____,

{{}, {1}, {2}, {1,2}}

20. Complement Low is _____

$A \cap A^c = 0$

21. Let p=Akram is rich, q = Akram is helpful . Then ~p^q means----------

Akram is not rich BUT he is helpful .

22. The contrapositive of the condition statement `If it is Sunday. Then I go for shopping' is ---------

I do Not go for shopping. Then it is Not Sunday

23. Let p be True and q be True. Then (pXORq) is_____

False

24. The function fog and gof are always equal.

False

25. Which of the following is true for the following sequence?

$C_n = 1 - (-1)^n$ for allintegerm>0

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If n is even , then C_n=0 and if n is odd . then C_n=2

26. The logical gates OR and AND are uniary operation on {0,1}.

False

27. (s v ~ s) is the ----------.

Tautology

28. In the digital circuits, OFF represents----------

Both

29. The set Z of all integers is ----------.

Countable

30. Let R and S reflexive relations on a set A then R intersection S is reflexive.

True

31. The converse of the conditional statement 1`If I live in Quetta. Then I live in Pakistan` is ---------

If I live in Pakistan, then I live in Quetta

32. Which of the following is a right biconditional statement ----------

If it rains there will be a holiday

33. If p→q is false then ~q→~p will be----------

True

34. p<->q is true when ----------

P is False q is False

35. Let f(x)= x+3 then f^{-1} (x) in ----------

X – 3

36. Let X= {1,2,3,4} and a function `f ` defined on X by

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f (1)= 1

f (2) = 2

f(3) = 3

f(4) = 4

f is an identity function

37. Range of function

Will be

Set of positive real numbers

38. ~p is True when ----------

P is False

39. The composition of functions is always----------.

Associative

40. If S= {x Ix is a positive integer, 2x- 2= 0}, then it`s table from is----------

S={1}

41. If R is transitive then the inverse relation will be transitive.

True

42, There is at least one loop in the graph of an irreflexvie relation.

False

43. which of the following is a right biconditional statement----------

If rains if and only if it is a weekend

44. Let f(x) = x+3 then $f^{-1}(x)$ is_____

X – 3

45. The tabular form of set of prime numbers is ----------

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{1,3,5,7,9,…..}

46. The Negation of (p OR~p) is ----------

T (where t is tautology.)

47. x+2=3 is a proposition?

False

48. Which of the following is the truth value of the compound statement, z > 7 iff (z^2)> 49?

False

49. A function whose inverse function exists is called a/ an

Invertible

50. the set Z of all integers is ----------

Countable

51. 0! = 1!

True

52. Y+7 = 10 is a proposition?

False

53. Inverse of a function may not be a function

False

54. If A contains 3 elements and B contains 2 elements. Then number of subsets of Ax B are ----------

64

55. If a set A has element then P (A) (power set of A) has ---------- elements.

2^ 15

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1. ~(Pvq)=_____.

~P^~q

Which of the following is continuous set?

Set of Real Numbers

1,2,4,6,8,16……is an

Geometric sequence

In Conditional Statement P→q, the statement p is called…….

Hypothesis

Complement of U is_____.

None of these

Logic gate NOT does not define a binary operation on {0,1} because……..

It takes a single input and gives a single output

If A={x|3x=4=-8},x belongs to real numbers. Then the tabular form is…….

A={-4}

Let A= {4,5,6} then relation R={(4,5),(5,4),(6,5),(5,6) is _____.

R is Symmetric

Which of the logical expressions represents the sentence 'If you read stories daily, then your vocabulary will increase and conversely.?

P→q

Which of the following is the comprehensive answer of sentence 2+3=4?

It is a false proposition/statement

If f is defined recursively by f(0)=-1 and f(n+1)=f(n)+3, then f(1)=……

4

S→ is logically equivalent to ----------.

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~s v ~r

Let A={1,2,3,4} and let R and S be transitive binary relations on A defined as:
R={(1,2),(1,3),(2,2),(3,3),(4,2),(4,3)} and S ={(2,1),(2,4),(3,3)} Then (incomplete question)

R union S is transitive

Let A={0,1,2} and R={(0,2),(1,1),(2,0)} be a relation on A. Then which of the following ordered pairs are needed to make it transitive?

(0,0) and (2,2)

The set of number less than 10 and more than 1_____.

Descriptive Form

Let X={1,2,3,4} and a function 'f' defined on X by

F(1)=1

F(2)=2

F(3)=3

F(4)=4

Then_____.

F is an identity function

Let f(x)=x and g(x)=-x for all xϵR, then (f+g)(x) is _____.

0

Let A be subset of universal set U then $A \cap A_{c=}$

Φ

In the dire ted graph of an antisymmetric relation there is .....pair of arrows between two distinct elements of the set.

No

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If the switches P and Q are closed, then the state of light buld in "AND" gate will be_____.

Off

The logical expression P<-> is equal to -------

(p→q)^(q→p)

Which of the following set is the domain of a sequence?

Set of natural numbers

If a relation R={(1,1)(2,1)(1,2)(2,2)} is given then which of the following is not true about this relation.

R is Symmetric

The number of elements in AxB are.....if A is a set with '5' elements and B is a set with '4' elements.

20

~(pvq)=_____.

~pv~q

If A={2,3,4} and B={2,6,8}and let R be the 'Divides' relation from A to B. for all (a,b) belong to (carstion product of A and B).a R b iff a|b (a divides b). Then

R={(2,2),(2,6),(2,8),(3,6),(4,8)}

Let A and B subset of universal set U then (A∩B)c=

AcUBc

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Two functions 'f' and 'g' from X to Y are said to be equal if and only if_____

None of these

Let A,B,C be subset of universal set U then (A-B)-C

(A-B) ∩C

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