CA FOUNDATION QUANTS

Chp14 Measures of Central Tendency & Dispersion

MARATHON SERIES

CA PRANAV POPAT

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Plan & Approach

- Revision of all concepts from Comprehensive Book
- PYQs (Past Paper MCQs) of each topic last 3 papers
- Substantial Coverage of Syllabus (80+)
- Dedicated Theory hai Zaroori Live Session
- 10 Live Sessions, 2 Recorded Sessions as per Schedule

DETAILED SCHEDULE

Date	Day	Mode	Start	End	Chapters	Marks
01-Jan-26	Thu	Live	3.15 pm	5.30 pm	Math for Finance	14
02-Jan-26	Fri	Live	3.15 pm	5.30 pm	Measures of Central Tendency and Dispersion	10
03-Jan-26	Sat	Recorded	3.15 pm	5.30 pm	Blood Relations and Direction Test	10
04-Jan-26	Sun	Recorded	3.15 pm	5.30 pm	Seating Arrangements and Number Series..	10
05-Jan-26	Mon	Live	3.15 pm	5.30 pm	Correlation and Regression	5
06-Jan-26	Tue	Live	3.15 pm	5.30 pm	Index Numbers and Sequence Series	8
07-Jan-26	Wed	Live	3.15 pm	5.30 pm	Ratio Proportion Indices Logarithm	4
08-Jan-26	Thu	Live	3.15 pm	5.30 pm	Equations and Linear Inequalities	6
09-Jan-26	Fri	Live	3.15 pm	5.30 pm	Permutations and Combinations	5
10-Jan-26	Sat	Live	3.15 pm	5.30 pm	Set Relation and Functions	4
11-Jan-26	Sun	Live	3.15 pm	5.30 pm	Theory hai Zaroori Edition 2026	10
12-Jan-26	Mon	Live	3.15 pm	5.30 pm	100Marks Full Syllabus Test Live with Discussion in Session itself	

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Concepts

Central Tendency - Basics

Meaning	• *Central Tendency is the **tendency** of a given set of observations to **cluster** around a single **central or middle value.*** • *The **single value** that **represents** the given set of observations is described as a measure of central tendency.*
Different Measures of Central Tendency	• *Arithmetic Mean (AM)* • *Median (Me)* • *Mode (Mo)* • *Geometric Mean (GM)* • *Harmonic Mean (HM)*
Types of Formula based Questions	• *Discrete Observations* 11, 13, 20, 34 • *Simple Frequency Distribution* • *Grouped Frequency Distribution*

x	f
2	1
4	3
7	2
10	9

x	f	x_m
0-10	2	5
10-20	4	15
20-30	3	25

Arithmetic Mean

Discrete Observations	$\bar{x} = \dfrac{x_1 + x_2 + x_3 + \ldots + x_n}{n}$	$\bar{x} = \dfrac{\Sigma x}{n}$
Frequency Distribution	$\bar{x} = \dfrac{\Sigma fx}{N}$	
	In case of simple frequency distribution	x = individual values
	In case of grouped frequency distribution	x = mid-point of class intervals
	N = total number of observations	$N = \Sigma f$
Assumed Mean / Step-Deviation Method	AM using assumed mean / step deviation method $\bar{x} = A + \dfrac{\Sigma fd}{N} \times C$,where $d = \dfrac{x - A}{C}$, A is assumed mean, C is class length	
Property 1	If all the observations are constant, AM is also constant	
Property 2	the algebraic sum of deviations of a set of observations from their AM is zero	
Property 3	AM is affected both due to change of origin and scale If $y = a + bx$ then $\bar{y} = a + b\bar{x}$	
Property 4	Combined AM $\bar{x}_c = \dfrac{n_1\bar{x}_1 + n_2\bar{x}_2}{n_1 + n_2}$	

General Review	• *AM is best measure of central tendency* • *AM is based on all observations* • *AM is affected by sampling fluctuations* • *AM is amenable to mathematical property* • *AM cannot be used in case of open end classification*

