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Question # 10 of 10

SOLVED BY: WAQAR HUSSAIN

Every normed space is a

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Select the correct option

- Banach space
- Metric space
- Null space
- Vector space with a metric defined by norm

(Module 48, Pg.61)

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Question # 9 of 10

SOLVED BY: WAQAR HUSSAIN

Space l^p is

PRESENTED BY: TALEEMI MARKAZ

Select the correct option

- Complete vector space
- Null space
- Banach space
- Incomplete normed space

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Question # 8 of 10

SOLVED BY: WAQAR HUSSAIN

Space $C[a, b]$ is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- complete vector space
- Real space
- Incomplete normal space
- Banach space

(Module 40, Pg.51 Conceptual)

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Question # 7 of 10

SOLVED BY: WAQAR HUSSAIN

l^2 is

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Select the correct option

- finite dimensional
- infinite dimensional

(Module 39, Pg.49)

- not a vector space
- zero vector space

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Question # 6 of 10

SOLVED BY: WAQAR HUSSAIN

$C[a, b]$ is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Finite dimensional
- Not a vector space
- Infinite dimensional

(Module 39, Pg.49)

- Zero dimensional

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Question # 5 of 10

SOLVED BY: WAQAR HUSSAIN

Identity operator is

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Select the correct option

- linear operator
- non linear operator
- Zero operator
- discontinuous operator

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Question # 4 of 10

SOLVED BY: WAQAR HUSSAIN

Vector space x is called real vector spaces if

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Select the correct option

- $K = \mathbb{Q}$
- $K = \mathbb{R}$ (Module 37, Pg.45)
- $K = \mathbb{C}$
- $K = \mathbb{N}$

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Question # 3 of 10

SOLVED BY: WAQAR HUSSAIN

Elements of field K are called

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Select the correct option

- i
- vectors
- scalars

(Module 36, Pg.44)

- functions

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Question # 2 of 10

SOLVED BY: WAQAR HUSSAIN

$\|x + y\|$

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Select the correct option

- $\leq \|x\| + \|y\|$ (Module 40, Pg.50)
- $\geq \|x\| + \|y\|$
- $= \|x\| + \|y\|$
- $\leq 2\|x\|$

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Question # 1 of 10

SOLVED BY: WAQAR HUSSAIN

An element x of an inner product space X is said to be orthogonal to an element $y \in X$ if $\langle x, y \rangle = 0$

Select the correct option

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- $\langle x, y \rangle < 0$
- $\langle x, y \rangle = 0$ (Conceptual)
- $\langle x, y \rangle > 0$
- none of these

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Question # 10 of 10

SOLVED BY: WAQAR HUSSAIN

Norm $||x||$ is the distance from x to

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Select the correct option

- an arbitrary point
- 1
- 0 (Module 40, Pg.50)
- x itself

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Question # 9 of 10

SOLVED BY: WAQAR HUSSAIN

An element x of an inner product space X is said to be _____ to an element $y \in X$ if $\langle x, y \rangle = 0$

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Select the correct option

- orthogonal (Conceptual)
- equal
- orthonormal
- parallel

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Question # 8 of 10

SOLVED BY: WAQAR HUSSAIN

Every normed linear space is a

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Select the correct option

- Banach space
- Metric space
- Null space
- Vector space with a metric defined by norm

(Module 48, Pg.61)

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Question # 7 of 10

SOLVED BY: WAQAR HUSSAIN

Integration operator from $C[a, b]$ into itself is

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Select the correct option

- non linear operator
- linear operator (Module 55, Pg.71)
- discontinuous operator
- Zero operator

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Question # 6 of 10

SOLVED BY: WAQAR HUSSAIN

Euclidean sp is

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Select the correct option

- vector space
- banach space
- space of all types mentioned

(Module 41, Pg.52 Conceptual)

- Normed space

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Question # 5 of 10

SOLVED BY: WAQAR HUSSAIN

Space l^p is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Complete vector space
- Null space
- Banach space (Module 40, Pg.51)
- Incomplete normed space

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Question # 4 of 10

SOLVED BY: WAQAR HUSSAIN

Vector space $X = \{0\}$ has

Select the correct option

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- no proper subspace (Module 39, Pg.49)
- proper subspace
- infinite dimensional
- none of given options

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Question # 3 of 10

SOLVED BY: WAQAR HUSSAIN

$L^2[a,b]$ is

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Normed space
- Complete space
- Banach space
- Null space

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Question # 2 of 10

SOLVED BY: WAQAR HUSSAIN

Every subspace vector space $X(\neq \{0\})$ is called

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Select the correct option

- special subspace
- proper (Module 38, Pg.47)
- zero vector space
- improper

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Question # 1 of 10

SOLVED BY: WAQAR HUSSAIN

The metric space defined on $\mathbb{Q}$ the set of rational numbers with usual metric.

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Select the correct option

- is complete
- has only positive integers
- is incomplete (Module 27, Pg.33)
- has convergent Cauchy sequence

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Question # 10 of 10

SOLVED BY: WAQAR HUSSAIN

Let $(V, \langle .,. \rangle)$ be an inner product space over a field F, then _____
$\& \ \forall x, y, z \in V, \alpha, \beta \in F$

PRESENTED BY: TALEEMI MARKAZ

Select the correct option

- $\langle \alpha x + \beta y, z \rangle = \alpha \langle x, z \rangle - \beta \langle y, z \rangle$
- $\langle \alpha x + \beta y, z \rangle = \alpha \langle x, z \rangle / \beta \langle y, z \rangle$
- $\langle \alpha x + \beta y, z \rangle = \alpha \langle x, z \rangle * \beta \langle y, z \rangle$
- $\langle \alpha x + \beta y, z \rangle = \alpha \langle x, z \rangle + \beta \langle y, z \rangle$

(Module 83, Pg.19)

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Question # 9 of 10

SOLVED BY: WAQAR HUSSAIN

For an inner product space $\|x+y\|^2 + \|x-y\|^2 =$

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Select the correct option

- $\|x\|^2 - \|y\|^2$
- $2(\|x\|^2 + \|y\|^2)$ (Module 87, Pg.21)
- $\|x\|^2 + \|y\|^2$
- $\|x\|^2\|y\|^2$

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Question # 8 of 10

SOLVED BY: WAQAR HUSSAIN

A subset M of a metric space X is called a bounded set if its _____ is finite.

