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 STA

Group A frequency

CL	frequency A	Σx	Σx^2	$x - \bar{x}$	$(x - \bar{x})^2$	$\Sigma (x - \bar{x})^2$
1-5	0	3	0	14.8	219.04	0
6-10	7	8	56	9.8	96.04	672.28
11-15	10	13	130	4.8	23.04	230.4
16-20	2	18	36	0.2	0.04	0.08
21-25	1	23	23	5.2	27.04	27.08
26-30	5	28	140	10.2	104.04	520.2
31-35	4	33	132	15.2	231.04	926.56

$$\bar{x}(\text{mean}) = \frac{\Sigma x}{\Sigma f} = \frac{517}{29} = 17.8$$

$$\text{mean of A} = 17.8$$

ii) standard deviation

$$\begin{aligned} \text{variance} &= \frac{\Sigma (x - \bar{x})^2}{\Sigma f} \\ &= \frac{2376.56}{29} \\ &= 81.95 \end{aligned}$$

$$\begin{aligned} \text{S.D} &= \sqrt{\text{variance}} \\ &= \sqrt{81.95} \\ &= 9.05 \end{aligned}$$

$$\text{S.D of Group A} = 9.05$$

$$\begin{aligned} \text{Coefficient of variation} &= \frac{\text{S.D}}{\text{Mean}} \times 100\% \\ &= \frac{9.05}{17.8} \times 100\% \\ &= 0.508 \end{aligned}$$

Group B Frequency

CI	XC	f(B)	fX	X - \bar{x}	$(X - \bar{x})^2$	f $(X - \bar{x})^2$
1-5	3	2	6	17.1	292.41	584.82
6-10	8	4	32	12.1	140.41	561.64
11-15	13	7	91	7.1	50.41	352.87
16-20	18	20	360	2.1	4.41	88.2
21-25	23	16	368	2.9	8.41	134.56
26-30	28	10	280	7.9	62.41	624.1
31-35	33	4	132	12.9	106.41	665.64

$$\text{mean } (\bar{x}) = \frac{\sum fX}{\sum f}$$

$$= \frac{1269}{63} = 20.1$$

$$\text{mean of B} = \underline{20.1}$$

standard deviation =

$$\text{variance} = \frac{\sum f (X - \bar{x})^2}{\sum f}$$

$$= \frac{2999.83}{63}$$

$$= 47.61$$

$$\begin{aligned} \text{S.D} &= \sqrt{\text{variance}} \\ &= \sqrt{47.61} \\ &= 6.9 \end{aligned}$$

$$\text{S.D of B} = 6.9$$

$$\text{Coefficient of variation} = \frac{\text{S.D}}{\text{Mean}} \times 100\%$$

$$\frac{6.9}{20.1} \times 100\%$$

$$= 0.343$$

iii) Group B Has a less variable distribution
between A and B.