MTH202 900+ MIDTERM MCQS

SEARCHING FILE FOR GRAND QUIZ

CREATE BY ORANGE MONKEY TEAM

1st file 95% confirm

Remember own prayer

1. **A function from B to A is called onto function if its range is:**

A

2. **If p= It is raining q = She will go to college**

q ^ ¬p

3. **A subset f of B x A is said to be a function from B to A if the domain of f is B and the first element of order pairs of f:**

Does not repeat

4. **The negation of "Today is Monday" is:**

Today is not Monday

5. **A function in which the second element of order pair is distinct is called:**

One-one function

6. **The converse of the conditional statement q —> p is:**

p —> q

7. **Letters of SAP taken all at a time can be written in:**

6 ways

8. **Contra-positive of the given statement "If two angles are congruent, then they have the**

same measure" is:

If two angles do not have the same measure, then they are not congruent

9. A student has a maximum of 720 words from a combination of letters of a word given word is:

CANADA

10. The statement "It is not raining if and only if roads are dry" is logically equivalent to:

Roads are dry if and only if it is not raining

11. The inverse of this statement If p, then q is:

If not p, then not q

12. A converse of this statement If p, then q is:

If q, then p

13. How many bytes are required to encode 2000 bits of data:

2

14. A collection of graph is:

vertices and columns

15. The number of edges in a complete graph with 'n' vertices is equal to:

n(n-1)/2

16. Error correcting code is a _____

hamming code

17. The symbol II is ASCII stands for:

American Standard Code for Information Interchange

18. What is domain of function f(x)= x1/2:

[0, ∞)

19. ordered collection of objects is:

set

20. A function is a Domain of:

the maximal set of numbers for which a function is defined

21. Range of a function is :

the maximal set of numbers which a function can take values

22. In an undirected graph the number of nodes with odd degree must be:

Even

23. What is the cardinality of the set of odd positive integers less than 10?

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24. The Gray code of a number whose binary representation is 1000 is:

1100

25. The domain of a relation R from A to B is symbolically written as;

Dom (R) = {a ∈A | (a, b) ∈R}

26. The number of element is the power set of P(not empty set) denoted by P(not empty set)) is

Not empty set

27. The number of element is the power set of P(not empty set) denoted by P(P(P(not empty set)) is

4

28. Let A be a non-empty set and P(A) the power set of A. Define the 'subset' relation, C, as follows; for all X,Y belong to P(a), XCY <-> FOR ALL x, iff x belong to X, Then C is _____.

C is a partial order relation

29. X belongs to A and x belongs to B, there x belongs to _____.

A unoin B

30. A n B = _____

{x ∈U | x ∈ A and x ∈B}

31. A U B = _____.

{x ∈U | x ∈A or x ∈ B}

32. If A n B = not empty set then A and B are called _____.

Overlapping

33. Let t be tautology, then ~ (~ t) is _____.

t

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

Symmetric

35. Sets are denoted by _____.

Capital letter

36. The objects are _____.

Elements or members of the set

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37. The elements of a set are represented by _____.

Lower case letter

38. Let p be true and q be false, then p^~q is _____.

True

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

True

40. In the digital circuits, ON represents _____.

True or 1

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

True

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

False

43. There is no loop in the graph of an irreflexive relation.

True

44. Complement of U is _____.

e

45. Let p = I am hard working, q = I am intelligent, Then ~p^q means _____

I am not hardworking But I am intelligent

46. IF (p XOR q) is True, then _____.

P is true, q is true

47. Which of the following is a right biconditional statement.

It is hot outside and I will buy an ice cream…

48. Truth value of (3+1 = 4)^(5 is an odd number) is _____.

False

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

0

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

True

51. IF p->q is false then ~p->~p will be_____.

False

52. A union B = B union A, A intersection B = B intersection ,are called

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Commutative laws

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

a, b ∈A if (a,b) ∈R and (b,a) ∈R then a = b.

54. Let R be a relation on a set A. R is symmetric if, and only if,

a, b ∈ A, if (a, b)∈R, then (b, a) ∈R.

55. R is not reflexive iff there is an element "a" in A such that
(a, a) ∉R

56. In the matrix representation of an reflexive relation all the entries in the main diagonal are…..

1

57. R is not transitive iff there are elements a, b, c in A such that

if (a, b) ∈R and (b, c) ∈R but (a, c) ∉R.

58. For the null relation Ø on A to be symmetric, it must satisfy the implication

if (a,b) e not emty set then (a, b) e not empty set….symmetric

59. The universal relation A × A is symmetric, for it contains all ordered pairs of elements of A. Thus,

if (a, b) ∈ A × A then (b, a) ∈ A × A for all a, b in A….symmetric

60. The null relation Ø on A is transitive, because the implication.

if (a, b) ∈ Ø and (b, c) ∈ Ø then (a, c) ∈ Ø is true by default,
since the condition (a, b) ∈ Ø is always false

61. The universal relation A × A is transitive for it contains all ordered pairs of elements of A.

if (a, b) ∈ A × A and (b, c) ∈ A × A then (a, c) ∈ A × A

62. Let A be subset of universal set U then A U A^c =

U

63. Let A be subset of universal set U then A n A^c =

Φ

64. Let A be subset of universal set U then A^c =

U – A

65. ~p is True when _____.

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P is false

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

True

67. If p = T, q= T, r= T, then r <-> will be _____.

T

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

p->q

69. P is sufficient for q mean 'p -> q'

True

70. "p only if q" p -> q.

True

71. if p, q" p -> q is

True

72. "p implies q" p -> q

True

73. if p then q" p -> q

True

74. "not p unless q" p -> q

True

75. q follows from p" p -> q

True

76. ''q if p" p->q

True

77. "q whenever p" p -> q

True

78. "q is necessary for p" p -> q

True

79. 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

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80. The function defined from Z to Z as f(n) = ±n is not well defined because

f is not well defined since each integer n has two images +n and -n

81. The function defined from Z to Z as f(n) = square root n is not well defined because

f is not defined for n < 0 since f then results in imaginary values (not real)

82. The function defined from Z to Z as f(n) = square root(n^2+1) is not well defined because

f is well defined because each integer has unique (one and only one) image in R under f.

83. Generally, (s AND t) is _____, where t is tautology

S

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

- Or subtraction…..both

85. Which of the following are binary operations on the set of natural numbers N.

+ and . or addition or multiplication…..both

86. Which of the following is a binary operation on Z, the set of integers.

- Or subtraction …both

87. Which of the following is a binary operation on the set of non-zero rational numbers Q-{0} .

Division

88. Which of the following is not a binary operation on Z.

Division

89. If the conclusion is True for the true premises, then the argument is called as _____.

Valid

90. If the conclusion is false for the true premises, then the argument is called as _____.

Invalid

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

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

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92. Let p = 1 am not a student, then ~(~p) represents _____.

