$5 + \underline{1}\,T \rightarrow 16$

$\underline{15}$

$$\frac{S_1 + S_2 + \cdots + S_{24} + T}{25} = 16$$

$$\Rightarrow S_1 + S_2 + \cdots + S_{24} + T = 16 \times 25 = 400$$

$15 \times 24 = \underline{360}$

$$\begin{array}{r} 400 \\ -360 \\ \hline 40 \end{array}$$

** The avg. of n items is equal to x.
If one of the given item whose value is p.
is replaced by, a new item having value q,
then the avg. becomes y.

Then the value of q = p + n(y − x)

difference of avg.

$y - x = 2$

Q. The avg weight of 25 men is increased by 2 kg. When one of them whose weight is 60 kg is replaced by a new man. What is the weight of the new man?

$p = 60$

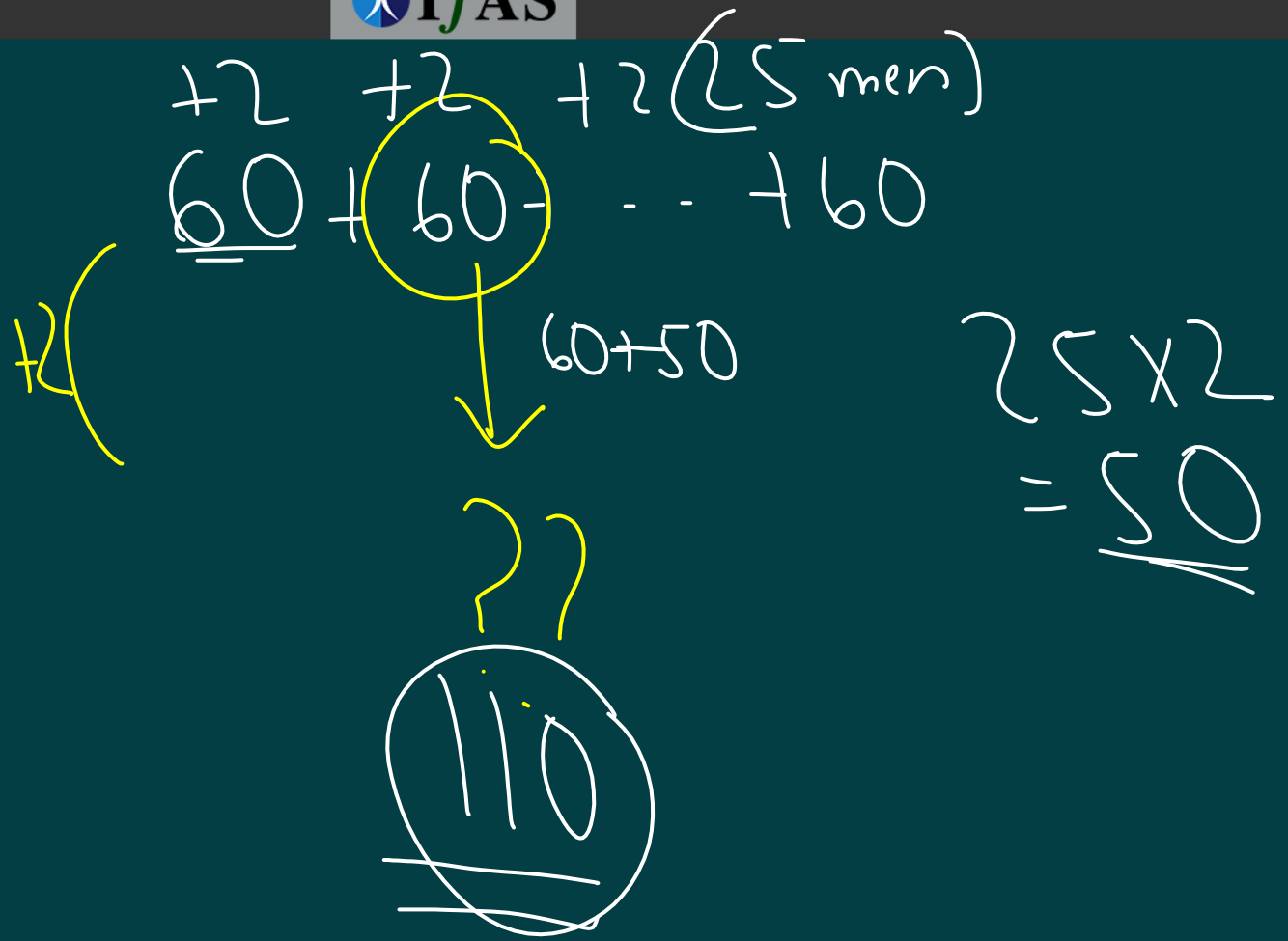
$n = 25$

$q = 60 + 25 \times 2$

$= 110$

(1) 90 kg (2) 100 kg

(3) 110 kg (4) 120 kg.


+2 +2 +2 (25 men)
60 + 60 - - - 760
+2(
60+50
??
110
25 x 2
= 50

Q. The average age of 1,65,273 visitors at Kumbh Mela is 65 yrs. If next year, every individual visitors will have 1 year more age than previous. What will be the avg. age of the same crowd?

(1) 65 (2) 66 (3) 67 (4) 68

65 65 +1 - - - - +1 65

+1

66 66 - - - 66

Avg = 66.

