EduSahara™ Assignment

Name : Probability2

Chapter : Probability

Grade : ICSE Grade X

1. On a particular day, at a crossing in a city, the various types of 155 vehicles going past during a time-interval were observed as under:

Type of Vehicle	Two-wheeler	Three-wheeler	Four-wheeler
Frequency	30	55	70

Out of these vehicles, if one is choosen at random, what is the probability that the choosen vehicle is a 'Three-wheeler' ?

(i) $\frac{12}{31}$ (ii) $\frac{10}{31}$ (iii) $\frac{3}{8}$ (iv) $\frac{11}{31}$ (v) $\frac{20}{31}$

2. The following table shows the blood-groups of 360 students of a class.

Blood group	AB	A	O	B
Number of students	45	63	90	162

One student of the class is choosen at random. What is the probability that the choosen student has blood group 'B' ?

(i) $\frac{1}{2}$ (ii) $\frac{9}{20}$ (iii) $\frac{11}{20}$ (iv) $\frac{2}{5}$ (v) $\frac{10}{21}$

3. A bag contains 15 orange balls, 40 yellow balls, 50 white balls and 10 black balls. One ball is drawn at random from the bag. Find the probability that the ball drawn is yellow.

(i) $\frac{15}{23}$ (ii) $\frac{3}{8}$ (iii) $\frac{7}{23}$ (iv) $\frac{9}{23}$ (v) $\frac{8}{23}$

4. A box contains 28 white balls, 12 blue balls, 22 orange balls and 4 gray balls. One ball is drawn at random from the box. Find the probability that the ball drawn is not blue.

(i) $\frac{9}{11}$ (ii) $\frac{5}{6}$ (iii) $\frac{2}{11}$ (iv) $\frac{10}{11}$ (v) $\frac{8}{11}$

5. A bag contains 52 red balls, 48 black balls, 52 pink balls and 24 orange balls. One ball is drawn at random from the bag. Find the probability that the ball drawn is black or pink.

(i) $\frac{26}{45}$ (ii) $\frac{13}{22}$ (iii) $\frac{25}{44}$ (iv) $\frac{19}{44}$ (v) $\frac{6}{11}$

6. A bag contains 70 white balls, 50 yellow balls, 35 gray balls and 70 orange balls. One ball is drawn at random from the bag. Find the probability that the ball drawn is neither gray nor white.

(i) $\frac{9}{16}$ (ii) $\frac{8}{15}$ (iii) $\frac{7}{15}$ (iv) $\frac{3}{5}$

7. What is the probability of a sure event?

(i) 1 (ii) $\frac{3}{4}$ (iii) $\frac{1}{2}$ (iv) $\frac{1}{4}$ (v) 0

8. What is the probability of an impossible event?

(i) $\frac{1}{2}$ (ii) $\frac{1}{4}$ (iii) 0 (iv) 1 (v) $\frac{3}{4}$

9. There are 60 students in a class room of whom 36 are boys and 24 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a boy ?

(i) $\frac{2}{3}$ (ii) $\frac{4}{5}$ (iii) $\frac{2}{5}$ (iv) $\frac{3}{5}$

10. There are 60 students in a class room of whom 36 are boys and 24 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a girl ?

(i) $\frac{2}{5}$ (ii) $\frac{1}{5}$ (iii) $\frac{3}{5}$ (iv) $\frac{1}{2}$

11. In a lottery, there are 11 prizes and 13 blanks. What is the probability of getting a prize?

(i) $\frac{13}{24}$ (ii) $\frac{1}{2}$ (iii) $\frac{5}{12}$ (iv) $\frac{12}{25}$ (v) $\frac{11}{24}$

12. In a lottery, there are 12 prizes and 10 blanks. What is the probability of not getting a prize?

(i) $\frac{6}{11}$ (ii) $\frac{1}{2}$ (iii) $\frac{5}{11}$ (iv) $\frac{4}{11}$

13. Which of the following are true?

a) The probability of an event that cannot happen is unknown
b) Probability of getting 102 marks out of 100 is 1.02
c) If the probability is too less, it will become negative
d) The probability of an event that is very likely to happen is 1
e) If the probability of failing the exam is 0.5, the probability of passing the exam is 0.5

(i) {e} (ii) {a,e} (iii) {c,d,e} (iv) {b,e}

14. Which of the following experiments have equally likely outcomes?

a) A man starts his vehicle. It starts or it does not starts
b) A baby is born. It is a boy or girl
c) A true/false question is attempted. The answer is either right or wrong
d) A man throws a die. The number on the top is either 1 or not 1
e) A ball is hit. It reaches the boundary or not

(i) {a,b} (ii) {b,c} (iii) {d,c} (iv) {e,a,b} (v) {d,c,b}

15. Which of the following are possible values of probability?

a) -3.2
b) 0.5
c) $\frac{5}{4}$
d) $\frac{5}{7}$
e) 4

(i) {e,a,b} (ii) {c,d} (iii) {c,d,b} (iv) {b,d} (v) {a,b}

16. If $P(E) = 0.67$, find $P(\bar{E})$

(i) 0.33 (ii) 1.33 (iii) 7.33 (iv) 8.33 (v) 2.33

17. Which of the following are true?

a) The probability of a sure event is 1
b) The probability of an unsure event is 0
c) The probability of an imposible event can be > 1
d) For an event E, we have $0 \leq P(E) \leq 1$
e) The probability of an impossible event is 1

(i) {a,d} (ii) {b,a} (iii) {e,b,a} (iv) {c,d,a} (v) {c,d}

18. Which of the following are true?

a) P(E) - P(not E) = 0
b) P(E) + P(not E) = 1
c) $P(E) = 1 - P(\overline{E})$
d) $P(E) + P(\overline{E}) = 0$
e) $P(E) - P(\overline{E}) = 0$

(i) {d,c,b} (ii) {d,c} (iii) {a,b} (iv) {b,c} (v) {e,a,b}

19. Two players Deeksha and Kareena play a tennis match. It is known that the probability of Deeksha winning the match is 0.50. What is the probability of Kareena winning the match?