I am not a student

93. Let p ->q be a conditional statement, then the statement q->p is called.

Converse

94. The switches in series acts just like _____.

AND gate

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

True

96. Let A, B , C be subset of universal set U then the distributive Law is …

$$A \wedge (B \vee C) \equiv (A \wedge B) \vee (A \wedge C)$$
$$A \vee (B \wedge C) \equiv (A \vee B) \wedge (A \vee C)$$

97. Composite relation symbolically written as _____.

$SoR = \{(a,c) | a \in A, c \in C, \exists\ b \in B, (a,b) \in R \text{ and } (b,c) \in S\}$

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

True

99. Let f and g be two function defined by f(x) = x+2 and g(x) = 2x +1. THEN the composition of f and g is _____.

$2x^2 + 5x + 2$

100. Truth value of $1 \vee q$ will be

101. The set of natural number is equal to _____.

The set of positive integers

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

Inverse of R is antisymmetric

103. Let R be a binary relation on a set If R is transitive, then

Inverse of R is transitive

104. Let R be a binary relation on a set If R is symmetric, then

Inverse of R is symmetric

105. Let R be a binary relation on a set If R is reflexive, then

Inverse of R is reflexive

106. What is the truth value of the sentence ? It rains if and only if there are cloudy.

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False

107. What is the truth value of the sentence ? It rains if and only if it is a weekend day.

True

108. What is the truth value if the sentence?. You buy an ice cream cone if and only if it is hot outside

True

109. What is the truth value of the sentence? You win the contest if and only if you hold the only winning ticket.

True

110. What is the truth value of the sentence?. You will be informed if and only if you read the news paper every day

True

111. What is the truth value of the sentence?. The train runs late if and only if it is a day I take the train.

True

112. What is the truth value of the sentence?. This number is divisible by 6 if and only if it is divisible by both 2 and 3.

True

113. If p -> q is false then Truth value of p <-> q is

True

114. The logic Gate OR and AND are uniary operation {0,1}

False

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

True

116. The logic gates OR and AND are binary operations on {0,1}

True

117. The logical connectives ∨, ∧, →, ↔ are binary operations on the set {T, F}

True

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118. The set operations union ∪, intersection ∩ and set difference -, are binary operators on the power set P(A) of any set A.

True

119. The logical expression p <-> q is equal to _____.

$(p \rightarrow q) \wedge (q \rightarrow p)$

120. A function whose inverse function exists is called /an

invertible function.

121. Let X = {1,5,9} and Y = {3,4,7}.Define g: X →Y by specifying that f(1) = 7, f(5) = 3, f(9) = 4 then whichof the following statement about f is true

F is both one-to-one and onto

122. Which of the following is not true for an identity function?

The identity function is always a constant function

123. Let p= 1 am hard working, the ~(~p) represents _____.

I am hard working

124. Which of the following is not a representation of a relation?

Venn diagram

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

1/3

126. Common ration in sequence 1, 2, 4, 8, 16, …

2

127. Common ration in sequence 3, - 3/2, 3/4, - 3/8, …

-1/2

128. Common ration in sequence 0.1, 0.01, 0.001, 0.0001, …

0.1 or 1/10

129. if x= 17 (mod 5) Which of the following integers are valid solution for x?

12

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

Empty set or onto

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

R is anti symmetric

132. The statement ' Islamabad is the capital of Pakistan AND abu dhabi is the capital of U.A.E is a _____.

Conjunction

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

$A \cap B$

134. P<->q is true when _____.

P is false, q is false

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

250

136. Cartesian product of A and B, denoted by A × B (read as "A cross B") is the set of all ordered pairs (a, b), where a is in A and b is in B.

$A \times B = \{(a, b) | a \in A \text{ and } b \in B\}$

137. The domain of a relation R from A to B is the set of all first elements of the ordered pairs which belong to R denoted by Dom(R).

$Dom(R) = \{a \in A \mid (a, b) \in R\}$

138. The range of a relation R from A to B is the set of all second elements of the ordered pairs which belong to R denoted Ran(R).

$Ran(R) = \{b \in B \mid (a, b) \in R\}$

139. Define a binary relation R from A to B as follows:

$R = \{(a, b) \in A \times B \mid a < b\}$

140. 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

141. If A={1,2,3} is a set and R = {(2,3),(2,2),(3,4)} is a relation on A, then R is

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None of these

142. R is not transitive iff there are elements a, b, c in A such that

if (a, b) ∈R and (b, c) ∈R but (a, c) ∉R

143. Y+7 = 10 is a proposition?

False

144. Let P(n) be a propositional function defined for all positive integers n. P(n) is true for every positive integer n if

Principal of mathematical induction

145. Grass is green is a proposition.

True

146. 4 + 2 = 6 is a proposition.

True

147. 4 + 2 = 7 is a proposition.

True

148. There are four fingers in a hand is a proposition

True

149. Close the door is not a proposition.

True

150. x is greater than 2 is not a proposition.

True

151. He is very rich is not a proposition.

True

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

Integers

153. Let R be a relation on a set A. If R is symmetric then its compliment is.

Symmetric relation

154. Let R be a relation on a set A. R is reflexive if and only if, for all a ∈ A, (a, a) ∈R or

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equivalently aRa. That is, each element of A is related to itself.

Reflexive relation

155. Let R be a relation on a set A. R is transitive if and only if for all a, b, c ∈A, if (a, b) ∈R and (b, c) ∈R then (a, c) ∈R.

Transitive relation

156. If p<-> is true, then _____.

P and q both are true

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

125

158. Which of the following biconditional statement is true _____.

1+1 = 3 if and only if earth is flat

159. 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

160. Let p be True and q be True, then (~p AND q) is

False

161. 9!/6! = _____.

504

162. Let f: X→Y. The range of f consists of those elements of Y that are image of elements of X

Range of a function

163. 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

164. If A is defined as the set of English alphabets then the cardinality of A is _____.

26

165. If A is defined as the set of 467 people then the birthday of A is _____.

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366 possible birthday

166. . Among any group of 367 people, there must be at least two with the same birthday, because there are only

366 possible birthday

167. If (p XOR q) is true, then _____.

P is false, q is true

168. The negation of the conditional statement ‘ if I work hard, then I will get A grade’ is _____.

I do not work hard AND I will not get a grade mark

169. If p=true and q=true then the truth value of p XOR q will be _____.

False

170. If p=False and q=false then the truth value of p XOR q will be _____.

False

171. If p=true and q=false then the truth value of p XOR q will be _____.

True

172. The set of natural number is equal to ____.

Set of positive integers

173. Let R and S be transitive relations on a set A the

Neither R UNION S is transitive nor R intersection S is transitive

174. 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 antisymmetric

175. Let R be a binary relation on a set A.R is anti-symmetric iff

∀a, b ∈A if (a,b) ∈R and (b,a) ∈R then a = b.

176. A graph of a function f is onto iff every horizontal line intersects the graph in at least one point.

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True

177. A graph of a function f is onto iff every horizontal line intersects the graph in at least one point.

Graph onto function

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

GRAPH OF ONE-TO-ONE FUNCTION:

179. A graph of a function f is bijective iff every horizontal line intersects the graph at exactly one point.

Graph of bijective function

180. A= {x:x is even number divisible by 6 and less than 100} is _____.

Set builder form

In venn diagram, sets are commonly represented by _____.

Circles and ovals….both

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

True

182. If n is even, then Cn = 2 and if n is odd, then Cn = 0. Hence, the sequence oscillates endlessly between 2 and 0.

True

183. If n is a positive integer, then n!= n for n =

1,2

184. n! = n(n-1)! for each

positive integer

185. A union A = A, A intersection A=A are called.

Commutative law.

186. '-' is a binary operation on the set of integers Z.

True

187. "+" and "." are binary operations on the set of natural numbers N.

True

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188. "-" is not a binary operation on N.

True

189. Let p = 1 am a student, and q = I love to study mathematics, then the symbolic from for the
For the statement 'I am not a student but I love to study'

~p^q

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

Positive integers

191. "÷" is a binary operation on the set of non-zero rational numbers Q-{0}, but not a binary operation on Z.

