Exercise 15.1

Ans: Total no. of students on which the survey about the subject of statistics was conducted = 200

(i) No. of students who like statistics = 135

$\therefore$ P (a student likes statistics) = $\dfrac{135}{200} = \dfrac{27}{40}$

(ii) No. of students who do not like statistics = 65

$\therefore$ P (a student does not like statistics) = $\dfrac{65}{200} = \dfrac{13}{40}$

Q8. Refer Q.2, Exercise 14.2. What is the empirical probability than an engineer lives:

(i) less than 7 km from her place of work?

(ii) more than or equal to 7 km from her place of work?

(iii) within $\dfrac{1}{2}$ km from her place of work?

Ans: Total number of engineers = 40

(i) No. of engineers living less than 7 km from her place of work = 9

$\therefore$ P (Engineer living less than 7 km from her place of work) = $\dfrac{9}{40}$

(ii) No. of engineers living more than or equal to 7 km from her place of work = 21

$\therefore$ P (Engineer living more than or equal to 7 km from her place of work) = $\dfrac{21}{40}$

(iii) No. of engineers living within $\dfrac{1}{2}$ km from her place of work = 0

$\therefore$ P (Engineer living within $\dfrac{1}{2}$ km from her place of work) = $\dfrac{0}{40}$ = 0

Q9. Activity: Note the frequency of two wheelers, three wheelers and four wheelers going past during a time interval, in front of your school gate. Find the probability that any one vehicle out of the total vehicles you have observed is a two wheeler.

Ans: Let you noted the frequency of types of wheelers after school time (i.e. 3 pm to 3.30 pm) for half an hour.

Let the following table shows the frequency of wheelers.

Type of wheelers	Frequency of wheelers
Two wheelers	125
Three wheelers	45
Four wheelers	30

Probability that a two wheelers passes after this interval = $\dfrac{125}{200} = \dfrac{5}{8}$

Q10. Activity: Ask all the students in your class room to write a 3-digit number. Choose any student from the room at random. What is the probability that the number written by him is divisible by 3, if the sum of its digits is divisible by 3.

Ans: Let number of students in your class is 24.

Let 3-digit number written by each of them is as follows:

837, 172, 643, 371, 124, 512, 432, 948, 311, 252, 999, 557, 784, 928, 867, 798, 665, 245, 107, 463, 267, 523, 944, 314

Numbers divisible by 3 are = 837, 432, 948, 252, 999, 867, 798 and 267

Number of 3-digit numbers divisible by 3 = 8

$\therefore$ P (3-digit numbers divisible by 3) = $\dfrac{8}{24} = \dfrac{1}{3}$

Q11. Eleven bags of wheat flour, each marked 5 kg, actually contained the following weights of four (in kg): 4.97, 5.05, 5.08, 5.03, 5.00, 5.06, 5.08, 4.98, 5.04, 5.07, 5.00

Find the probability that any of these bags chosen at random contains more than 5 kg of flour.

Ans: Number of bags containing more than 5 kg of wheat flour = 7

Total number of wheat flour bags = 11

$\therefore$ P (a bag containing more than 5 kg of wheat flour) = $\dfrac{7}{11}$

Q12. In Q.5, Exercise 14.2, you were asked to prepare a frequency distribution table, regarding the concentration of Sulphur dioxide in the air in parts per million of a certain city for 30 days. Using this table, find the probability of the concentration of Sulphur dioxide in the interval 0.12 – 0.16 on any of these days.

Ans: From the frequency distribution table we observe that:

No. of days during which the concentration of Sulphur dioxide lies in interval 0.12 – 0.16 = 2

Total no. of days during which concentration of Sulphur dioxide recorded = 30

$\therefore$ P (day when concentration of Sulphur dioxide (in ppm) lies in 0.12 – 0.16) = $\dfrac{2}{30} = \dfrac{1}{15}$

Q13. In Q.1, Exercise 14.1 you were asked to prepare a frequency distribution table regarding the blood groups of 30 students of a class. Use this table to determine the probability that a student of this class selected at random has blood group AB.

Ans: From the frequency distribution table we observe that:

Number of students having blood group AB = 3

Total number of students whose blood group were recorded = 30

∴ P (a student having blood group AB) =

$$\frac{3}{30} = \frac{1}{10}$$

********** END *********