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Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

Find a non-isomorphic tree with five vertices.

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

Construct input/output table for $P \wedge q$

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

If there are 3 different optional indoor games in 6 different optional outdoor games for students in sports week then find the number of choices for a student who wants to select one optional game.

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 44 of 52 **Marks: 2 (Budgeted Time 4 Min)**

Find the expectation μ of the distribution given in the following table.

x_i	1	3	4	5
$f(x_i)$	0.1	0.2	0.3	0.4

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

i) Evaluate $P(5,3)$

ii) How many 5-permutations are there of a set of five objects?

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

Assume that for the truth values p = F, q = T, r = F. Show that the proposition : $p \vee : (q \wedge r)$ is true.

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

Find the variance σ^2 of the distribution given in the following table.

x_i	1	3	4	5
$f(x_i)$	0.3	0.1	0.2	0.5

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

x_i	1	3	4	5
$f(x_i)$	0.3	0.1	0.2	0.5

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Answer (Please click here to Add Answer)

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Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Determine whether the following graph has Hamiltonian circuit, justify your answer.

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Answer (Please click here to Add Answer)

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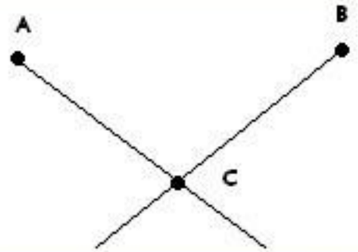
Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)



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Answer (Please click here to Add Answer)

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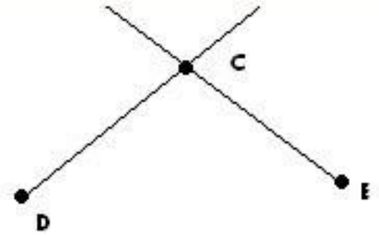
Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)



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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

Prove that $A - B = A \cap B^c$ by using Membership Table.

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Answer (Please click here to Add Answer)

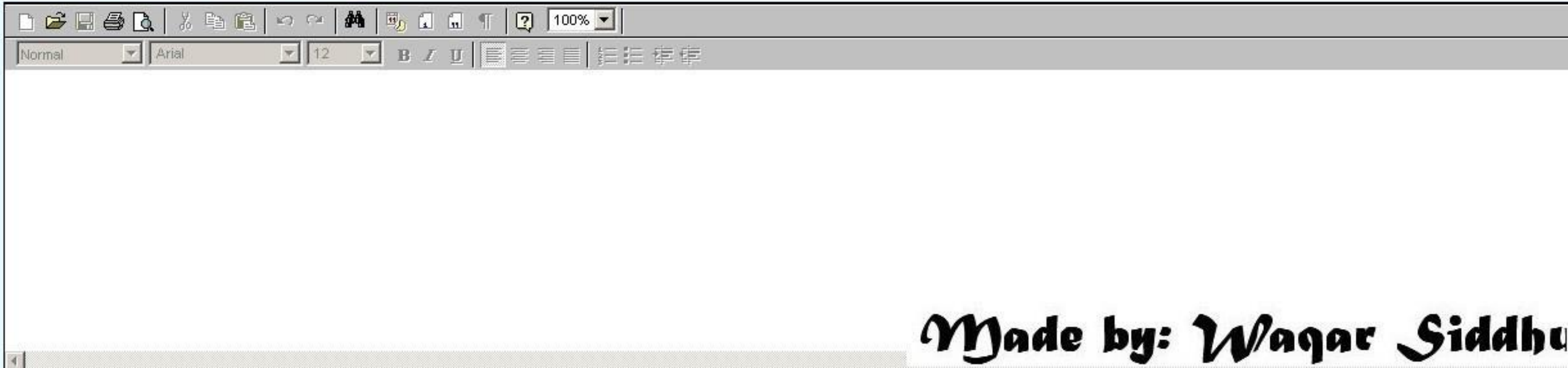
Made by: Waqar Siddhu

Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

Find the GCD of 11425,450 using Division Algorithm.

VuAnswers.com

Answer (Please click here to Add Answer)



Made by: Waqar Siddhu

Question No : 51 of 52 **Marks: 5 (Budgeted Time 10 Min)**

Using handshaking theorem show that the maximum number of edges in a complete graph with n vertices is $\frac{n(n-1)}{2}$.

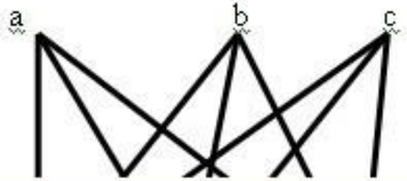
VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

Determine whether the graph is planer. If so, draw it such that no edges cross.



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Answer (Please click here to Add Answer)

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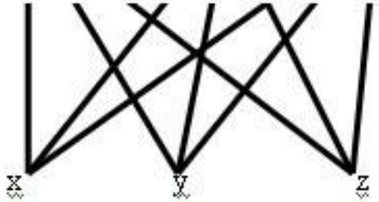
Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)



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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Let $A = \{1,2,3\}$ be a set, R and S be the following relations on it

$R = \{(1,2),(1,3),(2,3),(3,1),(3,3)\}$

$S = \{(1,2),(1,3),(2,1),(3,3)\}$

Find $R \cap S$.

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

A cafeteria offers a choice of two soups, five sandwiches, three desserts and three drinks. How many different lunches, each consisting of a soup, a sandwiche, a dessert and a drink are possible?

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

Find the expectation μ of the distribution given in the following table.

x_i	1	3	4	5
$f(x_i)$	0.1	0.2	0.3	0.4

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

Let $A = \begin{bmatrix} 1 & 3 & 7 \\ 5 & 2 & 9 \end{bmatrix}$ then find A^t.

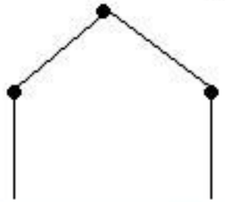
VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

Determine the chromatic number of the given graph by inspection.



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Answer (Please click here to Add Answer)

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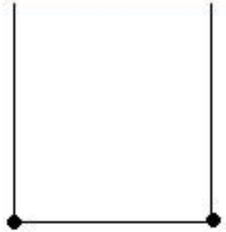
Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)



Answer (Please click here to Add Answer)

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Made by: Waqar Siddhu

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

let A and B are two sets then show that $B \subseteq A \cup B$.

