



MATHS

BOOKS - MODERN PUBLICATION MATHS (KANNADA ENGLISH)

SETS

Mcqs Level I

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

A. A

B. B

C. ϕ

D. $A \cap B$

Answer: A



[Watch Video Solution](#)

2. If X and Y are two sets and X^c denotes the complement of X , then

$X \cap (X \cup Y)^c$ is equal to :

A. X

B. Y

C. ϕ

D. $X \cap Y$

Answer: C



[Watch Video Solution](#)

3. Let A and B be two sets , then $(A \cup B)^c \cup (A^c \cap B)$ equals :

A. A^c

B. B^c

C. A

D. None of these

Answer: A



[View Text Solution](#)

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

A. A

B. B

C. A^c

D. B^c

Answer: A



[Watch Video Solution](#)

5. If A and B are disjoint non-empty sets, then $A - (A - B)$ equals :

A. A

B. B

C. ϕ

D. $A \cup B$

Answer: C



[Watch Video Solution](#)

6. Let $S = \{x \mid x \text{ is a positive multiple of 3 less than } 100\}$,

$P = \{x \mid x \text{ is a prime number less than } 20\}$

Then $n(S) + n(P)$ is

A. 34

B. 41

C. 33

D. 30

Answer: B

 [Watch Video Solution](#)

7. If $Q = \{x : x = \frac{1}{y}, \text{ where } x \in \mathbb{N}\}$, then :

A. $0 \in Q$

B. $1 \in Q$

C. $2 \in Q$

D. $\frac{2}{3} \in Q$

Answer: B

 [Watch Video Solution](#)

8. If for $\alpha \in \mathbb{N}$, $\alpha N = \{\alpha x : x \in \mathbb{N}\}$, then the set $8N \cap 6N$ is :

A. 8 N

B. 12 N

C. 24 N

D. 48 N

Answer: C



Watch Video Solution

9. Let $n(A)=3$ and $n(B)=6$ and $A \subset B$. Then number of elements in $A \cap B$

is :

A. 3

B. 9

C. 6

D. None of these

Answer: A

 [Watch Video Solution](#)

10. Sets 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. 18

Answer: B

 [Watch Video Solution](#)

11. Two finite sets have m and n elements. The total number of subsets of the first set is 56 more than the total number of subsets of the second set. The value of m and n is

A. 7,6

B. 5,1

C. 6,3

D. 8,7

Answer: B



[Watch Video Solution](#)

12. Two finite sets have m and n elements. The number of subsets of the first set is 112 more than that of the second set. The values of m and n are , respectively :

A. 4,7

B. 7,4

C. 4,4

D. 7,7

Answer: B



[Watch Video Solution](#)

13. If A, B and C are any three sets , then $A \times (B \cap C)$ is :

A. $(A \times B) \cup (A \times C)$

B. $(A \times B) \cap (A \times C)$

C. $(A \cup B) \times (A \cup C)$

D. $(A \cap B) \times (A \cap C)$

Answer: B



[Watch Video Solution](#)

14. If $A = \{\phi, \{\phi\}\}$, then the power set of A is :

A. A

B. $\{\phi, \{\phi\}, A\}$

C. $\{\phi, \{\phi\}, \{\{\phi\}\}, A\}$

D. None of these

Answer: C



Watch Video Solution

15. If A,B and C are non -empty sets , then $(A-B) \cup (B-A)$ equals :

A. $(A \cup B) - B$

B. $A - (A \cap B)$

C. $(A \cup B) - (A \cap B)$

D. $(A \cap B) \cup (A \cup B)$

Answer: C



Watch Video Solution

16. If $A = \{(x, y) : x^2 + y^2 = 25\}$ and $B = \{(x, y) : x^2 + 9y^2 = 144\}$, then $A \cap B$ contains :

- A. one points
- B. three points
- C. two points
- D. four points.

Answer: D



[Watch Video Solution](#)

17. In a college of 300 students , every student reads 5 newspapers and every newspaper is read by 60 students. The number of newspaper is :

- A. at least 30
- B. at most 30
- C. exactly 25

D. None of these

Answer: C



[Watch Video Solution](#)

18. If A, B and C are three sets such that $A \cap B = A \cap C$ and $A \cup B = A \cup C$, then :

A. $A=B$

B. $A=C$

C. $B=C$

D. $A \cap B = \phi$

Answer: C



[Watch Video Solution](#)

19. If two sets A and B are having 99 elements in common, then the number of elements common to each of the sets $A \times B$ and $B \times A$ is :

A. 2^{99}

B. 99^2

C. 100

D. 18

Answer: B



[Watch Video Solution](#)

