

PAST PAPERS BY WAQAR SIDDHU

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| Question No : 41 of 52 | |
|---|--------|
| Find a non-isomorphic tree with five vertices. | |
| Answer (Please <u>click here</u> to Add Answer) | Vu/ |
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| - | Question No : 42 of 52 | |
|---|---|---------|
| | Construct input/output table for $\mathcal{P} \wedge \mathcal{Q}$ | |
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| Question No : 43 of 52 | |
|---|--|
| If there are 3 different optional indoor games in 6 different optional outdoor games for students in sports w | veek then find the number of choices for a |
| Answer (Please <u>click here</u> to Add Answer) | VuA |
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a student who wants to select one optional game.



Question No: 44 of 52

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

| Xi | 1 | 3 | 4 | 5 | |
|-------|-----|-----|-----|-----|--|
| f(xi) | 0.1 | 0.2 | 0.3 | 0.4 | |

Answer (Please click here to Add Answer)

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| i) ii) | Evaluate $P(5, 3)$ How many 5-permutations are there of a set of five objects? | | | | | | | |
| Answ | ver (Please <u>click here</u> to Add Answer) | VuA | | | | | | |
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| Question No : 46 of 52 | |
|--|---------|
| Assume that for the truth values $p = F$, $q = T$, $r = F$. Show that the proposition : $p \lor : (q \land r)$ is true. | |
| Answer (Please <u>click here</u> to Add Answer) | VuA |
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Question No: 47 of 52

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

| Xi | 1 | 3 | 4 | 5 | |
|-------|-----|-----|-----|-----|--|
| f(xi) | 0.3 | 0.1 | 0.2 | 0.5 | |

Answer (Please click here to Add Answer)

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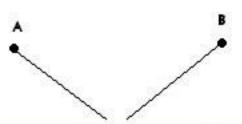
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| Question | No : 47 of : | 52 | | | | | |
|----------|---------------------|---------------------|--------------|---------------------------------------|---------|------|----|
| Xi | 1 | 3 | 4 | 5 | | | |
| f(xi) | 0.3 | 0.1 | 0.2 | 0.5 | | | |
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Question No: 48 of 52

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



Answer (Please click here to Add Answer)

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| Question No : 49 of 52 | |
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| Prove that $A - B = A \cap B^c$ by using Membership Table. | |
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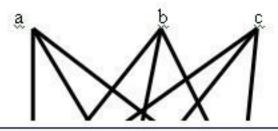
| Question No : 50 of 52 | |
|---|-----------------|
| Find the GCD of 11425,450 using Division Algorithm. | |
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| Question No : 51 of 52 | |
|---|-------------------|
| Using handshaking theorem show that the maximum number of edges in a complete graph with n vertices is $\frac{n(n+1)}{n}$ | $\frac{n-1}{2}$. |
| Answer (Please <u>click here</u> to Add Answer) | VuA |
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Question No : 52 of 52



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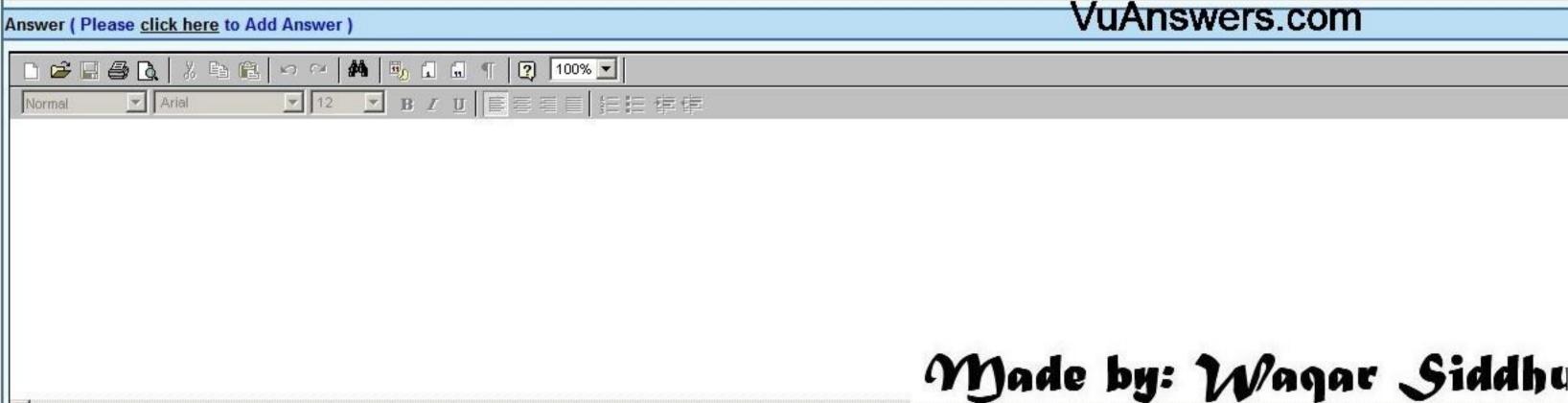
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Question No : 41 of 52

