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

The proposition $p \leftrightarrow q$ is called _____ ?

Answer (Please select your correct option)

- Negation
- Conjunction
- Disjunction
- Biconditonal

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

Let **p** be the statement "you study " and **q** be the statement " you pass the exams."
Express the following proposition as an English sentence.

$$\sim p \rightarrow \sim q$$

Answer (Please select your correct option)

- If you study then you pass the exams.
- If you do not study then you pass the exams.
- If you study then you do not pass the exams.
- If you do not study then you do not pass the exams.

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Question No : 3 of 26 **Marks: 1 (Budgeted Time 1 Min)**

Let **p** be the statement "You study" and **q** be the statement "You pass the exams."
Express the following proposition as an English sentence.

$$p \rightarrow q$$

Answer (Please select your correct option)

- If you pass the exams then you must have studied.
- If you study then you pass the exams.
- If you pass the exams then do not study.
- If you do not study then you do not pass the exams.

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

What is the negation of the statement " Today is Friday " ?

Answer (Please select your correct option)

- Today is Saturday
- Today is not Friday
- Today is Thursday

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Question No : 5 of 26 Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

- True
- Not given
- False

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

An argument is invalid if the conclusion is false when all the premises are .....

Answer (Please select your correct option)

- False
- True

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

Let A={1,2,3,4} and B={5,6,7}, then $A \cap B$ = ...

Answer (Please select your correct option)

- {1,2,3}
- {5,6,7}
- {1,2,3,4,5,6,7}
- ∅

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

If no element is common in two sets P and Q , then the sets are called .....

Answer (Please select your correct option)

- Exhaustive sets
- Dissimilar sets
- Disjoint sets

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

The sets {1, b} and { b,1 } are equal.

Answer (Please select your correct option)

- True
- False

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

Let $A = \{x : x \in N and\ x^2 + 1 = 10\}$ where N is the set of natural numbers.
Which of the following is tabular form of A ?

Answer (Please select your correct option)

- $\{-3, 3\}$
- $\{3\}$
- $\{9\}$
- $\{1\}$

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

All of the following sets are equal.
$\{r,s,t\},\{s,r,t\},\{t,r,s\},\{s,t,r\}$

Answer (Please select your correct option)

- True
- False

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

Let R be a relation from set A to B, if R is symmetric then its inverse will be .....

Answer (Please select your correct option)

- symmetric
- antisymmetric
- transitive

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

Which of the relation defines a function from X = {2,4,5} to Y={1,2,4,6}.
R_1 = {(2,4), (4,1)}
R_2 = {(2,4), (4,1), (4,2), (5,6)}
R_3 = {(2,4), (4,1), (5,6)}

Answer (Please select your correct option)

- R_1 and R_2
- R_1
- R_3
- R_2 and R_3

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

Let R be a binary relation on a set A. R is irreflexive iff

Answer (Please select your correct option)

- $a \in A, (a,a) \notin R$
- $\forall a \in A, (a,a) \in R$
- $\forall a \in A, (a,a) \notin R$

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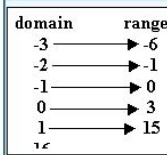
Question No : 15 of 26 Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

- One to one function
- Not a function
- Many to one function
- Onto function

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

We calculate the sum of the series 1+2+3+……+100 by using formula

Answer (Please select your correct option)

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

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

The nth term of an A. P (Arithmetic Progression) is.....

Answer (Please select your correct option)

- a+(n-1)d
- a+(n +1)d
- (n-1)d

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

On the excel sheet if you enter 5 in cell A90 and 10 in cell A91 then the formula for their sum in excel is .....

Answer (Please select your correct option)

- = A90 + A91
- = A90×A91

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

If
Initial value = 200
Final Value = 210
Increase = 10
Then the Percentage change .....

Answer (Please select your correct option)

- 10%
- 5%
- 20%
- 15%

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

If
Initial value = 12
Final Value = 15
Increase = 3
Then the Percentage change.....

Answer (Please select your correct option)

- 30%
- 15%
- 25%
- 12%

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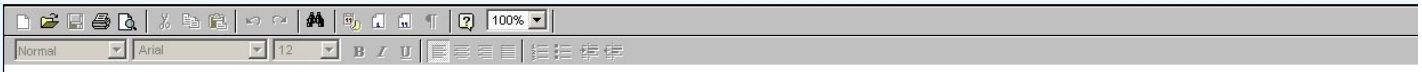
Question No : 21 of 26 **Marks: 2 (Budgeted Time 4 Min)**

A relation R on the set of Natural numbers N is defined as:
For all $a, b \in N$, $a \, R \, b$ iff $a \times b$ is odd.
Show that R is not reflexive.