True

192. 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

193. An important data type in computer programming consists

Finite sequences

194. An important data type in computer programming consists of finite sequences known as

One-dimensional arrays

195. Negation of 1<x<B is _____.

1>x AND x>8

196. Which of the following is true about $C_n = 1 - (-1)^n$ forallintegers n>0

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

197. For any set A, the Cartesian product of A and A is known as
Universal relation

198. For any set A, ∅ is known as the

Empty relstion

199. For any set A, A × A is known as the

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Universal relation

200. If F_k -1 +F_k-2 then F_0=1, F_1=2, then F_2= _____.

3

201. In general n!=n(n-1)! For all integers n

True

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

True

203. 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

204. An integer n is a product square if and only if _____ for some integer k

N= k^2

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

False

206. Inverse of a surjective function may not be a function.

TrUE

207. If the conclusion is true when the premises are true, the argument will be _____.

Valid

208. if the conclusion is false when all the premises are true, the argument will be

invalid

209. The biconditional statement for the following statement would be _____.

The number is divisible by 6 and only if it is divisible by both 2 and 3

210. Universal bound law states that

P v t = t

211. P is equivalent to q means _____.

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p is necessary and sufficient for q.

212. 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

213. Complementary relation symbolically written as _____.

$R = A \times B - R = \{(a,b) \in A \times B | (a,b) \notin R\}$

214. (s v ~s) is the _____.

Tautology

215. The statement form $p \wedge \sim p$ is a

Contradiction

216. Set difference law _____.

$A - B = A \cap B^c$

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

64

218. Neither Ali is a student, nor he is from Lahore. In the logical sentences, it can be written
As_____.

~p ^ ~q

219. 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

220. Let A and B be subset of universal set U then the difference of A and B or A – B =

$A \cup B = \{x \in U \mid x \in A \text{ or } x \in B\}$

221. Let R be a binary relation on a set A. If R is anti symmetric then _____
Inverse of R is anti symmetric

222. Let R be a binary relation on a set A. If R symmetric then
Inverse of R is symmetric

223. Let R be a binary relation on a set A. If R is reflexiv then

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Inverse of R is reflexive

224. Let R be a binary relation on a set A. If R is anti transitive then

Inverse of R is transitive

225. 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}

226. 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)

227. Elements of a set are listed in pair of brackets and separated by commas is _____.

Tabular form

228. A well defined collection of objects is called _____.

Set

229. Every set is not a proper subset of itself.

False

230. Every set is a subset of itself

True

231. Let A be subset of universal set U then double complements law is

$(A^c)^c = A$

232. The relation divides on the set of integers is _____.
An anti symmetric relation

233. For any set A , A × A is known as
Universal set

234. For any set A, ∅ is known as the

Empty relation

235. The logical statement p^q means _____.

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P AND q

236. Which of the logical expressions represents the sentence ‘ if you read stories, then your vocabulary
Will increase and conversely?

p->q

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

True

238. The set Z all integers is countable

True

239. Number of one to one functions from X={a,b} to Y={u,v} are equal to
2

240. P<->q is true when _____-.
P is false, q is false

241. The set of all vowels in the english alphabet
V={a,e,I,o,u} is _____.

Tabular and descriptive form….both

242. Let R be a relation from a set A to a set B and S a relation from B to a set C. The composite of R and S denoted SoR is the relation from A to C, consisting of ordered pairs (a,c) where a ∈A, c ∈C, and for which there exists an element b ∈B such that (a,b) ∈R and (b,c) ∈S. Symbolically

SoR = {(a,c)|a ∈A, c ∈C,∃ b ∈B, (a,b) ∈R and (b,c) ∈S}

243. 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,a},{1,b},{2,a},{3,b}

244. AnB =

An integer n is even if, and only if, n = 2k for some integer k.
True

2. An integer n is odd if, and only if, n = 2k + 1 for some integer k.
True

3. An integer n is prime if, and only if, n > 1 and for all positive integers r and s, if n = r·s, then r = 1 or s = 1.
True

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4. An integer n > 1 is composite if, and only if, n = r·s for some positive integers r and s with r ≠ 1 and s ≠ 1.

True

5. A real number r is rational if, and only if, a b for some integers a and b with b≠0.

True

6. If n and d are integers and d ≠0, then d divides n, written d | n if, and only if, n = d.k for some integers k.

True

7. An integer n is called a perfect square if, and only if, n = k2 for some integer k.

True

245. A ∩ B =

{x ∈U | x ∈ A and x ∈B}

246. A set may be divided up into disjoint subsets, such division is called.

Partition

247. Let R be a binary relation defined on a set A. R is a partial order relation,if and only if, R is reflexive, antisymmetric, and transitive. The set A together with a partial ordering R is

Partially order relation

248. Let A and B be subsets of a universal set U. The difference of "A and B" (or relative complement of B in A) is the set of all elements in U that belong to A but not to B, and is denoted A – B or A \ B.

Difference

249. Let A and B be subsets of a universal set U. The difference of "A and B" (or relative complement of B in A) is the set of all elements in U that belong to A but not to B, and is denoted A – B or A \ B.
symbolically

A – B = {x ∈U | x ∈ A and x∉B}

250. Let A and B subsets of a universal set U. The intersection of sets A and B is the set of all elements in U that belong to both A and B and is denoted A ∩ B.

Intersection

251. Let A and B subsets of a universal set U. The intersection of sets A and B is the set of all elements in U that belong to both A and B and is denoted A ∩ B. symbollicaly

A ∩ B = {x ∈U | x ∈ A and x ∈B}

252. a set A is the set of all subsets of A, denoted P(A).

power set

Remember own prayer

253. If A has n elements then P(A) has

2^n elements

254. Every set can be represented in tabular form

True

255. ~p is true when_____.

P is False

256. Negation of $2 < x < 3$ is _____.

$2 > x$ Or $x > 3$ (not sure)

257. The negation of an AND statement is logically equivalent to the OR statement in which each component is negated.

$\sim (p \wedge q) \equiv \sim p \vee \sim q$

258. The negation of an OR statement is logically equivalent to the AND statement in which each component is negated.

$\sim (p \vee q) \equiv \sim p \wedge \sim q$

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

False

260. f: R+→R defined by f(x) = log x is a real valued function

true

261. g:R →R defined by g(x) = ex is a real valued function of a real variable.

True

262. Let f and g be real valued functions with the same domain X. That is f:X →R and g:X →R.

Sum of function

263. The sum of f and g denoted by f+g is a real valued function with the same domain X i.e. f+g: X →R defined by

$(f+g)(x) = f(x) + g(x) \ \forall \ x \in X$

264. The matrix representation of an inverse relation can be obtained taking the ____ of the relational

Remember own prayer

Matrix

Inverse

265. Let R be a relation from A to B. The inverse relation R-1 from B to A is defined as:

Inverse relation

266. Let R be a relation from A to B. The inverse relation R-1 from B to A is defined as:

$R^{-1} = \{(b,a) \in B \times A \mid (a,b) \in R\}$

267. In the directed graph of an antisymmetric relation there is _____pair of arrows between two

Distinct elements of the set

No

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

Universal relation

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

Constant function

270. In the matrix representation of an irreflexive relation all the entries in the Main diagonal are _____.

0

271. A function whose inverse function exists is called an

Invertible function

272. A sequence is a function whose domain is the set of integers greater than or equal to a particular integer n0

Formal

273. We use the notation an to denote the image of the integer n, and call it a term of the sequence

Notation

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

One to one function

275. If f: X→Y and g: Y → Z are both onto functions, then gof:X → Z is

Onto

276. A graph of a function f is onto iff every horizontal line intersects the graph in at least

One point

Remember own prayer

277. Let A and B subset of universal set U then $(AUB)^c$=

$A^c \cap B^c$

CORRECT FILE

1. X =a, X = 3, x = 5a----------

Arithmetic sequence

2. composition of a function is commutative operationFalse

3. real valued function is a function that assign---------- to each number of its domain

real number

4. let X equal 1 2 3 4 and a function f depend on X byf into 1 equal 1

f into 2 equals to 2

f into 3 equal 3 and

F into 4 equal 4

Then----------

F is an identity function

Remember own prayer

5. **a constant function is Junctive if and only if------**

the code men consist of a single element

6. **let f ratio R → R is one to one function then c, f, c does not equal to zerois also, one to one function**