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

The members of a club are 12 boys and 8 girls. In how many ways can a committee of 3 boys and 2 girls be formed?

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Determine the probability of appearing an odd number when a fair die is thrown.

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 49 of 52 **Marks: 5 (Budgeted Time 10 Min)**

Define a binary relation R from $A = \{1, 3\}$ to $B = \{1, 2, 3\}$ as follows

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

(a) Find the ordered pairs in R.
(b) Find the domain and range of R.
(c) Is 1R2 and 3R3?

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 50 of 52 **Marks: 5 (Budgeted Time 10 Min)**

A college has 10 basketball players. A 5-member team and a captain will be selected out of these 10 players. How many different selections can be made?

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

Find the probability distribution of the sum of the dots when two fair dice are thrown.

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 **Marks: 5 (Budgeted Time 10 Min)**

Find the product AB and BA of the matrices (if not possible then give reason).

$$A = \begin{bmatrix} 1 & 3 \\ 2 & -1 \end{bmatrix} \quad \text{and} \quad B = \begin{bmatrix} 2 & 0 & -4 \\ 3 & -2 & 6 \end{bmatrix}$$

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 41 of 52 Marks: 2 (Budgeted Time 4 M

Find the double negation of the proposition

p = It is cold.

Answer (Please click here to Add Answer)

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Question No : 42 of 52 Marks: 2 (Budgeted Time 4 M

How many signals can be given by 5 flags of different colors using 3 flags at a time?

Answer (Please click here to Add Answer)

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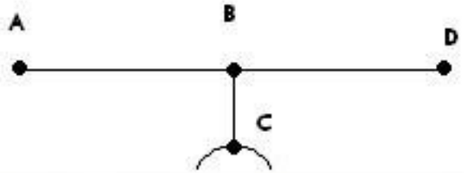
Question No : 43 of 52 Marks: 2 (Budgeted Time 4 M

Find the degree of each vertex in the figure (given below).



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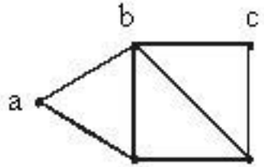
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 44 of 52 **Marks: 2 (Budgeted Time 4 M**

Find the degree sequence of the following graph.



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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 45 of 52 Marks: 3 (Budgeted Time 6 M

Draw a graph with six vertices, five edges that is not a tree.

Answer (Please click here to Add Answer)

VuAnswers.com

Made by: Waqar Siddhu

Question No : 46 of 52 **Marks: 3 (Budgeted Time 6 M**

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

$$Q(a,b) = \begin{cases} 5 & \text{if } a < b \\ Q(a-b, b+2) + a & \text{if } b \le a \end{cases}$$

Find Q (14, 3).

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 47 of 52 Marks: 3 (Budgeted Time 6 M

Out of five people in an office, just 3 are to be selected to go to an exhibition. In how many ways can the three be chosen?

Answer (Please click here to Add Answer)

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Made by: Waqar Siddhu

Question No : 48 of 52 **Marks: 3 (Budgeted Time 6 M**

Find the variance σ^2 of the distribution given in the following table.

x_i	1	3	4	5
$f(x_i)$	0.4	0.1	0.2	0.3

Answer (Please click here to Add Answer)

VuAnswers.com

Made by: Waqar Siddhu

Question No : 49 of 52 Marks: 5 (Budgeted Time 10 M

Let $A = \{3,6,9,12\}$ be a set, find $A \times A$. Determine whether $R = \{(3,3),(6,6),(9,9),(12,12),(3,6),(6,3)\}$ is an equivalence relation on A or not?

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 50 of 52 **Marks: 5 (Budgeted Time 10 M**

There are 12 students from whom 5 are going to be chosen to represent their school at a conference. If Jack, Anna or Chris, but only one of them, must be chosen, in how many ways can the stude
be chosen to go to the conference?

Answer (Please click here to Add Answer)

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Made by: Waqar Siddhu

Question No : 51 of 52 **Marks: 5 (Budgeted Time 10 M**

Determine whether the given graph has a Hamilton circuit? If it does, find such a circuit, if it does not, give an argument to show why no such circuit exists.

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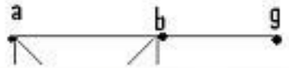

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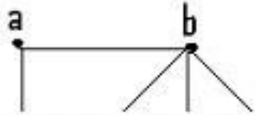

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Answer (Please click here to Add Answer)

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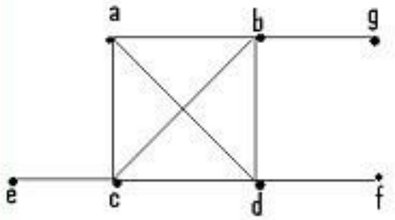
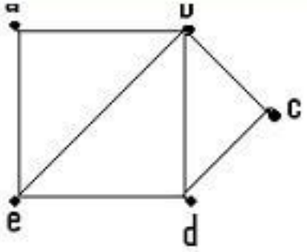
Question No : 51 of 52 Marks: 5 (Budgeted Time 10 M





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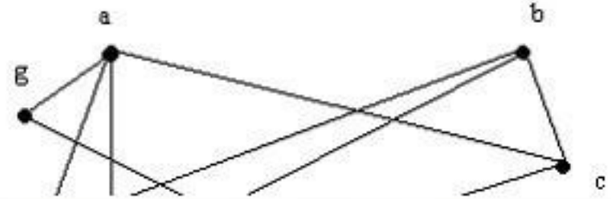
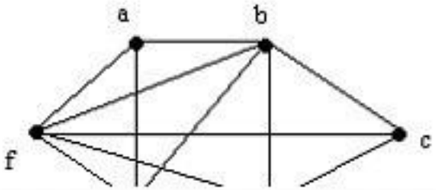
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 M

Consider the following graphs





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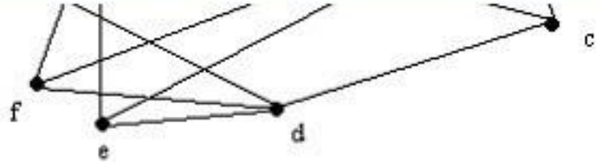
Question No : 52 of 52 Marks: 5 (Budgeted Time 10 M



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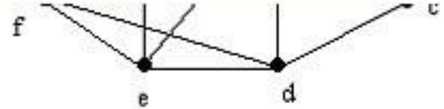

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 M

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G

Are the above graphs bipartite? Justify your answer.

