MCQ'S OF MEASURES OF CENTRAL TENDENCY

MCQ No 3.1
Any measure indicating the centre of a set of data, arranged in an increasing or decreasing order of magnitude, is called a measure of:
(a) Skewness (b) Symmetry **(c) Central tendency** (d) Dispersion

MCQ No 3.2
Scores that differ greatly from the measures of central tendency are called:
(a) Raw scores (b) The best scores **(c) Extreme scores** (d) Z-scores

MCQ No 3.3
The measure of central tendency listed below is:
(a) The raw score **(b) The mean** (c) The range (d) Standard deviation

MCQ No 3.4
The total of all the observations divided by the number of observations is called:
(a) Arithmetic mean (b) Geometric mean (c) Median (d) Harmonic mean

MCQ No 3.5
While computing the arithmetic mean of a frequency distribution, the each value of a class is considered equal to:
(a) Class mark **(b) Lower limit** (c) Upper limit (d) Lower class boundary

MCQ No 3.6
Change of origin and scale is used for calculation of the:
(a) Arithmetic mean (b) Geometric mean
(c) Weighted mean (d) Lower and upper quartiles

MCQ No 3.7
The sample mean $\overline{X}$ is a:
(a) Parameter **(b) Statistic** (c) Variable (d) Constant

MCQ No 3.8
The population mean μ is called:
(a) Discrete variable (b) Continuous variable **(c) Parameter** (d) Sampling unit

MCQ No 3.9
The arithmetic mean is highly affected by:
(a) Moderate values (b) Extremely small values
(c) Odd values **(d) Extremely large values**

MCQ No 3.10
The sample mean $\overline{X}$ is calculated by the formula:
$(a)\ \frac{\sum fX}{\sum f}$ $(b)\ A + \frac{\sum fD}{\sum f}$ $(c)\ A + \frac{\sum fU}{\sum f} \times h$ $(\boldsymbol{d})$ ***All of the above***

MCQ No 3.11
If a constant value is added to every observation of data, then arithmetic mean is obtained by:
(a) Subtracting the constant **(b) Adding the constant**
(c) Multiplying the constant (d) Dividing the constant

MCQ No 3.12
Which of the following statements is always true?
(a) The mean has an effect on extreme scores (b) The median has an effect on extreme scores
(c) Extreme scores have an effect on the mean (d) Extreme scores have an effect on the median

MCQ No 3.13
The elimination of extreme scores at the bottom of the set has the effect of:
(a) Lowering the mean **(b) Raising the mean** (c) No effect (d) None of the above

MCQ No 3.14
The elimination of extreme scores at the top of the set has the effect of:
(a) Lowering the mean (b) Raising the mean (c) No effect (d) Difficult to tell

MCQ No 3.15
The sum of deviations taken from mean is:
(a) Always equal to zero (b) Some times equal to zero
(c) Never equal to zero (d) Less than zero

MCQ No 3.16
If $\overline{X} = 25$, which of the following will be minimum:
(a) $\sum(X - 27)^2$ **(b) $\sum(X - 25)^2$** (c) $\sum(X - 22)^2$ (d) $\sum(X + 25)^2$

MCQ No 3.17
The sum of the squares fo the deviations about mean is:
(a) Zero (b) Maximum **(c) Minimum** (d) All of the above

MCQ No 3.18
$If \sum_{i=1}^{10}(X_i - 50) = 100, then\ sample\ mean\ \overline{X}\ will\ be$
(a) 10 (b) 50 **(c) 60** (d) 100

MCQ No 3.19
For a certain distribution, if $\sum(X - 20) = 25$, $\sum(X - 25) = 0$, and $\sum(X - 35) = -25$, then $\overline{X}$ is equal to:
(a) 20 **(b) 25** (c) -25 (d) 35

MCQ No 3.20
The sum of the squares of the deviations of the values of a variable is least when the deviations are measured from:
(a) Harmonic mean (b) Geometric mean (c) Median **(d) Arithmetic mean**

MCQ No 3.21
If $X_1, X_2, X_3, \ldots X_n$, be **n** observations having arithmetic mean $\overline{X}$ and if $Y = 4X \pm 2$, then $\overline{Y}$ is equal to:
(a) 4X (b) $4\overline{X}$ **(c) $4\overline{X} \pm 2$** (d) 4 ± 2

MCQ No 3.22
If $\overline{X}$=100 and Y=2X – 200, then mean of Y values will be:
(a) 0 (b) 2 (c) 100 (d) 200