43, 35, 21, 79, 65, 23, 78, 99, 79, 100

Median (Ascending order)

9 observation

21 23 35 43 65 78 79 79 99

$\frac{9+1}{2} = 5^{th}$

Median = 65

$\frac{n}{2} = 5$

$\frac{n}{2}+1$

$n = 10$

21 23 35 43 65 | 78 79 79 99 100

5th | 6th

$$\text{Median} = \frac{65+78}{2}$$

$$= \frac{143}{2}$$

$$= 71.5 \checkmark$$

n = odd

$$\text{median} = \frac{n+1}{2}\text{th observation.}$$

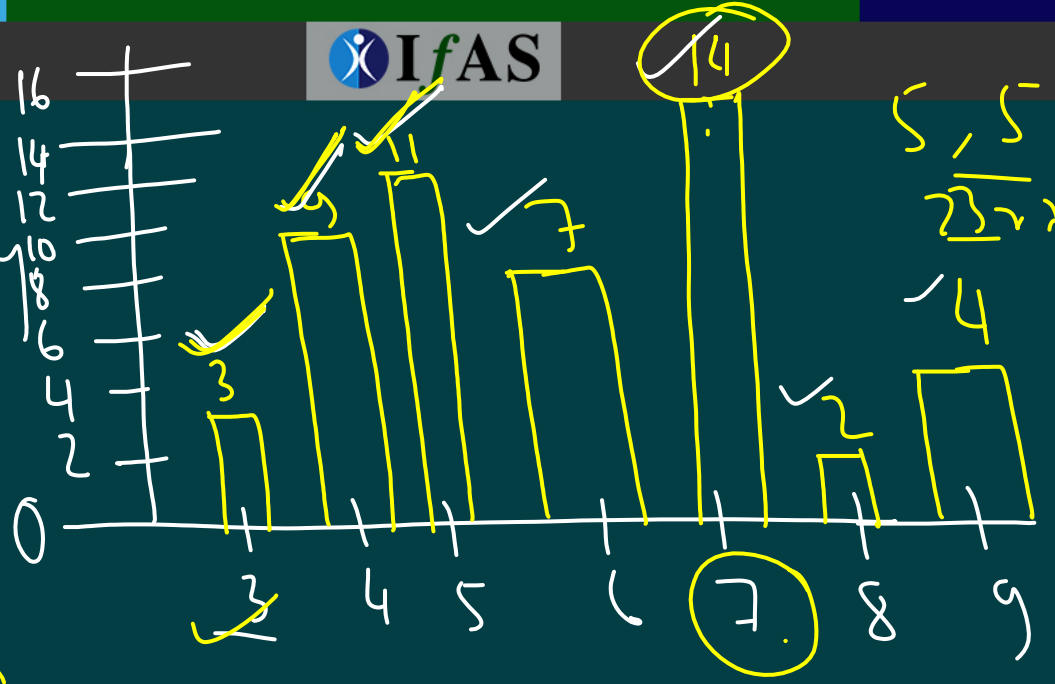
n = even

$$\text{median} = \frac{\frac{n}{2}\text{th} + \left(\frac{n}{2}+1\right)\text{th Obs}}{2}$$

Mode: 79.

Which repeats max time.

GATE 22
Phy. Sc



3+3+7+11+14+4+2+4 = 48

5, 5, 6, 6, 6, ...

23rd, 24th

50 = even

$\frac{50}{2}$ = 25th

24th + 25th

2

W.O.F is (correct) marks.

(A) Mean > Mode > Median

(B) Mode > Median > Mean

(C) Mode > Mean > Median

(D) Median > Mode > Mean

$$\text{Mean} = \frac{6 + 36 + 55 + 42 + 98 + 16 + 36}{50}$$

$$250 = \frac{292}{50} \quad 6$$

Median = 6 , Mode = 7

Mode > Median > Mean

Variance

$x_1, x_2, \ldots, x_n$ μ = mean

$$Var(x) = \frac{\sum (x_i - \mu)^2}{n}$$

, Standard deviation (σ)

Var ↑ Consistency ↓

Var ↓ Consistency ↑

$\sigma^2 = Var$

$\Rightarrow \sigma = \sqrt{Var}$.

Coefficient of variance

$$= \frac{\sqrt{\text{Var}}}{\text{mean}} \times 100\%.$$

Q. (CSIR) Two forest patches have respectively 100 & 200 teak trees of the same age. In a given season, all trees shades some of their leafs at random. The daily total collection of the leafs litter from two patches are expected to have....

$\frac{5 \cdot 15}{100} = 5$

$\frac{6 \cdot 16}{100} = 6$

(1) ~~nearly equal mean. & d and c o v~~

(2) diff m, nearly equal & d and C O V

(3) diff m, nearly equal & d and diff C.O.V

~~(4)~~ diff m and & d, but nearly equal C.O.V.

Q. (CSIR) A student appearing for an exam is declared to have failed the exam if his/her score is less than half the median score. This implies

(1) $\frac{1}{4}$th of the St appears fails.

(2) If St. scores less than $\frac{1}{4}$th of max score, he/she always fails.

(3) If Ashu scores more than $\frac{1}{4}$th of max, he or she passes

(4) it is possible that no one fails.