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 ROS.



Marks: 2 (Budgeted Time 4 Min)

| Question No : 42 of 52 | |
|--|---------------------------------------|
| A cafeteria offers a choice of two soups, five sandwiches, three desserts and three drinks. How many different | t lunches, each consisting of a soup, |
| Answer (Please <u>click here</u> to Add Answer) | Vu/ |
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a sandwiche, a dessert and a drink are possible?



Question No: 43 of 52

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

| Xi | 1 | 3 | 4 | 5 | |
|-------|-----|-----|-----|-----|--|
| f(xi) | 0.1 | 0.2 | 0.3 | 0.4 | |

Answer (Please click here to Add Answer)

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| Question No : 44 of 52 | |
|--|---------|
| Let $A = \begin{bmatrix} 1 & 3 & 7 \\ 5 & 2 & 9 \end{bmatrix}$ then find A^t . | |
| Answer (Please <u>click here</u> to Add Answer) | VuA |
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Question No: 45 of 52 Determine the chromatic number of the given graph by inspection. VuAnswers.com Answer (Please click here to Add Answer) 🖊 🖳 🖬 🖷 🖷 2 100% 💌 ✓ 12 ▼ B Z U ■ 書 目 目 記 記 律 律 ▼ Arial Normal



Marks: 3 (Budgeted Time 6 Min)



| Question No : 46 of 52 | |
|--|--------|
| let A and B are two sets then show that $B \subseteq A \cup B$. | |
| Answer (Please <u>click here</u> to Add Answer) | VuA |
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| Question No : 47 of 52 | |
|--|--------|
| 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 forme | d? |
| Answer (Please <u>click here</u> to Add Answer) | VuA |
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| Question No : 48 of 52 | |
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| Determine the probability of appearing an odd number when a fair die is thrown. | |
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Question No: 49 of 52

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

- $R = \{(a, b) \in A \times B \mid a \leq b\}$
 - (a) Find the ordered pairs in R.
 - (b) Find the domain and range of R.
 - (C) Is 1R2 and 3R3?

| Answer (Please <u>click here</u> to Add Answer) | VuAn |
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Marks: 5 (Budgeted Time 10 Min)

| Question No : 50 of 52 | |
|---|---------------------------------------|
| 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 b |
| Answer (Please <u>click here</u> to Add Answer) | Vu/ |
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| Question No : 51 of 52 | |
|---|--------|
| Find the probability distribution of the sum of the dots when two fair dice are thrown. | |
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Question No : 52 of 52

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

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

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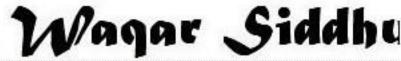


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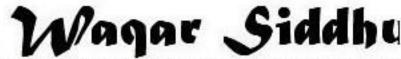
| Find the double negation of the proposition p = It is cold. | |
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| Question No : 42 of 52 | |
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| How many signals can be given by 5 flags of different colors using 3 flags at a time? | |
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Question No: 43 of 52

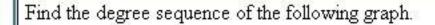
| Find the degree of each vertex in the figure (given below). | |
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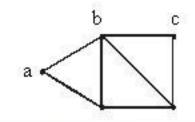
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Question No : 44 of 52





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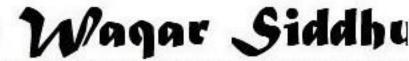


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| uestion No : 45 of 52 | | | | |
|--|----------|--|--|--|
| Draw a graph with six vertices, five edges that is not a tree. | | | | |
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Question No: 46 of 52

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

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

Find Q (14, 3).

