Question # 1 of 10 (Start time: 06:50:46 AM, 15 February 2022)

Which of the following statement is false?

Select the correct option

- ○ Discrete topology on a countable set X is second countable.
- ○ Any finite set with any topology is second countable.
- ○ Discrete topology on a real line R is second countable.
- ○ The set R with usual topology is second countable.

Question # 2 of 10 (start time: 06:52:02 AM, 15 February 2022)

Every Topological Space is a first countable space.

Select the correct option

- ○ False
- ○ True ✓

sec(s)

MTH634 - Topology (Quiz No. 3)

Quiz Start Time: 06:50 AM, 15 February 2022

Question # 5 of 10 (Start time: 06:54:20 AM, 15 February 2022)

Total Marks: 1

Let $X = \{1, 2, 3, 4, 5, 6\}$ and $\tau = \{0, \{1\}, \{2\}, \{1, 2\}, X\}$ be a topology on X, then the local base (B_x) of the point $x = 3, 4, 5$ is_____

Select the correct option

Reload Math Equations

○	$\{\{2\}, \{1, 2\}, X\}$
○	$\{\{1\}, \{2\}, X\}$
○	None of them
○	$\{X\}$ ✓

Question # 4 of 10 (Start time: 06:53:37 AM, 15 February 2022)

Let $X = \{1, 2, 3, 4, 5, 6\}$ and $\tau = \{\emptyset, \{3\}, \{4\}, \{3, 4\}, X\}$ be a topology on X, then which of the following is true?

Select the correct option

○	The set $\{\emptyset, \{3\}, \{4\}, X\}$ is an open cover of the set $\{4\}$
○	The set $\{\emptyset, \{3\}, \{4\}\}$ is an open sub-cover of $\{\emptyset, \{3\}, \{4\}, X\}$
○	The set$\{\emptyset, \{3\}, \{4\}\}$ is an open cover of the set $\{4\}$
○	All of them ✓

Question # 3 of 10 (Start time: 06:52:48 AM, 15 February 2022)

Let $X = \{1, 2, 3, 4\}$ and $\tau = \{\emptyset, \{1\}, \{2\}, \{1, 2\}, X\}$ be a topology on X, then which of the following is true ?

Select the correct option

- ○ (X, τ) be a topological space
- ○ Every element of X has countable local base
- ○ All of them ✓
- ○ (X, τ) be a first countable space

Question # 10 of 10 (Start time: 07:00:57 AM, 15 February 2022)

Total Marks

Let $X = \{1, 2, 3, 4\}$ and $\tau = \{\emptyset, \{1\}, \{2\}, \{1, 2\}, X\}$ be a topology on X then which of the following is NOT true ?

Select the correct option

Reload Math Equations

○	The local base of the element 4 is $\emptyset$. A or B
○	Every element of X has uncountable local base
○	(X, τ) be a first countable space
○	(X, τ) be a topological space

Question # 9 of 10 (Start time: 06:59:45 AM, 15 February 2022)

Total Marks: 1

If X has more than two points and $\left({X,\tau } \right)$ be an indiscrete topology then which of the following statement is true about $\left({X,\tau } \right)$?

Select the correct option

- It is not metrizable.
- None of them
- It is metrizable.
- It is Haussdorff

Separable Spaces

Def:

A topological space (X, T) is said to be "Separable" if there exists a countable dense subset A of X.

i.e.

$\exists \quad A \subset X$ such that

1. A is countable.
2. $\overline{A} = X$.

MTH634 - Topology (Quiz No. 3)

Question # 7 of 10 (Start time: 12:29:21 PM, 15 February 2022)

If $\left({X,\tau } \right)$ be a separable topology then it must have countable dense set.

Select the correct option

- False
- True

Question # 10 of 10 (Start time: 12:31:15 PM, 15 February 2022)

Total Marks: 1

Let $X = \{a, b, c\}$ and $\tau = \{\emptyset, \{a\}, \{b\}, \{a, b\}, X\}$ be a topology on X. if $B = \{\emptyset, \{a\}, \{b\}, X\}$ be the base of τ, then which of the following is true ?

Select the correct option

Reload Math Equations

- B be the countable base.
- (X, τ) be a first countable space.
- All of them
- (X, τ) be a second countable space.

Question # 5 of 10 (Start time: 12:28:17 PM, 15 February 2022)

Total Marks: 1

Let $X = \{1,2,3,4,5,6\}$ and $\tau = \{\emptyset, \{1\}, \{2\}, \{1,2\}, X\}$ be a topology on X, then the local base (B_x) of the point $x = 2$ is_____

Select the correct option

Reload Math Equations

- $\{\{1\}, \{1,2\}, \{2\}, X\}$
- $\{\{2\}, \{1,2\}, X\}$
- None of them.
- $\{\{1\}, \{2\}, X\}$.

MTH634 - Topology (Quiz No. 3)

Question # 3 of 10 (Start time: 12:27:18 PM, 15 February 2022)

Every metric space is first countable.

Select the correct option

True

False

Question # 4 of 10 (Start time: 12:27:47 PM, 15 February 2022)

Let $X = \{a, b, c\}$ and $\tau = \{\emptyset, \{a\}, \{a, b\}, X\}$ be a topology on X, then which of the following is NOT true ?

