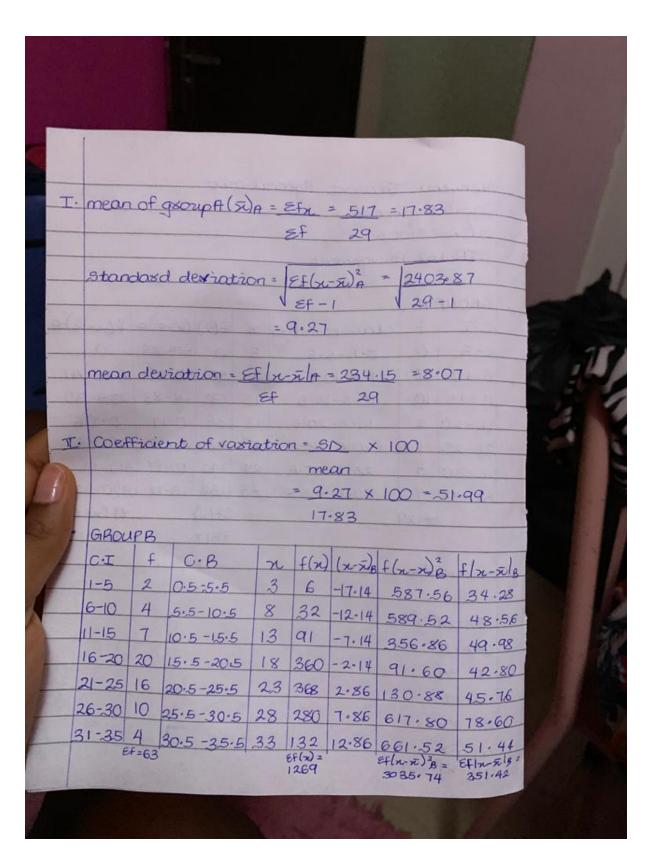NAME: ALONYENU TREASURE AGBENU-OWO

DEPARTMENT: CIVIL ENGINEERING

MARTIC NUMBER: 19/ENG03/005

STA 132 ASSIGNMENT

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✓ 19/ENGO3/005
✓ STA 132 Assignment

○ GROUP A

C.I	f	class boundary	x	$f(x)$	$(x-\bar{x})A$	$f(x-\bar{x})^2 A$
1-5	0	0.5 - 5.5	3	0	-14.83	0
6-10	7	5.5 - 10.5	8	56	-9.83	676.41
11-15	10	10.5 - 15.5	13	130	-4.83	233.30
16-20	2	15.5 - 20.5	18	36	0.17	0.06
21-25	1	20.5 - 25.5	23	23	5.17	26.73
28-30	5	25.5 - 30.5	28	140	10.17	517.15
31-35	4	30.5 - 35.5	33	132	15.17	920.52

$\Sigma f = 29$

$\Sigma f(x) = 517$

$\Sigma f(x-\bar{x})^2 = 2403.87$

$f|x-\bar{x}|A$
0
68.81
48.30
0.34
5.17
50.85
60.68

$\Sigma f|x-\bar{x}| = 234.15$

I. mean of group A $(\bar{x})_A = \dfrac{\Sigma fx}{\Sigma f} = \dfrac{517}{29} = 17.83$

standard deviation $= \sqrt{\dfrac{\Sigma f(x-\bar{x})^2_A}{\Sigma f - 1}} = \sqrt{\dfrac{2403.87}{29-1}}$

$= 9.27$

mean deviation $= \dfrac{\Sigma f|x-\bar{x}|_A}{\Sigma f} = \dfrac{234.15}{29} = 8.07$

II. Coefficient of variation $= \dfrac{SD}{mean} \times 100$

$= \dfrac{9.27}{17.83} \times 100 = 51.99$

GROUP B

C.I	f	C.B	x	$f(x)$	$(x-\bar{x})_B$	$f(x-\bar{x})^2_B$	$f|x-\bar{x}|_B$
1-5	2	0.5-5.5	3	6	-17.14	587.56	34.28
6-10	4	5.5-10.5	8	32	-12.14	589.52	48.56
11-15	7	10.5-15.5	13	91	-7.14	356.86	49.98
16-20	20	15.5-20.5	18	360	-2.14	91.60	42.80
21-25	16	20.5-25.5	23	368	2.86	130.88	45.76
26-30	10	25.5-30.5	28	280	7.86	617.80	78.60
31-35	4	30.5-35.5	33	132	12.86	661.52	51.44
$\Sigma f = 63$				$\Sigma f(x) = 1269$		$\Sigma f(x-\bar{x})^2_B = 3035.74$	$\Sigma f|x-\bar{x}|_B = 351.42$

I. mean of group B $(\bar{x}) = \dfrac{\Sigma f(x)}{\Sigma f} = \dfrac{1269}{63} = 20.14$

Standard deviation $= \sqrt{\dfrac{\Sigma f(x-\bar{x})^2_B}{\Sigma f - 1}} = \sqrt{\dfrac{3035.74}{63-1}}$

$= 6.997 \approx 7.00$

mean deviation $= \dfrac{\Sigma f|x-\bar{x}|_B}{\Sigma f} = \dfrac{351.42}{63} = 5.58$

II. coefficient of variation $= \dfrac{SD}{mean} \times 100$

$= \dfrac{7}{20.14} \times 100 = 34.76$

III. Group B has less variable distribution.