Answer (Please click here to Add Answer)

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| Question No : 47 of 52 | |
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| 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 <u>click here</u> to Add Answer) | VuAns |
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Question No : 48 of 52

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

| Xi | 1 | 3 | 4 | 5 | |
|-------|-----|-----|-----|-----|--|
| f(xi) | 0.4 | 0.1 | 0.2 | 0.3 | |

Answer (Please click here to Add Answer)

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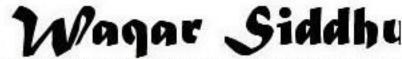
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| Question | No: | 49 | of 52 | |
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| Let A = {3,6,9,12} be a set, find A×A. Determine whether R = {(3,3), (6,6), (9,9), (12,12), (3,6), (6, | ,3)} is an equivalence relation on A or not? |
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Question No : 50 of 52

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)

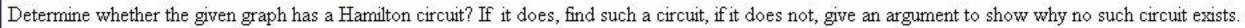
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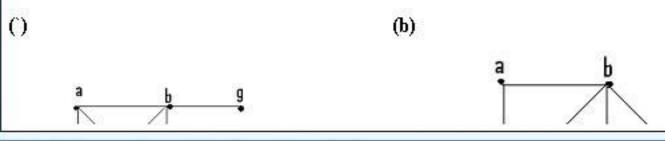
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Question No : 51 of 52





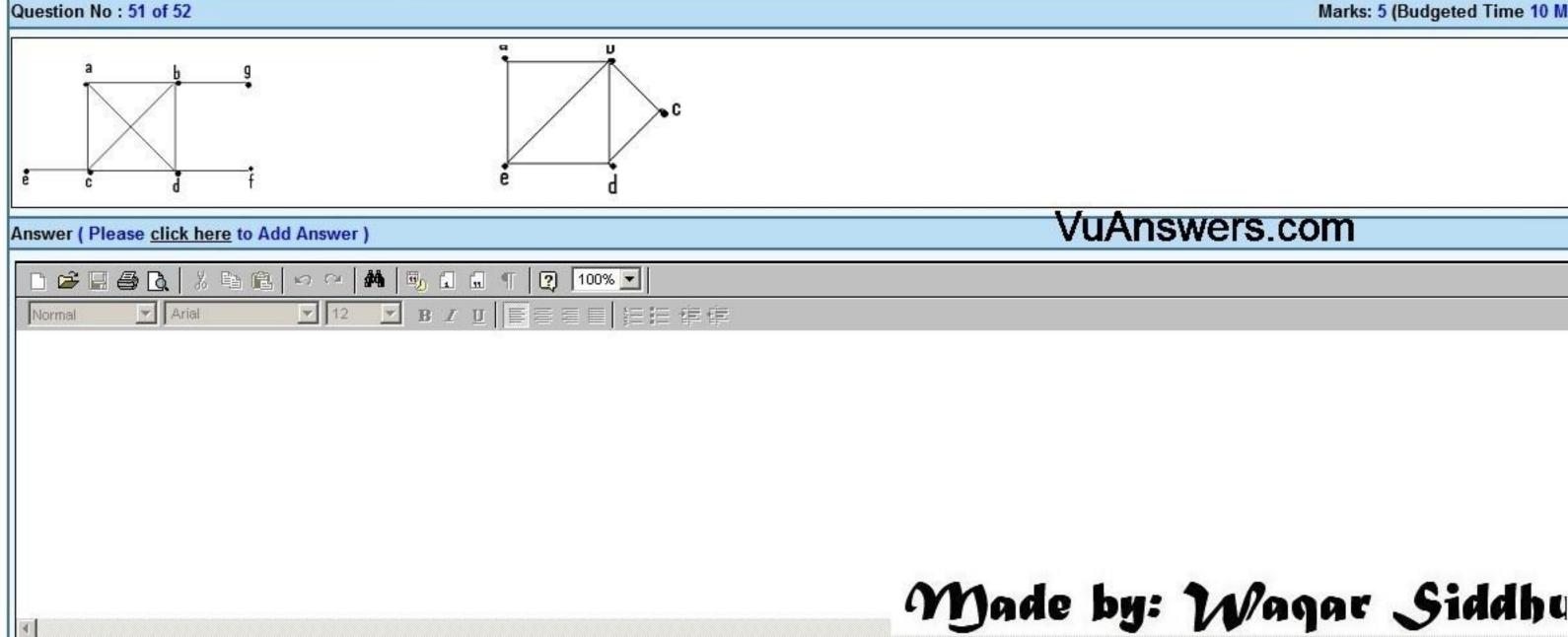
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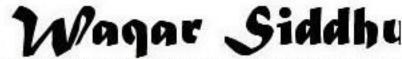


