

CHAPTER 15

Probability

Example:

The following table gives the marks scored in a mathematics test of 100 marks by 100 students in an entrance examination.

Marks	Frequency
0 – 10	4
10 – 20	10
20 – 30	16
30 – 40	22
40 – 50	20
50 – 60	18
60 – 70	8
70 – 80	2

(i) Find the probability that a student less than 20% marks in the mathematics test.

(ii) Find the probability that a student obtained marks 60 or above.

Sol:

Let ‘S’ be the sample space, marks scored by 100 in a mathematics an entrance examination.

$$\Rightarrow n(S) = 100$$

(i) Let E_1 be the event of getting a student obtained less than 20% marks in the mathematics test.

$$\Rightarrow n(E_1) = 4 + 10 = 14$$

$[\because \text{[No. of students in class - interval 0 - 10]} + \text{No. of students in class - interval 10 - 20}]$

$$\therefore P(E_1) = \frac{n(E_1)}{n(S)} \Rightarrow P(E_1) = \frac{14}{100} \Rightarrow P(E_1) = \frac{7}{50}$$

(ii) Let E_2 be the event of getting a student obtained marks 60 or above,

$$\Rightarrow n(E_2) = 8 + 2 = 10$$

$[\because \text{[No. of students in class - interval 60 - 70]} + \text{No of students in class - interval 70 - 80}]$

$$\therefore P(E_2) = \frac{n(E_2)}{n(S)} \Rightarrow P(E_2) = \frac{10}{100} \Rightarrow P(E_2) = \frac{1}{10}$$

