

If the mean of the set of numbers  $x_1, x_2, x_3, \dots, x_n$  is  $\bar{x}$ , then the mean of the numbers  $x_i + 2i, 1 \leq i \leq n$  is

(a)  $\bar{x} + 2n$

(b)  $\bar{x} + n + 1$

(c)  $\bar{x} + 2$

(d)  $\bar{x} + n$

(b) We know that  $\bar{x} = \frac{\sum_{i=1}^n x_i}{n} \Rightarrow \sum_{i=1}^n x_i = n\bar{x}$

$$\begin{aligned} \therefore \frac{\sum_{i=1}^n (x_i + 2i)}{n} &= \frac{\sum_{i=1}^n x_i + 2\sum_{i=1}^n i}{n} = \frac{n\bar{x} + 2(1 + 2 + \dots + n)}{n} \\ &= \frac{n\bar{x} + 2 \frac{n(n+1)}{2}}{n} = \bar{x} + (n+1) \end{aligned}$$