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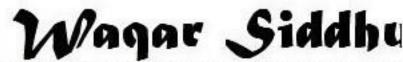




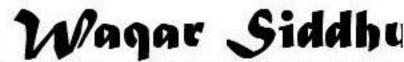
| Question No : 52 of 52 | |
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| Consider the following graphs | |
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| Question No : 52 of 52 | | | |
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| Are the above graphs | bipartite? Justify your answ | ver: | |
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| Question No : 41 of 52 | |
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| How many ordered selections of two elements can be made from the set of four elements? | |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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| Question No : 42 of 52 | |
|---|--------|
| Suppose that f is defined recursively by $f(0) = 1$, $f(n + 1) = 3f(n) + 1$ then find $f(2)$. | |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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Question No: 43 of 52

Find $P(A \mid B)$ where

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

Answer (Please click here to Add Answer)

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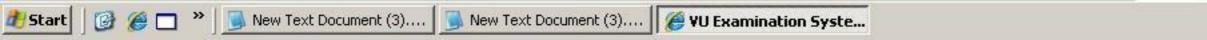




| Question No : 44 of 52 | |
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| Chect whether the following graph has an Euler circuit, justify your answer. | |
| Answer (Please <u>click here</u> to Add Answer) | Vu/ |
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| Question No : 45 of 52 | |
|---|--------|
| 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. $p \sim q$ 3. $p \leftrightarrow q$ | |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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| Question No : 46 of 52 | |
|--|--------|
| How many distinguishable ways can the letter of the word HULLABALOO be arranged. | |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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| Question | uestion No : 47 of 52 | | | | | |
|----------|-----------------------|----------------|----------------|-------------------------|--------|--|
| Find the | variance σ^2 | of the distrib | bution given i | the following table. | | |
| Xi | 1 | 3 | 4 | 5 | | |
| f(xi) | 0.4 | 0.1 | 0.2 | 0.3 | | |
| Answer (| Please clic | ck here to A | dd Answer) | | Vu/ | |
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| Question | uestion No : 47 of 52 | | | | | |
|----------|-----------------------|----------------|----------------|-------------------------|--------|--|
| Find the | variance σ^2 | of the distrib | bution given i | the following table. | | |
| Xi | 1 | 3 | 4 | 5 | | |
| f(xi) | 0.4 | 0.1 | 0.2 | 0.3 | | |
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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. VuAnswers.com Answer (Please click here to Add Answer) 次 ■ 億 ∽ ~ ▲ ● 1 ■ 「 ? 100% ▼ ▼ 12 ▼ B I U ■ 毎 毎 目 担 担 律 律 - Arial Normal Made by: Waqar Siddhu



| Question No : 48 of 52 | |
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| Question No : 49 of 52 | |
|---|----------------------------|
| Use Kruskal's Algorithm to draw the minimal spanning tree for the graph below. Indicate the order in whether the order in whether the order in whether the order in the order | nich edges are added to fo |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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orm a tree.





| Question No : 50 of 52 | |
|---|--------|
| The fifth term of an arithmetic sequence is 17 and ninth term is 37 find the first four terms of this sequence. | |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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| Question No : 51 of 52 | |
|---|--------------------------|
| Find the M number of ways that ten chocolates can be divided among three children if the youngest child is to receive fou | r chocolates and each of |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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the others three chocolates.







| 2 | Question No : 52 of 52 | |
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| Question No : 52 of 52 | |
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| n No : 52 of 52 | |
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| $\left(\begin{array}{c} e_2 \\ e_4 \end{array} \right)_{V_3} $ | |
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| Q | Question No : 52 of 52 | |
|---|---|--------|
| | $V_2 \xrightarrow{e_4} V_3 \xrightarrow{v_5} V_5$ | |
| A | Answer (Please <u>click here</u> to Add Answer) | Vu/ |
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Question No : 41 of 52

| Suppose that a connected planar simple graph has 20 edges. If a plane drawing of this graph has 10 faces, how ma | ny vertices does this graph have? |
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| Answer (Please <u>click here</u> to Add Answer) | VuA |
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Marks: 2 (Budgeted Time 4 Min)

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Question No : 42 of 52

| 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 ma |
|--|--|--|
| Answer (Please <u>click here</u> to a | Add Answer) | VuA |
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matrix representation of the R.