Below 10
10–20
20–30

x_m
α

Median

<table>
<tr><td>Discrete Observations</td><td>If n = odd, then middle term
If n = even, average of two middle terms</td></tr>
<tr><td>Simple Frequency Distribution</td><td>First make column of less than cumulative frequency
Apply same formula as discrete</td></tr>
<tr><td>Grouped Frequency Distribution</td><td>Median in case of grouped frequency distribution
<table>
<tr><td>Step 1</td><td>Prepare a less than type cumulative frequency distribution</td></tr>
<tr><td>Step 2</td><td>Calculate $\frac{N}{2}$ and check between which class boundaries it falls and call it as Median Class</td></tr>
<tr><td>Step 3</td><td><table><tr><td>l_1</td><td>N_u</td><td>N_l</td><td>C</td></tr><tr><td>LCB of Median Class</td><td>Cum Freq. of Median Class</td><td>Cum. Freq. of Pre-Median Class</td><td>Class length of Median Class</td></tr></table></td></tr>
<tr><td>Step 4</td><td>Apply Formula
$$Me = l_1 + \left(\frac{\frac{N}{2} - N_l}{N_u - N_l}\right) \times C \quad or \quad Me = l_1 + \left(\frac{\frac{N}{2} - N_l}{f}\right) \times C$$</td></tr>
</table></td></tr>
</table>

modulus

Property 1	*For a set of observations, the sum of absolute deviations is minimum, when the deviations are taken from the median.* $\Sigma \lvert x - Me \rvert$ *is minimum*
Property 2	*Median is also affected by both change of origin and scale.*
General Review	• *Median is also called as positional average* • *Median is not based on all observations* • *Median is* less *not affected by sampling fluctuations* • *Median is best measure of central tendency in case of open-end classification*

Partition Values

Meaning

- *These may be defined as **values dividing** a given **set of observations** into number of **equal parts***
- *When we want to divide the given set of observations into two equal parts, we consider median, similarly there are quartiles, deciles, percentiles*

Name of PV	No. of equal parts	No. of PVs	Symbol
Median	2	1	Me
Quartile	4	3	Q_1, Q_2, Q_3
Decile	10	9	$D_1, D_2, ..., D_9$
Percentile	100	99	$P_1, P_2, ..., P_{99}$

Formula – Discrete Observations	• Rank Calculation $(n+1)p^{th}$ term • Value of p depends on partition value Q_3 $(n+1) \times \frac{3}{4}$ D_3 Q_1 $(n+1) \times 1/4$

#	Median	Quartile	Decile	Percentile
First	1/2	1/4	1/10	1/100
Second		2/4	2/10	2/100
…				
Last		3/4	9/10	99/100

Quartiles Grouped FD

Quartiles in case of Grouped Frequency Distribution: Steps are like median with few modifications.

1^{st} Quartile	3^{rd} Quartile
Find Q_1 class using $\frac{N}{4}$	Find Q_3 class using $\frac{3N}{4}$
$Q_1 = l_1 + \left(\frac{\frac{N}{4} - N_l}{N_u - N_l}\right) \times C$	$Q_3 = l_1 + \left(\frac{\frac{3N}{4} - N_l}{N_u - N_l}\right) \times C$

Mode

Meaning	*Mode is the **value** that **occurs the maximum** number of times*
Special Thing about Mode	• *If two or more observations are having maximum frequency then there are **multiple modes** [multimodal distribution]* • *If there are **exactly two** modes then distribution is called as **Bimodal** Distribution* • *If all observations are having same frequency then distribution has **no mode*** • *We can say that Mode is **not rigidly defined***
Grouped Frequency Distribution	• *Find Modal Class: Class with highest frequency and obtain below values* <table><tr><td>f_{-1}</td><td>f_0</td><td>f_1</td></tr><tr><td>frequency of pre modal class</td><td>frequency of the modal class</td><td>frequency of the post modal class</td></tr></table>• *Apply Formula* $$Mo = l_1 + \left(\frac{f_0 - f_{-1}}{2f_0 - f_{-1} - f_1}\right) \times C$$

