Question No : 1 of 26 **Marks: 1 (Budgeted Time 1 Min)**

If p & q are statements, then their disjunction is

Answer (Please select your correct option)

- p or q
- p and q
- p and q and p
- None of these

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Question No : 2 of 26 **Marks: 1 (Budgeted Time 1 Min)**

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

Answer (Please select your correct option)

- 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 : 3 of 26 **Marks: 1 (Budgeted Time 1 Min)**

An argument is _____ if the conclusion is true when all the premises are true.

Answer (Please select your correct option)

- Invalid
- False
- Valid
- None of these

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Question No : 4 of 26 **Marks: 1 (Budgeted Time 1 Min)**

Which one of the following argument is valid?

Answer (Please select your correct option)

- Ali lives in Pakistan, Lahore is a city of Pakistan therefore Ali lives in Lahore.
- All cows are black, Jhon is black therefore Jhon is a cow.
- Cats are mammals, dogs are mammals therefore cats are dogs
- Only birds can fly, pigeon is a bird therefore pigeon can fly.

Question No : 6 of 26 **Marks: 1 (Budgeted Time 1 Min)**

Is the given statement true?
$\phi = \{\phi\}$

Answer (Please select your correct option)

- Yes
- No

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Question No : 7 of 26 **Marks: 1 (Budgeted Time 1 Min)**

Associative law of intersection for three sets is

Answer (Please select your correct option)

- $A \cup (B \cup C) = (A \cup B) \cup C$
- $A \cap (B \cap C) = (A \cap B) \cap C$
- $A \cup (B \cap C) = (A \cup B) \cap (A \cup B)$
- None of these

Question No : 8 of 26 **Marks: 1 (Budgeted Time 1 Min)**

If $A = \{a, b, c\}$ is a set and $R = \{(a, c), (b, b), (c, a)\}$ is a relation on A then R is _____.

Answer (Please select your correct option)

- Transitive
- Reflexive
- Symmetric
- Transitive and Reflexive

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Question No : 9 of 26 Marks: 1 (Budgeted Time 1 Min)

Inverse of relation can be obtained by

Answer (Please select your correct option)

- changing signs of elements in order pairs.
- changing position of elements in order pairs.
- taking multiplicative inverse of elements in order pairs.

Question No : 10 of 26 **Marks: 1 (Budgeted Time 1 Min)**

If $f(x) = 2x + 1$ then $f^{-1}(x) =$

Answer (Please select your correct option)

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

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Question No : 11 of 26 **Marks: 1 (Budgeted Time 1 Min)**

If A is a set of all integers and $R = \{(x, y) \in A \text{ iff } xy \geq 1\}$ is a relation on A then the relation R is

Answer (Please select your correct option)

- Transitive
- Symmetric
- Reflexive
- All the given options are true

Question No : 12 of 26 **Marks: 1 (Budgeted Time 1 Min)**

The part of definition which can be expressed in terms of smaller versions of itself is called

Answer (Please select your correct option)

- Base
- Restriction
- Recursion
- Conclusion

Question No : 13 of 26 **Marks: 1 (Budgeted Time 1 Min)**

Let f is defined recursively by $f(0) = 5, f(n+1) = 4f(n) + 2$ then $f(1) =$

Answer (Please select your correct option)

- 8
- 10
- 21
- 22

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Question No : 14 of 26 **Marks: 1 (Budgeted Time 1 Min)**

For real numbers a and b these $a+b$, $b-a$, $a \times b$ *and* $a \div b$ are

Answer (Please select your correct option)

- Geometric expressions
- Arithmetic expressions
- Harmonic expressions

Question No : 15 of 26 Marks: 1 (Budgeted Time 1 Min)

The tower of Hanoi is a puzzle consisting of

Answer (Please select your correct option)

- 2 people
- 3 people
- 4 people

Question No : 16 of 26 **Marks: 1 (Budgeted Time 1 Min)**

Let a and b be integers. Suppose a function Q is defined recursively as follows:

$$Q(a,b) = \begin{cases} 2 & \text{if } a < b \\ Q(a+b, b-1) + b & \text{if } b \le a \end{cases}$$

Then $Q(5,2)$ =

Answer (Please select your correct option)

- $Q(5,2) = Q(7,4) + 5$
- $Q(5,2) = Q(7,1) + 2$
- $Q(5,2) = Q(5,2) + 2$
- 2

Question No : 17 of 26 Marks: 1 (Budgeted Time 1 Min)

The same element can never appear --------- in a set.

Answer (Please select your correct option)

- twice
- once
- thrice

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Question No : 18 of 26 **Marks: 1 (Budgeted Time 1 Min)**

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

Answer (Please select your correct option)

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

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Question No : 19 of 26 Marks: 1 (Budgeted Time 1 Min)

$A = \{1, 2, 3, 4, 5\}$ is a set of first five -------- numbers.