True

7. **if f and G are two one to one function then their composition that is gofis one two one**

True

8. **let f into x = 3 x and g (X) equal x + 2 define function f and G from R toR then f.g (X) is-------**

$3x^2 + 6x$

9. **the set Z of all integers is countable**

True

10. **0.81 8181 is an infinite geometric series**

True

11. **which of the following is not correct for a sequence?**

A sequence is a relation whose domain is the set of naturalnumbers

Remember own prayer

12. f (X) equal x square is not one to one function from R to Rtrue

13. let f Into X equal X + 2 then f inverse Into X is

x – 2

14. let f Into X equal X square + 1 define function f from R to R and C =2 to Be any scalar then c, f (x) is----------

$2x^2 + 2$

15. one to one correspondence means the condition ofboth a

and c

16. Term of a geometric sequence is to 2 and common ratio is 1 by 2 thenthird term of a sequence is

½

17. the process of defining an object in terms of smaller version of itself iscalled recursion

True

18. a set is called countable if and only if it is

(d) (b) (c)

Remember own prayer

19. A sequence whose terms alternate in sign is called an----

alternating sequence

20. let f and G be two functions Defined by f bracket X equal X + 2 2 and 3bracket X equal to X + 1 then the composition of f and G is---------

2x + 3

21.number of one-to-one functions from X = (a, b) to Y = (u, v) are equalto-----

2

22. an important data type in computer programming consists of ------

finite sequence

23. if a function is recursively defined as F (0) = 4 & f (n + 1) = 3f (n) then f(1) = ------

15

24. inverse of a function may not be a function

True

25.if a function is recursively defined as F (0) = -1 & f (n + 1) = f(n) + 3,then f (1) = ------

2

Remember own prayer

26. **The function f and G are inverse of each other if and only if them composition gives------**

identity function

27. **which of the following state is a domain of a sequence -----**

set of natural number

28. **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**

2x + 5

29. **Let R = {(1,2), (3,4), (5,6), (7,8)}. Range of the inverse of the relation is -------**

{1,3,5,7}

30. **The set Z of all integers is countable.**

True

31. **In the representation of an irreflexive relation using a matrix, all itsdiagonal entries will be ------**

0

32. **Let p = I am hard working. Q = I am intelligent. Then p ^ q means ----------**

I am NOT hard working BUT I am intelligent.

Remember own prayer

33. **If a set A contain n element n elements then the number of elements inits power set P(A) is---------**

2^n

34. **Which of the following is true for the following sequence? $C_n = 1 - (-1)^n$ formallintegersn > 0**

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

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

Options a, b and c all true

36. If A – B = A, which of the following statement is true?All of the given statements are false

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

38. **The converse of the conditional statement 'IF I live in Lahore, then Ilive in Punjab' is ------**

If I live in Punjab, then I live in Lahore

RemMbeAowhprayer

39. **Every set can be represented in tabular form.**

False

40. **The function defined from Z to Z as f(x) =1 / (x + 2) (x – 2) is not welldefined because----------**

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

41. **Which of the following is always true for the matrix representation of asymmetric relation?**

Matrix is equal to its transpose

42. **Associative law of union for three sets is--------**

A U (B U C) = (A U B) U C

43. **If f is bijective function then (f^{-1} (f(x))) is equal to -----**

X

44. **P < - - > q is logically equivalently to --------**

(p - - > q)

Remember own prayer

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

(0, 0) and (2, 2)

46. Let A be subset of universal set U then A U A^C =Φ

47. Let R be a binary relation on a set A. if R is anti-symmetric then -------

Inverse of R is anti-symmetric

48. The inverse of statement 'if it is pleasant outside, then I go to the park'is ---------

If it is NOT pleasant outside, then I do NOT go to the park.

49. The inverse of the statement 'if it is hot day, then I am at home' is -------
---

if it is NOT hot day, then I am NOT at home

50. Let A, B, C b subset of universal set U then the idempotent law is -------

A N A = A

Remember own prayer

51. **Let A and B be subset of universal set U then A – (A – B) =A N B**

52. **Real valued function is a function that assigns ----------to each member of its domain.**

Only a real number

53. **Let R be a relation on ser A, if R is reflexive then its compliment is ------**

Irreflexive

54. **Range of function \[f(x) = {e^x}\] is ----------**

Set of positive Real numbers

55. **Composite relation symbolically written as ---------**

SoR = {(a,c)|a ƐA, c ƐC, □ b ɛB, (A,B) ƐR and (b,c) ƐS}

56. **If x = 17(mod 5) which of the following integers are valid solution for x?12**

57. **Operation of subtraction is a binary operation on the set of --------**

Integers

58. **Range of relation {(0 ,10, (3, 22), (90, 34)} is ---------**

{1, 22, 34}

Remember own prayer

59. Let S = R and the "square" relation R = {(x, y)|$x^2 = y^2$}. The squarerelation is an ---------- relation.

Equivalence relation

60. The logic gate NOT is a uniary operation on {0, 1}True

61. Let A = {1, 2}, then P(A) = ----------

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

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

Inverse relation will be irreflexive.

63. Let R be a binary relation on a set A.R is anti-symmetric iff --------

a, b Ɛ A if (a, b) ƐR and (b, a) ƐR then a = b

64. the inverse relation R^(-1) from B to A is defined as -------

R^(-1) = {(b, a) Ɛ B * A | (a, b) ƐR}

65. Which of the following is true for the matrix representation of asymmetric relation?

Matrix is equal to its transpose

Remember own prayer

66. If x = -10(mod 15) which of the following integers are valid solution forx?

5

67. Let A = {0, 1} and B = {1}. Let R and S be two binary relation on cartesian product of A and B such that R = {(0, 1)} and S = {(1, 1)}

Then R intersection S = ---------

Empty

68. The domain of a relation R from A to B is symbolically written as:D(R) = {a

belongs to A such (a, b) belongs to R}

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

Permutation

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

---

R is symmetric

71.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) (3,a) (3,b)}

Remember own prayer

72. If A contain 3 elements and B contain 2 elements, then number ofsubsets of A * B are ----------

64

73. 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

74. Let X = {2,4,5} and Y = {1,2,3} and R be a relation from X to Y definedby R = {(2,4) (4,1) (a,2)}. for what value of 'a' the relation R is a function?