MCQ No 3.23
Step deviation method or coding method is used for computation of the:
(a) Arithmetic mean (b) Geometric mean (c) Weighted mean (d) Harmonic mean

MCQ No 3.24
If the arithmetic mean of 20 values is 10, then sum of these 20 values is:
(a) 10 (b) 20 **(c) 200** (d) 20 + 10

MCQ No 3.25
Ten families have an average of 2 boys. How many boys do they have together?
(a) 2 (b) 10 (c) 12 **(d) 20**

MCQ No 3.26
If the arithmetic mean of the two numbers X_1 and X_2 is 5 if X_1=3, then X_2 is:
(a) 3 (b) 5 **(c) 7** (d) 10

MCQ No 3.27
Given X_1=20 and X_2= -20. The arithmetic mean will be:
(a) Zero (b) Infinity (c) Impossible (d) Difficult to tell

MCQ No 3.28
The mean of 10 observations is 10. All the observations are increased by 10%. The mean of increased observations will be:
(a) 10 (b) 1.1 (c) 10.1 **(d) 11**

MCQ No 3.29
The frequency distribution of the hourly wage rate of 60 employees of a paper mill is as follows:

Wage rate (Rs.)	54----56	56----58	58----60	60----62	62----64
Number of workers	10	10	20	10	10

The mean wage rate is:
(a) Rs. 58.60 **(b) Rs. 59.00** (c) Rs. 57.60 (d) Rs. 57.10

MCQ No 3.30
The sample mean $\overline{X}$ of first **n** natural numbers is:
(a) n(n+ 1) / 2 (b) (n+ 1) / 2 (c) n/2 **(d) (n+ 1) / 2**

MCQ No 3.31
The mean of first **2n** natural numbers is:
(a) $\frac{n(n+1)}{2}$ (b) $\frac{n(2n+1)}{2}$ (**c**) $\frac{\mathbf{2n+1}}{\mathbf{2}}$ (d) $\frac{n+1}{2}$

MCQ No 3.32
The sum of deviations is zero when deviations are taken from:
(a) Mean (b) Median (c) Mode (d) Geometric mean

MCQ No 3.33
When the values in a series are not of equal importance, we calculate the:
(a) Arithmetic mean (b) Geometric mean **(c) Weighted mean** (d) Mode

MCQ No 3.34
When all the values in a series occur the equal number of times, then it is not possible to calculate the:
(a) Arithmetic mean (b) Geometric mean (c) Harmonic mean **(d) Weighted mean**

MCQ No 3.35
The mean for a set of data obtained by assigning each data value a weight that reflects its relative importance within the set, is called:
(a) Geometric mean (b) Harmonic mean **(c) Weighted mean** (d) Combined mean

MCQ No 3.36
If $\overline{X}_1, \overline{X}_2, \overline{X}_3, \ldots, \overline{X}_k$ be the arithmetic means of **k** distributions with respective frequencies $n_1, n_2, n3, \ldots, n_k$, then the mean of the whole distribution $\overline{X}_c$ is given by:
(a) $\sum\overline{X} / \sum n$ (b) $\sum n / \sum\overline{X}$ **(c)** $\sum \mathbf{n}\overline{\boldsymbol{X}} / \sum \mathbf{n}$ (d) $\sum(n+\overline{X}) / \sum n$

MCQ No 3.37
The combined arithmetic mean is calculated by the formula:
$(a)\ \frac{\overline{X}_1 + \overline{X}_2}{n_1 + n_2}$ $(b)\ \frac{n_1 + n_2}{2}$ $(\boldsymbol{c})\ \frac{\boldsymbol{n_1\overline{X}_1 + n_2\overline{X}_2}}{\boldsymbol{n_1 + n_2}}$ $(b)\ \frac{n_1X_1 + n_2X_2}{2}$

MCQ No 3.38
The arithmetic mean of 10 items is 4 and the arithmetic mean of 5 items is 10. The combined arithmetic mean is:
(a) 4 (b) 5 **(c) 6** (d) 90

MCQ No 3.39
The midpoint of the values after they have been ordered from the smallest to the largest or the largest to the smallest is called:
(a) Mean **(b) Median** (c) Lower quartile (d) Upper quartile

MCQ No 3.40
The first step in calculating the median of a discrete variable is to determine the:
(a) Cumulative frequencies (b) Relative weights
(c) Relative frequencies **(d) Array**

MCQ No 3.41
The suitable average for qualitative data is:
(a) Mean **(b) Median** (c) Mode (d) Geometric mean