Mcqs Level ii

1. The set $(A \cap B^c)^c \cup (B \cap C)$ equals :

A. $A^c \cup B$

B. $A^c \cup C^c$

C. $A^c \cup B \cup C$

D. $A^c \cap B$

Answer: A



Watch Video Solution

2. Let U be the universal set and $A \cup B \cup C = U$. Then

$[(A - B) \cup (B - C) \cup (C - A)]^c$ equals :

A. $A \cup B \cup C$

B. $A \cap B \cap C$

C. $A \cup (B \cap C)$

D. $A \cap (B \cup C)$

Answer: B



Watch Video Solution

3. The set $(A \cup B \cup C) \cap (A \cap B' \cup C')' \cap C'$ is equal to

A. $A \cap C$

B. $B \cup C^c$

C. $B \cap C^c$

D. None of these

Answer: C



Watch Video Solution

4. If $A=\{1,3,5,7,9,11,13,15,17\}$, $B=\{2,4,\dots, 18\}$ and N is the universal set, then

$A^c \cup ((A \cup B) \cap B^c)$ is :

A. A

B. N

C. B

D. None of these

Answer: A



Watch Video Solution

5.

If

$$A = \{x : x \in I, -2 \leq x \leq 2\}, B = \{x : x \in I, 0 \leq x \leq 3\}, C = \{x : x \in I, 1 \leq x \leq 4\}$$

. Then :

A. $n(B \cup C) = 5$

B. $n(D) = 6$

C. $n(A \cup (B \cup C)) = 5$

D. None of these

Answer: D



View Text Solution

6. If A, B and C are any three sets, then $A \times (B \cup C)$ is :

A. $(A \times B) \cup (A \times C)$

B. $(A \cup B) \times (A \cup C)$

C. $(A \times B) \cap (A \times C)$

D. None of these

Answer: A



Watch Video Solution

7. If $S_1 = \{1, 2, 3, \dots, 20\}$, $S_2 = \{a, b, c, d\}$, $S_3 = \{b, d, e, f\}$. The number of elements of :

$(S_1 \times S_2) \cup (S_1 \times S_3)$ is :

A. 100

B. 120

C. 140

D. 40

Answer: B

 [Watch Video Solution](#)

8. If $A=\{1,3,5,7,9,11,13,15,17\}$, $B=\{2,4,\dots, 18\}$ and N is the universal set, then $A^c \cup ((A \cup B) \cap B^c)$ is :

A. ϕ

B. N

C. A

D. B

Answer: B

 [Watch Video Solution](#)

9. If A , B and C be three sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$, then :

A. $A=B$

B. $B=C$

C. $A=C$

D. $A=B=C$

Answer: B



[Watch Video Solution](#)

10. Let $A=\{(x,y): y=e^x, x \in R\}$, $B=\{(x,y): y=e^{-x}, x \in R\}$. Then :

A. $A \cap B = \phi$

B. $A \cap B \neq \phi$

C. $A \cup B = R$

D. None of these

Answer: B



[Watch Video Solution](#)

11. Let $A = \{(x, y) : y = e^x, x \in \mathbb{R}\}$, $B = \{(x, y) : y = x, x \in \mathbb{R}\}$. Then :

A. $B \subseteq A$

B. $A \subseteq B$

C. $A \cap B = \phi$

D. $A \cup B = A$

Answer: C



Watch Video Solution

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

$X \cup Y$ is :

A. X

B. Y

C. \mathbb{N}

D. None of these

Answer: B

 [Watch Video Solution](#)

13. If $X = \{8^n - 7n - 1 : n \in \mathbb{N}\}$ and $Y = \{49(n-1) \mid n \in \mathbb{N}\}$, then

A. $X \subset Y$

B. $Y \subset X$

C. $X = Y$

D. $X \cap Y = \phi$

Answer: A

 [Watch Video Solution](#)

14. If the sets A and B are defined as :

$$A = \left\{ (x, y) : y = \frac{1}{x}, 0 \neq x \in \mathbb{R} \right\}, B = \{(x, y) : y = -x, x \in \mathbb{R}\}, \text{ then :}$$

A. $A \cap B = A$

B. $A \cap B = B$

C. $A \cap B = \phi$

D. $A \cup B = A$

Answer: C

 [Watch Video Solution](#)

15. If $A=\{a,b\}, B=\{c,d\}, C=\{d,e\}$, then : $\{(a,c),(a,d),(a,e),(b,c),(b,d),(b,e)\}$ is :

A. $A \cap (B \cup C)$

B. $A \cup (B \cap C)$

C. $A \times (B \cup C)$

D. $A \times (B \cap C)$

Answer: C

 [Watch Video Solution](#)

16. Let F_1 be the set of parallelograms , F_2 the set of rectangles, F_3 the set of rhombuses , F_4 the set of squares and F_5 the set of trapeziums in a plane. Then F_1 may be equal to :