5

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

One to one function

76. The set Z of all integers is _____

Countable

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

Both (a) and (c)

78. 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

Remember own prayer

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

4/5

80. The value of 6!=

720

81. A constant function is one to one iff its_____is a singleton.

Domain

82. A constant function is onto iff its_____is a singleton. Co-domain

Number of one to one functions from X={a,b} to Y={u,v} are equal to_____-

2

83. If f is defined recursively by f(0) = -1 and f(n+1)=f(n)+3, thenf(2)=___.

5

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

Invertible function

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

Remember own prayer

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

Onto

87. Composition of a function is a commutative operation.

False

88. Composition of a function is not a commutative operationTrue

89. The sum of first five whole number is_____.

10

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

True

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

False

92. Inverse of a surjective function may not be a functionTrue

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

Co-domain of f must contain 3 elements

Remember own prayer

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

onto

95. If f and g are two one-to-one functions, then their composition gofis__

One-to-one

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

(hog)of = ho(gof)

97. Cardinality of positive prime numbers less than 20 is_____.

8

98. IF f(x)=sin-1(x) and g(x)=sin x then gof(x) is_____.

X

99. 0!=_____.

1

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

Finite sequences

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

_____.

Remember own prayer

x-2

102. The total number of terms in an arithmetic series 0+5+10+15+….50 are_____.

11

103. 9!/6!=_____

504

104. 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

105. If f is a bijective function then (f-1f(x)) is equal to

X

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

Alternating sequence

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

4

108. 0.8181818181 is a infinite geometric series.True

Remember own prayer

109. The word ‘algorithm’ refers to a step-by-step method for performing some action.

True

110. A predicate become_____when its variables are given specific values

Sentence

111. The sum of two irrational numbers must be an irrational number.False

112. The sum of two irrational numbers need not be irrational numberTrue

113. The division by zero is allowed in mathematics.Fasle

114. The product of any two consecutive positive integers is divisibleby 2

True

115. If ‘n’ is an odd integer then n^3+n is_____.

Even

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

Remember own prayer

False

117. 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

118. A rule that assigns a numerical value to each outcome in a simplespace is called

Random variable

119. If A and B are two disjoint (mutually exclusive) events thenP(AB)=

P(A) + P(B)

120. How many ways are there to select five players from a 10 membertennis team to make a trip to a match to another school?

C(10,5)

The expectation of x is equal toSum

xf(x)

121. If P(A intersection B) = P(A) P(B) THEN THE events A and B arecalled

Independent

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

Remember own prayer

None optins

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

497

124. What is the probability of getting a number greater than 4 when adie is thrown?

3/5

125. Eater formula for graphs is_____.

F=e-v+2

126. X+a,x+3a,x+5a…..is an_____

Arithmetic sequence

127. Composition of a function is a commutative operation.False

128. Real valued function is a function that assigns_____to each member of its domain.

Only a real number

129. 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

Remember own prayer

130. A constant function is surjective if and only if _____

The co-domain consists of a single element

131. Cardinality means the total number of elements in a set.True

132. If f(x)=2x and g(x)=x then g(f(x)) is_____.

2x2

133. Let f:R->R is one to one function then c,f, c is not equal 0 is alsoone to one function.

True

134. 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

135. If f and g are two one-to-one functions, then their compositionthat is gof is one-to-one.

True

136. Which of the following is not correct for a 'sequence'? A

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

137. F(x)=x2 is not one to one function from R to R+

Remember own prayer

True

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

True

139. **Let f(x)=x+2 then f-1 (x) is_____**

x-2

140. **Let f(x)=x2+1 define functions f from R to R and c=2 be anyscalar, then c,f(x) is_____.**

2x2

141. **One to one correspondence means the condition of_____.**

Both (a)and (c)

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

False

143. **If g:R->R defined by g(x)=e2 is a real valued function of a real variable.True**

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

Remember own prayer

True

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

½

146. **The process of defining an object in terms of smaller versions ofitself is called**

recursion.

True

147. **Which of the following is not correct for a 'sequence'? A sequence is a relation whose domain is the set of natural numbers**

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

Finite and countable infinite…..

both

149. **A set that is not countable is called_____.**

Uncountable

150. **A sequence whose terms alternate in sign is called an_____.**

Alternating sequence

151. **Let f: R->R is one to one function then c,f is also one to onefunction for___.**

Remember own prayer

C is not equal 0

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

x-3

153. **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

154. **Number of one to one functions form X={a,b} to Y={u,v} areequal to _____**

2

155. **The flbonacci sequence is deined as F0=1,F 1=1, Fk=Fk-1+Fk-2for all integers k> 2 then which of the following is true for F2**

F2-F1= 2+1=3

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

Arithmetic sequence

157. **Inverse of a function may not be a function.True**

158. **In the following sequence ak=K/(k+1), for k=1, a1 will be _____.**

½

Remember own prayer

159. If f(x)=x and g(x)= -x are both one to one function then (f+g)(x) isalso one to one function.

False

160. If f(x)=x and g(x)= -x are both one to one function then (f+g)(x) isnot one to one function.

True

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

Identity function

162. Which of the following set is the domain of a sequence?Set of real numbers

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

Finite set

164. A constant function is surjective if and only if_____.

The co domain consists of a single element

165. Inverse of a function may not be a function.True

Remember own prayer

166. 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

167. The composition of function is always

Associative

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

Positive integers

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

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

170. Y=x3 is a graph of bijective function from R to R.True

171. Domain and range are same for_____.

Identity funtion

172. 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

173. Composition of a function is a commutative operation.True

Remember own prayer

174. Inverse of a surjective function is always a function.False

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

Invertible

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

I is both injective and surjective

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

C is not equal 0

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

4

179. Which of the following is not a predecessors of ak?Ak+1

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

Remember own prayer

F(x)=g(x) for all ‘x’ belongs to x

181. The two functions ‘f’ and ‘g’ are equal if_____.

F(x) =3x and g(x)= 6x2+3x/2x2+1 for all xeR

182. If first term of a geometric sequence is 2 and common ratio is ½,then------- 3rd ter, of sequence.¼

183. Y= squre root x is an_____function form R+ to R

One to one function

184. Y= x2 is an_____function form R to R+

NOT ONE TO ONE FUNTION

185. If a function (gof)(x) : X->Z is defined as (gof)(x)=g(f(x)) for allxeX, Then the

function ----------.

(gof)

186. 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

187. If f(x)=sin-1(x) and g(x) = sin x then gof(x) is_____.

X

Remember own prayer

188. F: X->Y that is both one to one and onto is called a_____.

Bijective function

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

Common ratio

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

2+2x+1

191. A graph of a function f is one to one iff every horizontal lineintersects the graph in at most one point.

True

192. 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

193. The function 'f' and 'g' are inverse of each other if and only iftheir

composition gives_____.

Identity function

194. N! is defined to be_____.

The product of the integers from 1 to n

Remember own prayer

195. Let A = {1,2,3,4} and B={7} then the constant function from A toB

Both one to one and onto

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

Countably infinite and finite

197. 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

198. 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

199. x+a, x+3a, x+5…… is a/an_____.

Arithmetic sequence

200. inverse of an injective function may not be a function.True

201. y=x3 is a graph of bijective function form R to RFalse

Remember own prayer

202. **Two functions ‘f’ and ‘g’ from x to y are said to be equal if andonly if.**

F(x)=g(x) for all ‘x’ belongs to x

203. **Common ration in sequence ’36, 12, 4 , 4/3, …..’ is ……1/3**

204. **A set is called finite if, and only if, is the_____or there is --------.**

Empty set or one-to-one

205. **Let f(X)=x2-1 and g(x)=x+1 define functions f and g from R to R,then (f/g)x**

x-1

206. **A graph of a function f is one to one iff every horizontal lineintersects the**

graph in at most one point.