MCQ No 3.42
Extreme scores will have the following effect on the median of an examination:
(a) They may have no effect on it (b) They may tend to raise it
(c) They may tend to lower it (d) None of the above

MCQ No 3.43
We must arrange the data before calculating:
(a) Mean **(b) Median** (c) Mode (d) Geometric mean

MCQ No 3.44
If the smallest observation in a data is decreased, the average which is not affected is:
(a) Mode **(b) Median** (c) Mean (d) Harmonic mean

MCQ No 3.45
If the data contains an extreme value, the suitable average is:
(a) Mean **(b) Median** (c) Weighted mean (d) Geometric mean

MCQ No 3.46
Sum of absolute deviations of the values is least when deviations are taken from:
(a) Mean (b) Mode **(c) Median** (d) Q_3

MCQ No 3.47
The frequency distribution of the hourly wages rate of 100 employees of a paper mill is as follows:

Wage rate (Rs.)	54----56	56----58	58----60	60----62	62----64
Number of workers	20	20	20	20	20

The median wage rate is:
(a) Rs.55 (b) Rs.57 (c) Rs.56 **(d) Rs.59**

MCQ No 3.48
The values of the variate that divide a set of data into four equal parts after arranging the observations in ascending order of magnitude are called:
(a) Quartiles (b) Deciles (c) Percentiles (d) Difficult to tell

MCQ No 3.49
The lower and upper quartiles of a symmetrical distribution are 40 and 60 respectively. The value of median is:
(a) 40 **(b) 50** (c) 60 (d) (60 – 40) / 2

MCQ No 3.50
If in a discrete series 75% values are less than 30, then:
(a) $Q_3 < 75$ (b) $Q_3 < 30$ **(c) $Q_3 = 30$** (d) $Q_3 > 30$

MCQ No 3.51
If in a discrete series 75% values are greater than 50, then:
(a) $Q_1 = 50$ (b) $Q_1 < 50$ (c) $Q_1 > 50$ (d) $Q_1 \neq 50$

MCQ No 3.52
If in a discrete series 25% values are greater than 75, then:
(a) $Q_1 > 75$ (b) $Q_1 = 75$ **(c) $Q_3 = 75$** (d) $Q_3 > 75$

MCQ No 3.53
If in a discrete series 40% values are less than 40, then :
(a) $D_4 \neq 40$ (b) $D_4 < 40$ (c) $D_4 > 40$ **(d) $D_4 = 40$**

MCQ No 3.54
If in a discrete series 15% values are greater than 40, then:
(a) $P_{15} = 70$ (b) $P_{85} = 15$ **(c) $P_{85} = 70$** (d) $P_{70} = 70$

MCQ No 3.55
The middle value of an ordered series is called:
(a) Median (b) 5^{th} decile (c) 50^{th} percentile **(d) All the above**

MCQ No 3.56
If in a discrete series 50% values are less than 50, then:
(a) $Q_2 = 50$ (b) $D_5 = 50$ (c) $P_{50} = 50$ **(d) All of the above**

MCQ No 3.57
The mode or model value of the distribution is that value of the variate for which frequency is:
(a) Minimum **(b) Maximum** (c) Odd number (d) Even number

MCQ No 3.58
Suitable average for averaging the shoe sizes for children is:
(a) Mean **(b) Mode** (c) Median (d) Geometric mean

MCQ No 3.59
Extreme scores on an examination have the following effect on the mode:
(a) They tend to raise it (b) they tend to lower it
(c) They have no effect on it (d) difficult to tell

MCQ No 3.60
A measurement that corresponds to largest frequency in a set of data is called:
(a) Mean (b) Median **(c) Mode** (d) Percentile

MCQ No 3.61
Which of the following average cannot be calculated for the observations 2, 2, 4, 4, 6, 6, 8, 8, 10, 10 ?
(a) Mean (b) Median **(c) Mode** (d) All of the above

MCQ No 3.62
Mode of the series 0, 0, 0, 2, 2, 3, 3, 8, 10 is:
(a) 0 (b) 2 (c) 3 (d) No mode

MCQ No 3.63
A distribution with two modes is called:
(a) Unimodel **(b) Bimodal** (c) Multimodal (d) Normal

MCQ No 3.64
The model letter of the word "STATISTICS" is:
(a) S (b) T (c) Both S and I **(d) Both S and T**

MCQ No 3.65
The mode for the following frequency distribution is:

