EXERCISE 10(E)

1. Write the cardinal number of each of the following sets:
(i) A = {0, 1, 2, 4}
(ii) B = {-3, -1, 1, 3, 5, 7}
(iii) C = {}
(iv) D = {3, 2, 2, 1, 3, 1, 2}
(v) E = {Natural numbers between 15 and 20}
Solution:
(i) Given set is
A = {0, 1, 2, 4}
Here, the cardinal number i.e. n (A) = 4
(ii) Given set is
B = {-3, -1, 1, 3, 5, 7}
Here, the cardinal number i.e. n (B) = 6
(iii) Given set is
C = {}
Here, the cardinal number i.e. n (C) = 0
(iv) Given set is
D = {3, 2, 2, 1, 3, 1, 2}
D = {1, 2, 3}
Here, the cardinal number i.e. n (D) = 3
(v) Given set is
E = {Natural numbers between 15 and 20}
E = {16, 17, 18, 19}
Here, the cardinal number i.e. n (E) = 4

2. Given
(i) A = {Natural numbers less than 10}
B = {Letters of the word 'PUPPET'}
C = {Squares of first four whole numbers}
D = {Odd numbers divisible by 2}
Find:
(i) n (A)
(ii) n (B)
(iii) n (C)
(iv) n (D)
(v) A ∩ B and (A ∪ B)
Solution:
(i) Given

A = {Natural numbers less than 10}
B = {Letters of the word 'PUPPET'}
C = {Squares of first four whole numbers}
D = {Odd numbers divisible by 2}
Here,
A = {Natural numbers less than 10}
A = {1, 2, 3, 4, 5, 6, 7, 8, 9}
Hence, n (A) = 9
(ii) Given
A = {Natural numbers less than 10}
B = {Letters of the word 'PUPPET'}
C = {Squares of first four whole numbers}
D = {Odd numbers divisible by 2}
Here,
B = {Letters of the word 'PUPPET'}
B = {P, U, E, T}
Hence, n (B) = 4
(iii) Given
A = {Natural numbers less than 10}
B = {Letters of the word 'PUPPET'}
C = {Squares of first four whole numbers}
D = {Odd numbers divisible by 2}
Here,
C = {Squares of first four whole numbers}
C = {0, 1, 4, 9}
Hence, n (C) = 4
(iv) Given
A = {Natural numbers less than 10}
B = {Letters of the word 'PUPPET'}
C = {Squares of first four whole numbers}
D = {Odd numbers divisible by 2}
Here,
D = {Odd numbers divisible by 2}
D = {}
Hence, n (D) = 0
(v) $A \cap B = \{1, 2, 3, 4, 5, 6, 7, 8, 9, P, U, E, T\}$ and
$n (A \cup B) = \{13\}$

3. State true or false for each of the following. Correct the wrong statement

(i) If A = {0}, then n (A) = 0
(ii) n (φ) = 1
(iii) If T = {a, l, a, h, b, d, h}, then n (T) = 5
(iv) If B = {1, 5, 51, 15, 5, 1}, then n (B) = 6
Solution:
(i) Given
If A = {0}, then n (A) = 0
The statement given here is false
Correct statement: If A = {0}, then n (A) = 1
(ii) Given
n (φ) = 1
The statement given here is false
Correct statement: n (φ) = 0
(iii) Given
If T = {a, l, a, h, b, d, h}, then n (T) = 5
T = {a, l, h, b, d}
i.e. n (T) = 5
Hence, the given statement is true
(iv) Given
If B = {1, 5, 51, 15, 5, 1}, then n (B) = 6
The statement given here is false
B = {1, 5, 15, 51}
i.e. n (B) = 4
Correct statement: If B = {1, 5, 51, 15, 5, 1}, then n (B) = 4