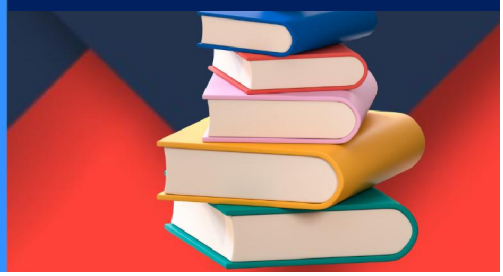
TEST - 01

CLASS XI

CBSE, CUET, JEE MAIN, NDA

MULTIPLE CHOICE Type Questions



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Topics : Sets Theory **Max. Marks : 40**

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

01. Let $A = \{x : x \text{ is a three digit number so that the sum of its digits is nine}\}$. Then $n(A)$ is

(a) 9 (b) 10 (c) 11 (d) None of these

02. If $A = \{\{\}, \phi\}$, then A is

(a) null set (b) infinite set (c) singleton set (d) disjoint set

03. For $X = \{0,1,2\}$ and $Y = \{\}$, $Y - X =$

(a) $\{0,1,2\}$ (b) $\{2\}$ (c) $\{1\}$ (d) ϕ

04. If U is a universal set and A is a non-empty set then, which of the following is true?

(a) $A \cup U = A$ (b) $A \cup U = U$ (c) $A \cap U = U$ (d) $A \cap A' = U$

05. If U is a universal set and A is a non-empty set then, which of the following is **not** true?

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

06. Which one of the following pair of sets is non-disjoint?

(a) $\{x, y\}, \{u, v\}$ (b) $\{x, y\}, \{u, v, w\}$ (c) $\{x, y, z\}, \{u, v\}$ (d) $\{x, y, z\}, \{u, v, z\}$

07. Let $A = \{x : x \in Z^+, x^2 + x - 12 = 0\}$. Then the cardinal number of set A is

(a) $\{3\}$ (b) $\{3, -4\}$ (c) 1 (d) $\{1\}$

08. For the set $A = \{x : x^2 + x - 2 = 0\}$, what is the total number of proper subsets of A?

(a) 1 (b) 2 (c) 3 (d) 4

09. For $A = \{-1,0,1\}$, $B = \{-1,1,3,5\}$, $A \cup B =$

(a) $\{-1,1\}$ (b) $\{-1,0,1,3,5\}$ (c) $\{-1,1,3,5\}$ (d) $\{-1,0,1\}$

10. For $A = \{-1,0,1\}$, $B = \{-1,1,3,5\}$, $n(A \cap B) =$

(a) $\{-1,1\}$ (b) $\{-1,0,1,3,5\}$ (c) $\{-1,1,3,5\}$ (d) 2

11. For $A = \{1,2,3\}$, $B = \{3,4,5,6\}$, $A - B =$

(a) $\{4,5,6\}$ (b) $\{1,2,3\}$ (c) $\{3\}$ (d) $\{1,2\}$

12. Let $n(A) = 6$, $n(B) = 3$, $n(A \cup B) = 7$. Then $n(A \cap B) =$

(a) 11 (b) 16 (c) 2 (d) 0

13. For $U = \{1,2,3,...,9\}$ and $A' = \{1,3,5,7,8\}$, $A =$

(a) $\{2,4,6,8\}$ (b) $\{2,4,6,8,9\}$ (c) $\{2,3,4,6,8\}$ (d) $\{2,4,6,9\}$

14. If $A = \{\phi\}$, then total number of subsets of A is

(a) 1 (b) 2 (c) 4 (d) 0

15. If $A = \{1,2,3\}$ and n represents any member of A, then the roster form of a set, containing element $3n$ is given by

(a) $\{1,2,3\}$ (b) $\{0,1,2\}$ (c) $\{6,12,18\}$ (d) $\{3,6,9\}$

16. Set builder form of $\{11,13,17,19\}$ is

(a) $\{x : x$ is a prime natural no. between 10 and 20$\}$

(b) $\{x : x \in N, x$ is a prime no. less than 20$\}$

(c) $\{x : x$ is an odd natural no. between 10 and 20$\}$

(d) $\{x : x$ is an odd natural no. less than 20$\}$

17. If $A = \{1,2,3,4,5\}$, $B = \{2,4,6\}$ and $C = \{3,4,6\}$, then $(A \cup B) \cap C =$

(a) {3, 4, 6} (b) {1, 2, 3} (c) {1, 4, 3} (d) None of these

18. $\{x : x \neq x\}$ is

(a) $\{\phi\}$ (b) ϕ (c) {0} (d) {1}

19. If P is the set of all parallelograms and T is the set of all trapeziums, then $P \cap T$ is

(a) P (b) T (c) ϕ (d) set of all quadrilaterals

20. In the class of a government school, 70 students wrote two tests : Test I and Test II. 50% of the students failed in Test I and 40% of the students failed in Test II. How many students passed in both tests?