A. $F_2 \cap F_3$

B. $F_3 \cap F_4$

C. $F_2 \cup F_5$

D. $F_2 \cup F_3 \cup F_4 \cup F_1$

Answer: D



Watch Video Solution

17. Let S =set of points inside the square , T =the set of points inside the triangle and C = the set of points inside the circle. If the triangle and circle intersect each other and are contained in a square , then :

A. $S \cap T \cap C = \phi$

B. $S \cup T \cup U = C$

C. $S \cup T \cup C = S$

D. $S \cup T = S \cap C$

Answer: C



Watch Video Solution

18. Let R be the set of points inside a rectangle of sides a and b with two sides along the positive directions of x -axis and y -axis . Then :

A. $R = \{(x, y) : 0 \leq x \leq a, 0 \leq y \leq b\}$

B. $R = \{(x, y) : 0 \leq x \leq a, 0 \leq y \leq b\}$

C. $R = \{(x, y) : 0 \leq x \leq a, 0 \leq y \leq b\}$

D. $R = \{(x, y) : 0 < x < a, 0 < y < b\}$

Answer: D

 [Watch Video Solution](#)

19. In a city 20 percent of the population travels by car, 50 per cent travels by bus and 10 percent travels by both car and bus. Then persons travelling by car or bus is :

- A. 80 percent
- B. 40 percent
- C. 60 percent
- D. 70 percent

Answer: C

 [Watch Video Solution](#)

20. Consider $n(U)=20$, $n(A)=12$, $n(B)=9$, $n(A \cap B)=4$, where U is the universal set, A and B are subsets of U , then $n((A \cup B)^c)=$

A. 17

B. 9

C. 11

D. 3

Answer: D



[Watch Video Solution](#)

21. In a class of 60 students, 25 students play cricket and 20 students play tennis and 10 students play both the games, then the number of students who play neither is

A. 0

B. 25

C. 35

D. 45

Answer: B



[Watch Video Solution](#)

22. In a town of 840 persons, 450 persons read Hindi, 300 read English and 200 read both. Then the number of persons who read neither is :

A. 210

B. 290

C. 180

D. 260

Answer: B



[Watch Video Solution](#)

23. A survey shows that 63% of the people watch at news channel whereas 76% watch another channel. If $x\%$ of the people watch both

channels , then :

A. $x = 35$

B. $x = 63$

C. $39 \leq x \leq 63$

D. $x = 39$

Answer: D



[Watch Video Solution](#)

24. Out of 800 boys in a school , 224 played cricket, 240 played hockey and 336 played Basket Ball. Of the total , 64 played both basketball and hockey, 80 played cricket and hockey , 80 played Basket Ball and cricket , 24 played all the three games. The number of boys which did not play any game is :

A. 128

B. 216

C. 240

D. 160

Answer: D



Watch Video Solution

25. From 50 students taking examinations in Mathematics, Physics and Chemistry , 37 passed Mathematics , 24 Physics and 43 Chemistry .At most 19 passed Mathematics and Physics , at most 29 Mathematics and Chemistry and at most 20 Physics and Chemistry . The largest possible number that could have passed all three examinations is :

A. 9

B. 10

C. 12

D. None of these

Answer: D



[Watch Video Solution](#)

26. Of the members of three athletic teams in school 21 are in the cricket team, 26 are in the hockey team and 29 are in the football team. Among them, 14 play hockey and cricket, 15 play hockey and football , and 12 play football and cricket . Eight play all the three games. The total number of members in the three athletic teams is :

A. 43

B. 49

C. 76

D. None of these

Answer: A



[Watch Video Solution](#)

27. Suppose A_1, A_2, \dots, A_{30} are thirty sets, each having 5 elements and B_1, B_2, \dots, B_n are n sets, each with 3 elements, let $\bigcup_{i=1}^{30} A_i = \bigcup_{j=1}^n B_j = S$ and each element of S belongs to exactly 10 of A'_i and exactly 9 of B'_j . Then n is equal to :

A. 15

B. 3

C. 45

D. 35

Answer: C



Watch Video Solution

28. Each set X_r contains 5 elements and each set Y_r contains 2 elements and $\bigcup_{r=1}^{20} X_r = S = \bigcup_{r=1}^n Y_r$. If each element of S belongs to exactly 10 of the X'_r 's and to exactly 4 of the Y'_r 's, then n is :

A. 10

B. 20

C. 100

D. 50

Answer: B

 [Watch Video Solution](#)

29. The set $(A \cup B \cup C) \cap (A \cap B^c \cap C^c)^c \cap C^c$ equals :

A. $B \cap C^c$

B. $A \cap C$

C. $B \cup C^c$

D. $A \cap C^c$

Answer: A

 [Watch Video Solution](#)

30. A class has 175 students. The following data shows the number of students obtaining one or more subjects . Mathematics 100 , Physics 70 , Chemistry 40 , Mathematics and Physics 30 , Mathematics and Chemistry 28 , Physics and Chemistry 23 , Mathematics , Physics and Chemistry 18. How many students have offered Mathematics alone ?