Answer (Please click here to Add Answer)

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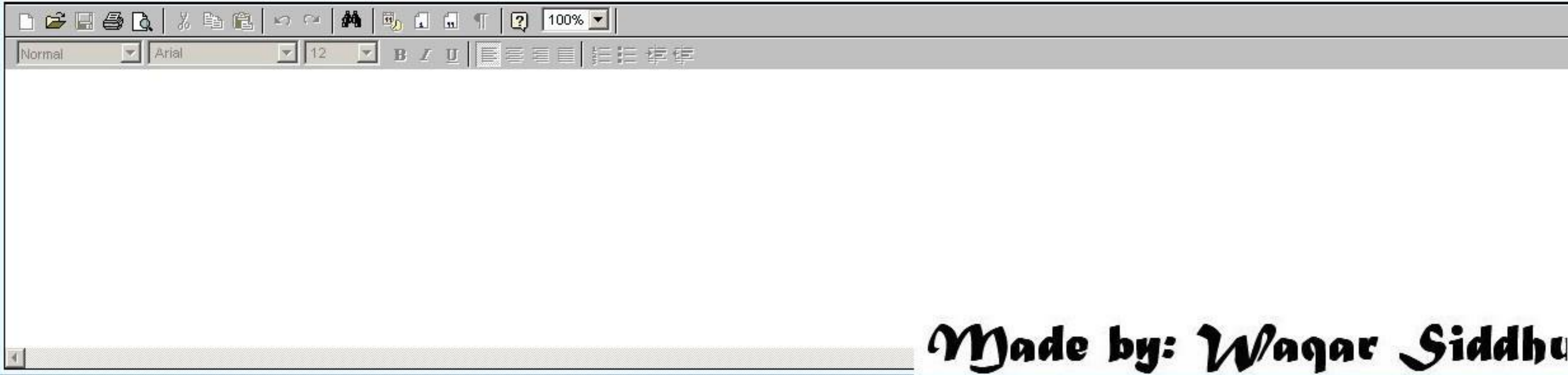
Made by: Waqar Siddhu

Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

How many ordered selections of two elements can be made from the set of four elements?

VuAnswers.com

Answer (Please click here to Add Answer)



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Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

Suppose that f is defined recursively by $f(0) = 1, f(n+1) = 3f(n) + 1$ then find $f(2)$.

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

Find $P(A \mid B)$ *where*

$P(A) = \frac{1}{2}, P(B) = \frac{1}{3}$ and $P(A \cap B) = \frac{1}{4}$.

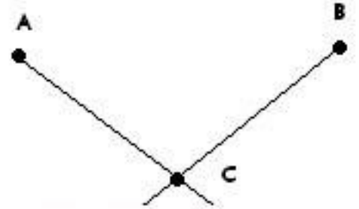
VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

Chect whether the following graph has an Euler circuit, justify your answer.



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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

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Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

Suppose that p and q are statements so that $q \rightarrow p$ is false. Find the truth values of each of the following:

1. $\sim q \rightarrow p$
2. $p \vee q$
3. $p \leftrightarrow q$

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

How many distinguishable ways can the letter of the word HULLABALOO be arranged.

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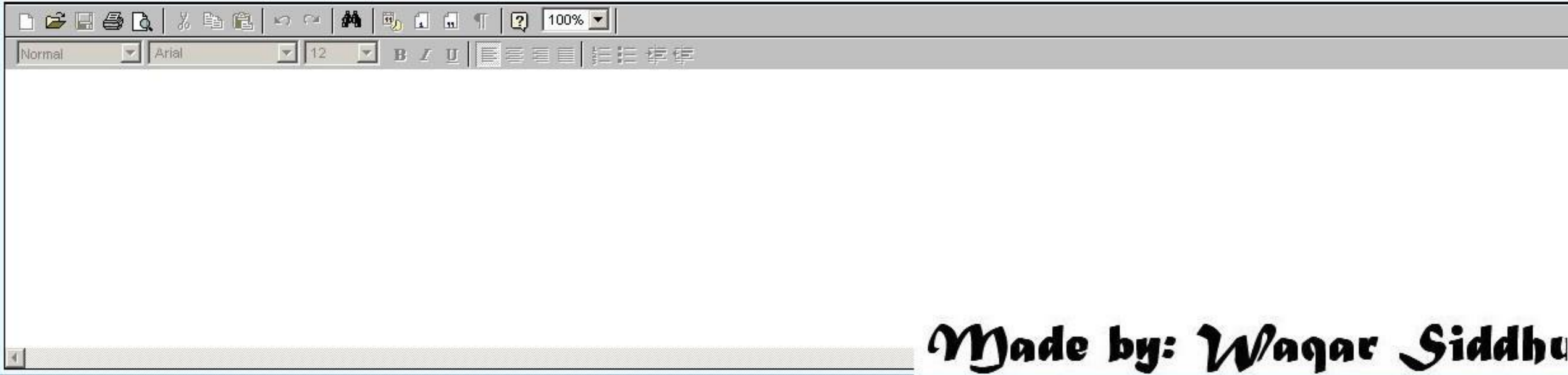
Answer (Please click here to Add Answer)



Made by: Waqar Siddhu

Find the variance σ^2 of the distribution given in the following table.

x_i	1	3	4	5
$f(x_i)$	0.4	0.1	0.2	0.3

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Find the variance σ^2 of the distribution given in the following table.

x_i	1	3	4	5
$f(x_i)$	0.4	0.1	0.2	0.3

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Determine whether the following graph has Hamiltonian circuit, justify your answer.

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Answer (Please click here to Add Answer)

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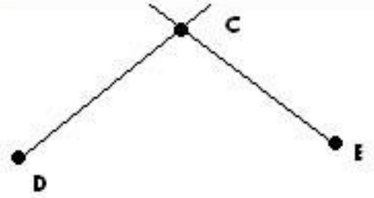
Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)



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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

Use Kruskal's Algorithm to draw the minimal spanning tree for the graph below. Indicate the order in which edges are added to form a tree.

