DIMYESOLE MAXWELL OSOHEDU
STA 132
19/ENG04/046

A study of Yellow Fever disease (YFD) was conducted. The study was restricted to patients under the age of 40. One purpose was to compare the distribution of cases by age in group A to that of group B. The group data are given below.

C.I	Group A	Group B
1-5	0	2
6-10	7	4
11-15	10	7
16-20	2	20
21-25	1	16
26-30	5	10
31-35	4	4

Calculate:
i) The mean and standard deviation for each group
ii) The coefficient of variation for each group.
iii) Which group has less variable.

Solution

C.I	Class mark (x)	G.A (y)	G.B (x)	yx	Σx	C.A |x−x̄|	C.B |x−x̄|	y|x−x̄|	x|x−x̄|	y|x−x̄|²	x|x−x̄|²
1-5	3	0	2	0	6	14.8	17.14	0	34.28	0	587.6
6-10	8	7	4	86	32	9.8	12.14	68.6	48.56	672.28	589.6
11-15	13	10	7	130	91	4.8	7.14	48	49.98	230.4	357
16-20	18	2	20	36	360	0.2	2.14	0.4	42.8	0.08	92
21-25	23	1	16	23	368	5.2	2.86	5.2	45.76	27.04	131.2
26-30	28	5	10	140	280	10.2	7.86	51	78.6	520.2	619
30-35	33	4	4	132	132	15.2	12.86	60.8	51.44	924.16	661.6
		Σ= 29	Σ= 63	Σ= 517	Σ= 1269			Σ= 234	Σ= 351.42	Σ= 2374.16	Σ= 3037

i) Mean (G·A) = 517/29 = 17.8

Mean (G·B) = 1269/63 = 20.14

Median dev (G·A) = 234/29 = 8.1

Median dev (G·B) = 351.42/63 = 5.6

2) Coeff. of Variation = SD/mean × 100

S·D(G·A) = 2374.16/(29−1) = √84.8 = 9.2

S·D(G·B) = 3037/(63−1) = √48.9 = 6.9

∴ C.V(G·A) = 9.2/17.8 × 100 = 51.7%

C.V(G·B) = 6.9/20 × 100 = 16.8%

∴ Group B has a lesser variable.