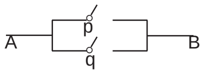
STATEMENTS AND SETS

1. The terms which connect two statements are called ________
2. If the switch ‘P’ is ‘OFF’ we represent it by ________
3. The complement law using ‘$\wedge$’ is ________
4. The truth value of $(3 \neq 2) \vee (2=3)$ is _______
5. The statement of the form “ If...... then.......” is called an ________
6. A combination of one or more simple statements with a connective is called a _______
7. The symbol for existential quantifier ________ (June 2009), (June 2008)
8. $\sim(p \Leftrightarrow q) =$ ________
9. The contrapositive of “If a polygon is a square then it is a rectangle” is _________
10. p, q, r are threee statements then $p \wedge (q \vee r) = (p \wedge q) \vee (q \wedge r)$ is ________ law
11. “For all” or “For every” is called ________ quantifier.
12. If p and q are switches. The combination of $p \vee q$ is called _____________________



13. p and q are two statements. The symbolic form of “Converse of a conditional is equivalent to its inverse” is ____________
14. The statement which uses the connective “OR” is called a __________________
15. The truth value of $(4 \times 7 = 20) \Leftrightarrow (4 \div 7 = 1)$ is ___________________
16. P is the statement then $\sim(\sim(\sim p))$ is _______
17. The symbolic form of “If x is not odd then x^2 is odd” ___________________
18. p: It is raining, q: The sun is shining . Connect p,q using conjuction is ________
19. Denial of a statement is called its ________
20. p and q are two statements then example for tautology is ________________
21. $p \wedge (\sim p)$ is very simple example of a ______ (June 2009)
22. $\sim(p \vee q) \equiv$ __________ (June 2009)
23. $P \vee p = p$. This is ________ law. (June 2010)
24. The symbol of Universal Quantifier is ________ (March 2009)
25. $\sim(p \vee q) \equiv (\sim p) \wedge (\sim q)$ is _________ law. (June 2008)
26. $p \vee (q \wedge r) \equiv (p \vee r) \wedge (p \vee r)$ is ______ law. (March 2008)
27. The truth value of implication statement :
    If $3 \div 2 = 5$ then $1 \times 0 = 0$ is _________ (March 2008)
28. The last column of truth table contains only F it is called _________________
29. p or not p is example for ___________
30. The inverse of “$\sim p \Rightarrow \sim q$” is __________

KEY

1. Connectivities	2. P^1	3. $(p \wedge (\sim p)) \equiv f$	4. True	5. conditional (or) implication
6. Compound statement	7. $\exists$;	8. $\sim p \Leftrightarrow q$ (or) $p \Leftrightarrow \sim q$	9. If a polygon is not a rectangle then it is not a square.	
10. Distributive law.	11. Universal	12. Parallel combination	13. $(q \Rightarrow p) \equiv \sim(p \Rightarrow q)$	
14. Disjuction	15. True	16. $\sim p$	17. “x is not odd $\Rightarrow x^2$ is odd”	
18. $p \wedge q$	19. Negation	20. $p \vee (\sim q)$	21. contradiction	
22. $\sim p \wedge \sim q$	23. idempotent law	24. $\forall$	25. De morgan’s law	
26. distributive law	27. True	28. contradiction	29. Tautology	30. $p \Rightarrow q$

SETS

1. If A and B are disjoint sets, then $n(A \cup B) =$ ____________ (June 2009)
2. If $A \subset B$ then $A \cap B =$ _______ (June 2009)
3. The complement of μ is ____________ (March 2009)
4. $n(\phi) =$ _________ (March 2009)
5. If $A \subset B$ then $A \cup B =$ ______ (June 2008)
6. If $A \subseteq B$ and $B \subseteq A$ then ______ (June 2008)
7. $A \cup A' =$ ________ (June 2008)
8. If $A \subset B$ and $n(A) = 5$, $n(B) = 6$ then $n(A \cup B) =$ _______ (March 2008)
9. The set builder form of $B = \{1,8,27,64,125\}$ is ________ (March 2008)
10. $(A \cup B)' =$ ________ (March 2010)
11. If $A = \{3,4\}$, $B = \{4,5\}$ then $n(A \times B) =$ _________
12. $(A \cap B) \cup (A \cap C) =$ _________
13. If A sand B are two sets then $A \Delta B =$ _____
14. If $A \subset B$, $n(A) = 10$ and $n(B) = 15$ then $n(A-B) =$ _________
15. If $A \cap B = \phi$, $n(A \cup B) = 12$ then $n(A \Delta B) =$ __________

