Assignment 1

Date / /

Statistics

Page no.

1) a.

Range	Frequency
1-10	2
11-20	7
21-30	10
31-40	3
41-50	1

Difference = 1

$\frac{\text{Difference}}{2} = 0.5$

Given data is inclusive continuous. Here, we have to find difference between upper and lower limit of two consecutive range then, subtract the half of that difference in lower limits and add in upper limits.

New range	frequency	m (mid-point)	mf
0.5 - 10.5	2	5.5	11
10.5 - 20.5	7	15.5	108.5
20.5 - 30.5	10	25.5	255
30.5 - 40.5	3	35.5	106.5
40.5 - 50.5	1	45.5	45.5
	23		526.5

$$\bar{x} = \frac{\Sigma mf}{N} = \frac{526.5}{23}$$

$$= 22.89$$

Date / / Page no.

b.

Range	Frequency	m	mf
0-10	2	5	10
10-20	7	15	105
20-30	15	25	375
30-40	10	35	350
40-50	11	45	495
50-60	5	55	275
	50		1610

$$\bar{x} = \frac{\Sigma mf}{N}$$

$$= \frac{1610}{50}$$

$$= 32.2$$

c.

Exam Score
51-60
61-70
71-80
81-90
91-100

Here

Diff = 1

$\frac{\text{Diff}}{2} = 0.5$

We have to subtract 0.5 in lower limits and add 0.5 in upper limit.

Date / /

Page no.

New Scale Range	f	m	mf
50.5 - 60.5	4	55.5	222
60.5 - 70.5	8	65.5	524
70.5 - 80.5	15	75.5	1132.5
80.5 - 90.5	8	85.5	684
90.5 - 100.5	5	95.5	477.5
	40		3040

$$\bar{x} = \frac{\sum mf}{N} = \frac{3040}{40} = 76$$

2.

	Mean wages	No. of workers
Group-1		1000
Group-2		1500

Let, sum of wages of workers in group 1 is W_1 and that of group-2 be W_2.

$$\text{Mean (Group-1)} = \frac{\sum W_1}{N_1}$$

$$\Rightarrow \sum W_1 = 75 \times 1000$$

$$\sum W_2 = 60 \times 1500$$

$$\text{Mean of entire group } (\bar{x}) = \frac{\sum W}{N}$$

$$= \frac{(75 \times 1000) + (60 \times 1500)}{1000 + 1500} = 66$$

Date / / Page no.

3.

Exam	No: Examined	Mean weight
A	50	113
B	60	120
C	90	115

Mean of A $(\bar{x}_A) = \frac{\Sigma W_A}{N_A}$ =

$\Rightarrow \Sigma W_A = 113 \times 50$

$\Sigma W_B = 120 \times 60$

$\Sigma W_C = 115 \times 90$

Mean of entire group $(\bar{x})$ =

$$\frac{(113 \times 50) + (120 \times 60) + (115 \times 90)}{50 + 60 + 90}$$

$$= \frac{23200}{200} = 116$$