Property 1	*If all the observations are constant, mode is also constant*
Property 2	*Mode is also affected both due to change of origin and scale*
General Review	• *Mode is not based on all observations* • *Mode is not rigidly defined/ uniquely defined* • *Mode is not amenable to Mathematical Property*

Relationship between Mean, Median and Mode

In case of Symmetric Distribution	Mean = Median = Mode
In case of Moderately Skewed Distribution (Empirical relationship)	Mean – Mode = 3 (Mean – Median) OR Mode = 3 Median – 2 Mean

Geometric Mean

Definition	*For a given set of n **positive observations**, the geometric mean is defined as the n^{th} root of the product of the observations*
Formula – Discrete	$G = \left(x_1 \times x_2 \times \ldots \times x_n\right)^{1/n}$
Formula – Frequency Distribution	$G = \left(x_1^{f_1} \times x_2^{f_2} \times \ldots \times x_n^{f_n}\right)^{1/N}$
Property 1	*Logarithm of G for a set of observations is the AM of the logarithm of the observations* $\log G = \frac{1}{n}\Sigma \log x$
Property 2	*If all the observations are constant, GM is also constant*
Property 3	*If* $z = xy$*, then* GM of z = GM of x × GM of y
Property 4	*If* $z = x/y$*, then* GM of $z = \frac{\text{GM of } x}{\text{GM of } y}$

Harmonic Mean

Definition	For a given set of **non-zero** observations, harmonic mean is defined as the **reciprocal of the AM of the reciprocals of the observation**
Formula – Discrete	$H = \dfrac{n}{\Sigma(\frac{1}{x})}$
Formula – Frequency Distribution	$H = \dfrac{N}{\Sigma(\frac{f}{x})}$
Property 1	If all observations are constant HM is also constant
Property 2	$\text{Combined } HM = \dfrac{n_1 + n_2}{\frac{n_1}{H_1} + \frac{n_2}{H_2}}$

Use of GM and HM

Both	*Both are used for calculating average rates*
GM	*Appropriate for rates having percentages*
HM	*Appropriate for rates other than percentages*

Relationship between AM, GM, and HM

Relation	**Scenario**	**Relation**
	When all the observations are same/ identical	$AM = GM = HM$
	When observations are distinct	$AM > GM > HM$
	In question is silent	$AM \geq GM \geq HM$
Special Relation	*If there are only two observations:* $AM \times HM = (GM)^2$	

$AH = G^2$

Weighted Average

When to use	*If the observations are not of equal importance and we need to treat observations according to their hierarchical importance, then we use Weighted Average*
Formulas	

Weighted AM	$\dfrac{\sum wx}{\sum w}$
Weighted GM	$\left(x_1^{w_1} \times x_2^{w_2} \times x_3^{w_3} \times \ldots \times x_n^{w_n}\right)^{\frac{1}{\sum w}}$
Weighted HM	$\dfrac{\sum w}{\sum\left(\dfrac{w}{x}\right)}$

Measures of Dispersion

Meaning of Measure of Dispersion	• *Dispersion for a given set of observations may be defined as* • *the **amount of deviation** of the observations,* • *usually, from an **appropriate** measure of **central tendency***	
Types of Measure of Dispersion	*Absolute Measures of Dispersion*	• *These are with units* • *These are not useful for comparison of two variables with different units.* • *Example: Range, Mean Deviation, Standard Deviation, Quartile Deviation*
	Relative Measures of Dispersion	• *These are unit free measures* • *These are useful for comparison of two variables with different units.* • *Example: Coefficient of Range, Coefficient of Mean Deviation, Coefficient of variation, Coefficient of Quartile Deviation*

