



Virtual University

About Us

MTH202
Solved Final Terms Papers 1

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Year
2017

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allāh, the Most Gracious, the Most Merciful

Paper Pattern

MCQS 40 each 1 mark
Short 4 each 2 marks
Short 4 each 3 marks
long 4 each 5 marks

Question No : 1 of 52

Marks: 1 (Budgeted Time 1 Min)

A sub graph of a graph G that contains every vertex of G and is a tree is called

Answer (Please select your correct option)

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Trivial tree

☐

empty tree

☐

Spanning tree

☐

correct

Made by: Waqar Siddhu

Question No : 2 of 52

Marks: 1 (Budgeted Time 1 Min)

A vertex of degree greater than 1 in a tree is called a

Answer (Please select your correct option)

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Branch vertex

☐

correct

Terminal vertex

☐

Ancestor

☐

Made by: Waqar Siddhu

Question No : 3 of 52

Marks: 1 (Budgeted Time 1 Min)

A circuit that consist of a single vertex is called

Answer (Please select your correct option)

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☐ Trivial

correct

☐ Tree

☐ Empty

Made by: Waqar Siddhu

Question No : 4 of 52

Marks: 1 (Budgeted Time 1 Min)

If a graph is a tree then

Answer (Please select your correct option)

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☐ it has 2 spanning trees

☐ it has only 1 spanning tree

correct

☐ it has 4 spanning trees

☐ it has 5 spanning trees

Made by: Waqar Siddhu

Question No : 5 of 52

Marks: 1 (Budgeted Time 1 Min)

The logical expression $p \vee q$ will be read as

Answer (Please select your correct option)

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☐ $p \vee q$

correct

☐ $p \wedge q$

☐ $p \times q$

☐ $p - q$

Made by: Waqar Siddhu

Question No : 6 of 52

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

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True

☐

correct

False

☐

Made by: Waqar Siddhu

Question No : 7 of 52

Marks: 1 (Budgeted Time 1 Min)

If A , B and C are the subsets of a universal set U then $(A \cup B) \cup C$ is equal to

Answer (Please select your correct option)

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 $A \cup (B \cap C)$ ☐ $A \cap (B \cup C)$ ☐ \emptyset ☐ $A \cup (B \cup C)$ ☐

correct

Made by: Waqar Siddhu

Question No : 8 of 52

Marks: 1 (Budgeted Time 1 Min)

The power set of a set A is the set of all subsets of A and its denoted by $P(A)$.

Answer (Please select your correct option)

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False

☐

True

☐

correct

Made by: Waqar Siddhu

Question No : 9 of 52

Marks: 1 (Budgeted Time 1 Min)

Identify the Associative law of union for three sets

Answer (Please select your correct option)

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☐

$$A \cup (B \cup C) = (A \cup B) \cup C$$

correct

☐

$$A \cap (B \cap C) = (A \cap B) \cap C$$

☐

$$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$$

☐

None of these

Made by: Waqar Siddhu

Question No : 10 of 52

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)

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☐

$$6x + 6$$

☐

$$5x + 5$$

☐

$$6x + 7$$

correct

Made by: Waqar Siddhu

Question No : 11 of 52

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)

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☐

$$x^2 - 1$$

☐

$$2x^2 - 1$$

correct

☐

$$2x^3 - 1$$

Made by: Waqar Siddhu

Question No : 13 of 52

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)

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☐ 9

correct

☐ 10

☐ 18

☐ 21

Made by: Waqar Siddhu

Question No : 14 of 52

Marks: 1 (Budgeted Time 1 Min)

If $1+2+3+\dots+n = \frac{n(n+1)}{2}$ for all integers $n \geq 1$ then $P(k)$ is

Answer (Please select your correct option)