True

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

X2+2x+1

208. **F:X->Y that is both one to one and onto is called a_____.**

Bijective function

Remember own prayer

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

Common ratio

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

Both one to one and onto

211. **N! is defined to be_____.**

The product of the integers from 1 to n

212. **A set is called countable if, and only if, it is_____. Both b andc**

213. **Which of the following is the example of an alternating sequence?Cn=n/n+1 for n > 0**

214 X+a, x+3a, x+5a….. is an_____

Arithmetic sequence

215 0, -5, -10, -15, … is an_____.

Arithemetic sequence

225. 5, 9, 13, 17, … is an_____.

Arithemetic sequence

Remember own prayer

226. An important data type in computer programming consists of _____. Finite sequence

227. One-to-one correspondence means the condition of_____.

One-one and onto ….both

228. Cardinality means the total number of elements in a set.True

229. Inverse of a function may not be a function.True

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

Identity function

231. A set is called finite if , and only if, it is the_____or there is _____.

Empty set or one-to-one

232. Let f and g be the two functions from R to R defined by f(x) = IXI andg(x) = square root x2 for all xeR, then_____.

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

Remember own prayer

234. If f-1(x) = 6-x/2 then f-1 (2) is_____.

2

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

3

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

Finite sequence

237. Let f(x)=x+3 then f-1

(x) is_____.

X-3

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

One-to-one function

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

Identity function

240. The two function 'f' and 'g' are equal if_____.

F(x) = 3x and g(x) = 6x2+3x/2x+1 for all xeR

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

Remember own prayer

F(x) and g(x) for all ‘x’ belongs to X

242 Which of the following set is the domain of a sequence?Set of natural numbers

243 If 1st term of a geometric sequence is 2 and common ratio is 1/2 , then3rd term of sequence is_____.

1/2

244 Composition of a function is a commutative operation.True

245 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)

246 A set is countably infinite if and only if and only if, it has the samecardinality as the set of_____.

Positive integers

247 The 3rd term of the sequence bn=5nis___ _____.

125

248 If f is a bijective function then $(f^{-1})(f(x))$ Is equal to_____.

X

Remember ovn prayer

249 Let f(x) = x and g(x) = -x for all xeR, then (f+g)(x) is_____.

0

250 An infinite sequence may have only a finite number of values.True

251 The functions fog and gof are always equal .False

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

True

253 A function whose range consists of only one element is called _. Constant function

254 Let X ={1,5,9} and Y={3,4,7}. Define a function f from X to Y such thatf(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

255 Y=x3 is a graph of bijective function from R to R.True

Remember own prayer

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

Invertible

257 Let F and g be two functions defined by f(x)= x+2 and g(x)= 2x+1. Thenthe composition of f and g is_____.

2x + 5

257 If r is a positive real number, then the value of r in 3, r,r=-27r isNone options

258 The_____of the terms of a sequence forms a series.Sum

259 The sum of first five whole number is_____.

10

260 If fk=fk-1+fk-2then f0=1, f1=2, then f2=_____.

3

261 Range of function \[f(x) = {e^x}\] is ----------

Set of positive Real numbers

262 Composite relation symbolically written as ----------

SoR = {(a,c)|a ƐA, c ƐC, □ b εB, (A,B) ƐR and (b,c) ƐS}

Remember own prayer

263 If x = 17(mod 5) which of the following integers are valid solution for x?12

264 Operation of subtraction is a binary operation on the set of --------

ntegers

265 Range of relation {(0 ,10, (3, 22), (90, 34)} is ---------

1, 22, 34}

Remember own prayer

Quiz 1 updated 2021

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

   Set of positive real numbers
2. Composite relation symbolically written as _____

   SoR={(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= $\{(x,y) | x^2=y^2\}$. 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.
11. Let R be a binary relation on a set A,R is anti-symmetric iff _____

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

Remember own prayer

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)I$x^2=y^2$}. 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

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_____

(a) 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)

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

Remember own prayer

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)}

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

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

$A_1 n A_2$= not empty set

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

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

Remember own prayer

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 _____

{1,3,5,7}

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 _____

symmetric

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 symmetric

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}

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

Remember own prayer

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 ?

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.

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

Remember own prayer

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

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

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

Remember own prayer

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 transitive or reflexive….both

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

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, iffxeX 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 Updated

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

Constant function

2. The set Z of all integers is _____

Countable

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

Both (a) and (c)

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

Remember own prayer

6. The value of 6!=

720

7. A constant function is one to one iffits _____ is a singleton.

Domain

8. A constant function is onto iffits _____ 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

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

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 _____.

Remember own prayer

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

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)=

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

Remember own prayer

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.

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

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

Remember own prayer

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'?

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 $k \geq 2$ 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.

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 _____.

Remember own prayer

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

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

True

95. $If\ _F_k = F_k - 1 + F_k - 2\ _then\ _F_0 = 1, _f_1 = 2, then\ _F_2 =$ _____

3

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 th 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_____.

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 3rdter, 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^+

Remember own prayer

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 _____.

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

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

Remember own prayer

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?

$C_n=n/n+1$ 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

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 _____.

Remember own prayer

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

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

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

Remember own prayer

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

Sum

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

10

181. If $f_k=f_k-1+f_k-2$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 _____.

$3x^2 + 6x$

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”.

120

192. 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

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

16

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

statement

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

420

196. 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.

199. If A and B be events with P(A) = 1/3, P(B) = 1/4 and $P(A \cap B) = 1/6$, then $P(A \cup B)$ = _____ .

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 $n(A \cup B)$ = _____.

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. $\sim(P \rightarrow q)$ is logically equivalent to _____.

$p \wedge \sim q$

204. A tree is normally constructed from _____.

left to right

205. A Random variable is also called a _____.

Chance Variable

206. The conjunction $p \wedge q$ is True when _____.

p is True, q is True

207. The logical statement $p \wedge q$ means _____.

p AND q

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, thenc.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

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

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 ?

25

2nd file confirm

Question No. 1:

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

$p \wedge \sim q$ $p \wedge q$ $\sim p \wedge q$

Question No. 2:

The negation of "Today is Friday" is

Today is Saturday **Today is not Friday** Today is Thursday None of given

Question No. 3:

The converse of the conditional statement $p \to q$ is

$q \to p$ $\sim q \to \sim p$ $\sim p \to \sim q$ None of these

Question No. 4:

Contra-positive of given statement "If it is raining, I will take an umbrella" is

I will not take an umbrella if it is not raining. (Pg 19) I will take an umbrella if it is raining.

It is not raining or I will take an umbrella. None of these.

Question No. 5:

A statement is also referred to as a

Proposition (pg 4) Conclusion Order None of these

Question No. 6:

The statement "It is not raining if and only if roads are dry" is logically equivalent to

If roads are dry then it is not raining. None of these.

Roads are dry if and only if it is not raining If it is not raining then roads are dry.

Question No. 7:

The statement $\sim(\sim p) = p$ Describes

Commutative Law Implication Laws **Double negative law** Equivalence

Question No. 8:

An arrangement of rows and columns that specifies the truth value of a compound proposition for all possible truth values of its constituent propositions is called

Truth Table Venn diagram False Table None of these

Question No. 9:

An argument is_____if the conclusion is true when all the premises are true.

