

Chapter 11 - Measures of Dispersion

Question 1 : Find the interquartile range, quartile deviation and coefficient of quartile deviation from the following data:

Marks	28	18	20	24	27	30	15
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Solution: First, arrange the data in the ascending order:

S.No.	Marks
1	15
2	18
3	20
4	24
5	27
6	28
7	30
N = 7	

$$Q1 = \text{Size of } \left(\frac{N+1}{4}\right) \text{th item} = \text{Size of } \left(\frac{7+1}{4}\right) \text{th item}$$

= Size of 2nd item = 18 marks

$$Q3 = \text{Size of } 3 \left(\frac{N+1}{4}\right) \text{th item} = \text{Size of } 3 \left(\frac{7+1}{4}\right) \text{th item}$$

= Size of 6th item = 28 marks

$$\text{Interquartile range} = Q3 - Q1 = 28 - 18 = 10$$

$$\text{Quartile Deviation} = \frac{Q3 - Q1}{2} = \frac{28 - 18}{2} = 5$$

$$\text{Coefficient of Quartile Deviation} = \frac{Q3 - Q1}{Q3 + Q1} = \frac{28 - 18}{28 + 18} = \frac{10}{46} = 0.217$$

Question 2: What are the methods of Standard Deviation?

Solution:

- Direct Method
- Short-cut Method

Question 3: Define Dispersion.

Solution: Dispersion is the measure of the extent to which different items tend to disperse away from the central tendency.