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Answer (Please click here to Add Answer)

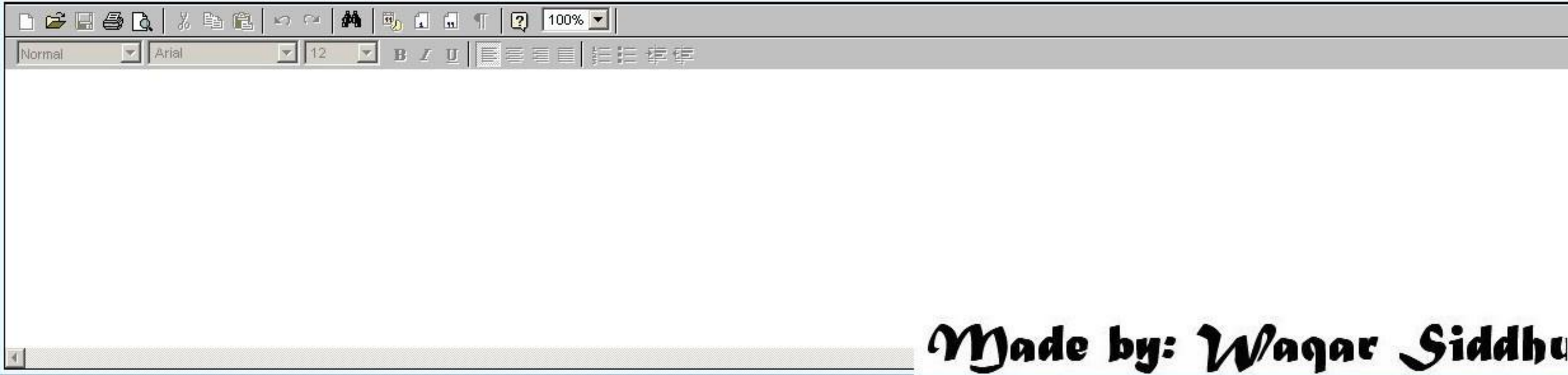
Made by: Waqar Siddhu

Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

The fifth term of an arithmetic sequence is 17 and ninth term is 37 find the first four terms of this sequence.

VuAnswers.com

Answer (Please click here to Add Answer)



Made by: Waqar Siddhu

Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

Find the M number of ways that ten chocolates can be divided among three children if the youngest child is to receive four chocolates and each of the others three chocolates.

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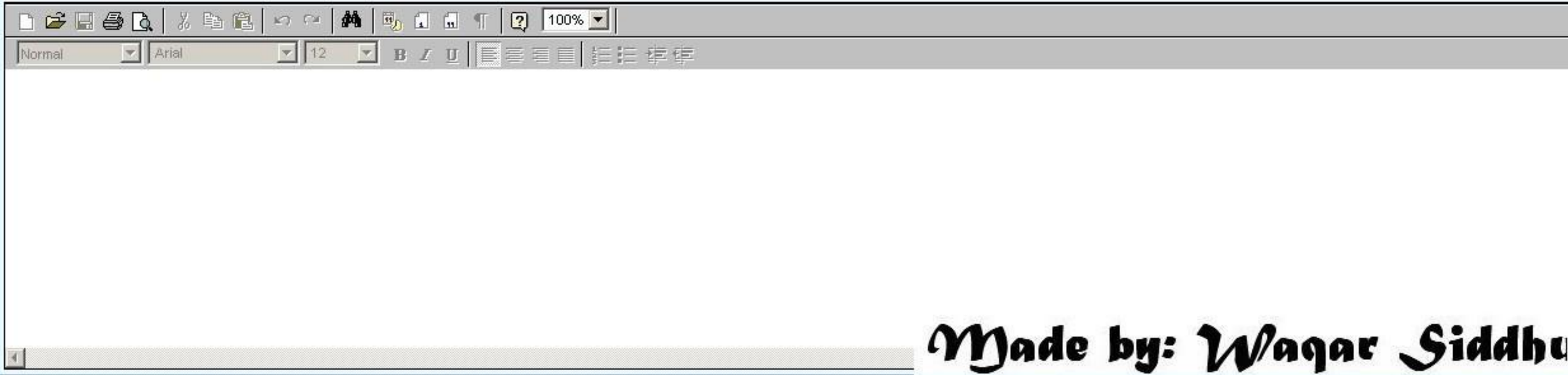
Answer (Please click here to Add Answer)



Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

Find all edges which are incident on v_1, all vertices that are adjacent to v1, all loops, all parallel edges and all isolated vertices.

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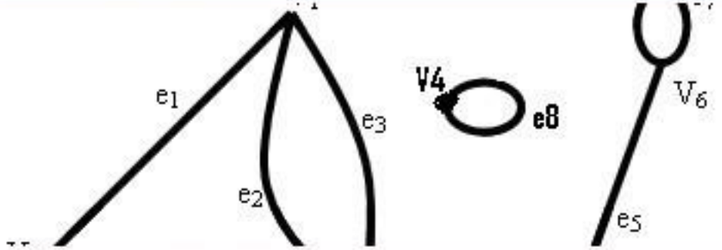
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)



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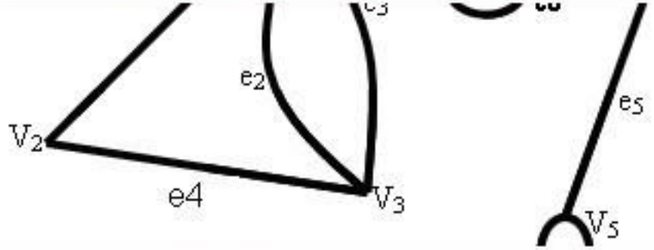
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)



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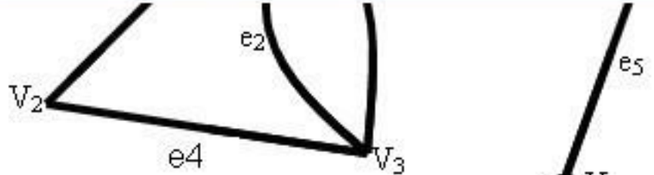
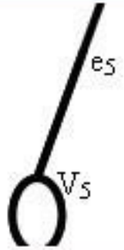
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)





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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

Suppose that a connected planar simple graph has 20 edges. If a plane drawing of this graph has 10 faces, how many vertices does this graph have?

Answer (Please click here to Add Answer)

VuAnswers.com

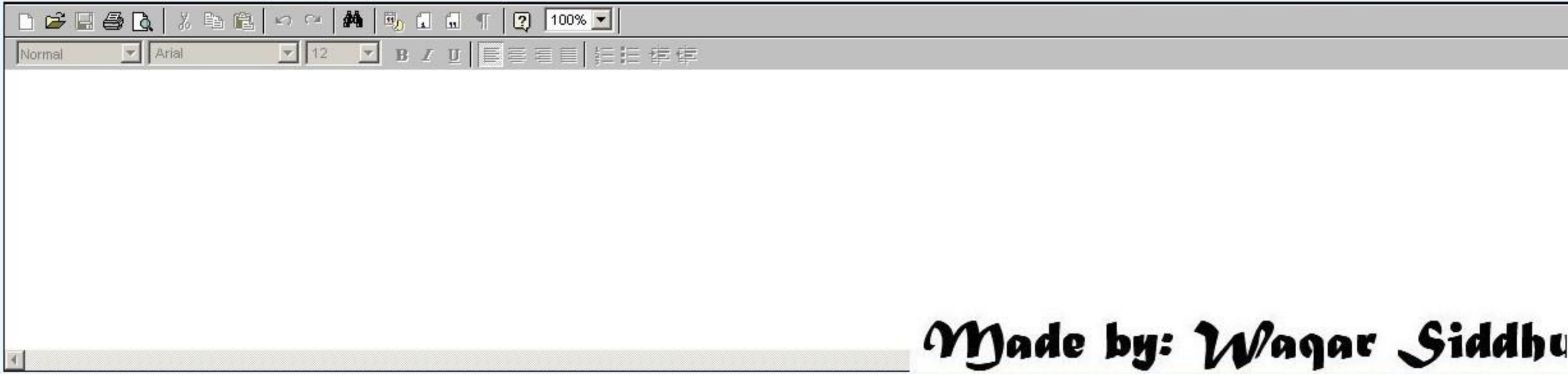
Made by: Waqar Siddhu

Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

Suppose $A = \{1, 2, 3, 4\}$ *and* $B = \{x, y, z\}$ are two sets and R is a relation from A to B as $R = \{(1, y), (1, z), (3, y), (4, x), (4, z)\}$ then determine the matrix representation of the R.

Answer (Please click here to Add Answer)

VuAnswers.com



Made by: Waqar Siddhu

Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

A cafeteria offers a choice of two soups, five sandwiches, three desserts and three drinks. How many different lunches, each consisting of a soup, a sandwiche, a dessert and a drink are possible?

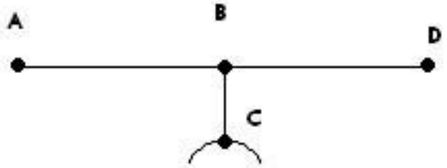
Answer (Please click here to Add Answer)

VuAnswers.com

Made by: Waqar Siddhu

Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

Find the degree of each vertex in the figure (given below).



Answer (Please click here to Add Answer)

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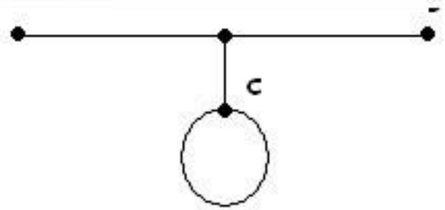
Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)



Answer (Please click here to Add Answer)

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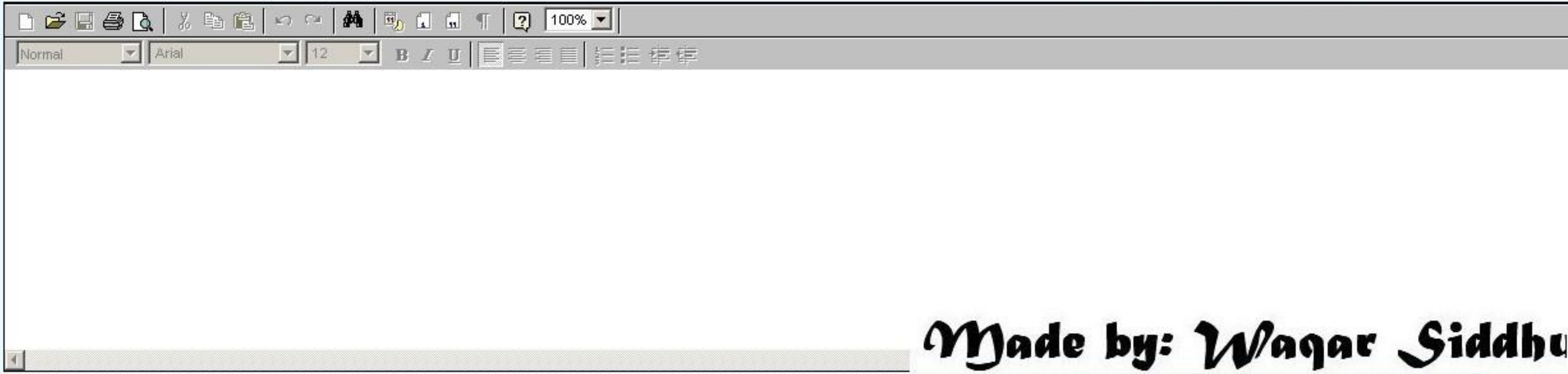
Made by: Waqar Siddhu

Suppose that R and S are two reflexive relations on a set A. Prove or disprove $R \cap S$ is reflexive.

Answer (Please click here to Add Answer)

VuAnswers.com



Made by: Waqar Siddhu

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

i) Evaluate $P(5, 2)$

ii) How many 4-permutations are there of a set of seven objects?

Answer (Please click here to Add Answer)

VuAnswers.com

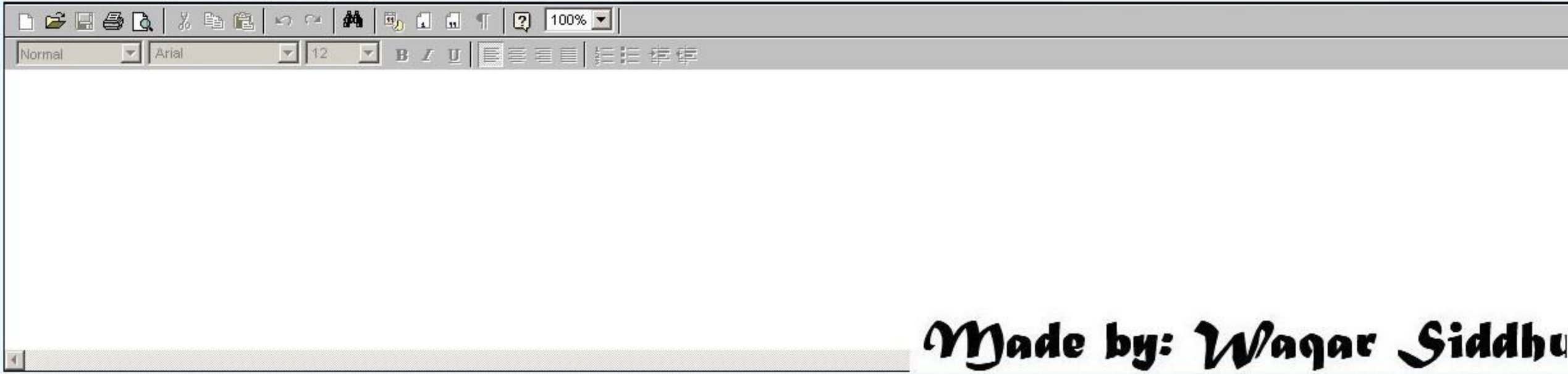
Made by: Waqar Siddhu

Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

Two cards are drawn at random from an ordinary deck of 52 cards. Find the probability that both are spade.

Answer (Please click here to Add Answer)

VuAnswers.com



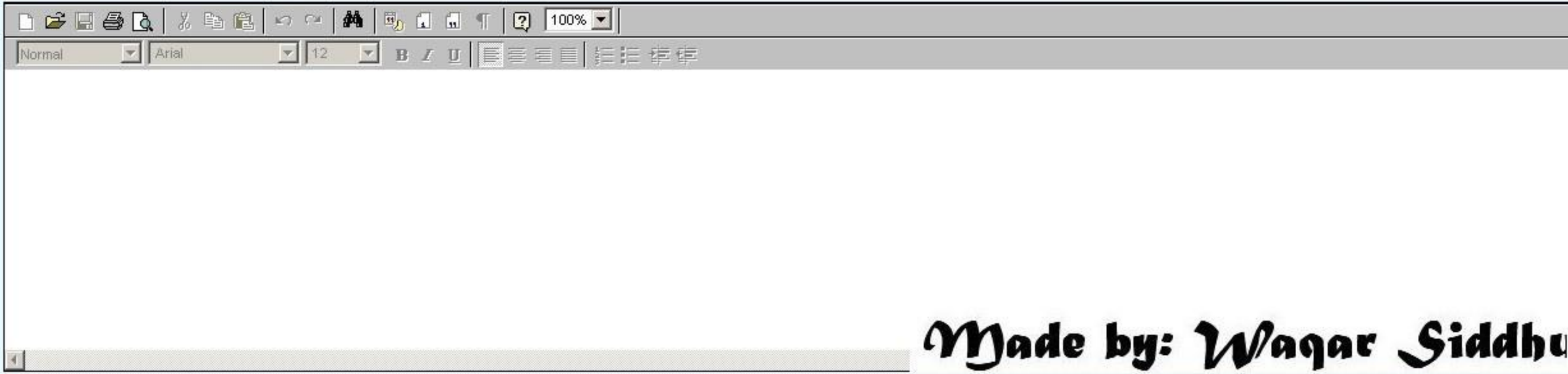
Made by: Waqar Siddhu

Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Determine whether the following graph has Hamiltonian circuit, justify your answer.

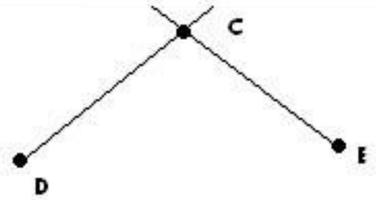
Answer (Please click here to Add Answer)

VuAnswers.com



Made by: Waqar Siddhu

Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)



Answer (Please click here to Add Answer)

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Made by: Waqar Siddhu

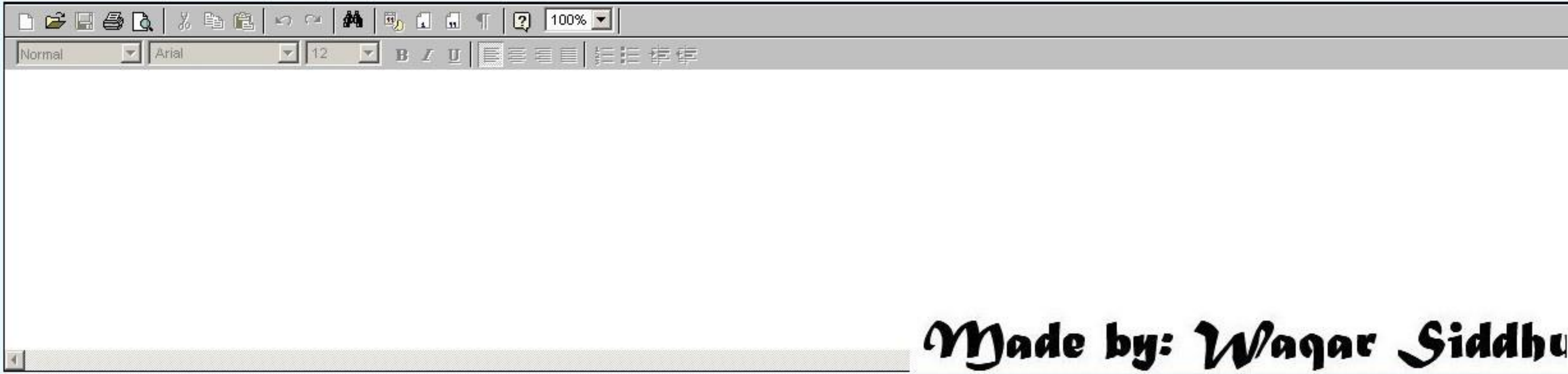
Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

Draw a binary tree to represent the following expression

a/(b-c.d)

Answer (Please click here to Add Answer)

VuAnswers.com



Made by: Waqar Siddhu

Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

Let $f : R \to R$ be defined by $f(x) = \frac{2x+1}{2x+2}$. Is f onto?