Question No : 43 of 52

| | m ,1 1 1 1 |
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| A cafeteria offers a choice of two soups, five sandwiches, three desserts and three drinks. How many di | merent lunches, each consisting of a soup, a |
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| Answer (Please <u>click here</u> to Add Answer) | VUA |
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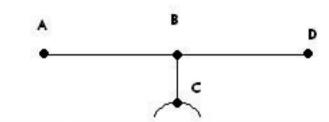
Marks: 2 (Budgeted Time 4 Min)

a sandwiche, a dessert and a drink are possible?



Question No : 44 of 52

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 | |
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| Question No : 45 of 52 | |
|--|--------|
| Suppose that R and S are two reflexive relations on a set A. Prove or disprove $R \cap S$ is reflexi | we. |
| Answer (Please <u>click here</u> to Add Answer) | Vu/ |
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Marks: 3 (Budgeted Time 6 Min)





| Questio | Question No : 46 of 52 | | |
|-----------|---|--------|--|
| i) ii) | Evaluate <i>P</i> (5, 2) How many 4-permutations are there of a set of seven objects? | | |
| Answei | r (Please <u>click here</u> to Add Answer) | VuA | |
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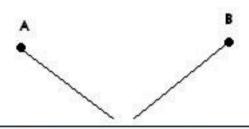
| Question No : 47 of 52 | |
|--|--------|
| Two cards are drawn at random from an ordinary deck of 52 cards. Find the probability that both are spade. | |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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Question No : 48 of 52

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



Answer (Please click here to Add Answer)

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| | the state of the s | | | |

Draw a binary tree to represent the following expression a/(b-c.d)

| Answer | (Please | click here | to Add | Answer) |
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Marks: 5 (Budgeted Time 10 Min)

Question No : 50 of 52

Let
$$f: R \to R$$
 be defined by $f(x) = \frac{2x+1}{2x+2}$. Is fonto?
Answer (Please click here to Add Answer)
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Marks: 5 (Budgeted Time 10 Min)

| uestion No : 51 of 52 | |
|---|--------|
| Find the GCD of 1075,45 using Division Algorithm. | |
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| Question | No: | 52 o | f 52 |
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| 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) | |
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Question No : 41 of 52

| Question No : 41 of 52 | |
|---|--------|
| Find a spanning tree of the graph given below. | |
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Marks: 2 (Budgeted Time 4 Min)



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| Question No : 42 of 52 | |
|--|--------|
| Let f is defined recursively by $f(0) = 3$, $f(n+1) = 2f(n) + 2$ then find $f(2)$. | |
| Answer (Please <u>click here</u> to Add Answer) | Vu |
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| Question No : 43 of 52 | |
|---|--------|
| List all 2-combinations for the set {a,b,c}. | |
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Question No: 44 of 52

Find $P(A \mid B)$ where

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

Answer (Please click here to Add Answer)

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| Question No : 45 of 52 | |
|---|--------|
| 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 cl | nosen? |
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Question No : 46 of 52

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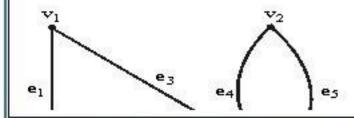


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Question No: 47 of 52

Find the adjacency matrix of the graph shown below.



Answer (Please click here to Add Answer)

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| Question No : 47 of 52 | |
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| Question No : 48 of 52 | |
|---|--------|
| Suppose that R is a symmetric relation on a set A. Prove that complementry relation \overline{R} is also symmetric. | |
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Question No: 49 of 52

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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| Question No : 50 of 52 | |
|---|--------|
| Find the GCD of 255561,25 using Division Algorithm. | |
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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.

