

Answer to the assignment

Group A

| CT | f | mid-class x_c | $f x_c$ | $(x - \bar{x})^2$ | $f(x - \bar{x})^2$ |
|-------|----|--------------------|---------|-------------------|--------------------|
| 1-5 | 0 | 3 | 0 | 219.9289 | 0 |
| 6-10 | 7 | 8 | 56 | 96.6289 | 676.4023 |
| 11-15 | 10 | 13 | 130 | 23.9289 | 239.289 |
| 16-20 | 2 | 18 | 36 | 0.0289 | 0.0578 |
| 21-25 | 1 | 23 | 23 | 26.7289 | 26.7289 |
| 26-30 | 5 | 28 | 140 | 103.4289 | 517.1445 |
| 31-35 | 4 | 33 | 132 | 230.1289 | 920.5156 |
| | 29 | | 517 | | 2374.1381 |

$$\text{Mean for Group A} = \frac{\sum f x_c}{\sum f} = \frac{517}{29} = 17.83$$

Since it was restricted to age group less than 40, it is a sample of the total population of those with Yellow fever

$$\text{S.D of Group A} = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f - 1}} = \sqrt{\frac{2374.1381}{28}} = 9.208$$

$$\text{Coefficient of variation} = \frac{\text{Standard deviation}}{\text{mean}} \times 100$$

$$= \frac{9.208}{17.83} \times 100$$

$$= 51.6490$$

z

Group B

| CI | f | mid class x | fx | $(x-\bar{x})^2$ | $f(x-\bar{x})^2$ |
|-------|----|------------------|------|-----------------|------------------|
| 1-5 | 2 | 3 | 6 | 293.8824 | 587.7649 |
| 6-10 | 4 | 8 | 32 | 147.4524 | 589.8098 |
| 11-15 | 7 | 13 | 91 | 51.0124 | 357.0871 |
| 16-20 | 20 | 18 | 360 | 4.5924 | 91.84898 |
| 21-25 | 16 | 23 | 368 | 8.1624 | 130.5992 |
| 26-30 | 10 | 28 | 280 | 61.7324 | 617.3244 |
| 31-35 | 4 | 33 | 132 | 165.3024 | 661.2098 |
| | 63 | | 1269 | | 2990.644 |

For Group B

$$\text{Mean} = \frac{\sum fx}{\sum f} = \frac{1269}{63} = 20.143$$

$$\text{S.D} = \sqrt{\frac{\sum f(x-\bar{x})^2}{\sum f - 1}} = \sqrt{\frac{2990.644}{62}} = 6.945$$

$$\text{C.V} = \frac{\text{S.D}}{\text{mean}} \times 100$$

$$= \frac{6.945}{20.143} \times 100 = 34.48\%$$

The group with the lower C.V has less variable, so therefore

Group B has less variable and more uniform