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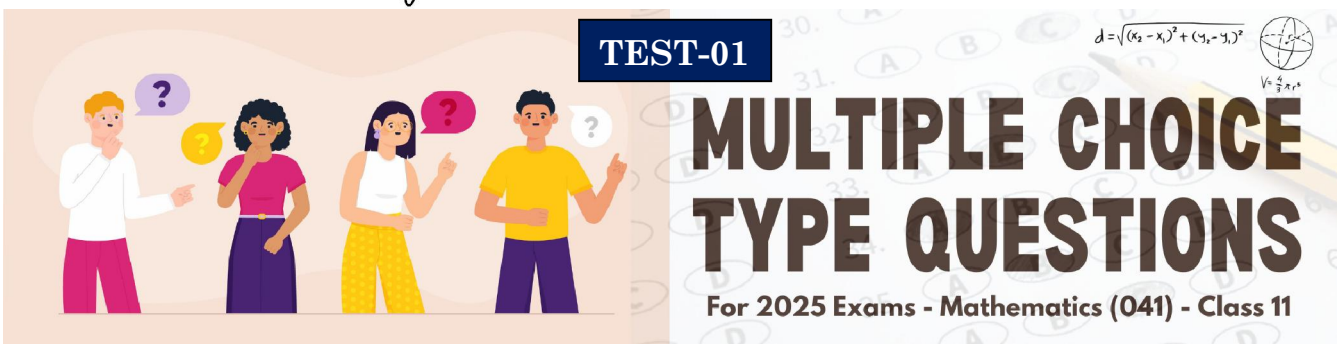


☑ ***Select the correct option in the followings. Each question carries 1 mark.***

01. The set {2, 4, 6, ...} is an example of
(a) finite set (b) infinite set
(c) set of all natural numbers (d) set of whole numbers

02. The elements of set A, satisfy the property $\frac{2n}{2n+1}$, $n \in N$, $n < 5$ for its elements. The element which does **not** belong to the set A is
(a) $\frac{2}{3}$ (b) $\frac{4}{5}$ (c) $\frac{6}{7}$ (d) $\frac{8}{5}$

03. If A and B are two sets such that $A = \{a,b,c\}$, $B = \{a,e,i,o,u\}$ then, $A \cap B =$
(a) 7 (b) {a, b, c, e, i, o, u} (c) {a} (d) {a, a, b, c, e, i, o, u}

04. Which of the following is **not** a set?
(a) {x : x is a non-positive and non-negative integer}
(b) {m | m is a root of $x^3 - 125 = 0$}
(c) The collection of three most famous mathematics books in India
(d) {x : $x \in Z$ and $3x + 1 < 22$}

05. Let $A = \{x : x^2 - 6x + 9 = 0\}$. Then $n(A) =$
(a) 1 (b) 2 (c) 3 (d) 0

06. The set of odd prime numbers upto 10 is
(a) {1, 3, 5, 7, 9} (b) {3, 5, 7, 9} (c) {3, 5, 7} (d) {1, 3, 5, 7}

07. If $A \subset B$ then, which of the following is true?
(a) If $a \in A$, then $a \notin B$ (b) If $a \in A$, then $a \in B$ (c) $A \cup B = A$ (d) None of these

08. In the open interval (a, b), all the real numbers lying between 'a' and 'b' belong to the interval. Which of the following is true for the numbers 'a' and 'b'?
(a) a and b belong to the interval (b) a and b do not belong to the interval
(c) a is included but b is excluded in the interval (d) a is excluded but b is included in the interval

09. Let $A = \{1, 3, 5, 7, 9\}$, $B = \{2, 4, 6, 8\}$ and $C = \{0, 2, 4, 6\}$.
Which of the following can be considered as a universal set for the sets A, B and C?
(a) $\{0, 1, 2, 3, 4, 5, 6\}$ (b) ϕ
(c) $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ (d) $\{1, 2, 3, 4, 5, 6, 7, 8\}$

10. For set A, $A \cap \phi = \phi$. This is
(a) the law of ϕ (b) the identity law (c) the idempotent law (d) the commutative law

11. Let two sets are given as $S = \{x : x$ is a positive multiple of 3 less than $100\}$, $P = \{x : x$ is a prime number less than $20\}$. Then $n(S) + n(P) =$
(a) 34 (b) 51 (c) 41 (d) 33

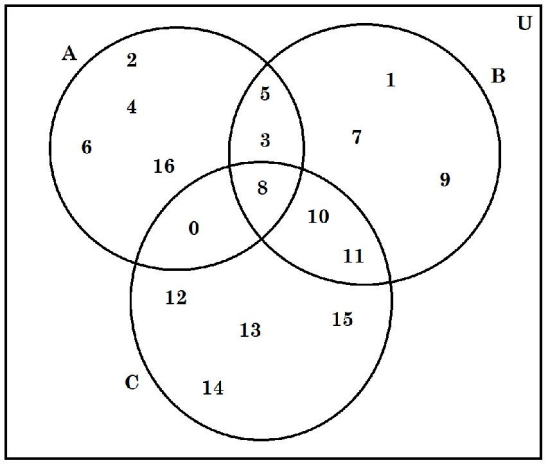
12. If $n(A) = 17$, $n(B) = 8$ for two disjoint sets A and B, then $n(A \cup B) =$
(a) 9 (b) 24 (c) 25 (d) 26