Range

Discrete – Formula	$L - S$ where, L: Largest Observation, S: Smallest Observation
Grouped Frequency Distribution – Formula	$L - S$ where, Largest Observation = **UCB** of last class interval, Smallest Observation = **LCB** of first-class interval
Coefficient of Range	$\frac{L-S}{L+S} \times 100$
Property 1	• **Not affected** by change of **origin** • Affected by **change of scale (only value)** • **No impact of sign** of change of scale • Note: **Measure of Dispersion can never be negative**
General Review	• Not Based on All Observations • Easy to Compute

$R_x = 10$

Mean Deviation

Meaning	• *Mean deviation is defined as the* • ***arithmetic mean*** *of the* • ***absolute deviations*** *of the observations* • *from an* ***appropriate measure*** *of central tendency*
Formula – Discrete	$MD_A = \frac{1}{n}\Sigma \lvert x - A \rvert$ *where, A = Appropriate Central Tendency Measure*
Formula – Frequency Distribution	$MD_A = \frac{1}{N}\Sigma f \lvert x - A \rvert$
Coefficient of Mean Deviation	*Coefficient of Mean Deviation:* $\frac{\text{Mean Deviation about } A}{A} \times 100$
Property 1	*Mean Deviation takes its* ***minimum value*** *when deviations are taken from* ***Median***
Property 2	*Change of Origin –* ***No Affect****, Change of Scale –* ***Affect of value not sign***

$R_x = 10,$ $y = 2x + 3$ $R_y = 2 \times 10 = 20$

$y = -2x + 3$ $R_y = 2 \times 10 = 20$

General Review	• *Based on **all observations*** • *Improvement over Range* • ***Difficult to compute*** • ***Not amenable to Mathematical Property** because of usage of **Modulus***

Standard Deviation

Meaning	• *Improvement over Mean Deviation* • *It is defined as the* ***root mean square deviation*** *when the deviations are taken from the AM of the observations*
Formula – Discrete	$\sigma_x = SD_x = \sqrt{\frac{\Sigma(x-\bar{x})^2}{n}}$ $\sigma_x = SD_x = \sqrt{\frac{\Sigma x^2}{n} - (\bar{x})^2}$
Formula – Frequency Distribution	$\sigma_x = SD_x = \sqrt{\frac{\Sigma f(x-\bar{x})^2}{N}}$ $\sigma_x = SD_x = \sqrt{\frac{\Sigma fx^2}{N} - (\bar{x})^2}$
Coefficient of Variation	$\frac{SD_x}{\bar{x}} \times 100$

SD for any two numbers	$SD = \frac{Range}{2}$
SD for first n natural numbers	$s = \sqrt{\frac{n^2 - 1}{12}}$
Property 1	*If all the observations are constant, SD is **ZERO***
Property 2	*No effect of change of origin but affected by change of scale in the magnitude (ignore sign)*
Property 3	$SD_c = \sqrt{\frac{n_1 s_1^2 + n_2 s_2^2 + n_1 d_1^2 + n_2 d_2^2}{n_1 + n_2}}$ $d_1 = \bar{x}_c - \bar{x}_1, d_2 = \bar{x}_c - \bar{x}_2$

Quartile Deviation

Formula	semi inter quartile range $$QD_x = \frac{Q_3 - Q_1}{2}$$
Calculation	*Quartiles are calculated same as we studied in Central Tendency*
Coefficient of Quartile Deviation	$$\frac{Q_3 - Q_1}{Q_3 + Q_1} \times 100$$
General Review	• *It is the **best measure** of dispersion for **open-end** classification* • *It is also **less affected** due to sampling fluctuations* • *Like other measures of Dispersion, **QD** is also not affected by change of origin but affected by scale ignoring sign*
Relationship between SD, MD and QD	$$4SD = 5MD = 6QD$$ *or* $$SD : MD : QD = 15 : 12 : 10$$

