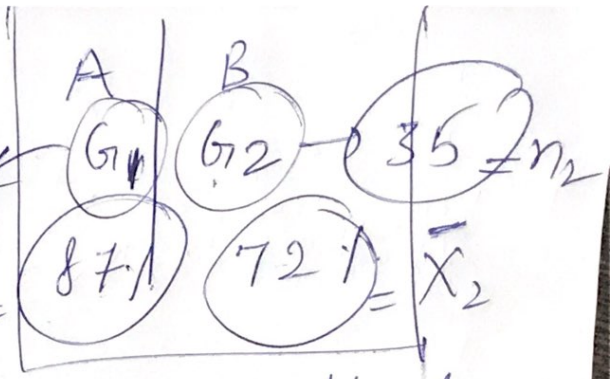
24/03/2021 Combined Mean



average attendence
att for CSE4B

$$\bar{X}_{12} = \frac{n_1 \bar{X}_1 + n_2 \bar{X}_2}{n_1 + n_2}$$

$$= \frac{25 \times 87 + 35 \times 72}{25 + 35}$$

$$\bar{X}_{12} = 78.25$$

$$\bar{X}_{123} = \frac{n_1 \bar{X}_1 + n_2 \bar{X}_2 + n_3 \bar{X}_3}{n_1 + n_2 + n_3}$$

Ques: Mean age of Combined gp of Men & Women = 30 yrs.

Mean age of Men = 32

Mean age of women = 25

$\bar{X}_{12} = 30$

$\bar{X}_1 = 32$

$\bar{X}_2 = 25$

$N_1, N_2 = ?$

N_1 → % age of Men

N_2 → % age of women

To find % age of Men & women in the group.?

$N_1 + N_2 = 100$

$$\bar{X}_{12} = \frac{N_1 \bar{X}_1 + N_2 \bar{X}_2}{N_1 + N_2}$$

$$30 = \frac{N_1 (32) + N_2 (25)}{N_1 + N_2}$$

$$\Rightarrow 30 = \frac{32N_1 + 25(100 - N_1)}{100}$$

$3000 = 2500 - 7N_1$

$\Rightarrow 7N_1 = 500$

$N_1 = 71.42$

$N_2 = 28.57$

(2) Mean marks of 100 students = 72

Mean marks of Boys = 70, no of Boys = 30.

Find Mean marks of girls = ?

$\bar{X}_{12} = 72$, $\bar{X}_1 = 70$,

Total students = 100 ⇒ no of girls $N_2 = 70$

N_1 = no of Boys = 30

$$\bar{X}_{12} = \frac{N_1 \bar{X}_1 + N_2 \bar{X}_2}{N_1 + N_2}$$

$$72 = \frac{30(70) + 70(\bar{X}_2)}{100}$$

$$\Rightarrow 7200 = 2100 + 70\bar{X}_2$$

$$\Rightarrow \bar{X}_2 = 72.85$$

Correcting Incorrect values:

average salary of 25 persons = Rs 378.40

Correct value = 200
Incorrect value = 160

average wage = ?

Given

$n = 25$ $\quad \bar{X} = 378.40$

$$\bar{X} = \frac{\Sigma X}{n} \Rightarrow 378.40 = \frac{\Sigma X}{25}$$

$$\Rightarrow \Sigma X = 25 \times 378.40$$

$$\Rightarrow \text{Incorrect } \Sigma X = 9460$$

Correct value of ΣX = 9460 − (160 + 200)

= 9500

∴ Correct average wage

$= \frac{9500}{25}$

= 380

Ques Mean of (200) obs = (50)

$$\Rightarrow \frac{\sum_{i=1}^{200} x_i}{200} = 50$$

$$\Rightarrow \sum x = 50 \times 200$$

$$\boxed{\sum x = 10,000}$$

Wrongly (92, 8) readed Instead of 192 & 88.

To find correct Mean?

Incorrect value of $\sum x = 10,000$

Correct value of $\sum x = 10,000$

$- 92$

$- 8$

$+ 192$

$+ 88$

10180

$\therefore$ Correct Mean $= \frac{10180}{200} =$ (50.9) ✓

grouped data (x f)

$$\bar{x} = \frac{\sum f_i x_i}{\sum f_i}, \quad N = \sum f_i$$

$$\bar{x} = A + \frac{\sum fd}{\sum f} \times h$$

$$d = \frac{x - A}{h}$$

ungrouped data

$$\bar{x} = \frac{\sum x}{n}$$

1, 2, 3 eg $n = 55$

$\bar{r}_1$, $\bar{r}_2$

$\bar{x} = 15$

x_1	w_1
x_2	w_2
x_3	w_3
⋮	⋮

3.9, 4, 4.1, 3, 4.2, (1)

$$\bar{x}_w = \frac{\sum wx}{\sum w}$$

		X	W
Eng	100	85 ✓	70%
phy	100	82 ✓	95%
chem	100	80 ✓	95%
Maths	100	90 ✓	95%
Arts	100	96 ✓	50%

$$\bar{X}_W = \frac{\Sigma WX}{\Sigma W}$$

$= 85.65\%$

$\bar{X} = 86.6\%$