13. If A and B be two sets containing 3 and 6 elements respectively, then the minimum number of elements in $A \cap B$, is
(a) 3 (b) 9 (c) 8 (d) None of these

14. If $A = \phi$, then the number of subsets of A is

(a) 1 (b) 2 (c) 3 (d) 0

15. From the following Venn diagram, the element in set $(A \cap B \cap C)$ is



(a) 8 (b) {8}

(c) 0 (d) {0}

16. Mr GUPTA runs a coaching class for school students. There are a total of 450 students enrolled in the coaching class. If 320 students are enrolled in subject Maths and 270 are enrolled in the Chemistry then, how many of the students are enrolled in both the subjects?

(a) 140 (b) 130 (c) 230 (d) None of these

17. The number of subsets of $\{\{-1, 1\}, \{-2, 2\}, \{\}\}$ are

(a) 8 (b) 7 (c) 15 (d) 32

18. Let A and B be non-empty sets. If $A \subset B$, then

(a) $A \cap B = B$ (b) $A \cup B = A$ (c) $A \cup B = B$ (d) $A \cup B = \phi$

19. For set A, $A \cup A = A$. This is

(a) law of $\cup$ (b) idempotent law (c) commutative law (d) law of identity element

20. Collection of most difficult topics in CBSE Curriculum for Mathematics (041) of Class XI in the academic session 2024-25 is

(a) not a well defined collection (b) a well defined collection

(c) a finite set (d) an infinite set

21. The empty set is not denoted by

(a) ϕ (b) $\{\}$ (c) ϕ or $\{\}$ (d) $\{\phi\}$

22. {1, 3, 5, 7, 9} is

(a) a finite set (b) an infinite set (c) not a set (d) set of even integers

23. A set which is subset of every set is

(a) $\{\phi\}$ (b) universal set (c) singleton set (d) ϕ

24. Let $U = [-4, 5]$ and $A = [-2, 5)$. Then $A' =$

(a) $(-4, -2]$ (b) $[-4, -2]$ (c) $[-4, -2) \cup \{5\}$ (d) $(-4, -2)$

25. If $x \in (\sqrt{3}, 4]$, then

(a) $\sqrt{3} < x < 4$ (b) $\sqrt{3} \le x < 4$ (c) $\sqrt{3} \le x \le 4$ (d) $\sqrt{3} < x \le 4$

26. $\{x : x \in N, x < 11\} \cap \{x : x \text{ is a positive multiple of } 3\} =$

(a) {1, 2, 3, ..., 10} (b) (3, 6, 9) (c) {3, 6, 9, ...} (d) {3, 6, 9}

27. $\{x : x \in N, x < 11\} - \{x : x \text{ is a positive multiple of } 2\} =$

(a) {1, 3, 5, 7, 9} (b) {1, 3, 5, 7, 9, 11} (c) {2, 4, 6, 8, 10} (d) {2, 4, 6, ...}

28. Let $A = \{x : x \in N, x < 1\}$. Then $A =$

(a) {1} (b) {–2, –1, 0} (c) {..., –2, –1, 0} (d) ϕ

In the following questions (**29** & **30**), a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Choose the correct answer out of the following choices.

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true and R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

29. **Assertion (A) :** For $[-\pi, 0)$, the length of the interval is π.

Reason (R) : The number $(b-a)$ is called the *length* of any of the intervals (a, b), [a, b], [a, b) or (a, b].

30. **Assertion (A) :** A finite set X has exactly 9 subsets.

Reason (R) : A set with no element is called a null set.

This document contains MCQs for Mathematics (041) of class XI.
✪ Answers / Solutions is available on YouTube channel – Mathematicia By O.P. Gupta
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✍ *With a lot of Blessings!*

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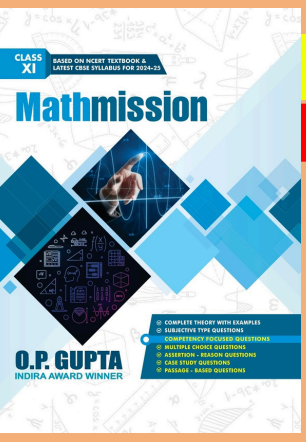

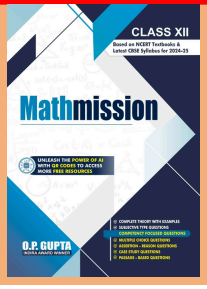

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