Answer (Please select your correct option)

- True
- natural
- even
- odd

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Question No : 20 of 26 **Marks: 1 (Budgeted Time 1 Min)**

If p = A Pentium 4 computer,
q = attached with ups.
Then "no Pentium 4 computer is attached with ups" is denoted by

Answer (Please select your correct option)

- : $(p \wedge q)$
- : $p \vee q$
- : $p \wedge q$
- None of these

Question No : 21 of 26 **Marks: 2 (Budgeted Time 4 Min)**

Show that $f(x) = x^3 + 1$ is a one to one function.

Answer (Please click here to Add Answer)

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Question No : 22 of 26 **Marks: 2 (Budgeted Time 4 Min)**

Let $f(x) = 2x - 1$ and $g(x) = x^2 + 1$ be the real valued functions then find $g \circ f(x)$.

Answer (Please click here to Add Answer)

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Question No : 23 of 26 **Marks: 3 (Budgeted Time 6 Min)**

If A = $\{1,2,3,4\}$ is a set and R is a relation on A as $R = \{(1,1),(2,2),(2,3),(3,2),(3,3),(4,2),(4,4)\}$. Is R (a) transitive (b) anti-symmetric? Justify your answer.

Answer (Please click here to Add Answer)

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Question No : 24 of 26 Marks: 3 (Budgeted Time 6 Min)

Let $f(x) = 2x + 1$ and $g(x) = x^2 - 1$ be the real valued function then find the expression $f \circ f(x) =$

Answer (Please click here to Add Answer)

Question No : 25 of 26 **Marks: 5 (Budgeted Time 10 Min)**

Consider the relation $R = \varnothing$ on a set $A = \{1, 2, 3\}$. Determine whether or not the given relation on A is

(i) Reflexive
(ii) Transitive
(iii) Anti-symmetric
(Justify your answer)

Answer (Please click here to Add Answer)

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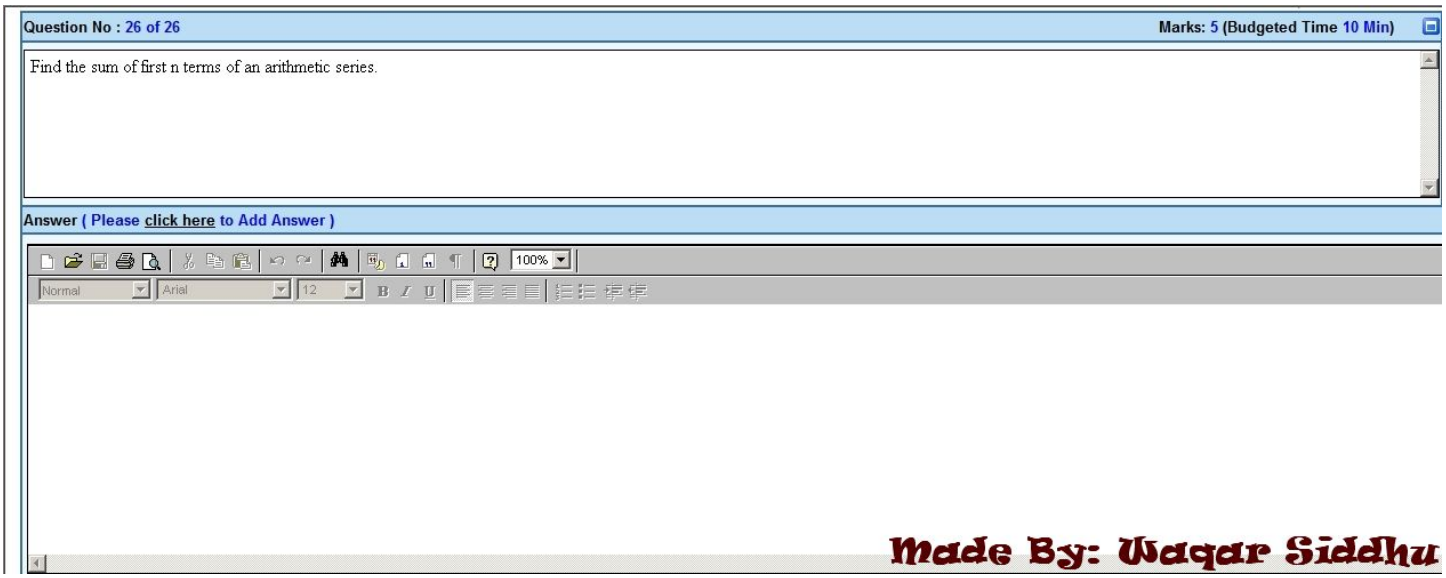
Question No : 26 of 26
Marks: 5 (Budgeted Time 10 Min)
Find the sum of first n terms of an arithmetic series.
Answer (Please click here to Add Answer)
100%
Normal
Arial
12
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