Valid (Pg 25) Invalid False None of these

Question No. 10:

The row in the truth table of an argument where all premises are true is called

Valid row Invalid row **Critical row (Pg 27)** None of these

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Question No. 11:

The statement $p \to q \equiv (p \wedge \sim q) \to c$ **describes**

☐ Commutative Law ☐ Implication Laws ☐ Exportation Law ■ **Reductio ad absurdum**

Question No. 12:

$p \leftrightarrow q$ **is logically equivalent to** $(p \to q) \wedge (q \to p)$ ☐ TRUE ☐ FALSE

Question No. 13:

According to biconditional 1+1=3 if and only if sky is yellow. ■ **TRUE (Pg 20)** ☐ FALSE

Question No. 14:

A statement that is always true regardless of the truth values of the statement variables called Tautology.

■ **TRUE (Pg 10)** ☐ FALSE

Question No. 15:

If p and q are statement variables, then the conjunction of p and q is "p and q" denoted as " $p \vee q$".

☐ TRUE ■ **FALSE**

Question No: 3 (Marks: 1) - Please choose one

For two sets A,B

A ∩ (B U C) = (A ∩ B) U(A∩ C) is called

- ► Distributivity of intersection over union
- ► Distributivity of union over intersection
- ► None of these
- ► **Distributivity Law**

Question No: 6 (Marks: 1) - Please choose one

Check whether

36 ≡ 1 (mod 5) **36 Modulus5 = 1 remainder**

33 ≡ 3 (mod10) **33 Modulus10 = 3 remainder**

- ► **Both are equivalent**
- ► Second one is equivalent but first one is not
- ► First one is equivalent but second one is not

Question No: 7 (Marks: 1) - Please choose one

A binary relation R is called Partial order relation if

- ► It is Reflexive and transitive
- ► It is symmetric and transitive
- ► It is reflexive, symmetric and transitive
- ► **It is reflexive, anti-symmetric and transitive (Pg 92)**

Question No: 8 (Marks: 1) - Please choose one

The order pairs which are not present in a relation, must be present in

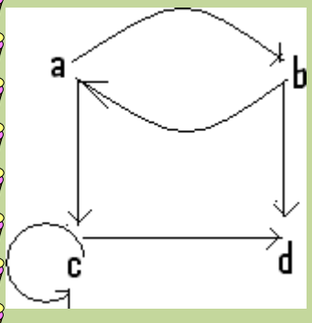
- ► **Inverse of that relation**
- ► **Composition of relations**

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► **Complementary relation of that relation (pg 97)**

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Question No: 9 (Marks: 1) - Please choose one
The relation as a set of ordered pairs as shown in figure is



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

Question No: 10 (Marks: 1) - Please choose one
A circuit with two input signals and one output signal is called

- NOT-gate (or inverter)
- **AND- gate**
- None of these

Question No: 11 (Marks: 1) - Please choose one
If f(x)=2x+1 then its inverse =

- x-1
- $\frac{1}{2}(x-1)$
- x^2+2

$f(x)=2x+1$

$y=2x+1$

$x=\frac{y-1}{2}$

$f(x)^{-1}=\frac{y-1}{2}$

Question No: 12 (Marks: 1) - Please choose one
Null set is denoted by

- **(phi) or { }. (pg 39)**
- A
- None of these

Question No: 13 (Marks: 1) - Please choose one
The total number of elements in a set is called

- Strength
- **Cardinality (pg 141)**
- Finite

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Question No: 14 (Marks: 1) - Please choose one

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If f(x)= x+1 and g(x)= $-2x^2+1$ then (2f - 1g)x=

- ► $2x^2 - x$
- ► 3x+2
- ► $2x^2 + 2x+1$

$= (2f - 1g)x$

$= 2f(x) - g(x)$

$= 2.(x+1) - (-2x^2+1)$

$= 2x + 2 + 2x^2 - 1$

$= 2x^2 + 2x+1$

Question No: 15 (Marks: 1) - Please choose one

Let

$a_0 = 1, a_1 = -2$ *and* $a_2 = 3$

then $\sum_{j=0}^{2} a_j =$

- ► -6
- ► **2**
- ► 8

Question No: 16 (Marks: 1) - Please choose one

Which of the given statement is incorrect?

- ► The process of defining an object in terms of smaller versions of itself is called recursion. (Pg 159)
- ► A recursive definition has two parts: Base and Recursion.
- ► **Functions cannot be defined recursively (Pg 159)**
- ► Sets can be defined recursively. (Pg 165)

Question No: 17 (Marks: 1) - Please choose one

The operations of intersection and union on sets are commutative

- ► **True (Pg 42)**
- ► False
- ► Depends on the sets given

Question No: 18 (Marks: 1) - Please choose one

The power set of a set A is the set of all subsets of A, denoted P(A).

- ► False
- ► **True (Pg 68)**

Question No: 19 (Marks: 1) - Please choose one

What is the output state of an OR gate if the inputs are 0 and 1?

- ► 0
- ► **1**
- ► 2
- ► 3

Question No: 20 (Marks: 1) - Please choose one

The product of the positive integers from 1 to n is called

- ► Multiplication
- ► **n factorial**
- ► Geometric sequence

Question No: 6 (Marks: 1) - Please choose one

Let A= {1, 2, 3, 4} and R = {(1, 1), (2, 2), (3, 3),(4,4)} then

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► R is symmetric.
► R is anti symmetric.
► R is transitive.
► R is reflexive.
► **All given options are true**

Question No: 7 (Marks: 1) - Please choose one
The inverse of given relation
R = {(1,1),(1,2),(1,4),(3,4),(4,1)} is
► {(1,1),(2,1),(4,1),(2,3)}
► {(1,1),(1,2),(4,1),(4,3),(1,4)}
► **{(1,1),(2,1),(4,1),(4,3),(1,4)} (Pg 95)**

Question No: 11 (Marks: 1) - Please choose one
$(A \cap B)^c = (A^c \cap B^c)$
► True
► **False**

Question No: 13 (Marks: 1) - Please choose one
Let g be the functions defined by
g(x)= 3x+2 then gog(x) =

► $9x^2 + 4$
► 6x+4
► **9x+8**

$g(g(x)) = g(3x+2)$
$= 3(3x+2)+2$
$= 9x + 6 + 2$
$= 9x + 8$

Question No: 16 (Marks: 1) - Please choose one
The Common fraction for the recurring decimal 0.81 is
► $\frac{81}{100}$
► $\frac{81}{98}$
► $\frac{9}{11}$
(Pg 157)

Question No: 17 (Marks: 1) - Please choose one
A collection of rules indicating how to form new set objects from those already known to be in the set is called
► Base
► Restriction
► **Recursion (Pg159)**

Question No: 19 (Marks: 1) - Please choose one
The statement of the form $p \vee \sim p$ is:
► **Tautology (Pg 10)**
► Contradiction
► Fallacy

Question No: 20 (Marks: 1) - Please choose one
Let A,B,C be the subsets of a universal set U.
Then $(A \cup B) \cup C$ is equal to:
$A \cap (B \cup C)$

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$A \cup (B \cap C)$

▶ □

▶ □ $\varnothing$

▶ $A \cup (B \cup C)$

Associative Law

Question: If R ={ (a, a),(b, b),(c, c)} is a relation on the set A={a, b, c} Then R is

- Symmetric only.
- Symmetric and reflexive only.
- Reflexive only.
- **Equivalence relation. (Pg 85)**

Question: The negation of the implication "If P is a square then P is a rectangle" is

- **If P is not a square then P is not a rectangle**
- P is not a square and P is a rectangle
- P is a square and P is not a rectangle.
- None of the above

Question: Identify the false statement

- **0 ∈ ∅**
- {∅ } {∅ } ⊆
- If A and B are two sets A B and BA then A = B. ⊆
- Two sets are disjoint if their intersection is empty set.
- A □ A^c = U

Question: Let A be a set containing 3 elements then the total number of relations from A to A is

- 2*9
- 2^9
- **n*n**
- 2n

Question: Let A = {1,2,3} and B = {2,3,4,5} then

- A = B.
- A is a subset of B.
- A is improper subset of B.
- **Both 2 and 3.**

Question: Which of the following is not a Proposition?

