

3. Using the step deviation method, calculate the mean of the following distribution:

Class interval	Number of companies
0 – 50	17
50 – 100	35
100 – 150	43
150 – 200	40
200 – 250	21
250 – 300	24

[CBSE 2001 C]

Self-Assessment

Multiple-Choice Questions

1. The mean of 6 numbers is 16. With the removal of a number, the mean of the remaining numbers is 17. The number removed is
 (a) 2 (b) 22
 (c) 11 (d) 6 [CBSE SP 2011]

2. The marks obtained by 60 students are tabulated below:

Marks	No. of students
0–10	2
10–20	10
20–30	25
30–40	20
40–50	3
Total	60

Then the number of students who got marks more than or equal to 40 is

- (a) 20 (b) 3
 (c) 17 (d) 23
3. For some data $x_1, x_2, \dots, x_n$ with respective frequencies $f_1, f_2, f_3, \dots, f_n$, the value of $\sum_{i=1}^n f_i (x_i - \bar{x})$ is equal to

- (a) $n\bar{x}$
 (b) 1
 (c) $\sum f_i$
 (d) 0

[CBSE 2024 Standard]

4. If the value of each observation of a statistical data is increased by 3, then the mean of the data

- (a) remains unchanged (b) increases by 3
 (c) increases by 6 (d) increases by $3n$

[CBSE 2023 Standard]

5. The following distribution gives the daily income of 50 workers of a factory.

Income (in ₹)	Number of workers
400 – 424	12
425 – 449	14
450 – 474	8
475 – 499	6
500 – 524	10

The lower limit of the modal class is

- (a) 425 (b) 449
 (c) 424.5 (d) 425.5

[CBSE 2024 Basic]

6. For the following distribution:

Class	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Frequency	10	15	12	20	9

The upper limit of the modal class is

- (a) 10 (b) 15
 (c) 20 (d) 25

[CBSE SQP 2023 Basic]

7. Consider the following frequency distribution:

Class	0 – 6	6 – 12	12 – 18	18 – 24	24 – 30
Frequency	12	10	15	8	11

The median class is

- (a) 6 – 12 (b) 12 – 18
 (c) 18 – 24 (d) 24 – 30

[CBSE SP 2023 Basic]

8. The annual rainfall record of a city for 66 days is given in the following table:

Rainfall (in cm)	Number of days
0 – 10	22
10 – 20	10
20 – 30	8
30 – 40	15
40 – 50	5
50 – 60	6

The difference of upper limits of modal and median classes is

- (a) 10 (b) 15
(c) 20 (d) 30

[CBSE 2024 Basic]

Fill in the Blanks

9. The sum of deviation of all observations from the mean is always _____.
10. If the mode of data is $8x$ and its mean is $11x$, then the median will be _____.
11. The mean and median of first eleven natural numbers is _____.
12. The mean of 17 observations is 20. If the mean of first 9 observations is 23 and that of last 9 observations is 18, then the 9th observation is _____.

Assertion-Reason Type Questions

Directions (Q. Nos. 13 to 15): Each of these questions contains an assertion followed by reason. Read them carefully, and answer the question on the basis of the following options, select the one that best describes the two statements.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but Reason (R) is true.

13. **Assertion (A):** Step-deviation method and assumed mean method will give same result.

Reason (R): The assumed mean method and step-deviation method are just simplified forms of the direct method.

14. **Assertion (A):** Modal class is the class having the maximum frequency.

Reason (R): Mean is always greater than mode.

15. **Assertion (A):** Median of odd number of data is the mid-value.

Reason (R): Median of even number of observations is the mean of two mid-values.

Case Study Based Questions

16. Vijay Sharma, a life insurance agent is working in Life Insurance Company. He has to complete his target of 100 policy holders. After completion of his target, he has found the following data for distribution of ages of 100 policy holders. Based on the given data, answer the following questions.



Age (in years)	Number of policy holders
Below 20	2
Below 25	6
Below 30	24
Below 35	45
Below 40	78
Below 45	89
Below 50	92
Below 55	98
Below 60	100

- (a) What is the median class of the policy holder?
(b) What is the median age (in years) of the policy holder, if policies are given only to persons having age 18 years onwards but less than 60 years?
(c) (i) What is the frequency of the median class?

or

- (ii) What is the sum of lower limit and upper limit of median class?

17. Women's Day is a global day celebrating the social, economic, cultural and political achievements of women. On this special day, a company has organized a free medical check-up for all women employees. All thirty women in that company were examined by the doctor and the number of heart beats per minute were recorded and summarised as follows. Based on the given data, answer the following questions.

Number of heart beats per minute	Number of women
65–68	2
68–71	4
71–74	3
74–77	8
77–80	7
80–83	4
83–86	2



- (a) How many women recorded more than 74 heart beats per minute?
- (b) (i) Estimate the modal heart beats per minute of thirty women.

or

(ii) What is the median class of the given data?

- (c) What is the difference of upper limits of modal class and median class?

18. India meteorological department observes seasonal and annual rainfall every year in different sub-divisions of our country.



It helps them to compare and analyse the results. The table given below show subdivision wise seasonal (monsoon) rainfall (mm) in 2018:

Rainfall (mm)	Number of subdivisions
200 – 400	2
400 – 600	4
600 – 800	7
800 – 1000	4
1000 – 1200	2
1200 – 1400	3
1400 – 1600	1
1600 – 1800	1

Based on the above information, answer the following questions:

- (a) Write the modal class.
- (b) (i) Find the median of the given data.

or

- (ii) Find the mean rainfall in this season.
- (c) If subdivision having at least 1000 mm rainfall during monsoon season, is considered good rainfall subdivision, then how many subdivisions had good rainfall?

[CBSE 2023 Standard]

19. **Mutual Fund:** A mutual fund is a type of investment vehicle that pools money from investors to invest in securities like stocks, bonds or other securities. Mutual funds are operated by professional money managers, who allocate the fund's assets and attempt to produce capital gains or income for the fund's investors.

MUTUAL FUNDS!



Net Asset Value (NAV) represents a fund's per share market value. It is the price at which the investors buy fund shares from a fund company and sell them to a fund company.

The following table shows the Net Asset Value (NAV) per unit of mutual fund of ICICI mutual funds: