

SOTIRANDE REBECCA

CIVIL ENGINEERING

1916N16031096

STA 132

1. class interval

class interval	mid point	f	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$	$f \cdot x$
1-5	3	0	-14.8	219.04	0	0
6-10	8	7	-9.8	96.04	672.28	56
11-15	13	16	-4.8	23.04	230.4	130
16-20	18	9	0.2	0.04	0.08	86
21-25	23	1	5.2	27.04	27.04	23
26-30	28	5	10.2	104.04	520.2	140
31-35	33	4	15.2	231.04	924.16	132
		29			2374.16	517

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

$$\text{Variance} = \frac{\sum f(x - \bar{x})^2}{\sum f} = \frac{2374.16}{29} = 81.87$$

$$S.D = \sqrt{81.87} = 9.05$$

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

$$= \frac{9.05 \times 100}{17.8}$$

$$= 50.8\%$$

Class Interval	oc midpoint	f	group B	$f \cdot x$	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
1-5	3	2	6	-17.14	293.78	587.56	
6-10	8	4	32	-12.14	147.38	589.58	
11-15	13	7	91	-7.14	50.98	356.86	
16-20	18	20	360	-2.14	4.58	91.6	
21-25	23	16	368	2.86	8.18	130.88	
26-30	28	10	280	7.86	61.78	617.8	
31-35	33	4	132	12.86	165.38	661.52	
		63	1269			3035.74	

$$\bar{x} (\text{mean}) = \frac{\sum f \cdot x}{\sum f} = \frac{1269}{63} = 20.14$$

$$\text{Variance} = \frac{\sum f(x - \bar{x})^2}{\sum f} = \frac{3035.74}{63} = 48.19$$

$$SD = \sqrt{\text{Variance}}$$

$$= \sqrt{48.19} = 6.94$$

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

$$= \frac{6.94}{20.14} \times 100 = 34.5\%$$

ii Group B has less variable distribution.