Exercise 6(A)

ii) $A_1 = \{x : 2x + 3\} = 11\}$

$= A_1 = \{2x + 3 = 11\}$

$= A_1 = \{2x = 11 - 3 = 8\}$

$\therefore A_1 = \{2x = 8\}$

$= A_1 = \{x = \frac{8}{2} = 4\}$

$\therefore A_1 = \{4\}$

iii) $A_3 = \{x : x \in Z, -3 \leq x < 4\}$

$A_3 = -3 \leq x < 4$

$\therefore x = -3, -2, -1, 0, 1, 2, 3$

$\therefore$ Given set in roaster (Tabular) Form is

$A_3 = \{-3, -2, -1, 0, 1, 2, 3\}$

i) $A_1 = \{x : x$ is a two digit number and sum of the digit of x is $7\}$

x is a two digit number and sum of the digit of x is 7

$\therefore x = 16, 25, 34, 43, 52, 61, 70$

$\therefore$ Given set in roster (tabular) form is

$A_1 = \{16, 25, 34, 43, 52, 61, 70\}$

ii) $A_2 = \{x : x^2 - 4x - 5 = 0\}$

$x^2 - 4x - 5 = 0$

$x^2 - 5x + x - 5 = 0$

$x(x-5) + 1(x-5) = 0$

$(x-5)(x+1) = 0$

$\therefore x - 5 = 0$ or $x + 1 = 0$

$\Rightarrow x = 5, \quad x = -1$

$\therefore$ Given set in roster (Tabular) form is

$A_2 = \{5, -1\}$

iv) $A_5 = \{x : x = 4n, n \in W$ and $n < 4\}$

$x = 4n$

$\therefore n = 0 \qquad x = 4 \times 0 = 0$

When $n = 1 \qquad x = 4 \times 1 = 4$

When $n = 2 \qquad x = 4 \times 2 = 8$

When $n = 3 \qquad x = 4 \times 3 = 12$

$\therefore$ given set of number in tabular form is

$A_5 = \{0, 4, 8, 12\}$

vi) $A_6 = \{x : x = \frac{n}{n+2}, n \in N$ and $n > 5\}$

$x = \frac{n}{n+2}$

$\therefore$ When $n = 6 \quad x = \frac{6}{6+2} = \frac{6}{8} = \frac{3}{4}$

When $n = 7 \quad x = \frac{7}{7+2} = \frac{7}{9}$

When $= 8 \quad x = \frac{8}{8+2} = \frac{8}{10} = \frac{4}{5}$

When $n = 9$ $\quad x = \frac{9}{9+2} = \frac{9}{11}$

∴ Given set in roster (Tabular) form

$A_6 = \left\{\frac{3}{4}, \frac{7}{9}, \frac{4}{5}, \frac{9}{11} \ldots\right\}$

ii) $B_1 = \{6, 9, 12, 15, \ldots\}$

$= \{x : x = 3n + 3, n \in N\}$

iii) $B_2 = \{11, 13, 17, 19\}$

$= \{x : x$ is a prime number between 10 & 20$\}$

iii) $B_3 = \left\{\frac{1}{3}, \frac{3}{5}, \frac{5}{7}, \frac{7}{9}, \frac{9}{11}, \ldots\right\}$

$\left\{x : x = \frac{n}{n+2}, \text{ where } n \text{ is an odd natural number}\right\}$

iv) $B_4 = \{8, 27, 64, 125, 216\}$

$\{x : x = n^3 ; n \in N$ and $2 \leq n \leq 6\}$

v) $B_5 = \{-5, -4, -3, -2, -1\}$

$\{x : x \in Z ; -5 \leq x \leq -1\}$

vi) $B_6 = \{\ldots\ldots, -6, -3, 0, 3, 6, \ldots\}$

$\{x : x = 3n ; n \in Z\}$