# INDIAN SCHOOL AL WADI AL KABIR

| Class: XI | Department: Commerce |
|---|---|
| Worksheet No: 8 | Topic: Measures of Central Tendency |

1. ------ is the most commonly used measures of central tendency.
   a. Mean
   b. Mode
   c. Quartile
   d. Median

   A: a

2. Arithmetic mean is defined as the sum of the values of all observations divided by the ------ (Number of observations)

3. The sum of deviations of items about arithmetic mean is always equal to ------
   a. One
   b. Zero
   c. Infinity
   d. None of these

   A: b

4. The ------- is the middle element when the data set is arranged in order of the magnitude.
   a. Mean
   b. Median
   c. Quartile
   d. Mode

   A: b

5. Median divides the series into how many parts:
   a. 2
   b. 3
   c. 4
   d. None of these

   A: a

6. 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

   **A= b**

7. Median is unaffected if the size of the largest value increases. True / False? Give reason.
   True, because median is determined by the position of different values.

8. In case of continuous series, you have to locate the median class where ------- item lies.
   (N/2) th

9. Q1 is known as upper quartile of the series. True or false?

   True

10. The second quartile ( Q2) is called ------ (median).

11. Why are central values calculated?

 A: Measures of central tendency summarizes the whole series of statistical data into a single number that describes a series.

12. 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 |
| $\sum X = 150$ | $\sum (X - \bar{X}) = 0$ |

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

13. Why are central values calculated?

A: Measures of central tendency summarizes the whole series of statistical data into a single number that describes a series

14. --------- divide the distribution into hundred equal parts. (percentiles)

15. In a discrete series, mode can be determined by looking to that value of the variable which has the --------- frequency. (highest)


## Numerical problems:

**1.** The following table shows daily income of 10 workers. Find mean

| Workers | Income |
|---------|--------|
| A | 120 |
| B | 150 |
| C | 180 |
| D | 200 |
| E | 250 |
| F | 300 |
| G | 220 |
| H | 350 |
| I | 370 |
| J | 260 |

(A= 240)

2. Calculate mean, median and mode with the help of the data.

| Class interval | F |
|----------------|----|
| 0-2 | 2 |
| 2-4 | 5 |
| 4-6 | 6 |
| 6-8 | 9 |
| 8-10 | 15 |
| 10-12 | 28 |
| 12-14 | 14 |
| 14-16 | 5 |
| 16-18 | 3 |
| 18-20 | 1 |

A = Mean = 10 . Median = 10.5 and Mode = 11.5 , Use this formula to calculate mode
(Mode = 3 median – 2 mean)

3. Calculate mean, median, Q1 & Q3 from the data:

| Class – interval | F |
|---|---|
| 0-7 | 1 |
| 7-14 | 5 |
| 14-21 | 9 |
| 21-28 | 15 |
| 28-35 | 25 |
| 35-42 | 10 |
| 42-49 | 4 |
| 49-56 | 2 |

A= mean = 28.7, median = 29.54 , Q1 = 22.2 , Q3 = 34.4

4. The following table gives production yield in kg's per hectare of wheat of 150 farms. Calculate mean, median and mode.

| Production yield | No.of . Families |
|---|---|
| 50-53 | 3 |
| 53-56 | 8 |
| 56-59 | 14 |
| 59-62 | 30 |
| 62-65 | 36 |
| 65-68 | 28 |
| 68-71 | 16 |
| 71-74 | 10 |
| 74-71 | 5 |

A = Mean = 63.8, Median = 63.6, Mode = 62.56

5. The size of land holdings of 380 families in a village is given below. Find median size of land Holdings:

| Size | F |
|---|---|
| 0-100 | 40 |
| 100-200 | 89 |
| 200-300 | 148 |
| 300-400 | 64 |
| 400-500 | 39 |

A = Median= 241.2