MATHS

BOOKS - ARIHANT PUBLICATION BIHAR

SETS, RELATIONS AND FUNCTIONS

Solved Examples

1. If $A = \{1, 2, 3\}$, then the elements in its power sets, is

A. 8

B. 7

C. 4

D. 6

Answer: A

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2. If $A = \{1, 4, 7, 8\}, B = \{4, 6, 8, 9\}$ and $C = \{3, 4, 5, 7\}$, then $A \cap (B - C)$ is

A. {9}

B. {8,9}

C. {4,8}

D. {8}

Answer: D

3. A survey shows that 74% of the Indians like apples, whereas 68% like oranges. Then, percentage of the Indians like both apples and oranges is

A. 42

B. 43

C. 45

D. 44

Answer: A

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4. If $A = \{2, 3, 5, 7\}$ and B= $\{2, 4, 6\}$. Then, the elements in $A \times B$ is

A. 12

B. 11

C. 10

D. 13

Answer: A

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5. In a group of 52 persons, 16 drink tea but not coffee and 33 drink tea. Then, the number of person who drink tea and coffee both

A. 18

B. 17

C. 16

D. 19

Answer: B

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Exam Booster For Cracking Exam

1. If $A = \{1, B\}$,where $B = \{2, 3\}$.Then, $P(A)$ is equal to

A. $\{\{1\}, \{B\}, \{1, B\}\}$

B. $\{\phi, \{1\}, \{B\}, \{1, B\}\}$

C. $\{\phi, \{1\}, \{B\}\}$

D. None of these

Answer: B

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2. Show that $n[P[P. (P(\phi))) = 4$

A. 1

B. 2

C. 3

D. 4

Answer: D

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3. If $A = \{a, b, c, d\}$ and $B = \{b, c, e\}$, then $A \cup B$ is equal to

A. {a,b,c,d,e}

B. ϕ

C. {b,c,d}

D. None of these

Answer: A

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4. If $A = \{a, b, c\}$ and $B = \{b, c, e\}$, then $A \cap B$ is equal to

A. {b,c}

B. {c,e}

C. {b,c,e}

D. {a,b}

Answer: A

5. If $A = \{a, b, c\}$ and $B = \{b, c, d, e\}$ be two subsets of the universal set $U = \{a, b, c, d, e\}$, then $(A \cup B)'$ is equal to

A. $A' \cap B'$

B. $A' \cup B'$

C. $A \cup B'$

D. $A' - B'$

Answer: A

6. If $A = \{1, 4, 7, 8\}$, $B = \{4, 6, 8, 9\}$ and $C = \{3, 4, 5, 7\}$ be three subsets of a universal set U= {1,2,3,4,5,6,7,8,9}. Then $A \cup (B \cap C')$ is equal

to

A. $\{1, 6, 7, 8, 9\}$

B. $\{1, 6, 7, 8, 9, 3\}$

C. $\{1, 4, 6, 7, 8, 9\}$

D. None of these

Answer: C

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7. In a group of 850 persons, 600 can speak Hindi and 340 can speak Tamil. Find (i) how many can speak both Hindi and Tamil,

(ii) how many can speak Hindi only,

(iii) how many can speak Tamil only.

A. 60

B. 70

C. 80

D. 90

Answer: D

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8. In a group of 52 persons, 16 drink tea but not coffee and 33 drink tea.

Then, the number of persons who drink coffee but not tea, is

A. 18

B. 19

C. 20

D. 21

Answer: B

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9. If $A = \{a, b, c, e, f\}$, $B = \{c, d, e, g\}$ and $C = \{b, c, f, g\}$. Then, $A - (B \cap C)$ is equal to

A. $\{a, b, d, e\}$

B. $\{a, b, e, f\}$

C. ϕ

D. None of these

Answer: B

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10. If $A = \{1, 2, 3\}$, $B = \{3, 4\}$ and $C = \{4, 5, 6\}$. Then, $A \times (B \cup C)$ is equal to

A.

