ATOMIC ENERGY CENTRAL SCHOOL

Class- 7 Subject- MATHEMATICS

CHAPTER – 3

DATA HANDLING (HAND OUT) Module 1/3

INTRODUCTION:

We all are living in digital age. When we say about the digital age ,then one thing is very common ,that is **data**, We are using data in our everyday life in internet activities like bankig,marketing,entertainment,games,government services, social media etc. Nowa days data becomes an inevitable part of our life.

Data is the information collected in the form of numeral.

In earlier classes we read about the data. In this chapter we learn more about the data.

Example: The runs scored by different cricket teams are as follows-

CRICKET TEAM	RUNS SCORED
A	217
B	189
C	315
D	245

From the above information, we can conclude that, The Team-C scored the highest runs and Team-B scored the lowest runs.

But by seeing the above data, wecannot decide which the best cricket team in the world is.

So we have to collect more data. Mere collecting data is not sufficient. It involves various steps, like -

(i) Collection of data

(ii) Representation or organising the data.

(iii) Analysing or interpreting the data.

(iv)Finally finding out the conclusion.

COLLECTING DATA:

This is the main part of studying a situation. We have to collect such data which are related to a specific situation or area to be studied.

Situations like:

(i)Health condition of a state or country.

(ii)Performance of the students in Maths in a class or school.

(iii)Literacy rate.(iv) Mortality rate of infants. Etc.

ORGANISING OF DATA OR REPRESENTATION OF DATA:

When we collect the data, then we have to maintain a record. If we write the number of child/children in a family in the following way –

   1,2,1,3,4,2,1,1,2,3,2,2,5 and 2

From this data, it is not easy to understand. These kinds of data are called **raw data**.

Moreover when the data are very very large, we cannot write, read and analyse the data.

So we have to write the data in tabular form or frequency distribution table, it becomes very easy to understand, analyse and interpret. Mainly tabular form consists of columns having items, tally barsor tally marks and frequency **(frequency- numbers of times a data occurs in the distribution)**

Suppose in a study of the sizes of the shoes used by 20 people are given below:

5, 5, 8, 9. 7, 8, 6, 6, 7, 8, 5, 5, 6, 8, 9, 7, 7, 5, 8 and 7.

Frequency Distribution Table

Sizes of the shoes	Tally marks	Frequency
5	////	4
6	////	4
7	/////	5
8	/////	5
9	//	2

We see the size one by one and insert a tally mark in the corresponding size.When five tally marks are there then the fifth tally is written diagonally and it becomes a bunch of 5.Now we write the total number of tally marks in the corresponding size which represents the frequency of that size.

REPRESENTATIVE VALUE OR MEASURE OF CENTRAL TENDENCY.

AVERAGE: We are very much familiar with the word average. Suppose if we say, that the average run of a cricketer in a test series is 75.

It does not mean he always score 75 runs.

It means in some matches he may score less than 75 runs and in some matches more than 75 runs.

So we can say that average lies between the highest and the lowest value of the given data.

So it measures the central tendency of a group of data.

Average is also known as Arithmetic mean or only mean. It is one of the representative values.

ARITHMETIC MEAN – It is the most common representative value .

It is defined as the ratio of the sum of all the observations to total number of observations.

$$\text{Mean} = \frac{\text{sum of all the observations}}{total\ number\ of\ observations}$$

Example-1: Ganguly scored the following runs in six innings34,37, 47,49, 54 and 61.Find the mean runs scored by him.

Total no. of observations = 6

$$\text{Mean} = \frac{\text{sum of all the observations}}{\text{total number of observations}}$$

$$= \frac{34+37+47+49+54+61}{6}$$

$$= \frac{282}{6} = 47$$

Example-2: Find the mean of first 10 whole numbers.

First 10 whole nos. are 0, 1, 2,3,4,5,6,7,8 and 9

$$\text{Mean} = \frac{\text{sum of all the observations}}{\text{total number of observations}}$$

$$= \frac{0+1+2+3+4+5+6+7+8+9}{10}$$

$$= \frac{45}{10} = 4.5$$

Example-3: Find the mean of first 5 prime numbers,

The first 5 prime nos.-2, 3.5, 7and 11

$$\text{Mean} = \frac{\text{sum of all the observations}}{\text{total number of observations}}$$

$$= \frac{2+3+5+7+11}{5}$$

$$= \frac{28}{5} = 5.6$$

What we have learnt

1. Information written in the form of numeral is called data.

2. Collection, recording and representation of data in the form of frequency distribution table.

3. Average is a number that represents or shows the central tendency of a group of observations or data.

4. Arithmetic mean is one of the representative value of data.

$$\text{Arithmetic mean} = \frac{\text{sum of all the observations}}{\text{total number of observations}}$$

Assignment

1. Fill in the blanks.

a. Mean lies between _____ and _____ value of the given data.

b. Mean is also known as _____.

c. The information written in the form of numbers is called_____.

d. Number of times a particular data occurs in a distribution called its_____.

e. The best way to represent the data is _____.

.2. Find the mean of first ten natural numbers.

3. Marks obtained by 11 students in Maths out of 25 are as follows 21, 20, 13, 15, 10, 20, 15, 21, 18, 20 and 14. Find the mean.

4. Find the mean of first ten prime numbers.

5. Measure the height of 5 of your classmates in cm and find their mean height