16. If A, B, C are three sets $A-(B\cup C)$ = ______
17. $n(A\cup B) = 8$, $n(A\cap B) = 2$, $n(B) = 3$ then $n(A)$ = _________
18. If $A = \{x; x \leq 5, x \in N\}$, $B = \{2,3,6,8\}$ then $A\cap B$ = ________
19. If A, B are disjoint sets $n(A) = 4$, $n(A\cup B) = 12$ then $n(B)$ = _________
20. $(A \cup B)' = A' \cap B'$ is ________ law.
21. A, B are two sets then $x \notin (A - B)$ = _____
22. $A \subset B$ and $n(A) = 5$, $n(B) = 6$ then $n(A\cup B)$ = _______
23. The sets which are having same cardnial numbers are called __________
24. If A has ‘n’ elements then the number of elements in proper sub set is ________
25. If A and B are disjoint sets then $n(A\cap B)$ = ______________
26. If $n(A) = 7$, $n(B) = 5$ then the maximum number of elements in $A\cap B$ is _________
27. If $A\cap B = \phi$ then $B\cap A$ = _____________
28. If any law of quality of sets, if we interchange $\cap$ and $\cup$ and μ and ϕ the resulting law also true, this is known as ___________
29. $A - B'$ = _________
30. A, B are subsets of μ then $A \cap B'$ = _____

KEY

1. $n(A)+n(B)$	2. A	3. ϕ	4. 0	5. B	6. A = B	7. μ	8. 6
9. $\{x/x = n^3, n \in N, n \leq 5\}$		10. $A' \cap B'$	11. 4	12. $A \cap (B \cup C)$	13. $(A\cup B)-(A\cap B)$ (or) $(A-B) \cup (B-A)$		
14. 0	15. 12	16. $(A-B)\cap(A-C)$	17. 7 18. $\{2,3\}$	19. 8	20. De Morgan’s law		21. $x \notin A$ and $x \in B$
22. 6	23. equivalent sets		24. 2^n-2	25. 0	26. 5	27. B	28. Principle of duality
29. $A\cap B$	30. A-B						

STATEMENTS AND SETS: Important Questions

4 Marks

1. Using element wise prove that $A - (B \cap C) = (A - B) \cup (A - C)$
2. Prove that $A \cup (B \cap C) = (A\cup B)\cap (A \cup C)$
3. Let A,B are two subsets of a Universal set μ show that $A \cap B = A - B^1 = B - A^1$
4. Prove that $(A \wedge B)^1 = A^1 \cup B^1$

2 Marks

1. Define implication and write truth table?
2. Write the truth table $(\sim P) \vee (P \wedge q)$.
3. Write the converse, inverse and contrapasitive of the conditional “If in a triangle ABC, AB > AC then $\angle C > \angle B$.
4. If $A \cap B = \phi$ then show that $B \cap A^1 = B$
5. Using element wise proof show that $A - B = A\cap B^1$
6. If A,B are any two sets, prove that $A^1 - B^1 = B - A$
7. Show that $A \cup B = \phi$, implies $A = \phi$ and $B = \phi$.

1 Mark

1. Define Tautology and contradiction?
2. Write Truth table for conjunction?
3. Prove that $(A^1)^1 = A$
4. Write contrapasitive of a conditional ‘If two triangles are congruent then they are similar”.
5. Show that $P \wedge (\sim P)$ is contradiction.
6. If $A = \{1,2,3\}$, $B=\{2,3,4\}$ then find $A\Delta B$.
7. Write set-builder form of $A = \left\{1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}\right\}$
8. Prove that $A\wedge B \subset A$ for any two sets A, B.
9. Prove that $\sim(\sim P) = P$