- **x >11.**
- Sun rounds about the Earth
- 11+7=18
- None of above.

Question: F={x∈ R | x131 + 29 x 12 -3=0}

- **finite**
- infinite
- (c) none of above

Question: Let A has the same cardinality as B if and only if ,there is a ---------- correspondence between sets A and B

- one-one
- onto
- **(c) Both (a) and (b) (Pg 141)**

Question: Let A={0,1,2,3,4,5}and we define functions f: A → A and then g: A →A
f (3)=3 , f (4)=2 , f (5)=2 , f (2)=5, f (1)=2
g (1)=4 , g (3)=3 , g (5)=3 , g (2)=1
then fog(5) and gof(2)

- **(a) fog(5) = gof(2)**
- (b) fog(5) gof(2)
- (c) fog(3) = gof(1)
- (d) None of the above

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$fog(5) = fg(5)$

$= f(3) = 3$

$gof(2) = gf(2)$

$= g(5) = 3$

Question: Choose the correct answer:
If f and g are two one-to-one functions, then their composition of gof is

- onto
- **one-to-one (Pg 134)**
- (c) bijective

Question: If 1=1 then 2=2 , the conditional statement is

- **True**
- False
- None of other.

If $1^3 + 2^3 + 3^3 + ..+ n^3 =$

Then,

$\left[\frac{n(n+1)}{2}\right]^2$ *(Pg 157)*

$\frac{n(n+1)(2n+1)}{6}$

$\frac{n(n+1)}{2}$

None of these

Question: A set Z has n elements. How many functions are from Z to Z?

- 2_n
- **n×n**
- n_n
- None of the other

Question: Compute the summation

$\sum_{i=0}^{2}(i^2 + 2)$

- 5
- 3
- 0
- **None of these.**

Question: Let S = {n∈Z / n = (−1)$_k$, for some integer k}

- S={1}
- S={-1}
- S={-1,1}
- None of the other

Question: If p=T,q=T,r=F

Then

$(\ (\sim p) \wedge\ r) \rightarrow (q \wedge\ r))$

Must be

- F
- **T**
- qVr

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- None of these.

Question: If A={a,b,c,d} then the number of elements of power set P(A) are

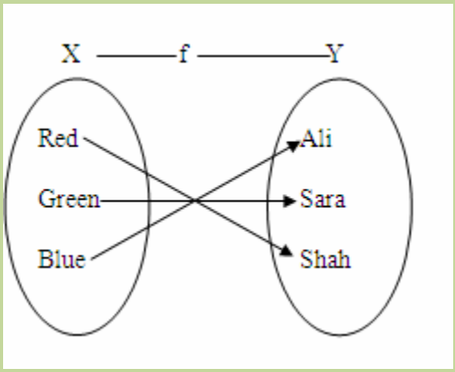
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- 2^4
- 2^5
- 2^6
- 2^7

Question: Consider the relation R={(1,1),(1,2),(1,4),(2,1),(2,2),(3,3),(4,4)} on A={ 1,2,3,4 } is

- Symmetric
- Transitive
- **Reflexive**
- All of these

Question: The function defined by the following diagram is *f*: *X*→*Y*



- One-to-one
- Onto
- **Both one-to-one and onto**
- None of these

Question: $1,10,10^2,10^3,10^4,10^5,10^6,10^7,\ldots\ldots\ldots\ldots$ is

- **Arithmetic series (Pg 145)**
- Geometric series
- Arithmetic sequence
- Geometric sequence

Question:

Negations for the given statement "The train is late or my watch is fast" is

- **The train is not late or my watch is not fast.**
- The train is not late and my watch is not fast.
- The train is not late or my watch is fast
- None of these.

Question:

Let R be the relation from $A=\{a_1,a_2,a_3\}$(Elements of A are ordered by their subscript)to itself given by the matrix representation . Then R is

$$\begin{pmatrix} 0 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{pmatrix}$$

- Reflexive and Symmetric.
- Symmetric and Transitive.
- **Irreflexive and Symmetric.**
- Irreflexive and Anti- Symmetric.

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If out of 35 people each person like Discrete Mathematics or Data Structures ,25 like Discrete Mathematics, and 20 like Data structures then the number of people who like

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both Discrete and Data Structures is……..

- **5**
- 15
- 10
- None of these.

Question: Inverse of a function may not be a function

- **True (Pg 124)**
- False

Question No: 1 (Marks: 1) - Please choose one

The inverse of given relation R = {(1,1),(1,2),(1,4),(3,4),(4,1)} is

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

Question No: 2 (Marks: 1) - Please choose one
Symmetric and antisymmetric are

- Negative of each other
- Both are same
- **Not negative of each other (Pg 90)**

Question No: 3 (Marks: 1) - Please choose one
Let A = {a, b, c} and

R = {(a, c), (b, b), (c, a)} be a relation on A. Is R

- Transitive
- Reflexive
- **Symmetric**
- Transitive and Reflexive

Question: In Boolean addition 1+1=

- **2**
- **1 (Pg 99)**
- **0**

Question No: 8 (Marks: 1) - Please choose one

The same element can never appear twice in a set

- True
- **False**

Question No: 9 (Marks: 1) - Please choose one

If f(x)=2x+1, $g(x)=x^2-1$ **then fg(x)=**

- $x^2 -1$
- $2x^2 -1$

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▶ $2x^3 - 1$

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$fg(x) = f(x^2 - 1)$

$f(x^2 - 1) = 2(x^2 - 1) + 1$

$= 2x^2 - 2 + 1$

$= 2x^2 - 1$

Question No: 13 (Marks: 1) - Please choose one

If a set contains exactly *m* distinct elements where *m* denotes some non negative integer then the set is .

- **Finite**
- Infinite
- None of these

Question No: 14 (Marks: 1) - Please choose one

If f(4) = 1 and g(1) = 4 then fog(1) =

- 3
- 1
- 4

$fog(1) = fg(1)$

$= f(4) = 1$

Question No: 15 (Marks: 1) - Please choose one

If ($A \cup B$) = A, then ($A \cap B$) = B

- **True**
- False
- Cannot be determined

Question No: 16 (Marks: 1) - Please choose one

The total number of elements in a set is called

- Strength
- **Cardinality**
- Finite

Question No: 17 (Marks: 1) - Please choose one

If f(x) = x and g(x)=-2x then (f+g)x =

- 3x
- $2x^2$
- **–x**

Question No: 19 (Marks: 1) - Please choose one

Which term of the sequence 4,1,-2,… is -77

- **26**
- 27
- 28

Question No: 20 (Marks: 1) - Please choose one

If a set A has 5 elements then power set of A. P(S) contains elements. Which are?

- 5^5
- 2^n
- 4^5

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Question No: 13 (Marks: 1) - Please choose one

Let g be the functions defined by
g(x)= 3x+2 then gog(x) =

- $9x^2 + 4$
- 6x+4
- **9x+8**

$gg(x)$
$= 3(3x + 2) + 2$
$= 9x + 6 + 2$
$= 9x + 8$

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