INDIAN SCHOOL AL WADI AL KABIR

Class: XI	**Department: Commerce**
Worksheet No: 1	**Topic: Measures of Central Tendency**

1. When the values in a series do not have equal importance, we calculate the _____.
   a. Mode
   b. Weighted mean
   c. Arithmetic mean
   d. None of the above

2. To calculate the median, all the items of a series have to be arranged in a/an _____.
   a. Descending order
   b. Ascending order
   c. Ascending or descending order
   d. None of the above

3. Mode refers to the value within a series that occurs _____ number of times.
   a. Maximum
   b. Minimum
   c. Zero
   d. Infinite

4. What is the mean of the following numbers: 23, 45, 87, 40, 50?
   a. 49
   b. 34
   c. 56
   d. None of the above

5. Which of the following is a characteristic of a mean?
   a. The sum of deviations from the mean is zero
   b. It minimises the sum of squared deviations
   c. It is affected by extreme scores
   d. All of the above

6. Below are the observations of the marks of a student. What is the value of mode?
   84 85 89 92 93 89 87 89 92
   a) 92
   b) 9
   c) 93
   d) 89

7. The ------- is the middle element when the data set is arranged in order of the magnitude.

a. Mean
b. Median
c. Quartile
d. Mode

8. Median divides the series into how many parts:

a. 2
b. 3
c. 4
d. None of these

9. For a symmetrical distribution, median = 30 and mode = 35. What is the value of the mode?

a. 0
b. 30
c. 32.5
d. 27.5

10. From the following data, what is the value of the median?

20 21 25 26 23 29 32 39 33

a) 26
b) 23
c) 25.22
d) 29

11. Which of the following diagrams is used to find the value of mode graphically?

a. Pie chart
b. Bar graph
c. Histogram
d. None of the above

12. ------ is the most commonly used measures of central tendency.

a. Mean
b. Mode
c. Quartile
d. Median

13. Show that the sum of deviations of the values of the variables from their AM is always equal to zero.

A: $\sum (X - \bar{X}) = 0$

X	$(X - \bar{X})$

10	-20
20	-10
30	0
40	10
50	20
$\sum X = 150$	$\sum (X - \bar{X}) = 0$

$\bar{X} = \frac{\sum X}{N}$ = 150/5 = 30. When the sum of the deviations from the arithmetic mean, i.e: ,30 is taken it comes out to be 0.

CASE BASED QUESTIONS:

Case 1:

A geography club recorded the weekly rainfall (in mm) over 11 weeks during the monsoon season. The rainfall data is: **22, 28, 25, 30, 28, 35, 40, 28, 32, 25, 28**. The students wish to find the average rainfall and identify the rainfall amount that occurred most often.

Answer the following questions:

1. Calculate the **mean** rainfall.
2. Find the **median** rainfall.
3. Identify the **mode**.
4. Which measure helps identify the rainfall received most frequently?
5. Explain why the **median** is sometimes preferred over the mean when unusually high rainfall

CASE 2:

The school canteen recorded the number of sandwiches sold over 10 consecutive school days to understand students' eating habits. The number of sandwiches sold each day was: **45, 50, 48, 52, 50, 55, 50, 60, 48, 52**. The canteen manager wants to determine the average daily sales and identify the most common sales figure so that the right quantity of ingredients can be purchased each day.

Answer the following questions:

1. What is the **mean** number of sandwiches sold per day?
2. Find the **median** of the data.
3. Determine the **mode** of the data.
4. Which measure of central tendency best represents the **most frequently occurring** sales figure?
5. If one day's sales increase to **100 sandwiches** because of a special event, which measure will be affected the most?

NUMERICAL EXAMPLE:

1. Find average for following individual data.

2	3	5	6	8	10	11	13	17	20

Calculating the average using direct method:
(Ans: 9.5)

2. Daily income of 10 families is given as follows:

S. No.	1	2	3	4	5	6	7	8	9	10
Daily Income (in â,¹)	100	120	80	85	95	130	200	250	225	275

Calculate average daily income
(Ans: Rs 156)

3. Compute the mean marks obtained by the students from the following data:

Marks	0−10	10−20	20−30	30−40	40−50
No. of Students	4	6	10	20	10

(Ans:30.2)

4. Find mean for the following data by using:
(i) Direct Method: (ii) Short-cut Method; (iii) Step Deviation Method.

X	100−200	200−300	300−400	400−500	500−600
f	10	18	12	20	40

(Ans: 412)

5. From the following data, calculate the weighted mean.

Marks	62	77	65	62	57
Weights	2	1	2	3	4

(Ans: 62.08)

6. Find out median of the following series:

Size	20	25	30	35	40	45	50	55
Frequency	14	18	33	30	20	15	13	7

(Ans:35)

7. Find out median of the following series:

Items	20−30	30−40	40−50	50−60	60−70	70−80	80−90
Frequency	5	10	16	18	12	10	8

(Ans: 54.7)