Answer (Please click here to Add Answer)

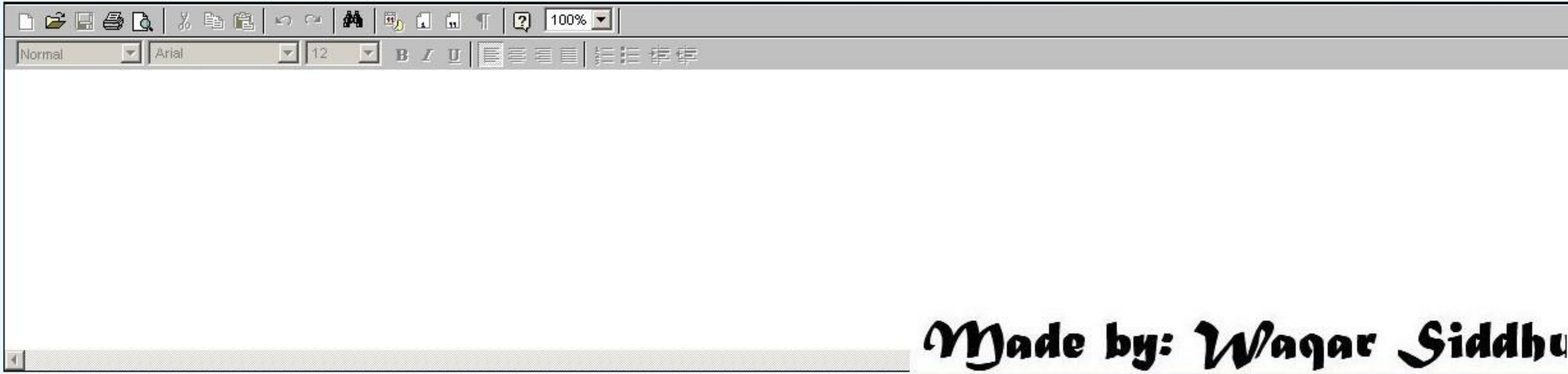
VuAnswers.com

Made by: Waqar Siddhu

Find the GCD of 1075,45 using Division Algorithm.

Answer (Please click here to Add Answer)

VuAnswers.com



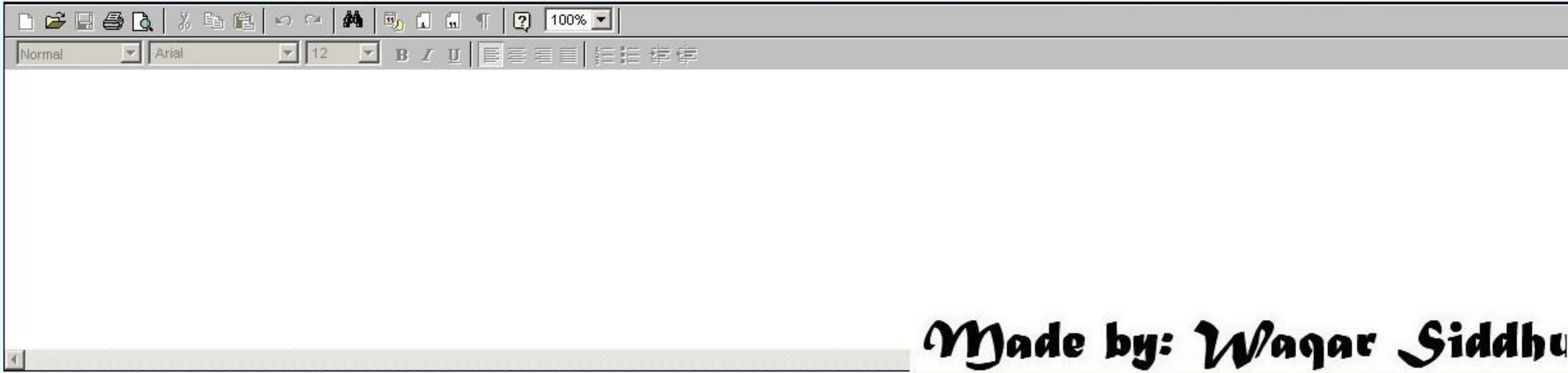
Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

Is it possible to have a simple graph with four vertices of degree 1, 1, 3, and 3. If no then give reason? (Justify your answer)

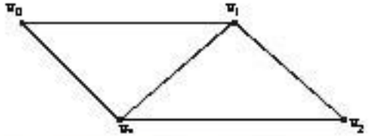
Answer (Please click here to Add Answer)

VuAnswers.com



Made by: Waqar Siddhu

Find a spanning tree of the graph given below.



VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

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

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

List all 2-combinations for the set {a,b,c}.

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Find $P(A \mid B)$ *where*

$P(A) = \frac{1}{2}, P(B) = \frac{1}{3}$ and $P(A \cap B) = \frac{1}{4}$.

VuAnswers.com

Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

Out of five people in an office, just 3 are to be selected to go to an exhibition. In how many ways can the three be chosen?

Answer (Please click here to Add Answer)

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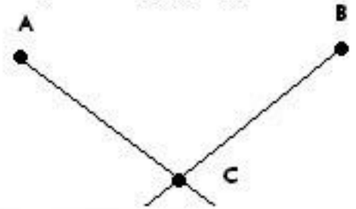
Made by: Waqar Siddhu

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

Check the regularity of the graph (given below) and Justify your answer.



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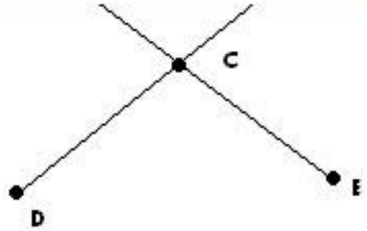
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)



Answer (Please click here to Add Answer)

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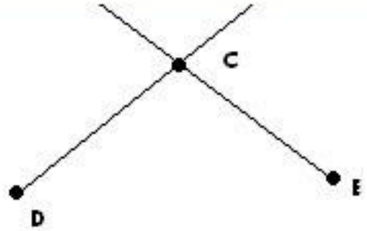
Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)



Answer (Please click here to Add Answer)

VuAnswers.com

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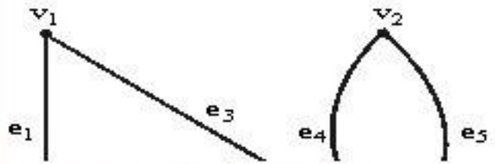
Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

Find the adjacency matrix of the graph shown below.



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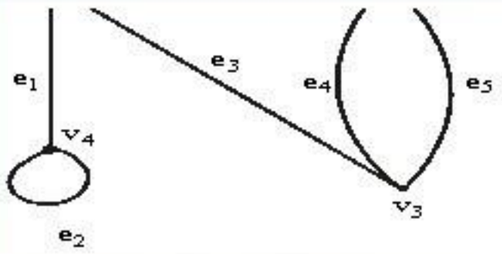
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)



Answer (Please click here to Add Answer)

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Made by: Waqar Siddhu

Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Suppose that R is a symmetric relation on a set A. Prove that complementry relation $\overline{R}$ is also symmetric.

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

Convert into logical form and then write converse, inverse and contra positive of the following statement.
"Only if Sana studies, she will pass the test".

Answer (Please click here to Add Answer)

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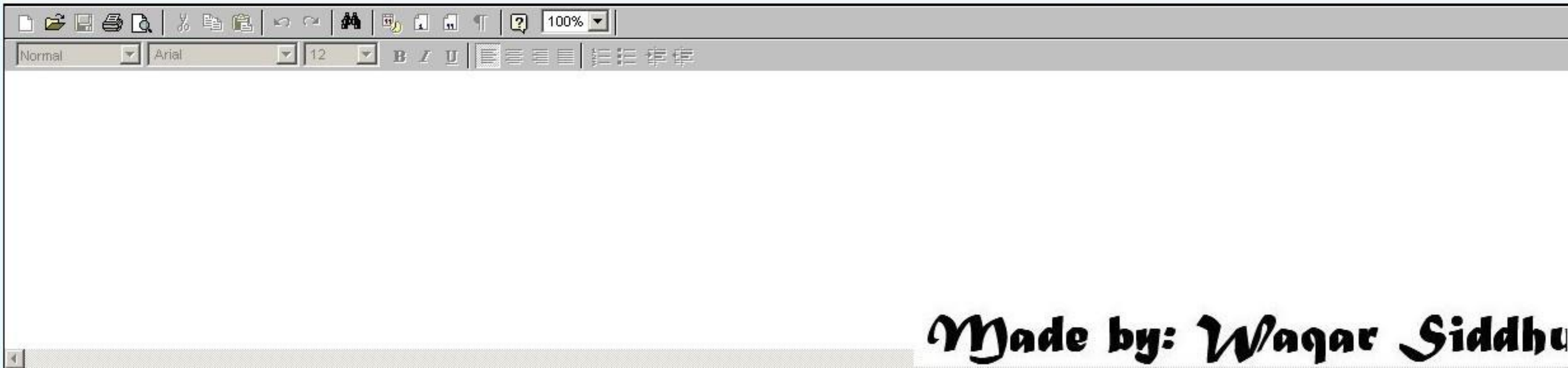

Made by: Waqar Siddhu

Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

Find the GCD of 255561, 25 using Division Algorithm.

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Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

A pair of fair dice is thrown. Find the probability P that the sum is 10 or greater if

(i) 5 appear on first die.

(ii) 5 appear on at least one die.

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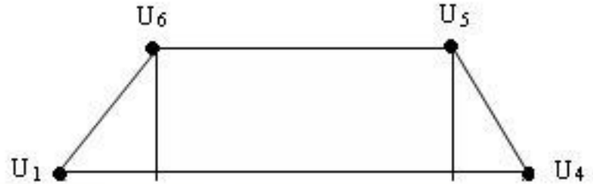
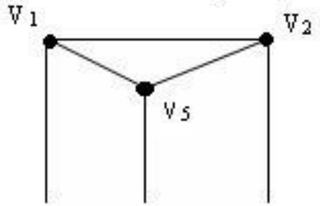
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

Determine whether the graphs given below are isomorphic. Justify your answer. Also discuss the regularity of both graphs.





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Answer (Please click here to Add Answer)

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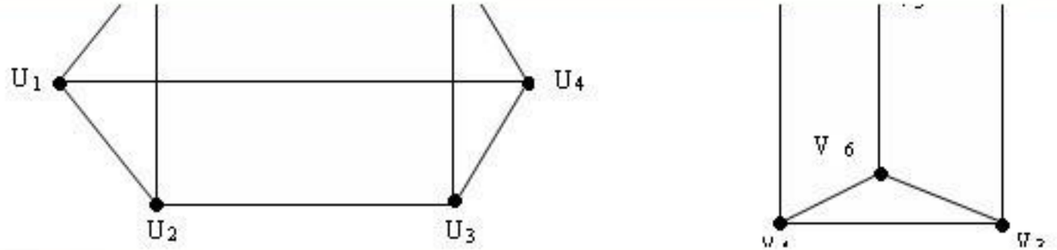
Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)



Answer (Please click here to Add Answer)

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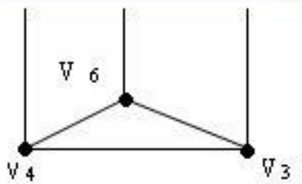
Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

G1



G2

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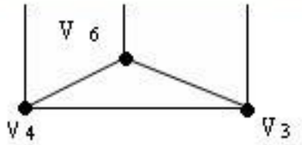
Answer (Please click here to Add Answer)

Made by: Waqar Siddhu

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

G1



G2

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Answer (Please click here to Add Answer)

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