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☐ $1+2+3+\dots+k = \frac{k(k+1)}{2}$
☐ $1+2+3+\dots+n = \frac{n(n+1)}{2}$
☐ $1+2+3+\dots+(k+1) = \frac{(k+1)(k+2)}{2}$

correct

☐ $1+2+3+\dots+(k-1) = \frac{k(k-1)}{2}$

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Question No : 15 of 52

Marks: 1 (Budgeted Time 1 Min)

In Mathematical Induction, inductive step is

Answer (Please select your correct option)

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☐ $\forall k, P(k) \rightarrow P(n)$
☐ $\forall k, P(k) \rightarrow P(k+1)$

correct

☐ $\forall k, P(k) \rightarrow P(n+1)$
☐ $\forall k, P(k) \rightarrow P(k-1)$

Made by: Waqar Siddhu

Question No : 16 of 52

Marks: 1 (Budgeted Time 1 Min)

 $P(n)$ is called statement or

Answer (Please select your correct option)

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- ☐ sentence
- ☐ proposition
- ☐ inequality
- ☐ none of these

correct

Made by: Waqar Siddhu

Question No : 17 of 52

Marks: 1 (Budgeted Time 1 Min)

For all positive integer values of n , $5^n - 1$ is divisible by

Answer (Please select your correct option)

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- ☐ 3
- ☐ 4
- ☐ 6
- ☐ 0

correct

Made by: Waqar Siddhu

Question No : 18 of 52

Marks: 1 (Budgeted Time 1 Min)

An integer n is prime if and only if $n > 1$ and for all positive integers r and s , if $n = r \cdot s$ then

Answer (Please select your correct option)

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- ☐ $r = 1$ and $s = 2$
- ☐ $r = 1$ and $s = 0$
- ☐ $r = 2$ and $s = 3$
- ☐ None of these

correct

Made by: Waqar Siddhu

Question No : 19 of 52

Marks: 1 (Budgeted Time 1 Min)

Quotient Remainder Theorem states that for any positive integer d , there exist unique integer q and r such that ----- and $0 \leq r < d$.

Answer (Please select your correct option)

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☐ $n = d.r + q$ ☐ $n = d.q + r$

correct

☐ $n = r.q + d$ ☐

None of these

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Question No : 20 of 52

Marks: 1 (Budgeted Time 1 Min)

The word ----- refers to a step-by-step method for performing some action.

Answer (Please select your correct option)

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☐

Series

☐

Relation

☐

Algorithm

correct

☐

Function

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Question No : 21 of 52

Marks: 1 (Budgeted Time 1 Min)

The greatest common divisor of 27 and 72 is

Answer (Please select your correct option)

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☐

27

☐

9

correct

☐

1

☐

None of these

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Question No : 22 of 52

Marks: 1 (Budgeted Time 1 Min)

In how many ways can a set of five letters be selected from the English Alphabets?

Answer (Please select your correct option)

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☐ $C(26, 5)$

correct

☐ $C(5, 26)$ ☐ $C(12, 3)$ ☐

None of these

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Question No : 23 of 52

Marks: 1 (Budgeted Time 1 Min)

If one event can occur in n_1 ways and if for each of these n_1 ways, a second event can occur in n_2 ways, then the total number of ways in which both events occur is

Answer (Please select your correct option)

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☐ $n_1 + n_2$ ☐ $n_1 \cdot n_2$

correct

☐ $P(n_1) \cdot P(n_2)$ ☐ $P(n_1) + P(n_2)$

Made by: Waqar Siddhu

Question No : 24 of 52

Marks: 1 (Budgeted Time 1 Min)

An arrangement of objects without the consideration of order is called

Answer (Please select your correct option)

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☐

Permutation

☐

Combination

correct

☐

Selection

☐

None of these

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Question No : 25 of 52

Marks: 1 (Budgeted Time 1 Min)

If the order does not matter and repetition is allowed then total number of ways for selecting k sample from n number of elements is

Answer (Please select your correct option)

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☐ n^k ☐ $C(n+k-1, k)$

correct

☐ $P(n, k)$ ☐ $C(n, k)$

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Question No : 26 of 52

Marks: 1 (Budgeted Time 1 Min)

