



# Altitude Classes

reach the heights

## IIT Foundation Work Sheet

### Topic: Sets

**Instructions:**

1. Immediately fill your particulars by using a Blue/Black Pen Only.
2. There is only one correct answer for each question. Fill the bubble on the OMR to mark your answer.
3. Working should be done only in the space provided.
4. Don't fold or make any stray marks on the Answer Sheet.

Name: \_\_\_\_\_ Section: \_\_\_\_\_ Roll No: \_\_\_\_\_ School Id \_\_\_\_\_

1. If  $A = \{1, \{2, 3\}, 5\}$ , which of the following statements is incorrect?  
 (1)  $\{2, 3\} \in A$       (2)  $\{\{2, 3\}\} \subseteq A$       (3)  $\{3\} \subseteq A$       (4)  $\{5\} \subseteq A$
2. If  $A = \{\{2, \{3, 4\}, 6\}$ , which of the following is correct?  
 (1)  $\{2\} \in A$       (2)  $\{3\} \in A$       (3)  $\{4\} \in A$       (4)  $\{3, 4\} \in A$
3. The total number of elements in the power set of a set  $A$  containing  $n$  elements is:  
 (1)  $n^2$       (2)  $2^n$       (3)  $2^{n-1}$       (4) None
4. If a finite set  $S$  contains  $n$  elements, then the number of non-empty proper subsets of  $S$  is:  
 (1)  $2 \cdot 2^{n-1}$       (2)  $2(2^n - 1)$       (3)  $(2^{n-1} - 1)$       (4)  $2(2^{n-1} - 1)$
5. The number of all possible subsets of a set containing  $n$  elements is:  
 (1)  $n$       (2)  $2n$       (3)  $2^n$       (4)  $n!$
6. The number of all possible subsets of the set  $\{1, \{2, 3\}\}$  is:  
 (1) 2      (2) 4      (3) 6      (4) 8
7. If  $A = \{a, b\}$ , then the power set of  $A$  is:  
 (1)  $\{a^b, b^a\}$       (2)  $\{a^2, b^2\}$       (3)  $\{\phi, \{a\}, \{b\}\}$       (4)  $\{\phi, \{a\}, \{b\}, \{a, b\}\}$
8. Which one of the following is a correct statement?  
 (1)  $\{a\} \in \{a, b, c\}$       (2)  $a \subseteq \{a, b, c\}$   
 (3)  $\phi \in \{a, b, c\}$       (4) None of these
9. Which of the following is a singleton set?  
 (1)  $\{x \in R: x^2 = x\}$   
 (2)  $\{x \in N: 3x = 4\}$   
 (3)  $\{x \in R: 3x^2 = -1\}$   
 (4)  $\{x : x \text{ is an integer which is neither +ve nor negative}\}$
10. Which one of the following is an infinite set?  
 (1)  $\{x : x \in N, x < 50\}$       (2)  $\{x : x \in I, x < 50\}$   
 (3)  $\{x : x \in I, x \text{ is a factor of } 500\}$       (4)  $\{x : x \text{ is a whole number, } x < 1000\}$

OMR (Use HB Pencil Only)

1	① ② ③ ④	2	① ② ③ ④	3	① ② ③ ④	4	① ② ③ ④	5	① ② ③ ④
6	① ② ③ ④	7	① ② ③ ④	8	① ② ③ ④	9	① ② ③ ④	10	① ② ③ ④