PYQ Sep 2025

(21) If there are two groups with 10 and 12 observations and harmonic mean of the two groups are 3 and 5 respectively, then the combined Harmonic mean is

a. 8.0 b. 2.0

c. 3.8 d. 4.0

$n_1 = 10 \quad n_2 = 12$

$H_1 = 3 \quad H_2 = 5$

$$H_c = \frac{n_1 + n_2}{\frac{n_1}{H_1} + \frac{n_2}{H_2}}$$

$$\frac{10+12}{\frac{10}{3} + \frac{12}{5}}$$

$10 \div 3$ M+ $12 \div 5$ M+ MRC $\div$ = X 22

3.837

PYQ Sep 2025

(22) Best measure of Dispersion for open-end classification is the QD, which does not change with the change of origin.

a. Quartile Deviation, Scale
b. Standard Deviation, Scale
c. ✓ Quartile Deviation, Origin
d. Standard Deviation, Origin

PYQ Sep 2025

(23) Coefficient of range of 84, 93, 53, 70, 82, 65 is

a. 28.38   ✓ b. 27.39

c. 26.75   d. 29.31

$L = 93$

$S = 53$

$$\text{co. of range} = \frac{L-S}{L+S} \times 100$$

$$= \frac{93-53}{93+53} \times 100 = \frac{40}{146} \times 100 = 27.39$$

PYQ Sep 2025

(24) Calculate the Harmonic Mean of 1, 1/3, 1/6 and 1/9.

a. 2.48 ✓b. 0.21

c. 0.31 d. 0.25

$1, \frac{1}{3}, \frac{1}{6}, \frac{1}{9}$

$HM = \frac{n}{\Sigma(1/x)} = \frac{4}{1+3+6+9} = \frac{4}{19} = 0.21$

PYQ Sep 2025

(25) *If X and Y are related by $4X + 3Y + 5 = 0$ and Mean of X is 10, then the Mean of Y is*

a. -23 ✓b. -15

c. -20 d. 23

$$4X + 3Y + 5 = 0$$

$$\bar{X} = 10, \quad \bar{Y} = ?$$

$$4(10) + 3\bar{Y} + 5 = 0$$

$$3\bar{Y} + 45 = 0$$

$$3\bar{Y} = -45$$

$$\bar{Y} = -15$$

PYQ Sep 2025

(26) *For a moderately skewed distribution of marks in English for a group of 145 students the mean marks and median marks were found to be 55.10 and 52.40, respectively. The modal marks are*

a.	47	b.	42
c.	53.1	d.	52.2

Mode = 3 Median − 2 Mean

$= 3(52.4) - 2 \times 55.10$

$= 47$

PYQ Sep 2025

(27) *If the sum of ten values is 20 and sum of squares of these values is 80, then the standard deviation is ________.*

a.	1	✓ b.	2
c.	1/2	d.	4

$\Sigma x = 20 \quad n = 10 \quad \Sigma x^2 = 80, \; SD = ?$

$$SD = \sqrt{\frac{\Sigma x^2}{n} - \bar{x}^2} = \sqrt{\frac{80}{10} - \left(\frac{20}{10}\right)^2}$$

$$= \sqrt{8 - 4}$$

$$= \underline{\underline{2}}$$

$\bar{x} = \frac{20}{10} = 2$

PYQ Sep 2025

(28) A data set has first eleven positive multiples of 6. The semi inter-quartile range is ________.

a. 12 b. 24

c. ✓ 18 d. 36

$X \rightarrow 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66$ $(n = 11)$

$QD = ?$ $\frac{Q_3 - Q_1}{2}$

Cal of Q_3

Rank $= (n+1) \times \frac{3}{4} = (11+1) \times \frac{3}{4} = 9^{th}$ term

$Q_3 = 54$

Cal of Q_1 Rank $= (n+1) \frac{1}{4}$

$= 12 \times \frac{1}{4} = 3^{rd}$

$Q_1 = 18$

$QD = \frac{54 - 18}{2} = 18$

PYQ Sep 2025

(32) A set contains seven numbers whose average is 12. The average of four greater numbers is 18 and the average of four smaller numbers is 8. Which of the followings is the value of one of the numbers?

a. 12 b. 16

c. 18 d. 20

4 greater no.

