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STA 132

1) C.I	f_i	x	fx	$\lvert x-\bar{x}\rvert$	$(\lvert x-\bar{x}\rvert)^2$	$f(\lvert x-\bar{x}\rvert)^2$
1-5	0	3	0	14.83	219.93	0
6-10	7	8	56	9.83	96.63	676.41
11-15	10	13	130	4.83	23.33	233.30
16-20	2	18	36	0.17	0.03	0.06
21-25	1	23	23	5.17	26.73	26.73
26-30	5	28	140	10.17	103.43	517.15
31-35	4	33	132	15.17	230.13	92052
	29		517			2374.17

$$\text{Mean} = \frac{\sum fx}{\sum x} = \frac{517}{29} = 17.83$$

$$SD = \sqrt{\frac{\sum f(\lvert x-\bar{x}\rvert)^2}{\sum f}}$$

$$= \sqrt{\frac{2374.17}{29}}$$

$$= \sqrt{81.87}$$

$$= 9.05$$

$$CV = \frac{S.D.}{\bar{x}} \times 100$$

$$= \frac{9.05}{17.83} \times 100$$

$$= 50.76$$

2) C.I	f_2	x	f_2x	$\lvert x-\bar{x}_2\rvert$	$(\lvert x-\bar{x}_2\rvert)^2$	$f(\lvert x-\bar{x}\rvert)^2$
1-5	2	3	6	17.14	293.78	587.56
6-10	4	8	32	12.14	147.38	589.52
11-15	7	13	91	7.14	50.98	356.86
16-20	20	18	360	2.14	4.58	91.60
21-25	16	23	368	2.86	8.18	130.88
26-30	10	28	280	7.86	61.78	617.80
31-35	4	33	132	12.86	165.38	661.52
	63		1269			3035.74

$$\text{Mean}(\bar{x}_2) = \frac{\sum f_2 x}{\sum f_2} = \frac{1269}{63} = 20.14$$

$$SD_2 = \sqrt{\frac{\sum f_2(\lvert x-\bar{x}\rvert)^2}{\sum f_2}}$$

$$= \sqrt{\frac{3035.74}{63}}$$

$$= \sqrt{48.19}$$

$$= 6.94$$

$$CV_2 = \frac{SD}{\bar{x}} \times 100$$

$$\frac{6.94}{20.14} \times 100$$

$$= 34.46$$

3) Group B has less variable distribution than Group A because its coefficient of variation is smaller