Weekly sales of burner units	0	1	2	3	Over 3
Number of weeks	38	6	5	1	0

(a) 0 (b) 2 **(c) 3** (d) No mode

MCQ No 3.66
Which of the following statements is always correct?
(a) Mean = Median = Mode (b) Arithmetic mean = Geometric mean = Harmonic mean
(c) Median = Q_2 = D_5 = P_{50} (d) Mode = 2Median - 3Mean

MCQ No 3.67
In a moderately symmetrical series, the arithmetic mean, median and mode are related as:
(a) Mean - Mode = 3(Mean - Median) (b) Mean - Median = 2(Median - Mode)
(c) Median - Mode = (Mean - Median) / 2 (d) Mode – Median = 2Mean – 2Median

MCQ No 3.68
In a moderately skewed distribution, mean is equal to!
(a) (3Median - Mode) / 2 (b) (2Mean + Mode) / 3
(c) 3Median – 2Mean (d) 3Median - Mode

MCQ No 3.69
In a moderately asymmetrical distribution, the value of median is given by:
(a) 3Median + 2Mean (b) 2Mean + Mode
(c) (2Mean + Mode) / 3 (d) (3Median - Mode) / 2

MCQ No 3.70
For moderately skewed distribution, the value of mode is calculated as:
(a) 2Mean – 3Median **(b) 3Median – 2Mean**
(c) 2Mean + Mode (d) 3Median - Mode

MCQ No 3.71
In a moderately skewed distribution, Mean = 45 and Median = 30, then the value of mode is:
(a) 0 (b) 30 (c) 45 (d) 180

MCQ No 3.72
If for any frequency distribution, the median is 10 and the mode is 30, then approximate value of mean is equal to:
(a) 0 (b) 10 (c) 30 (d) 60

MCQ No 3.73
In a moderately asymmetrical distribution, the value of mean and mode is 15 and 18 respectively. The value of median will be:
(a) 48 (b) 18 **(c) 16** (d) 15

MCQ No 3.74
$For\ moderately\ skewed\ distribution\ \frac{Median - Mode}{Mean - Median}\ is\ equal\ to$:
(a) 2 (b) 3 (c) 1/2 (d) 1/3

MCQ No 3.75
Which of the following is correct in a positively skewed distribution?
(a) Mean = Median = Mode (b) Mean < Median < Mode
(c) Mean > Median > Mode (d) Mean + Median + Mode

MCQ No 3.76
If the values of mean, median and mode coincide in a unimodel distribution, then the distribution will be:
(a) Skewed to the left (b) Skewed to the right (c) Multimodal **(d) Symmetrical**

MCQ No 3.77
A curve that tails off to the right end is called:
(a) Positively skewed (b) Negatively skewed (c) Symmetrical (d) Both (b) and (c)

MCQ No 3.78
The sum of the deviations taken from mean is:
(a) Always equal to zero (b) Some times equal to zero
(c) Never equal to zero **(d) Less than zero**

MCQ No 3.79
If a set of data has one mode and its value is less than mean, then the distribution is called:
(a) Positively skewed (b) Negatively skewed (c) Symmetrical (d) Normal

MCQ No 3.80
Taking the relevant root of the product of all non-zero and positive values are called:
(a) Arithmetic mean **(b) Geometric mean** (c) Harmonic mean (d) Combined mean

MCQ No 3.81
The best average in percentage rates and ratios is:
(a) Arithmetic mean (b) Lower and upper quartiles
(c) Geometric mean (d) Harmonic mean

MCQ No 3.82
The suitable average for computing average percentage increase in population is:
(a) Geometric mean (b) Harmonic mean (c) Combined mean (d) Population mean

MCQ No 3.83
If 10% is added to each value of variable, the geometric mean of new variable is added by:
(a) 10 (b) 1/100 **(c) 10%** (d) 1.1

MCQ No 3.84
If each observation of a variable **X** is increased by 20%, then geometric mean is also increased by:
(a) 20 (b) 1/20 **(c) 20%** (d) 100%

MCQ No 3.85
If any value in a series is negative, then we cannot calculate the:
(a) Mean (d) Median **(c) Geometric mean** (d) Harmonic mean

MCQ No 3.86
Geometric mean for X_1 andX_2 is:
$(a)\ \sqrt{X_1 + X_2}$ $(\boldsymbol{b})\ \sqrt{\boldsymbol{X_1 X_2}}$ $(c)\ \sqrt{X_1} + \sqrt{X_2}$ $(d)\ \sqrt{2X_1 X_2}$