$a_1 \; a_2 \; a_3 \; a_4 \; a_5 \; a_6 \; a_7$

4 small no.

$72 + 32 = 104$

-84

20

$n = 7$, $\bar{x} = 12$ Total sum $= 12 \times 7 = 84$

$n = 4$, $\bar{x} = 18$ Total sum of 4 great no. $= 18 \times 4 = 72$

$n = 4$, $\bar{x} = 8$ " 4 smaller no. $= 8 \times 4 = 32$

PYQ May 2025

(45) *A helicopter flies from A to B at the rate of 500 km/hr. and comes back at the rate 700 km/hr. The average speed of the helicopter is*

a. 600 km/hr
b. 583.33 km/hr ✓
c. $100\sqrt{35}$ km/hr
d. 620 km/hr

avg → speed

rate

other than %

HM suitable

$n = 2$

$$\frac{2}{\frac{1}{500} + \frac{1}{700}}$$

$= 583.33$

PYQ May 2025

(46) *If Arithmetic Mean (A.M.) and Geometric Mean (G.M.) of two numbers are 6.50 and 6 respectively, then the two numbers are*

a.	6 and 7 ✗	b. ✓	9 and 4
c.	10 and 3	d.	8 and 5

a) $\frac{6+7}{2} = 6.5, \sqrt{6 \times 7} = 6.48$

b) $\frac{9+4}{2} = 6.5, \sqrt{9 \times 4} = 6$

PYQ May 2025

(47) *Which of the following is not a method of dispersion?*

a. *SD* *b.* *MD*

c. *Range* *d.* *Concurrent deviation*

correlation

PYQ May 2025

(48) Find out co-efficient of variation, if $N = 14$, $\Sigma fx = 280$ and σ (S.D.) = 3.

a. 20 b. 15

c. 4.67 d. Zero

co. of variation $= \frac{SD}{AM} \times 100$

$= \frac{3}{20} \times 100 = 15$

AM $= \frac{\Sigma fx}{N}$

$= \frac{280}{14}$

$= 20$

PYQ May 2025

(49) The monthly profit/loss for six months of the firm is as under:

Month	Profit/ Loss in ₹
Jan	1,000
Feb	900
Mar	0
Apr	-200
May	-400 (S)
Jun	2,000 (L)

The coefficient of range of the above data is

a. 122 b. 150

c. 33.33 d. 55.55

$$\frac{L-S}{L+S}\times 100$$

$$\frac{2000-(-400)}{2000+(-400)}\times 100$$

$$\frac{2400}{1600}\times 100 = 150$$

PYQ May 2025

(51) If the mean of the following frequency distribution is 2.6, then the value of Y is

X (marks)	1	2	3	4	5
No. of students (f)	8	10	Y	2	4

$24+Y$

a. 16 ✓ b. 6

c. 26 d. 12

$$\frac{\Sigma fx}{N} = 2.6$$

$$\frac{8\times1 + 10\times2 + Y\times3 + 2\times4 + 4\times5}{24+Y} = 2.6$$

$$\frac{56+3Y}{24+Y} = 2.6 \Rightarrow 56+3Y = 62.4+2.6Y$$

$$0.4Y = 6.4$$

$$Y = 16$$

PYQ May 2025

(52) Which one of the following measures of central tendency is based on only fifty percent (50%) of the central values?

a. GM b. HM

c. Median d. Mode

PYQ May 2025

(53) The Arithmetic Mean (A.M.) and mode of the data are 32 and 26, respectively, then find the median of the data.