A. 35

B. 48

C. 60

D. 22

Answer: C



Watch Video Solution

31. The set $S = \{1, 2, 3, \dots, 12\}$ is to be partitioned into three sets A, B, C of equal size. Thus ,

$A \cup B \cup C = S, A \cap B = B \cap C = A \cap C = \phi$. The number of ways

to partition S is :

A. $\frac{12!}{3!(3!)^4}$

B. $\frac{12!}{(4!)^3}$

C. $\frac{12!}{(3!)^4}$

D. $\frac{12!}{3!(4!)^3}$

Answer: B



[Watch Video Solution](#)

Aieee Jee Examination

1. Let $S = \{1, 2, 3, 4\}$. The total number of unordered pairs of disjoint subsets of S is equal to :

A. 25

B. 34

C. 42

D. 41

Answer: D



[Watch Video Solution](#)

2. Let $P = \{\theta: \sin \theta - \cos \theta = \sqrt{2} \cos \theta\}$ and
 $Q = \{\theta: \sin \theta + \cos \theta = \sqrt{2} \sin \theta\}$ be two sets. Then :

A. $P \subset Q$ and $Q - P \neq \phi$

B. $Q \not\subset P$

C. $P \not\subset Q$

D. $P = Q$

Answer: D



[Watch Video Solution](#)

3. Let $X = \{1, 2, 3, 4, 5\}$. The number of different ordered pairs (Y, Z) that can be formed such that $Y \subseteq X$, $Z \subseteq X$ and $Y \cap Z$ is empty, is :

A. 5^2

B. 3^5

C. 2^5

D. 5^3

Answer: B



[Watch Video Solution](#)

4. Let A and B be two sets containing 2 elements and 4 elements respectively. The number of subsets of $A \times B$ having 3 or more elements is :

A. 220

B. 219

C. 211

D. 256

Answer: B



[Watch Video Solution](#)

5. If $X = \{4^n - 3n - 1, n \in N\}$ and $Y = \{9(n - 1), n \in N\}$, where N is the set of natural numbers, then $X \cup Y$ is equal to :

A. N

B. $Y-X$

C. X

D. Y

Answer: D



[Watch Video Solution](#)

6. Let A and B be two sets containing four and two elements respectively. Then the number of subsets of the set $A \times B$, each having at least three elements is :

- A. 219
- B. 256
- C. 275
- D. 510

Answer: A



[Watch Video Solution](#)

Recent Competitive Questions Rcqs

1. If $A=\{1,2,3\}$, $B=\{1,2\}$ and $C=\{1,2\}$, which one of the following is correct ?

A. $(A \times B) \cap (B \times A) = (A \times C) \cap (B \times C)$

$$B. (A \times B) \cup (B \times A) = (A \times B) \cup (B \times C)$$

$$C. (A \times B) \cap (B \times A) = (C \times A) \cap (C \times B)$$

$$D. (A \times B) \cup (B \times A) = (A \times B) \cup (A \times C)$$

Answer: B

 [Watch Video Solution](#)

2. In a class of 60 students, 25 students play cricket and 20 students play tennis and 10 students play both the games, then the number of students who play neither is

A. 0

B. 35

C. 45

D. 25

Answer: B



[Watch Video Solution](#)

3. In class of 175 students the following data shows the number of students opting one or more subjects. Mathematics 100, Physics 70 , Chemistry 40, Mathematics and Physics 30 , Mathematics and Chemistry 28, Physics and Chemistry 23, Mathematics , Physics and Chemistry 18 , The number of students who have opted Mathematics along is :

A. 35

B. 48

C. 60

D. 22

Answer: C



[Watch Video Solution](#)

4. If two sets A and B have 99 elements in common, then the number of elements common to the sets $A \times B$ and $B \times A$ is :

A. 2^{99}

B. 99^2

C. 100

D. 18

Answer: A



[Watch Video Solution](#)

5. If a set A has 4 elements , then the total number of proper subsets of set A is :

A. 16

B. 14

C. 15

D. 17

Answer: B



[Watch Video Solution](#)

6. Write the set builder form of $A = \{ - 1, 1 \}$

A. $A = \{ x : x \text{ is a real number} \}$

B. $A = \{ x : x \text{ is an integer} \}$

C. $A = \{ x : x \text{ is a root of the equation } x^2 = 1 \}$

D. $A = \{ x : x \text{ is a root of the equation } x^2 + 1 = 0 \}$

Answer: C



[Watch Video Solution](#)