$\{(1, 3), (1, 4), (1, 5), (1, 6), (2, 3), (2, 4), (2, 5), (2, 6), (3, 3), (3, 4), ($

B. $\{(1, 3)(2, 3)(3, 3)\}$

C. $\{3, 6, 12\}$

D. None of the above

Answer: A

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11. A and B are two sets given in such a way that $A \times B$ contains 6 elements. If three elements of $A \times B$ be $(1, 3), (2, 5)$ and $(3, 3)$. Then, the remaining elements are

A. (1,3), (2,3) and (3,5)

B. (2,3), (3,1) and (4,5)

C. (2,3), (3,4) and (4,5)

D. (1,5), (2,3) and (3,5)

Answer: D

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12. In a group of 60 persons, 40 persons like play cricket and 10 persons like play both Tennis and Cricket. Then, the number of persons who like to play Tennis, is

   A. 20

   B. 25

   C. 30

   D. 40

Answer: C

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13. If $A = \{1, 2, 3, 6\}$ and $B = (2, 4, 6)$ be two sets of universal set U= {1,2,3,4,5,6,7}. Then, $(A' \cap B')$ is equal to

   A. {2,4,7}

B. ϕ

C. {5,7}

D. {4,6}

Answer: C

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14. If $n(C \cup T) = 70, n(C) = 37$ and $n(T) = 35.$ Then, $n(C \cap T)$ is equal to

A. 4

B. 8

C. 2

D. 12

Answer: C

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15. If $n(A \cup B) = 727$, $n(A) = 600$ and $n(A \cap B) = 127$. Then, $n(B)$ is equal to

A. 324

B. 292

C. 254

D. 236

Answer: C

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16. In a class, 300 students speak Hindi, 150 students speak English and 100 students speak both Hindi and English. Then, total number of students is

A. 100

B. 120

C. 160

D. 350

Answer: D

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17. There are 6000 people in a village, out of which 3500 people read Hindi newspaper, 2700 people read English newspaper and 700 people read both Hindi and English. Then, the number of person who do not read newspaper, is

A. 100

B. 300

C. 400

D. 500

Answer: D

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18. If U= {1,2,3,4,..,10} and A= {1,2,3,4}. Then, (A') is equal to

A. A

B. U

C. ϕ

D. None of these

Answer: D

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19. The number of non-empty subsets of $\{1, 2, 3\}$ is

A. 5

B. 7

C. 6

D. 16

Answer: B

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20. The number of proper subsets of $\{1, 2, 3\}$ is

A. 7

B. 8

C. 6

D. 4

Answer: A

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21. If $n(A) = 15$, $n(B) = 20$, $n(A \cap B) = 10$, then $n(A \cup B)$ is equal to

A. 55

B. 30

C. 5

D. None of these

Answer: C

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22. If A= {x: x is a multiple of 5} and B] {x: x is a multiple of 9}. Then, $A \cap B$ is given by

A. $\{3, 6, 9, \ldots\}$

B. $\{15, 30, 45, \ldots\}$

C. $\{5, 10, 15, 20, \ldots\}$

D. None of these

Answer: B

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23. If $n(U) = 70, n(A) = 20, n(B) = 30$ and $n(A \cap B) = 10$. Then, $n(A^c \cup B^c)$ is equal to

A. 40

B. 50

C. 60

D. 30

Answer: C

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24. If $(a - 1, b + 4) = (2, 3)$, then a and b are

A. a=3, b=-1

B. a=2, b=3

C. a=0, b= 4

D. None of these

Answer: A

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25. Let $A = \{1, 2, 3, 4\}$, $B = \{2, 3, 5, 7\}$ and $C\{1, 3, 5, 6\}$. Then, the value of $A \cap (B \cup C)$ is

A. $\{1, 2, 3\}$

B. $\{1, 2\}$

C. $\{3, 5, 6\}$

D. $\{2, 3, 4\}$

Answer: B