a. 30 b. 12
c. 6 d. 32

Mode = 3 Median − 2 Mean

26 = 3 Median − 2 × 32

3Me = 90

Me = 30

PYQ May 2025

(54) *Find out the mode from the following data:* 100, 110, 125, 225, 325, 125, 90, 80, 455, 375, 125

a. 325 b. 110

c. 455 d. 125

PYQ May 2025

(55) *Which one of the following is the absolute measure of dispersion for open ended distributions?*

a. Range
b. SD
c. MD
d. QD

PYQ Jan 2025

(3) The mean of three numbers is 135. Among the three numbers the biggest number is 180. The difference between the remaining two numbers is 25. Then the smallest number is

a.	130	b.	125
c.	120	✓d.	100

let smallest no. be a

biggest no. is 180

so middle no. is a+25

$$\frac{a+(a+25)+180}{3} = 135$$

$$2a+205 = 405$$

$$\underline{a=100}$$

PYQ Jan 2025

(11) Mean deviation is minimum ________ when the deviations are taken from the median.

a. Maximum b. Minimum

c. Zero d. Cant Say

PYQ Jan 2025

(12) If x and y are related as $4x + 2y + 12 = 0$ and mean deviation of x is 4.5, then the mean deviation of y is

a. -9 ✓b. 9

c. 1.1 d. 4.5

MD is Measure of disp so only affected by change of scale

$$4x + 2y + 12 = 0$$
$$2y = -12 - 4x$$
$$y = -\frac{12}{2} - \frac{4}{2}x$$
$$MD_y = \frac{4}{2} MD_x = 2 \times MD_x$$
$$= 2 \times 4.5$$
$$= 9$$

PYQ Jan 2025

(13) For a distribution the mean is 30. The standard deviation is 2, then coefficient of variation is

a.	6.67%	b.	9.45%
c.	7.5%	d.	2.5%

$$\text{co. of var} = \frac{SD}{AM} \times 100$$

$$= \frac{2}{30} \times 100 = 6.67\%$$

PYQ Jan 2025

(15) *The algebraic sum of deviation of set of observations from their arithmetic mean is*

a. $\frac{\Sigma x_i}{n}$

b. $\sqrt{\frac{(\Sigma x_i - \bar{x})^2}{n-1}}$

c. $\frac{\Sigma x_i}{n-1}$

d. Zero

PYQ Jan 2025

(16) *Find the Harmonic Mean of 2, 4 & 6.*

a.	3.30	b.	3.00
c.	3.75	d.	4.00

$$\frac{3}{\frac{1}{2}+\frac{1}{4}+\frac{1}{6}} = \underline{\underline{3.27}}$$

PYQ Jan 2025

(17) *If the mode of the following data is 13, then the value of x in the data set is 13, 8, 6, 3, 8, 13, 2x+3, 8, 13, 3, 5, 7*

a. 6 ✓b. 5

c. 7 d. 8

if mode is 13 then freq of 13 should be 3

$\Rightarrow 2x+3 = 13$

$\Rightarrow x = 5$

PYQ Jan 2025

(18) The best measure of central tendency is

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

PYQ Jan 2025

(23) *The standard deviation of the data 2, 4, 5, 6, 8, 17 is 23.33, then the standard deviation of the data 4, 8, 10, 12, 16, 34 is*

a. 23.33 b. 46.66

c. 12.23 d. 0

here all original obs are multiplied by 2

so new SD = 2 x old SD

= 2 x 23.33

= 46.66

PYQ Jan 2025

(24) *The values of the first quartile and third quartile are 36.50 and 57.50. Then the semi-inter-quartile range is*

a. 47.50 b. 12.50

c. ✓ 10.50 d. 11.50

semi inter qrt range $= \frac{Q_3 - Q_1}{2}$

$= \frac{57.50 - 36.50}{2}$

$= 10.5$

PYQ Jan 2025

(25) *The AM & GM for two observations are 8 and 2. Find the values of two observations.*

a. ✓	15.75, 0.25	b.	16, 1
c.	15, 1	d.	14.75, 1.75

a) $\frac{15.75 + 0.25}{2} = 8$

$\sqrt{15.75 \times 0.25} = 1.984 \sim 2$

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