

Question # 2 of 5 (Start time: 11:30:49 PM, 29 January 2023)

T

$$T_{X \times Y}$$

denotes ____ on $X \times Y$.

Select the correct option

 Reload Math☐

product topology

☐

lower limit topology

☐

upper limit topology

☐

co finite topology

Question # 4 of 5 (Start time: 11:31:55 PM, 29 January 2023)

Total M

Let X and Y be topological spaces. A map $f : X \rightarrow Y$ is called an Open Map if.....

Select the correct option

 Reload Math Equations☐for every open set $U \subseteq X$, the image $f(U) \subseteq Y$ is open.☐for every closed set $U \subseteq X$, the image $f(U) \subseteq Y$ is closed.☐for every open set $U \subseteq X$, the image $f(U) \subseteq Y$ is closed.☐

None of them

Question # 5 of 5 (Start time: 11:32:23 PM, 29 January 2023)

Total

Two spaces are called topologically equivalent if there exists a _____ between two topological spaces.

Select the correct option

☐

surjective map

☐

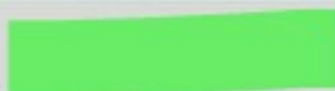
an injective map

☐

bijection

☐

homeomorphism



Question # 1 of 5 (start time: 11:35:38 PM, 29 January 2023)

Total Marks: 1

If (X, d) is a compact metric space, then_____

Select the correct option

 Reload Math Equations

☐	every sequence is a Cauchy sequence.
☐	every sequence which has a convergent subsequence is a Cauchy sequence.
☐	every sequence has a subsequence which is a Cauchy sequence.
☐	every Cauchy sequence converges.

Question # 2 of 5 (Start time: 11:36:30 PM, 29 January 2023)

Total Marks: 1

A homeomorphic map between two topological spaces is always

select the correct option

☐	piecewise continuous
☒	continuous
☐	an identity map
☐	discontinuous

Question # 3 of 5 (Start time: 11:37:16 PM, 29 January 2023)

Total Marks: 1

Let $X = \mathbb{R}$ (set of real numbers) be a usual metric space and $N \subseteq \mathbb{R}$, then which of the following is NOT true about N ?

Select the correct option

 Reload Math Equations

- | | |
|-----------------------|--|
| ☐ | It is not a neighbourhood of any of its point. |
| ☐ | None of them. |
| ☐ | It must be an open set. |
| ☐ | Neither of its point is an interior point. |

Question # 4 of 5 (Start time: 11:39:47 PM, 29 January 2023)

Total Marks: 1

Let X and Y be topological spaces. A map $f : X \rightarrow Y$ is called a Closed Map if _____

Select the correct option

 Reload Math Equations

☐	for every closed set $U \subseteq X$, the image $f(U) \subseteq Y$ is closed
☐	None of them
☐	for every open set $U \subseteq X$, the image $f(U) \subseteq Y$ is closed.
☐	for every open set $U \subseteq X$, the image $f(U) \subseteq Y$ is open.

Question # 5 of 5 (Start time: 11:43:27 PM, 29 January 2023)

Total Marks: 1

Which of the following statement is true?

Select the correct option

☐	Continuous map is always a closed map.
☐	none of these
☐	Continuous map may or may not be an open map
☐	Continuous map is always an open map.

A homoemorphic map between two topological spaces is always

Select the correct option

- | | |
|-----------------------|--|
| ☐ | piecewise continuous |
| ☐ | an identity map |
| ☐ | continuous ✓  |
| ☐ | discontinuous |

Pg9

A map 'f' between two topological spaces is called
iff 'f' is bijective, continuous and f^{-1} (f inverse) is continuous.

Select the correct option

☐ automorphism

☐ bijection

☐ isomorphism

☐ homeomorphism



Pg9

A map f from a topological space X to a topological space Y is ____ if and only if the image of each closed subset of X is closed in Y .

Select the correct option

☒	an open map
☐	a closed map
☐	an injective map
☐	a surjective map

Question # 4 of 5 (Start time: 12:51:27 PM, 29 January 2023)

Let $X = \mathbb{R}$ (Set of real numbers) be a usual metric space and $N \subseteq \mathbb{R}$, then which of the following is true about N ?

Select the correct option

 Reload Ma

☐

All of them.

☐

It is not an open set.

☐

None of its point is an interior point.

☐

It has disjoint intersection with the set of its interior points.

Homeomorphism:

A map $f : X \rightarrow Y$ is called a **homeomorphism** between two topological spaces $(X, \mathcal{T}_X)$ and $(Y, \mathcal{T}_Y)$ iff

1. f is bijective.
2. f is continuous.
3. $f^{-1} : Y \rightarrow X$ is continuous.

morphism...

Homeomorphic Spaces:

Two topological spaces $(X, \mathcal{T}_X)$ and $(Y, \mathcal{T}_Y)$ are called **homeomorphic** iff there exists a homeomorphism $f : X \rightarrow Y$. We also say such spaces **topologically equivalent** spaces.

$$X \approx Y$$

Restriction of an open map may or may not be an open map.