

Question No : 1 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ 0

☐ 3

☐ 1

☐ 2

Made By: Waqar Siddhu

Question No : 1 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☒ 0

☐ 3

☐ 1

☐ 2

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Question No : 2 of 26

Marks: 1 (Budgeted Time 1 Min)

The statement of the form $p \wedge \neg p$ is

Answer (Please select your correct option)

Tautology

☐

Contradiction

☒

Fallacy

☐

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Question No : 3 of 26

Marks: 1 (Budgeted Time 1 Min)

The contra positive of the conditional statement $p \rightarrow q$ is

Answer (Please select your correct option)

☐ : $p \rightarrow q$

☐ $q \rightarrow p$

☒ : $q \rightarrow p$

☐ None of these

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Question No : 4 of 26

Marks: 1 (Budgeted Time 1 Min)

Select the contra positive of the following statement

If I will get up early in the morning then I will catch my school bus

p = I will get up early in the morning

q = I will catch my school bus

Answer (Please select your correct option)

☐ : $p \rightarrow q$

☐ : $p \rightarrow q$

☒ : $q \rightarrow p$

☐ : $p \rightarrow q$

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Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)

If p = It is red,
 q = It is hot
Then "It is not red but hot" is denoted by : $p \wedge q$.

Answer (Please select your correct option)

True



False



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Question No : 6 of 26

Marks: 1 (Budgeted Time 1 Min)

What will be the output of an OR-gate if it has inputs 0 and 1?

Answer (Please select your correct option)

☐ 0

☒ 1

☐ 2

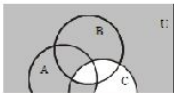
☐ 3

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Question No : 7 of 26

Marks: 1 (Budgeted Time 1 Min)

In the given Venn diagram shaded area represents



Answer (Please select your correct option)

☐ $(A \cap B) \cup C$

☒ $(A \cup B) \cup C$

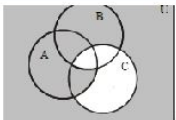
☐ $(A \cap B) \cup C^c$

☐ $(A \cap B) \cap C$

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Question No : 7 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ $(A \cap B) \cup C$

☒ $(A \cup B) \cap C$

☐ $(A \cap B) \cup C^c$

☐ $(A \cap B) \cap C^c$

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Question No : 8 of 26

Marks: 1 (Budgeted Time 1 Min)

Let U be the universal set and A is its subset then $A \cup A^c$ is equal to

Answer (Please select your correct option)

☒ A

☐ A^c

☐ ϕ

☐ U

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Question No : 9 of 26

Marks: 1 (Budgeted Time 1 Min)

If A and S are two reflexive relations then $A \cap S$ will be

Answer (Please select your correct option)

Symmetric



Reflexive



Transitive



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Question No : 10 of 26

Marks: 1 (Budgeted Time 1 Min)

Every relation _____

Answer (Please select your correct option)

☒ may or may not be a function.

☐ is a bijective mapping.

☐ Cartesian product set

☐ is a function.

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Question No : 11 of 26

Marks: 1 (Budgeted Time 1 Min)

How many functions are there from a set with three elements to a set with two elements?

Answer (Please select your correct option)

☒ 6

☐ 8

☐ 12

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Question No : 12 of 26

Marks: 1 (Budgeted Time 1 Min)

Let $A = \{x, y, z\}$ and $B = \{a, b, c\}$ be two sets then a function f defined as $\{(x, a), (y, a), (z, a)\}$ is

Answer (Please select your correct option)

☐ Onto

☐ Constant

☐ One-to- one

☒ Onto and constant

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Question No : 13 of 26

Marks: 1 (Budgeted Time 1 Min)

Let f and g be the functions defined by $f(x) = 2x + 3$ and $g(x) = 3x + 2$ then composition of f and g is

Answer (Please select your correct option)

☒ $6x + 6$

☐ $5x + 5$

☐ $6x + 7$

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Question No : 14 of 26

Marks: 1 (Budgeted Time 1 Min)

Let g be the function defined by $g(x) = 3x + 2$ then $g \circ g(x) =$

Answer (Please select your correct option)

☒ $9x^2 + 4$

☐ $6x + 4$

☐ $9x + 8$

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Question No : 15 of 26

Marks: 1 (Budgeted Time 1 Min)

If $f(x) = 2x + 1$, $g(x) = x^2 - 1$ then $f \circ g(x) =$

Answer (Please select your correct option)

☐ $x^2 - 1$

☒ $2x^2 - 1$

☐ $2x^3 - 1$

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Question No : 16 of 26

Marks: 1 (Budgeted Time 1 Min)

$$\sum_{j=1}^3 (3j - 5) =$$

Answer (Please select your correct option)

4

☐

3

☐

-2

☐

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Question No : 17 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)

☒ Recursion

☐ Conclusion

☐ Base

☐ Restriction

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Question No : 18 of 26

Marks: 1 (Budgeted Time 1 Min)

Let f is defined recursively by $f(0) = 3, f(n+1) = 2f(n) + 3$ then $f(1) =$

Answer (Please select your correct option)



9



10



18



21

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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 = Saima is hard working
 q = Saima is good in mathematics
"Saima is hard working and good in mathematics" is denoted by

Answer (Please select your correct option)

☐ $p \vee q$

☒ $p \wedge q$

☐ $p \wedge : q$

☐ $: (p \vee q)$

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Question No : 21 of 26

Marks: 2 (Budgeted Time 4 Min)

If A is a set having m elements and B is another set having n elements then how many functions are there from A to B?

Answer ([Please click here to Add Answer](#))



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Question No : 22 of 26

Marks: 2 (Budgeted Time 4 Min)

Sum the series $-3 + (-1) + 1 + 3 + 5 + \dots + a_{16}$.

Answer ([Please click here to Add Answer](#))



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Question No : 23 of 26

Marks: 3 (Budgeted Time 6 Min)

Determine whether the function f from set $\{a, b, c, d\}$ to set $\{1, 2, 3, 4\}$ with $f(a) = 4$, $f(b) = 2$, $f(c) = 1$, $f(d) = 3$ is a bijective function.

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 the find the expression $g \circ g(x) =$

Answer ([Please click here to Add Answer](#))

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Question No : 25 of 26

Marks: 5 (Budgeted Time 10 Min)

Let A be a set of integers and R is a relation defined on it as $R = \{(x, y) : x \in Z, y \in Z, (x - y) \text{ is divisible by } 2\}$. Show that R is equivalence relation.

Answer ([Please click here to Add Answer](#))



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Question No : 26 of 26

Marks: 5 (Budgeted Time 10 Min)

Define a sequence a_0, a_1, a_2, \dots by the formula $a_n = 3n + 1$, for all integers $n \geq 0$. Show that this sequence satisfies the recurrence relation $a_k = a_{k-1} + 3$, for all integers $k \geq 1$.

Answer ([Please click here to Add Answer](#))



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