ONUNKWO DECLAN OLISAEMEKA
COMPUTER ENGINEERING
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i) Find the mean and standard deviation
ii) The coefficient of variation for each group
iii) Which group has the less variable distribution

Solution

GROUP A → Class interval	x	F	Fx	$(x-\bar{x})$	$(x-\bar{x})^2$	$f(x-\bar{x})^2$
1 - 5	3	0	0	-17.05	290.7025	0
6 - 10	8	7	56	-12.05	145.2025	1016.418
11 - 15	13	10	130	-7.05	49.7025	497.025
16 - 20	18	2	36	-2.05	4.2025	8.405
21 - 25	23	1	23	2.95	8.7025	8.7028
26 - 30	28	5	140	7.95	63.2025	316.0125
31 - 35	33	9	297	12.95	167.7025	1509.3225
		$\Sigma f = 34$				$\Sigma fx = 3355.885$

(i) $\text{Mean} = \frac{\Sigma fx}{\Sigma f} = \frac{682}{34} = 20.05$

ii) Standard deviation $= \sqrt{\frac{\Sigma f(x-\bar{x})^2}{\Sigma f}} = \sqrt{\frac{3355.885}{34}}$

$= \sqrt{98.7028}$

$= 9.9349$

iii) Coefficient of Variation $= \frac{\text{S.D} \times 100}{\text{Mean}}$

$= \frac{9.9349 \times 100}{20.05}$

$= 49.55$

Group B→

Class interval	x	F	fx	$(x-\bar{x})$	$(x-\bar{x})^2$	$f(x-\bar{x})^2$
1-5	3	2	6	-17.14	293.7796	587.3392
6-10	8	4	32	-12.14	147.3796	389.8184
11-15	13	7	91	-7.14	50.9796	356.8572
16-20	18	20	360	-2.14	4.5796	91.692
21-25	23	16	368	2.86	8.1796	130.8736
26-30	28	10	280	7.86	61.7796	617.796
31-35	33	4	132	12.86	165.3796	661.5184

$\Sigma f = 63$ $\Sigma fx = 1269$ $\Sigma f(x-\bar{x})^2 = 3035.71$

i) Mean $= \frac{\Sigma fx}{\Sigma f} = \frac{1269}{63} = 20.14$

ii) Standard deviation $= \sqrt{\frac{\Sigma f(x-\bar{x})^2}{\Sigma f}}$

$= \sqrt{\frac{3035.7458}{63}}$

$= \sqrt{48.1859}$

$= 6.94$

iii) Coefficient of Variation $= \frac{S.D}{Mean} \times 100 =$

$\frac{6.94}{20.14} \times 100 = 34.46$

3) Group B has a less variable distribution