We first exhibit the percentages and corresponding angles for each of the given sources as follows:

Table 1.1

NECESSARY PERCENTAGES AND ANGLES FOR PIE CHART

Sources	Percentage	Angle
Raw materials	40	144.0°
Labour	32	115.2°
Direct production	12	43.2°
Others	16	57.6°
Total	100	360.00°

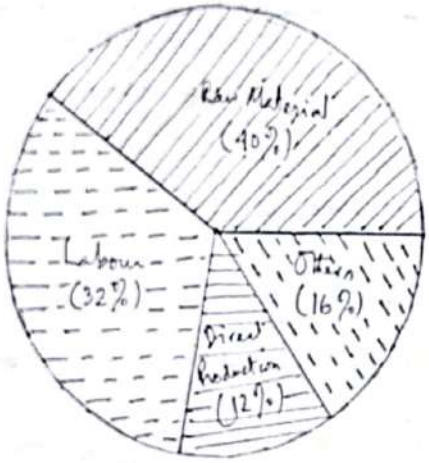

Chart 1.3 Pie chart showing the percentage of production cost of sugar in a factory under different heads.

Before going to the discussion of frequency distribution, we define two types of variables, namely (i) Discrete or discontinuous variable and (ii) Continuous Variable.

(i) Discrete Variable: A quantitative character that can take certain ~~is~~ isolated values only in its range

of variation is called a discrete variable. The number of students in different colleges, the size of families of some locality, proportion of males in a group of 10 persons, etc. are examples of this kind of variable.

(iii) Continuous variable : A variable that can assume any value within its range of variation is termed as a continuous variable. The weight of individuals, marks obtained by candidates in an examination, income of different persons, etc. belong to this category of variables. It should be noted that the recorded measurements may show some discreteness in this case, but it is merely artificial. In fact, such apparent discreteness arises due to the limitation of the measuring instrument..

2. FREQUENCY DISTRIBUTION

2.1 Frequency distribution of an attribute

We consider the data collected by a particular medical research organisation about the sex of a newly born babies during a month in a city hospital. According to the data there was 18 female births and 22 male births.

The notion of the term frequency pertaining to an attribute may introduced in the light of these data about the attribute 'sex of a baby'. Here the figure 18 represents how many of the births are female. In other words, the number 18

shows the frequency of the form 'female' of the attribute concerned. In the similar manner, the number 22 indicates the frequency of the form 'male' of the attribute. Of course, the sum of these two figures gives the total frequency.

Table 2.1

SEX OF INFANTS BORN IN CITY HOSPITAL

Sex	Number of births
Female	18
Male	22
Total	40

The above table reveals how this total frequency 40, is distributed over the two categories of the attribute.

The table (Table 2.1) shows the frequency distribution of the attribute under study.

Sometimes, the proportion or relative frequencies may be used as an alternative to frequencies and a table similar to Table 2.1 may be prepared to present them against the corresponding forms of the attribute. In this case, relative frequency is $18/40$ (or 0.45) for the form female and $22/40$ (or 0.55) for the form male.

It should be mentioned that we may, similarly, have frequency distribution of attributes with more than two forms.

2.2 Frequency distribution of a variable

The idea of a frequency distribution of a variable may be discussed under two sections, one for discrete variables and the other for continuous variables.

2.2(a) Case of a discrete variable

Let us consider the discrete variable family size. A survey was performed in a locality of Calcutta and the following data relating to number of members in different families (i.e family sizes) were recorded.

Table 2.2

NUMBER OF MEMBERS OF DIFFERENT FAMILIES.

3	4	3	5	4	3	2	4	2	2
5	5	3	4	3	2	6	4	2	3
4	6	7	6	6	5	4	4	3	6
2	3	3	5	4	5	3	2	5	7
6	4	4	5	7	3	6	3	4	5
3	6	4	5	6	7	4	4	3	3
5	4	3	4	3	6	2	2	3	4
5	5	4	5	4	4	5	4	5	4
4	4	4	3	4	5	4	4	3	4

If the data are arranged in a systematic and compact form, then one can easily understand the significance of them. To meet the purpose, the frequency distribution of the variable 'family size' is constructed. On going through the data, we find that the range of the values is 2 to 7. The values 2, 3, ..., 7 are taken