Answer (Please click here to Add Answer)

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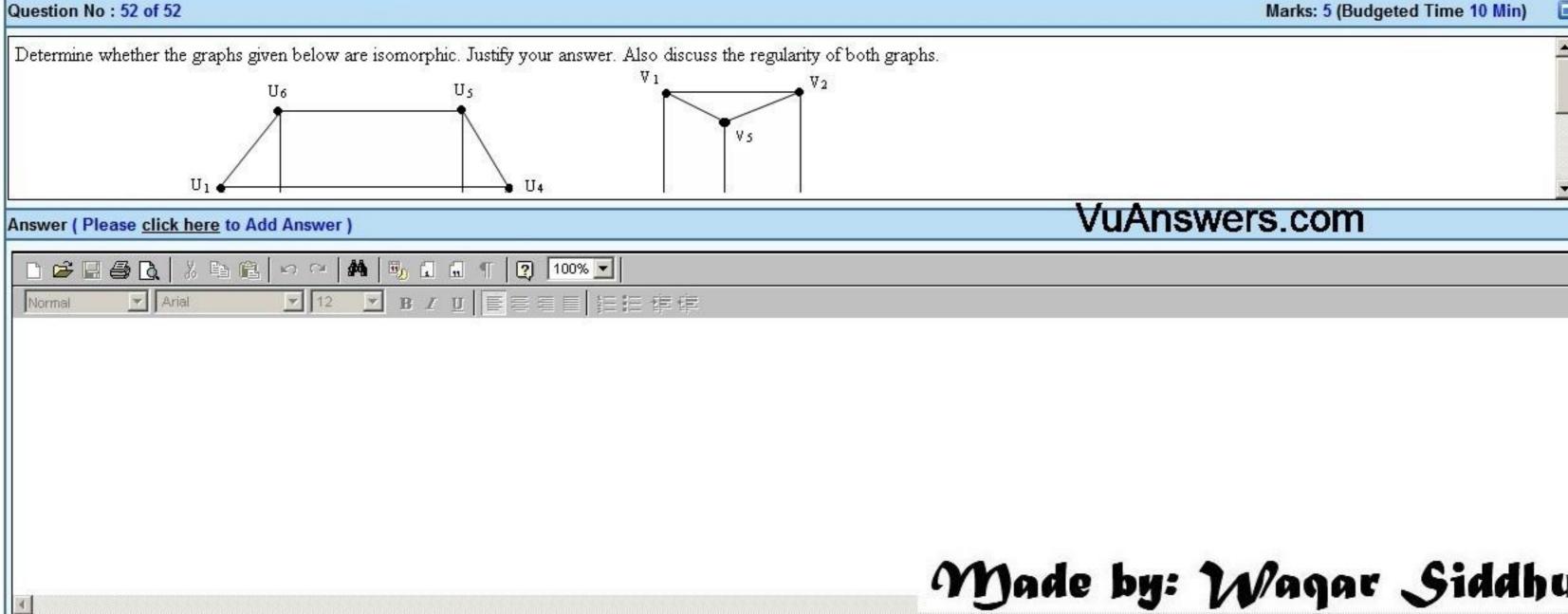
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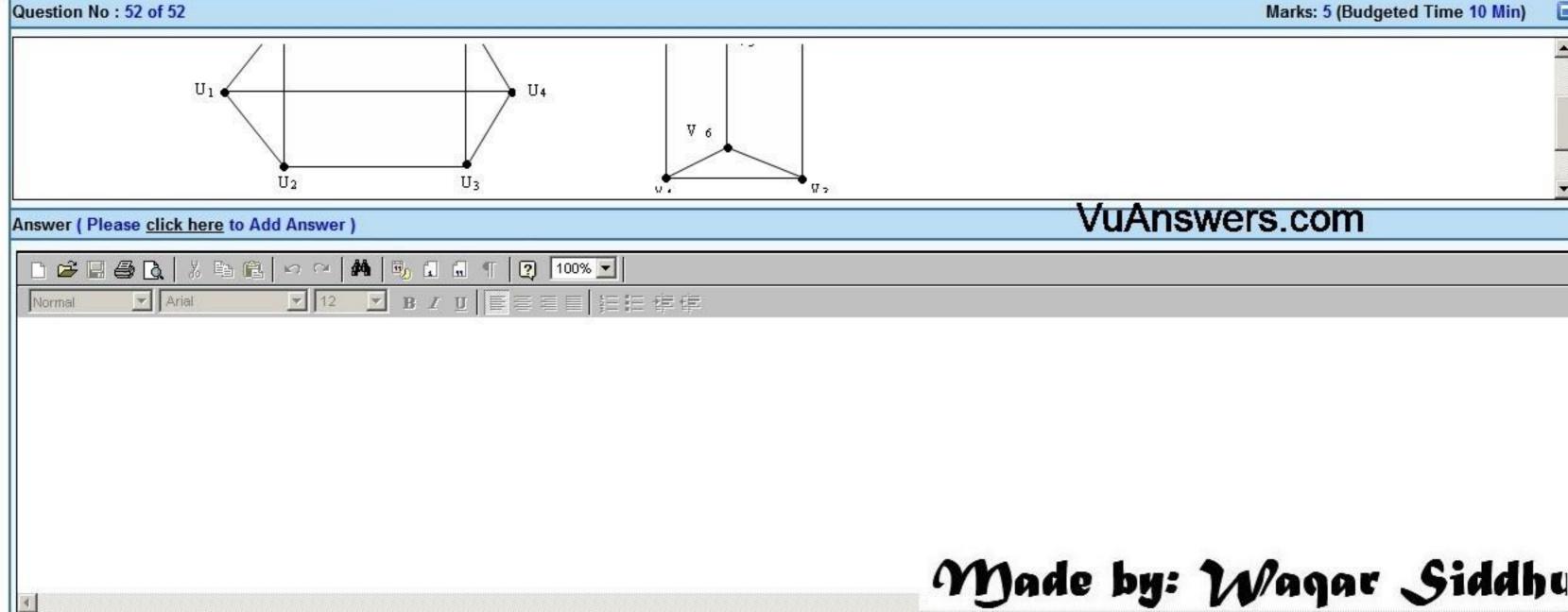
