Nashit Budhwani 20K-074

Assignment 1

Ans1)(a) Mean $= \frac{\Sigma x}{n} = \frac{1159+1214+1190+1189+1139}{50}$

$$\bar{x} = \frac{5891}{50}$$

$$\bar{x} = 117.82$$

Median $= \frac{(n+1)^{th} \text{ term}}{2} = \frac{25^{th}+26^{th}}{2} = 117.5$

$\frac{117+118}{2} =$

Mode = 128, 97, 112, 124, 131

b) Range = 150-88 = 62

Variance = 220.82

SD = 14.860

c) $\bar{y} \pm s = 117.81 \pm 15.01 = (102.8, 132.9)$

$\bar{y} \pm 2s = 117.81 \pm 2(15.01) = (87.79, 147.8)$

$\bar{y} \pm 3s = 117.81 \pm 3(15.01) = (72.8, 162.9)$

31 Values lie in Range $\bar{y} \pm s$

49 values lies in Range $\bar{y} \pm 2s$

50 Values lies in Range $\bar{y} \pm 3s$

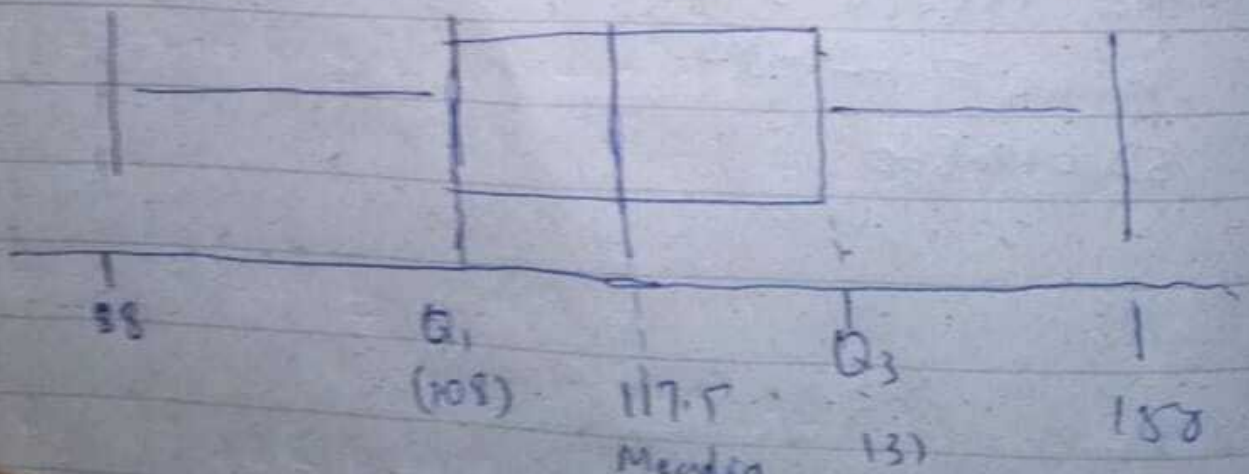
d) $Q_1 = \frac{(n+1)}{4} = \frac{(n+1)}{4} = \frac{51}{4} = 12.75 \approx 12^{th} = 109$

Q_2 = Median = 117.5

$Q_3 = \frac{3(n+1)}{4} = 38.25 \approx 38.25 \approx 39 = 131$

Min = 88

Max = 150



(c) $P_{70} = \frac{i(n+1)^{th}}{100} = \frac{70}{100} \times (51)^{th} = 35.7^{th}$

$P_{70} = 128$

Question 2:

(a) Mean: $\bar{x} = \frac{\Sigma x}{n} = \frac{653+654+678+981}{44}$

$\bar{x} = 67.41$

b) Median = 70

27, 40, 42, 43, 43, 47, 50, 51, 55, 55, 57, 60, 63, 63, 64, 65, 67, 68, 68, 68, 69, 71, 72, 73, 74, 75, 75, 76, 77, 77, 77, 78, 78, 79, 80, 82, 82, 83, 86, 88, 95, 96, 97

