Exercise 2.1

Question 4:

The number of polynomials having zeroes as – 2 and 5 is

(A) 1 (B) 2 (C) 3 (D) more than 3

Answer 4:

(D) more than 3

Solution:

Let $p(x) = ax^2 + bx + c$ be the required polynomial whose zeroes are – 2 and 5.

$\therefore$ Sum of zeroes $= -\frac{b}{a}$

$\Rightarrow -\frac{b}{a} = -2 + 5 = \frac{3}{1} = -\frac{-3}{1}$ …. (i)

and product of zeroes $= \frac{c}{a}$

$\Rightarrow \frac{c}{a} = -2 \times 5 = -\frac{10}{1}$ … (ii)

From Equations (i) and (ii), we get

a = 1, b = –3 and c = –10

$\therefore p(x) = ax^2 + bx + c = 1.x^2 - 3x - 10$

$\Rightarrow p(x) = x^2 - 3x - 10$

We know that, if we multiply or divide any polynomial by any arbitrary constant, the zeroes of polynomial never change.

$\therefore p(x) = kx^2 - kx$ –k [where, k is a real number]

$\Rightarrow p(x) = \frac{x^2}{k} - \frac{3x}{k} - \frac{10}{k}$, [Where, k is a non-zero real number]

Hence, the required number of polynomials are infinite i.e., more than 3.