(a) 21 (b) 7 (c) 28 (d) 14

21. If $X = \{4^n - 3n - 1 : n \in N\}$ and $Y = \{9(n-1) : n \in N\}$, then $X \cup Y =$

(a) X (b) Y (c) ϕ (d) N (Natural numbers)

22. Let $A = \{x : x$ is a multiple of 3$\}$ and $B = \{x : x$ is a multiple of 5$\}$. Then $A \cap B$ is

(a) {3, 6, 9, …} (b) {5, 10, 15, …} (c) {15, 30, 45, …} (d) ϕ

23. Let A and B have 3 and 6 elements respectively. What can be the minimum number of elements in $A \cup B$?

(a) 3 (b) 6 (c) 9 (d) 0

24. If A and B are two sets, then $A \cap (A \cup B)$ equals

(a) A (b) B (c) ϕ (d) None of these

25. Let $A = \{x : x$ is an odd natural number less than 19$\}$, $B = \{x : x$ is an even natural number less than 19$\}$ and N is the universal set. Then $A' \cup [(A \cup B) \cap B'] =$

(a) A (b) B (c) N (d) None of these

26. Let $n(U)=700$, $n(A)=200$, $n(B)=300$ and $n(A\cap B)=100$. Then $n(A^c\cap B^c)$ equals

(a) 600 (b) 400 (c) 300 (d) 200

27. If A and B are two sets such that $A\subset B$, then $A\cap B'$ is

(a) A (b) B' (c) ϕ (d) $A\cap B$

28. If $n(A\cup B)=18$, $n(A-B)=5$, $n(B-A)=3$, then $n(A\cap B)$ is

(a) 18 (b) 10 (c) 15 (d) 12

29. If $n(A)=5$ and $n(B)=7$, then maximum number of elements in $A\cup B$ is

(a) 7 (b) 5 (c) 12 (d) None of these

30. For any two sets A and B, $(A-B)\cap(B-A)=$

(a) $(A-B)\cup A$ (b) $(B-A)\cup B$ (c) $(A\cup B)-(A\cap B)$ (d) ϕ

31. If $A\cap B=B$, then

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

32. Which of the following is not correct?

(a) $\{x:1<x\le 4, x\in R\}=(1,4]$ (b) $A\cap A'=\phi$

(c) $\{x:x+4=4\}$ is not empty set (d) $A\cap B\neq\phi$, when A and B are disjoint sets

33. Two finite sets have m and n elements. The total number of subsets of the first set is 240 more than the total number of subsets of the second set. Then the values of m and n will be given by

(a) $m=8, n=4$ (b) $m=4, n=8$ (c) $m=4, n=4$ (d) $m=8, n=8$

34. Let $A_1=\{1,2,3,4\}$, $A_2=\{3,4,5,6\}$, $A_3=\{4,5,6,7,8\}$, then $\bigcap_{n=1}^{3}A_n=$

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

35. If $A\cup\{a,b\}=\{a,b,c,d,e\}$, then the smallest set A will be

(a) {c,d,e} (b) {a,b,c,d,e} (c) {a,b} (d) ϕ

36. If $aN=\{ax:x\in N\}$, the the set $3N\cap 7N$ will be

(a) 3N (b) 7N (c) 21N (d) ϕ

37. Let A be the set of all divisors of the number 15, B be the set of prime numbers smaller than 10 and C be the set of even numbers smaller than 9, then the value of $(A\cup C)\cap B$ is

(a) {3} (b) {2} (c) {2,3,5} (d) {3}

*Question numbers **38** to **40** are Assertion and Reason based questions. Two statements are given, one labelled **Assertion (A)** and the other labelled **Reason (R)**. Select the correct answer from the codes (a), (b), (c) and (d) as given below.*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is **not** the correct explanation of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but Reason (R) is true.

38. **Assertion (A) :** Two sets P and Q are such that $n(P \cup Q) = 21$, $n(P' \cap Q') = 9$, $n(P \cap Q) = 7$, then $n(P \cap Q)' = 23$.

Reason (R) : $P - Q = \{x : x \in P \text{ and } x \in Q\}$.

39. **Assertion (A) :** $X \cap \overline{Y} = X - Y$.

Reason (R) : $X \cup Y = \{x : x \in X \text{ or } x \in Y\}$.

40. **Assertion (A) :** If $T = \left\{x \mid \frac{x+5}{x-7} - 5 = \frac{4x-40}{13-x}\right\}$, then T is an empty set.

Reason (R) : A set without any element is called an empty set.

This document contains MCQs for Mathematics (041) of class XI.
✪ Answers / Solutions shall be available on **YouTube channel – Mathematicia By O.P. Gupta**
You can **share this document** with other students!

With a lot of Blessings!

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