Chapter 5 – Measures of Central Tendency- Arithmetic Mean

Question 1

From the following data find an average.

3	5	7	9	11	13	17	19	20	21

Answer:

Here, the average is calculated using a direct method.

$$(\bar{X}) = \frac{EX}{N}$$

$$\bar{X} = \frac{3+5+7+9+11+13+17+19+20+21}{10}$$

$$\bar{X} = \frac{125}{10}$$

$$\bar{X} = 12.5$$

Question 2

Given below are the daily income of ten families. Evaluate the average daily income.

S. No.	1	2	3	4	5	6	7	8	9	10
Daily Income	100	120	80	85	95	130	200	250	225	275

Answer:

Serial No.	**Daily Income (in Rs)** **(*X*)**
1	80
2	100
3	90
4	80
5	90
6	110
7	190
8	230

9 10	210 250
***N* =10**	**ΣX= 1430**

$$(\bar{X}) = \frac{\sum X}{N}$$

$$\bar{X} = \frac{80+100+90+80+90+110+190+230+210+255}{10}$$

$$\bar{X} = \frac{1430}{10}$$

$$\bar{X} = 143$$

Question 3

Find an average from the below series.

X	2	4	5	8	9
f	3	6	3	7	10

Answer:

X	f	fX
2 4 5 8 9	3 6 3 7 10	6 24 15 56 90
	N = Σf = 29	ΣfX = 191

$$\bar{X} = \frac{\sum fX}{\sum f}$$

$$\bar{X} = \frac{191}{29}$$

$$\bar{X} = 6.59$$

Therefore, the average of the above series is 6.59

Question 4

Prepare arithmetic mean from the below frequency table.

Height (in cms.)	55	58	60	62	64	65
Number of Flowers	10	12	18	12	10	7

Answer:

Height (X)	Flowers (f)	fX
55 58 60 62 64 65	10 12 18 12 10 7	550 696 1080 744 640 455
	$N = \Sigma f = 69$	$\Sigma fX = 4165$

$$\bar{X} = \frac{\sum fX}{\sum f}$$

$$\text{Or, } \bar{X} = \frac{3265}{69}$$

$$\bar{X} = 60.37$$

Question 5

From the following data arrange the mean marks acquired by the students using direct method.

Marks	0–4	4–8	8–12	12–16	16–20	20–24
No. of Students	7	9	16	8	6	4

Answer:

Class Interval **(Marks)**	**Mid-Values** **(m)**	**Students** **(f)**	**fm**
0 – 4 4 – 8 8 – 12	2 6 10	7 9	14 54

12 – 16 16 – 20 20 – 24	14 18 22	16 8 6 4	160 112 108 88
		Σf Σf=50	Σfm Σfm=586

$$\bar{X} \frac{\sum fm}{\sum f}$$

$$\bar{X} = \frac{536}{50}$$

$$\bar{X} = 10.72$$

Therefore, the mean marks acquired by the students are 10.72