

**3 JEE Main 2019 (Online) 8th April Evening Slot**

MCQ (Single Correct Answer)

A student scores the following marks in five tests :

45, 54, 41, 57, 43.

His score is not known for the sixth test. If the mean score is 48 in the six tests, then the standard deviation of the marks in six tests is

A  $\frac{100}{\sqrt{3}}$

**B  $\frac{10}{\sqrt{3}}$**

C  $\frac{10}{3}$

D  $\frac{100}{3}$

### Explanation

Let the score in the sixth test = x

Given, Mean  $(\bar{x}) = 48$

$$\Rightarrow \frac{45+54+41+57+43+x}{6} = 48$$

$$\Rightarrow x = 48$$

Standard deviation (SD)

$$= \sqrt{\frac{\sum_{i=1}^N (x_i - \bar{x})^2}{N}}$$

$$= \sqrt{\frac{(45-48)^2 + (54-48)^2 + (41-48)^2 + (57-48)^2 + (43-48)^2 + (48-48)^2}{6}}$$

$$= \sqrt{\frac{9+36+49+81+25}{6}}$$

$$= \sqrt{\frac{200}{6}}$$

$$= \sqrt{\frac{100}{3}}$$

$$= \frac{10}{\sqrt{3}}$$