Mode: 68, 77

d) Range: 97.27 ≈ 70

(e) Variance: $\frac{\Sigma(x-\bar{x})^2}{n} =$

$$\frac{(27-7.41)^2+(40-67.4)^2 \ldots + (97-64.4)^2}{44}$$

$\sigma^2 = 260.78$

(e) Standard Deviation = $\sqrt{\text{variance}}$

$\sigma = 16.14$

b) marks $\geq 67.41 + 2(16.14)$

Marks ≥ 99.69

values in this range $= \phi$

B $= 83.78 \leq$ marks ≤ 99.92

Values $= 86, 88, 95, 96, 97$

C $= 67.14 \leq$ marks < 83.78

Values $= 68, 68, 68, 69, 71, 72, 73, 74, 75, 75,$
$76, 77, 77, 78, 78, 79, 80,$
$82, 82, 83$

D $= 51.5 \leq$ marks < 67.14

Values $= 55, 56, 63, 63, 64, 65, 67$

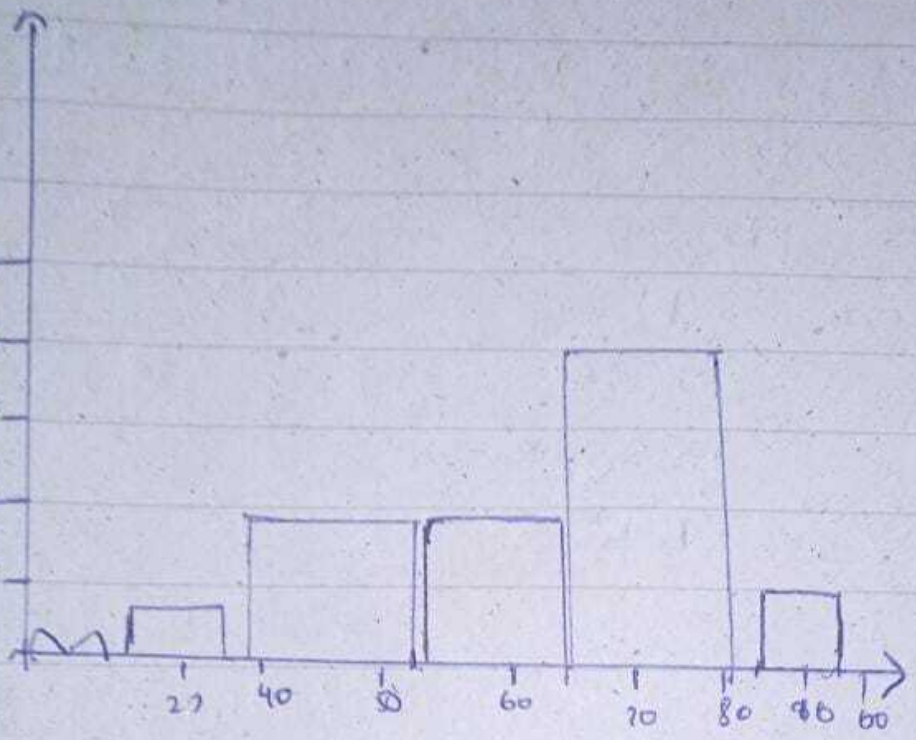
E $= 35.36 \leq$ marks < 51.5

Values $= 40, 40, 42, 43, 47, 50, 51$

F $= 19.22 \leq$ marks < 35.36

Values $= 27$

(c)



Pie chart;

Sector 1; $20 < x < 30$ = 1 value

Sector 2; $30 < x < 40$ = 2 value

Sector 3; $40 < x < 50$ = 6 value

Sector 4; $50 < x < 60$ = 5 value

Sector 5; $60 < x < 70$ = 10 value

Sector 6; $70 < x < 80$ = 13 value

Sector 7; $80 < x < 90$ = 6 value

Sector 8; $x > 90$ = 3 value.

Sector 1 = 8.2°

Sector 2 = 0°

Sector 3 = 49.1°

Sector 4 = 400.9°

Sector 5 = 81.8°

Sector 6 = 106.4°

Sector 7 = 49.1°

Sector 8 = 24.6°