

# Sets

## EXERCISE : 5.1

- i) All state of India
- vii) Last three days of a week
- viii) All months of a year having atleast 30 days.

The above three are set because they are well defined.  
Remaining all are not sets, they are not well defined.

2 (iii) and (iv) are true

- (i) is false because  $c$  is not a vowel.
- (ii) is false because  $\{a\}$  is a set and not element
- (vi) is false because  $b$  is not a vowel, so  $b \notin A$  of course,  $a \in A$
- v) is false,  $\{a, i, u\}$  is a set and not elements

3 i) The set of first six letters of alphabet.

ii)  $\{\text{prime numbers less than } 20\}$

iii)  $\{\text{last three days of a week}\}$

iv)  $\{\text{months of a year whose name begins with a vowel}\}$

4

i)  $\{12, 14, 16, 18, 20, 22, \dots, 48\}$  ;  $\{x: x=2n, n \in \mathbb{N} \text{ and } 5 < n < 25\}$

ii)  $\{\text{Jan, Mar, May, July, Aug, Oct, Dec}\}$  ;

$\{x | x \text{ is a month of a year having more than 30 days}\}$

iii)  $\{0, 1, 4, 9\}$  ;  $\{x | x \text{ is a perfect square one digit number}\}$

iv)  $\{1, 2, 3, 4, 6, 9, 12, 18, 36\}$  ;  $\{x | x \text{ is a factor of } 36\}$

5

i)  $\{0, 4, 8, 12, 16\}$  ;  $\{\text{whole numbers which are divisible by } 4 \text{ and less than } 20\}$

ii)  $\{1, 4, 9, 16, 25, 36, 49\}$  ;  $\{\text{squares of first seven natural numbers}\}$

iii)  $\{-1, 1, 3, 5, 7\}$  ;  $\{\text{odd integers which lie between } -2 \text{ and } 8\}$

iv)  $\{U, L, T, I, M, A\}$  ;  $\{\text{letters in the word ULTIMATUM}\}$

6

i)  $\{5, 6, 7, 8, 9\}$

ii)  $\{-12, -6, 0, 6, 12\}$

iii)  $\{0, 3, 8, 15\}$

iv)  $\{1\}$

v)  $\{N, I\}$

vi)  $\{1, 0, 5, 6, 7\}$

7

i)  $\{x : x \text{ is an odd natural number and } x < 30\}$

ii)  $\{x \mid x \text{ is a prime number and } x < 30\}$

iii)  $\{x \mid x = n^2, n \in N\}$

iv)  $\{x \mid x = \frac{1}{n}, n \in N \text{ and } 5 \leq n \leq 20\}$

v)  $\{x \mid x = sp, p \in I \text{ and } -2 \leq p < 5\}$

vi)  $\{x : x \text{ is a month of a year whose name begins with letter 'J'}\}$

8.

i)  $\{ \text{vowels in the word COMPETITION} \}$

ii)  $\{x : x \text{ is a vowel in the word COMPETITION}\}$

iii)  $\{O, E, I\}$

## EXERCISE: 5.2

1

- i) finite set, having seven colours.
- ii) empty set, having no element in between
- iii) infinite set, having infinite elements
- iv) infinite set
- v) Finite set, having finite digits i.e 6
- vi) finite set, having 6 letters
- vii) Infinite set, have infinite numbers
- viii) finite set, have 8 prime factors
- ix) Empty set, have no vowel in the word
- x) Finite set, 12 element in it

2

- (i), (ii), (iii), (iv) represents same sets  
(iv) is different from other sets

3. A, B and E are equal  
C, F and H are equal  
D and G are equal.

4. A, C, E and G are equivalent, These are having 7 elements.

B and D are equivalent, having 3 elements

F and H are equivalent, having 12 elements

I and J are equivalent, having 52 elements

5 i)  $A \subset B$ ,  $B \subset A$ ,  $A = B$

ii)  $A \subset B$  but  $B \not\subset A$

iii)  $B \subset A$  but  $A \not\subset B$

iv) neither  $A \subset B$  nor  $B \subset A$

✓

6 i) False

ii) False

iii) True, because there are 5 elements in each

7 i)  $\phi$

ii)  $\phi$ ,  $\{3\}$ ,  $\{5\}$ ,  $\{3, 5\}$

iii)  $\phi$ ,  $\{2\}$ ,  $\{4\}$ ,  $\{6\}$ ,  $\{2, 4\}$ ,  $\{4, 6\}$ ,  $\{2, 6\}$

$\{2, 4, 6\}$

8

i)  $\xi = N$

$$A = \{2, 4, 6, 8\}$$

ii)  $\xi = W$

$$A = \{0, 2, 4, 6, 8\}$$

iii)  $\xi = \mathbb{Z}$

$$A = \{\dots, -4, -2, 0, 2, 4, 6, 8\}$$

[bodhiyla.com](http://bodhiyla.com)