

Ex 5.2

P III

$$50 \text{ ① } 7, 13, 19, \dots, 205$$

$$a = 7, d = 13 - 7$$

$$= 6$$

$$l = a_n = 205$$

$$a + (n-1)d = 205$$

$$7 + (n-1)6 = 205$$

$$\Rightarrow (n-1)6 = 198$$

$$\Rightarrow n = 34$$

$\therefore$  no. of terms in given A.P. = 34

$$50 \text{ ② } 18, 15\frac{1}{2}, 13, \dots, -47$$

$$a = 18, d = \frac{31}{2} - 18$$

$$= \frac{31 - 36}{2}$$

$$= -\frac{5}{2}$$

$$l = a_n = -47$$

$$a + (n-1)d = -47$$

$$18 + (n-1)\left(-\frac{5}{2}\right) = -47$$

$$\Rightarrow (n-1)\left(-\frac{5}{2}\right) = -47 - 18$$

$$\Rightarrow (n-1)\left(-\frac{5}{2}\right) = -65$$

$$\Rightarrow n-1 = -65 \times \frac{2}{-5}$$

$$\Rightarrow n-1 = 26$$

$$\Rightarrow n = 27$$

$\therefore$  no. of terms = 27

$$60 \text{ ③ } 11, 8, 5, 2, \dots$$

$$a = 11, d = 8 - 11$$

$$= -3$$

$$\text{let } a_n = -150$$

$$a + (n-1)d = -150$$

$$11 + (n-1)(-3) = -150$$

$$\Rightarrow -3(n-1) = -161$$

$$\Rightarrow n-1 = \frac{-161}{-3}$$

$$\Rightarrow n = 1 + \frac{161}{3}$$

$$= \frac{3+161}{3}$$

$$n = \frac{164}{3}$$

$\therefore$  n is not an integral value

$\therefore$  -150 is not a term of given A.P.

$$70 \text{ ④ } a_{11} = 38$$

$$a + 10d = 38 \dots \text{ ①}$$

$$a_{16} = 73$$

$$a + 15d = 73 \dots \text{ ②}$$

$$\text{①} - \text{②}$$

$$d + 10d = 38$$

$$a + 15d = 73$$

$$\hline -5d = 35$$

$$\Rightarrow d = -7$$

Sub ①

$$a + 70 = 38$$

$$\Rightarrow a = -32$$

$$a_{31} = a + 30d$$

$$= -32 + 30 \times (-7)$$

$$= -32 - 210$$

$$= -242$$