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MTH (634)

Quiz :- Assessment

1) Every metric space is first countable

Ans True

2) metric topology induced by ~~$d(x,y)$~~

$$d(x,y) = \begin{cases} 0 & \text{if } x=y \\ 1 & \text{if } x \neq y \end{cases} \text{ is called}$$

Ans discrete topology

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

Ans All of them

4) which of the following statement true?

Ans. All spaces are not metrizable.

5) If has more than two points and

Ans It is not metrizable

6) which of the following statement is false?

(a) Discrete topology on a countable set X is second countable

(b) Any finite set with any topology is second countable

(c) The set $\mathbb{R}$ with usual topology is second countable

(d) Discrete topology on a real line $\mathbb{R}$ is second countable

7) let $X = \{1, 2, 3, 4, 5, 6\}$ and $\mathcal{C} = \{\emptyset, \{1\}, \{2\}, \{1, 2\}, X\}$ be a topology on X , then the local base (B_x) of the point $x=1$ is — — —

Ans. $\{\{1\}, \{1, 2\}, X\}$

8) let $X = \{1, 2, 3, 4, 5, 6\}$ $\mathcal{C} = \{\emptyset, \{1\}, \{2\}, \{4, 5, 6\}\}$ be a topology on X the local base (B_x) of point $x = 2, 4, 5$ is — — —

Ans. $\{X\}$

9) same as (8) point $x=2$ is — — —

Ans. $\{\{2\}, \{1, 2\}, X\}$

10) let $X = \{1, 2, 3, 4\}$ and $\mathcal{C} = \{\emptyset, \{1\}, \{2\}, \{1, 2\}, X\}$ be a topology on X , then which of true? Every element on X has countable local

Ans. ☒ All of them

11) $X = \{1, 2, 3, 4\}$, $\mathcal{C} = \{\emptyset, \{1, 2\}, \{1, 2, 3\}\}$ be a topology on X the which of is not true?

Ans. Every element of X has uncountable local base.

12) which statement is false?

Ans. Discrete topology on real line $\mathbb{R}$ is second countable

13) Every topological space is first countable space? True.

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14) Let $X = \{a, b, x\}$ and $\mathcal{C} = \{\emptyset, \{a\}, \{a, b, x\}\}$ be a topology on X , then which of following is not true?

Ans. $(X, \mathcal{C})$ be a second countable space

15) Let $X = \{a, b, c\}$ and $\mathcal{C} = \{\emptyset, \{a\}, \{b\}, \{a, b\}, X\}$ be a topology on X if $B = \{\emptyset, \{a\}, \{b\}, X\}$ be base of $\mathcal{C}$, which is true?

Ans. All of them

16) Let $X = \{1, 2, 3, 4, 5, 6\}$ and $\mathcal{C} = \{\emptyset, \{3\}, \{4\}, \{3, 4\}, X\}$ be a topology on X , then, which is true?

Ans. All of them

17) Let $X = \{1, \dots, 6\}$ and $\mathcal{C} = \{\emptyset, \{3\}, \{4\}, \{3, 4\}$ be a topology which is true?

Ans. All of them

18) same above statement

Ans. The set $\{\emptyset, \{3\}, \{4\}\}$ is an open cover of $\{4\}$

19) Let $X = \{1, 2, 3, 4\}$ and $\mathcal{C} = \{\emptyset, \{1, 2\}, \{3, 4\}, X\}$ be a topology on X and $A = \{2, 3\}$ is dense then which is true

Ans. $(X, \mathcal{C})$ must be separable topology

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20) separable topology then it must have countable dense set

Ans. True

21) which of following statement false?

Ans. Every T_1 is T_2 space.

22) Every subspace of a T_0 -space is also

Ans. a T_0 -space

Ans. True

23) A regular T_1 -space is called _____

Ans. T_3 -space

24) A finite set has _____ T_1 -space

Ans. No limit points -

30) Every subspace of T_2 -space is a _____

Ans. T_2 space.

31) which following statement is false?

Ans. Every metric space is second countable space

32) Every discrete space is not a regular space?

Ans. False

33) $\mathbb{R}$ with usual topology is T_4 -space

Ans. True

36) Compact subspaces of a Hausdorff space is not closed.

Ans: False

37) Every closed subspace of a compact space is compact

Ans: True

38) Image of a compact space under a continuous map is compact.

Ans: True

39) If (X, τ) be a compact Hausdorff space then (X, τ) is not normal

Ans: False

40) Consider $\mathbb{R}$ usual topology. There exist no homeomorphism between an open interval of $\mathbb{R}$ and a closed interval of $\mathbb{R}$

Ans: True

41) Too much long statement

False

42) Consider $\mathbb{R}$ with usual topology. Then $A = (0, 1) \cup (3, 5)$ is discrete subset of $\mathbb{R}$.

True

43) Consider $\mathbb{R}$ with usual topology. Which following are separated?