Select the correct option

- (X, τ) be a second countable space.
- (X, τ) be a Topological space.
- (X, τ) be a first countable space.
- All of them.

Question # 6 of 10 (Start time: 12:28:48 PM, 15 February 2022)

Total

Let $X = \{1, 2, 3, 4, 5, 6\}$ and $\tau = \{0, \{1\}, \{2\}, \{1, 2\}, X\}$ be a topology on X. then the local base (B_x) of the point $x = 1$ is_____

Select the correct option

Reload Math Equa

- $\{\{1\}, \{2\}, X\}$
- None of them
- $\{\{1\}, \{1, 2\}, X\}$
- $\{\{1\}, \{2\}, \{1, 2\}, X\}$

Question # 2 of 10 (Start time: 12:26:52 PM, 15 February 2022)

Metric topology induced by $d(x,y) = \begin{cases} 0 & if \quad x = y \\ 1 & if \quad x \neq y \end{cases}$ is called_____

Select the correct option

- discrete topology
- indiscrete topology
- None of them
- usual topology

Question # 9 of 10 (Start time: 12:23:49 PM, 15 February 2022)

Let $X = \{1, 2, 3, 4, 5, 6\}$ and $\tau = \{\emptyset, \{3\}, \{4\}, \{3, 4\}, X\}$ be a topology on X, then which of the following is true?

Select the correct option

- The set $\{\emptyset, \{3\}\}$ is an open cover of the set $\{4\}$
- The set $\{\emptyset, \{3\}, \{4\}\}$ is an open cover of the set $\{4\}$
- None of them
- The set $\{\emptyset, \{3\}, \{4\}\}$ is an open cover of the set $\{2\}$

MTH634 - Topology (Quiz No. 3)

Question # 7 of 10 (Start time: 12:22:10 PM. 15 February 2022)

Which of the following statement is true?

Select the correct option

- All spaces are not metrizable.
- All spaces are metrizable.

MTH634 - Topology (Quiz No. 3)

Question # 5 of 10 (Start time: 12:19:51 PM, 15 February 2022)

Let (X, τ) be a metrizable then which of the following statement is true

Select the correct option

○	All of them ✓
○	(X, τ) is separable.
○	(X, τ) has the countable chain collection
○	(X, τ) is second countable.

Question # 3 of 10 (Start time: 12:17:38 PM, 15 February 2022)

Let $X = \{1, 2, 3, 4\}$ and $\tau = \{0, \{1\}, \{2\}, \{1, 2\}, X\}$ be a topology on X, then which of the following is true ?

Select the correct option

- ○ (X, τ) be a topological space
- ○ Every element of X has countable local base
- ○ (X, τ) be a first countable space.
- ○ All of them ✓

Question # 10 of 10 (Start time: 10:37:07 AM, 15 February 2022)

Te

Metric topology induced by $d(x, y) = |x - y|$ on $\mathbb{R}$ is called_____

Select the correct option

Reload Math E

- None of them
- indiscrete topology
- usual topology ✓
- discrete topology

Time Left sec(s

MTH634 - Topology (Quiz No. 3)

Quiz Start Time: 10:59 AM, 15 February 20

Question # 10 of 10 (Start time: 11:06:04 AM, 15 February 2022)

Total Mark

Let $X = \{1, 2, 3, 4\}$ and $\tau = \{\emptyset, \{1, 2\}, \{3, 4\}, X\}$ be a topology on X and $A = \{2, 3\}$ is a dense set, then which of the following is true?

Select the correct option

Reload Math Equations

- (X, τ) mar or may not be a separable topology.
- (X, τ) must be a separable topology ✓
- $\{1, 2\}$ is a closed set.
- None of them.

Question # 8 of 10 (Start time: 11:04:29 AM, 15 February 2022)

Let $X = \{1, 2, 3, 4, 5, 6\}$ and $\tau = \{\emptyset, \{3\}, \{4\}, \{3, 4\}, X\}$ be a topology on X, then which of the following is true?

Select the correct option

- ○ All of them. ✓

- ○ The set $\{\emptyset, \{3\}, \{4\}\}$ is an open cover of the set $\{4\}$
- ○ The set $\{\emptyset, \{3\}, \{4\}, X\}$ is an open cover of the set $\{4\}$
- ○ The set $\{\emptyset, \{4\}\}$ is an open cover of the set $\{4\}$.

Question # 1 of 10 (Start time: 10:59:08 AM, 15 February 2022)

Let $X = \{1, 2, 3, 4, 5, 6\}$ and $\tau = \{\emptyset, \{3\}, \{4\}, \{3, 4\}, X\}$ be a topology on X, then which of the following

Select the correct option

○	The set $\{\emptyset, \{3\}, \{4\}, X\}$ is an open cover of the set $\{4\}$.
○	The set $\{\emptyset, \{3\}, \{4\}\}$ is an open cover of the set $\{4\}$.
○	The set $\{\emptyset, \{3\}, \{4\}\}$ is an open sub-cover of $\{\emptyset, \{3\}, \{4\}, X\}$.
○	All of them ✓