If the order matters and repetition is not allowed then total number of ways for selecting k sample from n number of elements is

Answer (Please select your correct option)

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☐ n^k ☐ $C(n+k-1, k)$ ☐ $P(n, k)$

correct

☐ $C(n, k)$

Made by: Waqar Siddhu

Question No : 27 of 52

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)

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☐

True

☐

natural

correct

☐

even

☐

odd

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Question No : 28 of 52

Marks: 1 (Budgeted Time 1 Min)

Among 200 people, 150 either play tennis or snooker or both. If 85 play tennis and 60 play tennis and snooker, how many play snooker?

Answer (Please select your correct option)

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☐ 125☐ 225☐ 85☐ 25

correct

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Question No : 29 of 52

Marks: 1 (Budgeted Time 1 Min)

A procedure that yields a given set of possible outcomes is called

Answer (Please select your correct option)

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☐ Event☐ Outcome☐ Experiment

correct

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Question No : 30 of 52

Marks: 1 (Budgeted Time 1 Min)

What is the probability of getting a number greater than 4 when a die is thrown?

Answer (Please select your correct option)

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☐ $\frac{1}{2}$ ☐ $\frac{3}{2}$ ☐ $\frac{1}{3}$ ☐ 1

correct

Made by: Waqar Siddhu

Question No : 31 of 52

Marks: 1 (Budgeted Time 1 Min)

If two fair dice are thrown, what is the probability of getting a double six?

Answer (Please select your correct option)

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☐ $\frac{1}{6}$ ☐ $\frac{1}{36}$

correct

☐ 1☐ $\frac{1}{2}$

Made by: Waqar Siddhu

Question No : 32 of 52

Marks: 1 (Budgeted Time 1 Min)

If A and B are two disjoint (mutually exclusive) events then $P(A \cup B) =$

Answer (Please select your correct option)

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☐ $P(A) + P(B) + P(A \cap B)$ ☐ $P(A) + P(B) + P(A \cup B)$ ☐ $P(A) + P(B) - P(A \cap B)$ ☐ $P(A) + P(B)$

correct

Made by: Waqar Siddhu

Question No : 33 of 52

Marks: 1 (Budgeted Time 1 Min)

If a fair die is thrown then what is the probability that a prime number appear?

Answer (Please select your correct option)

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☐ $\frac{1}{2}$

correct

☐ $\frac{1}{6}$ ☐ $\frac{1}{3}$ ☐ $\frac{2}{3}$

Made by: Waqar Siddhu

Question No : 34 of 52

Marks: 1 (Budgeted Time 1 Min)

If $P(A \cap B) \neq P(A)P(B)$ then the events A and B are called

Answer (Please select your correct option)

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Dependent

☐

correct

Independent

☐

Exclusive

☐

Made by: Waqar Siddhu

Question No : 35 of 52

Marks: 1 (Budgeted Time 1 Min)

If A, B and C are any three events, then $P(A \cup B \cup C)$ is equal to

Answer (Please select your correct option)

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 $P(A) + P(B) + P(C)$ ☐ $P(A) + P(B) + P(C) - P(A \cap B) - P(A \cap C) - P(B \cap C) + P(A \cap B \cap C)$ ☐

correct

 $P(A) + P(B) + P(C) - P(A \cap B) - P(A \cap C) - P(B \cap C)$ ☐ $P(A) + P(B) + P(C) + P(A \cap B \cap C)$ ☐

Made by: Waqar Siddhu

Question No : 36 of 52

Marks: 1 (Budgeted Time 1 Min)

How many vertices will the graph have if it contain 16 edges and all vertices of degree 2?