MCQ No 3.87
Geometric mean of 2, 4, 8 is:
(a) 6 **(b) 4** (c) 14/3 (d) 8

MCQ No 3.88
Geometric mean is suitable when the values are given as:
(a) Proportions (b) Ratios (c) Percentage rates **(d) All of the above**

MCQ No 3.89
If the geometric of the two numbers X_1 and X_2 is 9 if X_1=3, then X_2 is equal to:
(a) 3 (b) 9 **(c) 27** (d) 81

MCQ No 3.90
If the two observations are a = 2 and b = -2, then their geometric mean will be:
(a) Zero (b) Infinity **(c) Impossible** (d) Negative

MCQ No 3.91
Geometric mean of -4, -2 and 8 is:
(a) 4 (b) 0 (c) -2 **(d) Impossible**

MCQ No 3.92
The ratio among the number of items and the sum of reciprocals of items is called:
(a) Arithmetic mean (b) Geometric mean **(c) Harmonic mean** (d) Mode

MCQ No 3.93
Harmonic mean for X_1 and X_2 is:
$(a)\ \frac{2}{X_1 + X_2}$ $(\boldsymbol{b})\ \boldsymbol{\frac{2X_1X_2}{X_1 + X_2}}$ $(c)\ \frac{X_1 + X_2}{2}$ $(d)\ \frac{X_1 + X_2}{2X_1X_2}$

MCQ No 3.94
The appropriate average for calculating the average speed of a journey is:
(a) Median (b) Arithmetic mean (c) Mode **(d) Harmonic mean**

MCQ No 3.95
Harmonic mean gives less weightage to:
(a) Small values **(b) Large values** (c) Positive values (d) Negative values

MCQ No 3.96
The harmonic mean of the values 5, 9, 11, 0, 17, 13 is:
(a) 9.5 (b) 6.2 (c) 0 **(d) Impossible**

MCQ No 3.97
If the harmonic mean of the two numbers X1 and X2 is 6.4 if X2=16, then X1 is:
(a) 4 (b) 10 (c) 16 (d) 20

MCQ No 3.98
If a = 5 and b = -5, then their harmonic mean is:
(a) -5 (b) 5 (c) 0 **(d) ∞**

MCQ No 3.99
For an open-end frequency distribution, it is not possible to find:
(a) Arithmetic mean (b) Geometric mean (c) Harmonic mean **(d) All of the above**

MCQ No 3.100
If all the items in a variable are non zero and non negative then:
(a) A.M > G.M > H.M (b) G.M > A.M > H.M (c) H.M > G.M > A.M (d) A.M < G.M < H.M

MCQ No 3.101
The geometric mean of a set of positive numbers X_1, X_2, X_3, ... , X_n is less than or equal to their arithmetic mean but is greater than or equal to their:
(a) Harmonic mean (b) Median (c) Mode (d) Lower and upper quartiles

MCQ No 3.102
Geometric mean and harmonic mean for the values 3, -11, 0, 63, -14, 100 are:
(a) 0 and 3 (b) 3 and -3 (c) 0 and 0 **(d) Impossible**

MCQ No 3.103
If the arithmetic mean and harmonic mean of two positive numbers are 4 and 16, then their geometric mean will be:
(a) 4 **(b) 8** (c) 16 (d) 64

MCQ No 3.104
The arithmetic mean and geometric mean of two observations are 4 and 8 respectively, then harmonic mean of these two observations is:
(a) 4 (b) 8 (c) 16 (d) 32

MCQ No 3.105
The geometric mean and harmonic mean of two values are. 8 and 16 respectively, then arithmetic mean of values is:
(a) 4 **(b) 16** (c) 24 (d) 128

MCQ No 3.106
Which pair of averages cannot be calculated when one of numbers in the series is zero?
(a) Geometric mean and Median (b) Harmonic mean and Mode
(c) Simple mean and Weighted mean **(d) Geometric mean and Harmonic mean**

MCQ No 3.107
In a given data the average which has the least value is:
(a) Mean (b) Median **(c) Harmonic mean** (d) Geometric mean

MCQ No 3.108
If all the values in a series are same, then:
(a) A.M = G.M = H.M (b) A.M ≠ G.M ≠ H.M (c) A.M > G.M > H.M (d) A.M < G.M < H.M

MCQ No 3.109
The averages are affected by change of:
(a) Origin (b) Scale **(c) Both (a) and (b)** (d) None of the above