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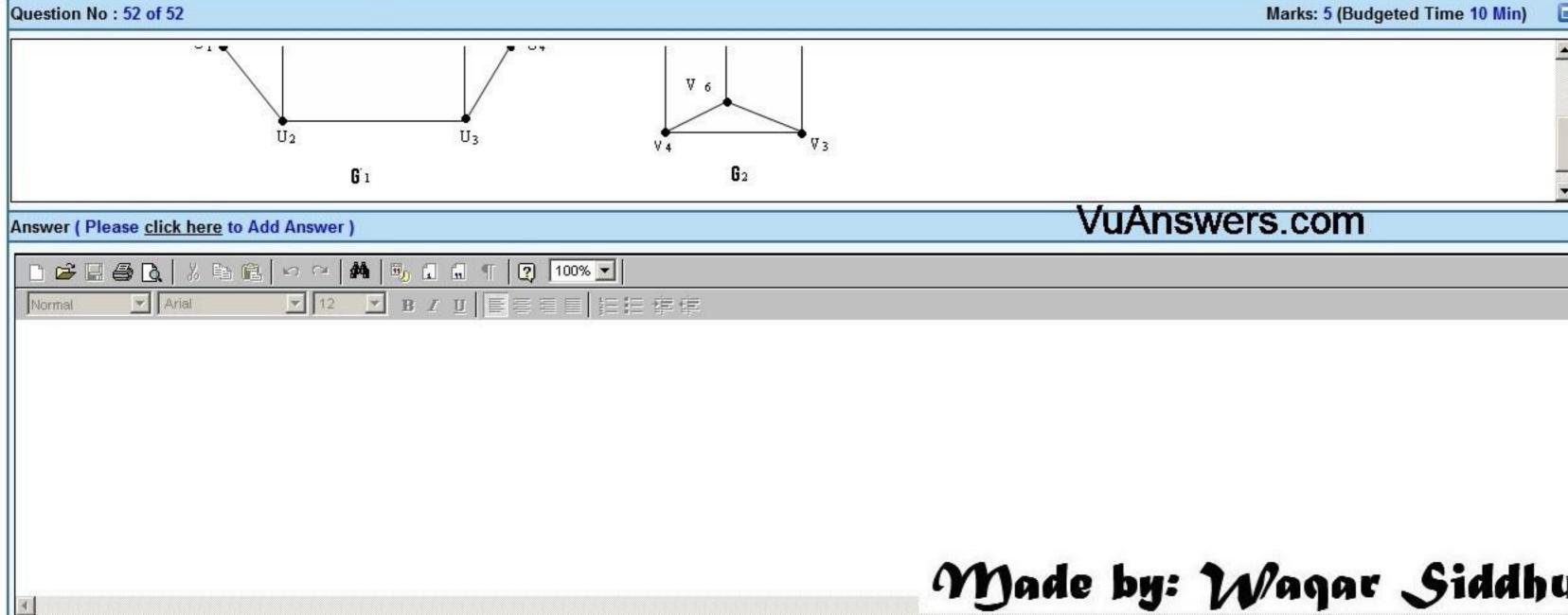
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| Question No : 52 of 52 | |
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