Answer (Please click here to Add Answer)



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

Consider the following diagrams

Answer (Please click here to Add Answer)

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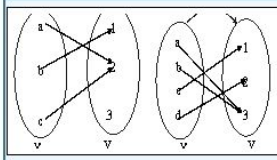
Question No : 22 of 26 Marks: 2 (Budgeted Time 4 Min)



Answer (Please click here to Add Answer)

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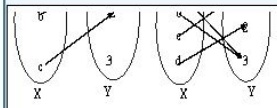
Question No : 22 of 26 Marks: 2 (Budgeted Time 4 Min)



State whether f and g are onto functions or not?

Answer (Please click here to Add Answer)

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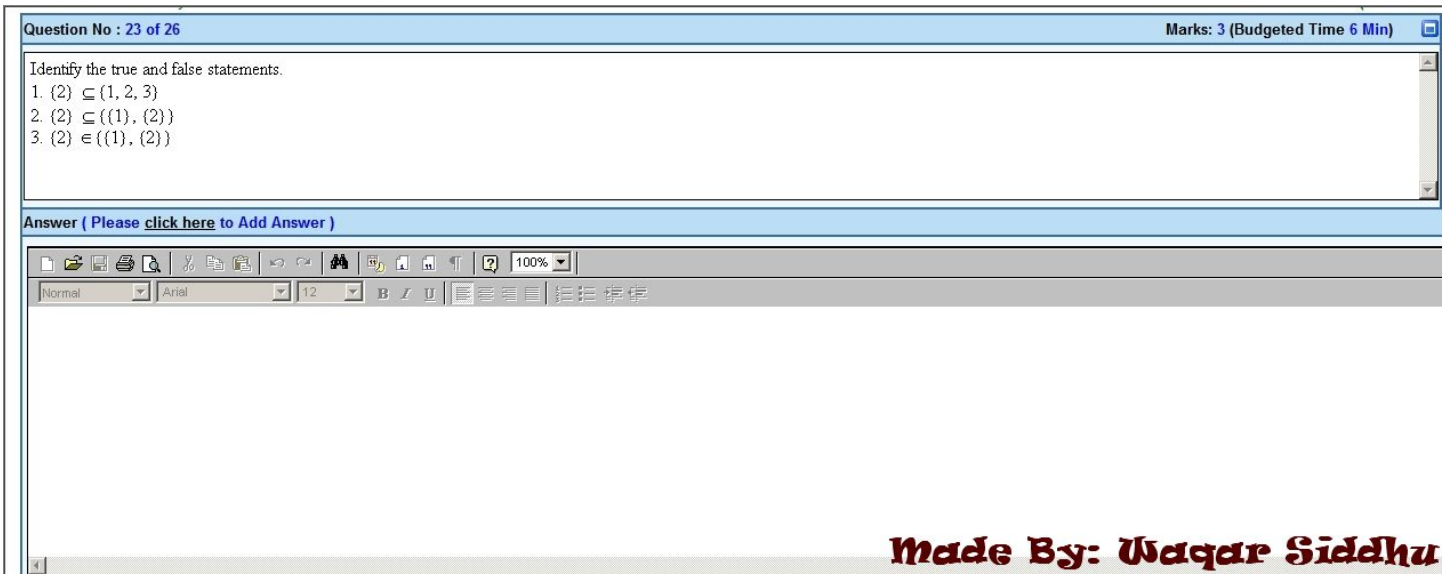
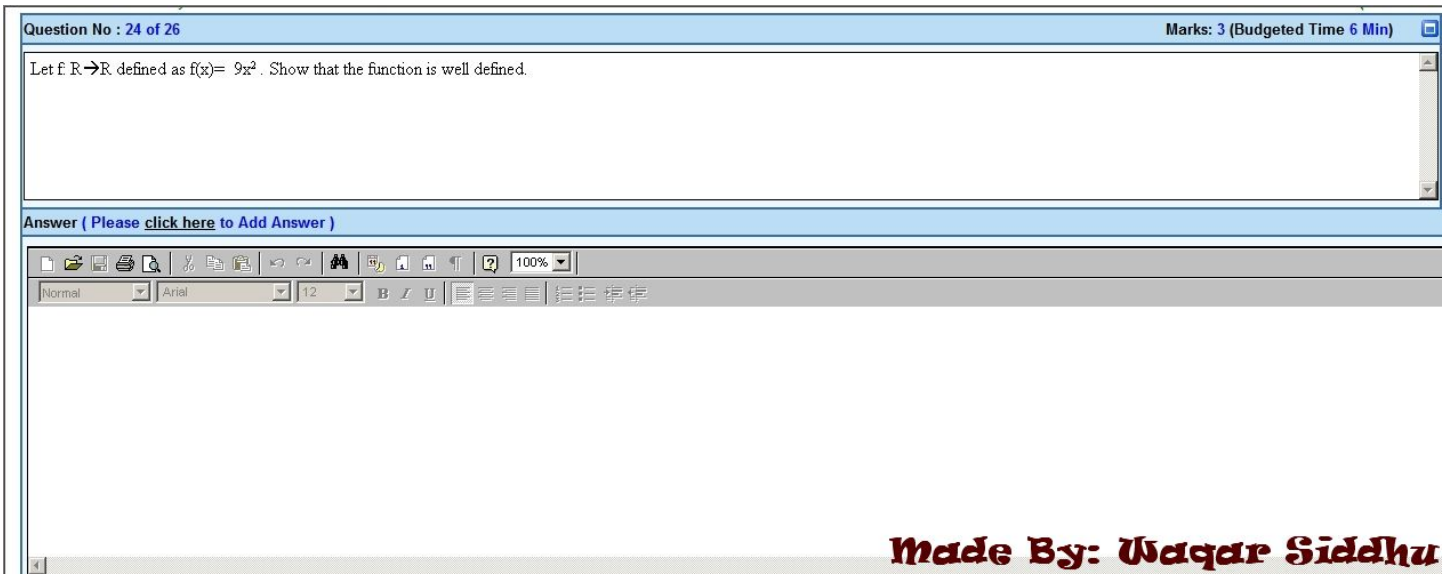
Question No : 23 of 26 **Marks: 3 (Budgeted Time 6 Min)**

