NAME: OGBUDO PRAISE IFEANYI

MATRIC NO: 19/ENG02/040

COURSE CODE: STA 132

COURSE NAME: LAB FOR INFERENCE

 SOLUTION TO ASSIGNMENT

1i) For group a

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| cl | Class mark  | f | fx | $$\left(x-\overbar{x}\right)$$ | $$\left(x-\overbar{x}\right)^{2}$$ | $$f\left(x-\overbar{x}\right)^{2}$$ |
| 1-5 | 3 | 0 | O | -14∙8 | 219∙04 | 0 |
| 6-10 | 8 | 7 | 56 | -9∙8 | 96∙04 | 672∙28 |
| 11-15 | 13 | 10 | 130 | -4∙8 | 23∙04 | 230∙4 |
| 16-20 | 18 | 2 | 36 | 1∙8 | 3∙24 | 6∙48 |
| 21-25 | 23 | 1 | 23 | 6∙8 | 46∙24 | 6∙8 |
| 26-30 | 28 | 5 | 140 | 11∙8 | 139∙24 | 59 |
| 31-35 | 33 | 4 | 132 | 16∙8 | 282∙24 | 67∙2 |

∑f=29, ∑fx=517, ∑$f\left(x-x\right)^{2}$

Mean=$\frac{efx}{ef}$ = $\frac{517}{29}$ =17∙827 ≈17∙8

Variance=$\frac{ϵf\left(x-x\right)^{2}}{Ef}=\frac{1042∙16}{29}$=35∙9

Standard deviation=$\sqrt{35}∙9=5∙99$

ii)For group b

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CL | X | F | FX | $$x-\overbar{x}$$ | $$\left(x-x\right)^{2}$$ | $$f\left(x-\overbar{x}\right)^{2}$$ |
| 1-5 | 3 | 2 | 6 | -17$∙1$ | 292∙41 | 584∙82 |
| 6-10 | 8 | 4 | 32 | -12∙1 | 146∙41 | 292∙82 |
| 11-15 | 13 | 7 | 91 | -7∙1 | 50∙41 | 100∙82 |
| 16-20 | 18 | 20 | 360 | -2∙1 | 4∙41 | 8∙82 |
| 21-25 | 23 | 16 | 368 | 3∙1 | 9∙61 | 19∙22 |
| 26-30 | 28 | 10 | 280 | 8∙1 | 65∙61 | 131∙22 |
| 31-35 | 33 | 4 | 132 | 13∙1 | 171∙61 | 343∙22 |

Mean=$\frac{efx}{ef}$=$\frac{1269}{63}=20∙14≈20∙1$

Variance=$\frac{∑f\left(x-\overbar{x}\right)^{2}}{∑f}=\frac{1480∙94}{20∙11}=73∙68≈73∙7$

Standard deviation= $\sqrt{Variance}=\sqrt{73}∙68=8∙58≈8∙6$

2i) Group A

 Coefficient of variation=$\frac{x}{\overbar{x}}\*100\%$

=$\frac{6}{17∙8}\*100\%$

=33∙7$\%$

ii)Group B

 Coefficient of variation=$\frac{x}{\overbar{x}}\*100\%$

=$\frac{8∙6}{17∙8}\*100\%$

=42∙78$\%≈42∙8\%$

3) Group B