Answer (Please select your correct option)

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14

☐

16

☐

correct

18

☐

32

☐

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Question No : 37 of 52

Marks: 1 (Budgeted Time 1 Min)

If a graph has any vertex of degree 3 then

Answer (Please select your correct option)

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☐ It must have Euler circuit

☐

☐ It must have Hamiltonian circuit

☐

☐ It does not have Euler circuit

☐

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Question No : 38 of 52

Marks: 1 (Budgeted Time 1 Min)

The Hamiltonian circuit for the following graph is



Answer (Please select your correct option)

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☐ abcdefgh

☐

☐ abefgha

☐

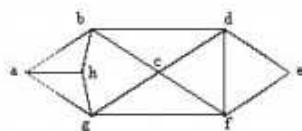
☐ abcdefgha

☐

Made by: Waqar Siddhu

Question No : 38 of 52

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

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☐ abcdefgh

☐

☐ abefgha

☐

☐ abcdefgha

☐

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Question No : 39 of 52

Marks: 1 (Budgeted Time 1 Min)

Changing rows of a matrix into its columns is called

Answer (Please select your correct option)

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☐ symmetric matrix

☐ transpose of matrix

☐ adjoint of matrix

☐ Hermitian Matrix

Made by: Waqar Siddhu

Question No : 40 of 52

Marks: 1 (Budgeted Time 1 Min)

Two matrices are said to be conformable for multiplication if number of(a)..... of 1st matrix is equal to number of(b)..... in 2nd matrix

Answer (Please select your correct option)

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☐ (a) rows, (b) columns

☐ (a) columns, (b) rows

☐ (a) columns, (b) columns

☐ (a) rows, (b) rows

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Question No : 41 of 52

Marks: 2 (Budgeted Time 4 Min)

Find a non-isomorphic tree with five vertices.

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

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Normal Arial 12 B I U

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Question No : 42 of 52

Marks: 2 (Budgeted Time 4 Min)

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

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

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**Made by: Waqar Siddhu**

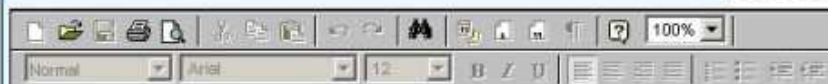
Question No : 43 of 52

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.

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

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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

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

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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?

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

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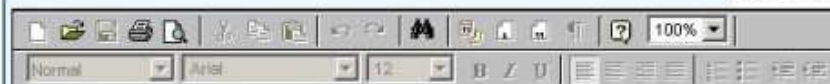
Question No : 46 of 52

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.

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

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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

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

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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

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:

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

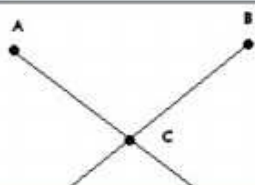
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Question No : 48 of 52

Marks: 3 (Budgeted Time 6 Min)

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

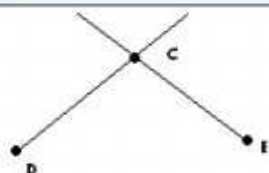
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Question No : 48 of 52

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)

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

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

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Question No : 50 of 52

Marks: 5 (Budgeted Time 10 Min)

Find the GCD of 11425,450 using Division Algorithm.

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 Min)

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

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

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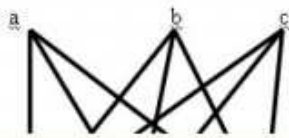


Made by: Waqar Siddhu

Question No : 52 of 52

Marks: 5 (Budgeted Time 10 Min)

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



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

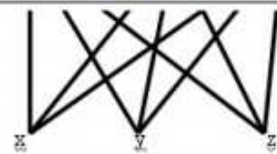
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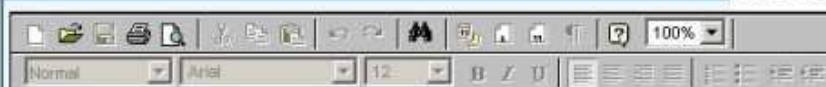
Question No : 52 of 52

Marks: 5 (Budgeted Time 10 Min)



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

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