

Set Operation Worksheet – 1

1. If P, Q are two sets, then $P \cup Q = \{x | x \in P \text{ and } x \in Q\}$. Mark True / False.
a) True b) False
2. If P, Q are two sets, then $P \cap Q = \{x | x \in P \text{ or } x \in Q\}$. Mark True / False.
a) True b) False
3. If P, Q are two sets, then $P - Q = \{x | x \in P \text{ and } x \notin Q\}$. Mark True / False.
a) True b) False
4. P and Q are disjoint sets if and only if $P \cap Q \neq \phi$. Mark True / False.
a) True b) False
5. P and Q are overlapping sets if and only if $P \cap Q \neq \phi$. Mark True / False.
a) True b) False
6. The set $\{x | x \in w \text{ or } x < 5\}$ in roster form is $\{1, 2, 3, 4\}$. Mark True / False.
a) True b) False
7. If P is any set, then $P \cup \phi = P$. Mark True / False.
a) True b) False
8. If P is any set, then $P \cap (U) = P$. Mark True / False.
a) True b) False
9. If P is any set and P' is its complement, then $P \cup P' = U$. Mark True / False.
a) True b) False
10. If P is any set and P' is its complement, then $P \cap P' = \phi$. Mark True / False.
a) True b) False
11. If $P = \{4, 5, 6, 11, 12\}$ and $Q = \{5, 11, 12\}$ then $P \cap Q = Q$. Mark True / False.
a) True b) False
12. If $P = \{1, 2, 3, 5, 6, 7\}$ and $Q = \{0, 1, 2, 3, 8, 9, 5\}$, then $P \cup Q = P$. Mark True / False.
a) True b) False
13. If universal set U and P is any set, then $P' = \{x | x \in U \text{ and } x \notin P\}$. Mark True / False.
a) True b) False
14. If P, Q are two sets, then $Q - P = \{x | x \in P \text{ and } x \notin Q\}$. Mark True / False.
a) True b) False

15. If $U = \{\text{all digits of number system}\}$, then, set $P = \{\text{multiple of 4}\}$ and $Q = \{\text{multiple of 5}\}$, then $P \cap Q = \{20\}$. Mark True / False.

- a) True b) False

16. If P and Q are two sets and its cardinal number $n(P) = 25$, $n(Q) = 15$, and $n(P \cup Q) = 30$ then $n(P \cap Q)$ is _____?

- a) 6 b) 7
c) 8 d) 10

17. If P any set, then $P \cap \phi$ is ____?

- a) P b) ϕ
c) U d) None of these

18. If P and Q are two sets, then $P - Q$ is defined as

- a) $\{x \mid x \in P \text{ and } x \notin Q\}$ b) $\{x \mid x \in P \text{ and } x \in Q\}$
c) $\{x \mid x \in P \text{ or } x \in Q\}$ d) $\{x \mid x \in Q \text{ and } x \notin P\}$

19. If $n(P - Q) = 21$, $n(Q - P) = 26$ and $n(P \cap Q) = 9$, find $n(Q)$

- a) 28 b) 10
c) 17 d) 13

20. If set $P = \{a, b, c, d, e, f, g\}$, $Q = \{a, d, e, f, g, h\}$, find $P - Q$

- a) {b, c} b) {d, e}
- c) {e, f, g} d) {f, g}