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Select the correct option

- radius
- diameter (Module 23, Pg.29)
- chord
- sector

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Question # 7 of 10

SOLVED BY: WAQAR HUSSAIN

The set of all limit points of a set A is called _____ of A.

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Select the correct option

- Derived Set
- Closure
- Subset
- Superset

(Module 28, Pg.37)

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Question # 6 of 10

SOLVED BY: WAQAR HUSSAIN

A _____ sequence in a metric space is Cauchy Sequence.

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Select the correct option

- Convergent (Module 27, Pg.36)
- Bounded
- Divergent
- Subsequence

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Question # 5 of 10

SOLVED BY: WAQAR HUSSAIN

A metric space is a

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Select the correct option

- Topological space (Module 16, Pg.21)
- Not topological space
- incomplete space
- complete

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Question # 4 of 10

SOLVED BY: WAQAR HUSSAIN

If τ is topology on non-empty set X, then intersection of member of belong to τ.

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Select the correct option

- infinite
- finite (Module 16, Pg.20)
- arbitrary
- none of these

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Question # 3 of 10

SOLVED BY: WAQAR HUSSAIN

The following expression represents _____ inequality

$$\frac{|x-z|}{1+|x-z|} \leq \frac{|x-y|}{1+|x-y|} + \frac{|y-z|}{1+|y-z|}$$

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Select the correct option

- ○ Rectangle inequality
- ○ Holder's inequality
- Triangle inequality (Module 40, Pg.17)
- ○ Minkowski's inequality

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Question # 2 of 10

SOLVED BY: WAQAR HUSSAIN

The inverse image of _____ set under a continuous mapping is open.

Select the correct option

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- an open (Module 18, Pg.22)
- a closed
- finite
- semi open

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Question # 1 of 10

SOLVED BY: WAQAR HUSSAIN

Which of the following set has no limit points in R?

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Select the correct option

- The set of rational numbers
- The set of irrational numbers
- The set of complex numbers
- The set of integers

(Module 19, Pg.24)

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Question # 10 of 10

SOLVED BY: WAQAR HUSSAIN

$C[a, b]$ shows the space of all _____ defined on $[a, , b]$

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Select the correct option

- Complex valued functions
- Continuous functions

(Module 41, Pg.52)

- Bounded functions
- Convergent sequences

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Question # 9 of 10

SOLVED BY: WAQAR HUSSAIN

Complete inner product space is called a _____

Select the correct option

PRESENTED BY: TALEEMI MARKAZ

- Metric space
- Norm space
- Hilbert space (Module 83, Pg.18)
- Norm space

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Question # 8 of 10

SOLVED BY: WAQAR HUSSAIN

Let $(\mathbb{R}, d)$ be a usual metric space and $\mathbb{R} - \mathbb{Q} \subseteq \mathbb{R}$, then which of the following is correct option?

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Select the correct option

- The set of limit points of $\mathbb{R} - \mathbb{Q}$ is closed
- The set of limit points of $\mathbb{R} - \mathbb{Q}$ is an empty set (Conceptual)
- The set of limit points of $\mathbb{R} - \mathbb{Q}$ is open
- None of them

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Question # 7 of 10

SOLVED BY: WAQAR HUSSAIN

Complete norm space is called a _____.

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Select the correct option

- metric space
- hilbert space
- inner product space
- banach space

(Module 40, Pg.51)

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Question # 6 of 10

SOLVED BY: WAQAR HUSSAIN

In a discrete metric space X, every subset is

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Select the correct option

- countable
- open and closed (Conceptual)
- open
- c

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Question # 5 of 10

SOLVED BY: WAQAR HUSSAIN

$\|z-x\|^2+\|z-y\|^2=\frac{1}{2}\|x-y\|^2+2\left\|z-\frac{1}{2}(x+y)\right\|^2$ is called _____.

Select the correct option

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- Pythagorean theorem
- Polarization identity
- Parallelogram equality
- Apollonius identity

(Module 87, Pg.21)

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Question # 4 of 10

SOLVED BY: WAQAR HUSSAIN

In, $\emptyset \neq A \subset (X, d)$, a point x is a limit point of A, if _____ points of A other than x.

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Select the correct option

- every open sphere at x, contains some (Conceptual)
- there is an open sphere at x which contains all
-
-

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Question # 3 of 10

SOLVED BY: WAQAR HUSSAIN

$$\delta(A) = Sup_{x,y \in A}\, d(x,y)$$

Represents the _____ for a non-empty subset A of (X,d)

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Select the correct option

- norm
- Diameter (Lecture 23, Pg.26)
- Distance
- Meric

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Question # 2 of 10

SOLVED BY: WAQAR HUSSAIN

$d(x,y) = |x - y|$ is a usual metric defined on

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Select the correct option

- R
- R (Module 21, Pg.23)
- R^n
- R^3

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Question # 1 of 10

SOLVED BY: WAQAR HUSSAIN

0 and 1 are the limit points of _____ $\subset (\mathbb{R}, d)$.

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Select the correct option

- [0,1]
-]0,1]
- (0,1)
- All other choices are true

(Module 19, Pg.21)

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