Identify the true and false statements.

1. $\{2\} \subseteq \{1, 2, 3\}$
2. $\{2\} \subseteq \{\{1\}, \{2\}\}$
3. $\{2\} \in \{\{1\}, \{2\}\}$

Answer (Please click here to Add Answer)




Question No : 24 of 26
Marks: 3 (Budgeted Time 6 Min)
Let f: R→R defined as f(x)= 9x² . Show that the function is well defined.
Answer (Please click here to Add Answer)
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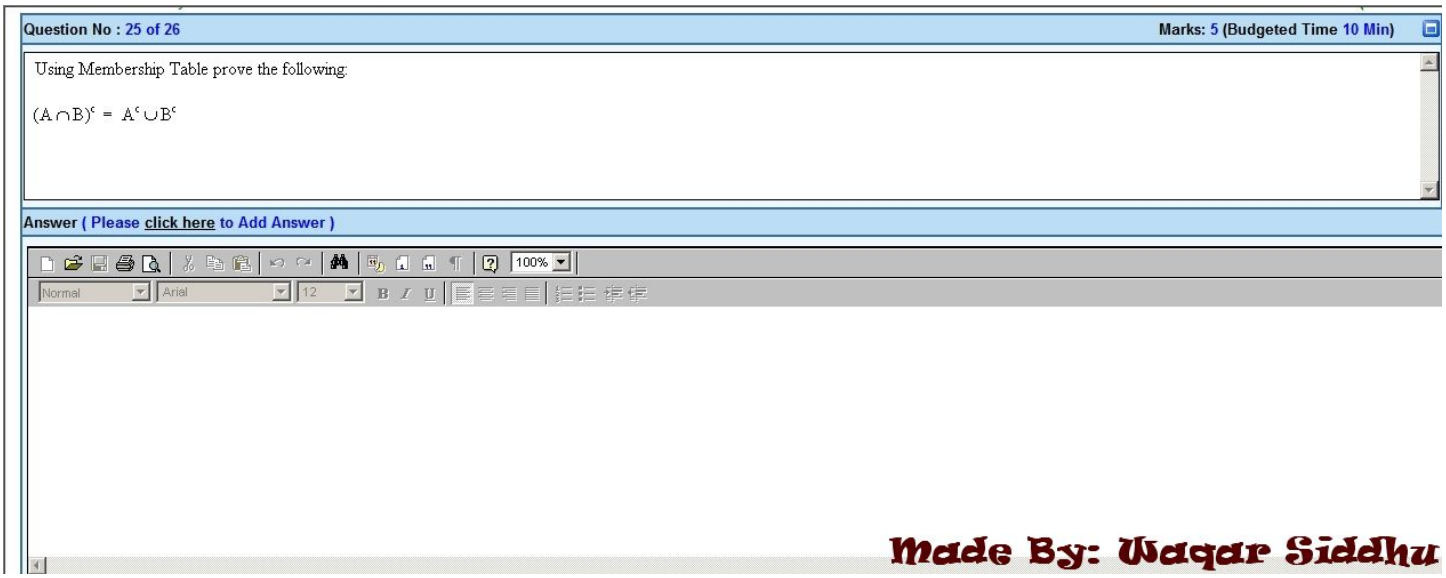
Question No : 25 of 26
Marks: 5 (Budgeted Time 10 Min)
Using Membership Table prove the following:
$(A \cap B)^c = A^c \cup B^c$
Answer (Please click here to Add Answer)
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Question No : 26 of 26 **Marks: 5 (Budgeted Time 10 Min)**

Show that the sum of first n terms of following arithmetic series is n^2

$1+3+5+\ldots+(2n-1)+\ldots$

Answer (Please click here to Add Answer)

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