EXERCISE 1.1

1. Which of the following are sets ? Justify your answer.

(i) The collection of all the months of a year beginning with the letter J.

(ii) The collection of ten most talented writers of India.

(iii) A team of eleven best-cricket batsmen of the world.

(iv) The collection of all boys in your class.

(v) The collection of all natural numbers less than 100.

(vi) A collection of novels written by the writer Munshi Prem Chand.

(vii) The collection of all even integers.

(viii) The collection of questions in this Chapter.

(ix) A collection of most dangerous animals of the world.

2. Let A = {1, 2, 3, 4, 5, 6}. Insert the appropriate symbol $\in$ or $\notin$ in the blank spaces:

(i) 5. . .A (ii) 8 . . . A (iii) 0. . .A

(iv) 4. . . A (v) 2. . .A (vi) 10. . .A

3. Write the following sets in roster form:

(i) A = $\{x : x$ is an integer and $-3 \leq x < 7\}$

(ii) B = $\{x : x$ is a natural number less than 6$\}$

(iii) C = $\{x : x$ is a two-digit natural number such that the sum of its digits is 8$\}$

(iv) D = $\{x : x$ is a prime number which is divisor of 60$\}$

(v) E = The set of all letters in the word TRIGONOMETRY

(vi) F = The set of all letters in the word BETTER

4. Write the following sets in the set-builder form :

(i) {3, 6, 9, 12} (ii) {2,4,8,16,32} (iii) {5, 25, 125, 625}

(iv) {2, 4, 6, . . .} (v) {1,4,9, . . .,100}

5. List all the elements of the following sets :

(i) A = $\{x : x$ is an odd natural number$\}$

(ii) B = $\{x : x$ is an integer, $-\frac{1}{2} < x < \frac{9}{2}\}$

(iii) C = $\{x : x$ is an integer, $x^2 \leq 4\}$

(iv) D = $\{x : x$ is a letter in the word "LOYAL"$\}$

(v) E = $\{x : x$ is a month of a year not having 31 days$\}$

(vi) F = $\{x : x$ is a consonant in the English alphabet which precedes $k\}$.

6. Match each of the set on the left in the roster form with the same set on the right described in set-builder form:

(i) {1, 2, 3, 6} (a) $\{x : x$ is a prime number and a divisor of 6$\}$

(ii) {2, 3} (b) $\{x : x$ is an odd natural number less than 10$\}$

(iii) {M,A,T,H,E,I,C,S} (c) $\{x : x$ is natural number and divisor of 6$\}$

(iv) {1, 3, 5, 7, 9} (d) $\{x : x$ is a letter of the word MATHEMATICS$\}$.