(i) $\frac{3}{4}$ (ii) $\frac{2}{3}$ (iii) $\frac{4}{5}$ (iv) $\frac{1}{2}$ (v) $\frac{5}{6}$

20. A die is thrown 340 times. The number 4 appears on the upper face 64 times. Now the die is thrown at random. What is the probability of getting a 4 ?

(i) $\frac{69}{85}$ (ii) $\frac{1}{5}$ (iii) $\frac{3}{17}$ (iv) $\frac{16}{85}$ (v) $\frac{17}{86}$

21. 216 families with 2 children were selected randomly, and the following data were recorded

No. of girls in a family	0	1	2
Number of families	63	72	81

Compute the probability of the family, chosen at random, having 2 girls.

(i) $\frac{3}{8}$ (ii) $\frac{4}{9}$ (iii) $\frac{1}{2}$ (iv) $\frac{1}{4}$ (v) $\frac{5}{8}$

22. Three coins are tossed simultaneously 145 times with the following frequencies of different outcomes :

Outcome	3 heads	2 heads	1 heads	No heads
Frequency	25	30	40	50

If the three coins are simultaneously tossed again, compute the probability of 'No heads' coming up.

(i) $\frac{9}{29}$ (ii) $\frac{11}{30}$ (iii) $\frac{10}{29}$ (iv) $\frac{19}{29}$ (v) $\frac{11}{29}$

23. A die is thrown 410 times with the frequencies for outcomes 1, 2, 3, 4, 5 and 6 as given in the following table

Outcome	1	2	3	4	5	6
Frequency	35	50	60	65	85	115

If the die is thrown again randomly, find the probability of getting 1 as outcome.

(i) $\frac{4}{41}$ (ii) $\frac{7}{82}$ (iii) $\frac{8}{83}$ (iv) $\frac{3}{41}$ (v) $\frac{75}{82}$

24. The distances (in km) of engineers from their residence to their place of work were found as follows
12 12 12 1 1 18 22 13 15 4 12
What is the empirical probability that an engineer lives less than 1 km from her place of work?

(i) $\frac{3}{4}$ (ii) 0 (iii) $\frac{1}{2}$ (iv) $\frac{1}{4}$ (v) 1

25. The distances (in km) of engineers from their residence to their place of work were found as follows
13 12 14 13 14 7 5 13 4 25 1 21 24 21 25
What is the empirical probability that an engineer lives greater than 25 km from her place of work?

(i) 0 (ii) $\frac{1}{4}$ (iii) $\frac{3}{4}$ (iv) $\frac{1}{2}$ (v) 1

26. Kareena and Dolly are friends. What is the probability that both will have different birthdays? (ignoring a leap year).

(i) $\frac{1}{365}$ (ii) 1 (iii) $\frac{364}{365}$ (iv) $\frac{365}{366}$ (v) $\frac{363}{365}$

27. Meena and Sowjanya are friends. What is the probability that both will have same birthdays? (ignoring a leap year).

(i) $\frac{1}{183}$ (ii) $\frac{364}{365}$ (iii) $\frac{1}{365}$ (iv) $\frac{2}{365}$ (v) 0

28. In a musical chair game, the person playing the music has been advised to stop playing the music at any time with in 2 minutes after she starts playing. What is the probabilty that the music will stop within the first half-minute after starting?

(i) $\frac{1}{4}$ (ii) $\frac{3}{4}$ (iii) $\frac{2}{5}$ (iv) 0 (v) $\frac{1}{2}$

29. A carton consist of 91 shirts of which 80 are good, 10 have minor defects and 1 have major defects. Tarun, a trader, will only accept the shirts which are good, but Akshaya, another trader, will only reject the shirts which have major defects. One shirt is drawn at random from the carton. What is the probability that it is acceptable to Tarun?

(i) $\frac{79}{91}$ (ii) $\frac{81}{91}$ (iii) $\frac{11}{91}$ (iv) $\frac{81}{92}$ (v) $\frac{80}{91}$

30. A carton consist of 68 shirts of which 55 are good, 12 have minor defects and 1 have major defects. Vikram, a trader, will only accept the shirts which are good, but Swathi, another trader, will only reject the shirts which have major defects. One shirt is drawn at random from the carton. What is the probability that it is acceptable to Swathi?

(i) $\frac{33}{34}$ (ii) $\frac{67}{68}$ (iii) $\frac{1}{68}$ (iv) $\frac{68}{69}$ (v) 1

31. A lot of 21 bulbs contain 17 defective ones. One bulb is drawn at random from the lot. What is the probability that this bulb is defective ?

(i) $\frac{4}{21}$ (ii) $\frac{16}{21}$ (iii) $\frac{17}{21}$ (iv) $\frac{9}{11}$ (v) $\frac{6}{7}$

32. A lot of 28 bulbs contain 6 defective ones. One bulb is drawn at random from the lot. Suppose the bulb drawn is not defective and is not replaced. Now one bulb is drawn at random from the rest. What is the probability that this bulb is not defective ?

(i) $\frac{4}{5}$ (ii) $\frac{7}{9}$ (iii) $\frac{2}{3}$ (iv) $\frac{2}{9}$ (v) $\frac{8}{9}$

33. A box contains 40 discs which are numbered from 1 to 40. If one disc is drawn at random from the box, find the probability that it bears a two-digit number.

(i) $\frac{32}{41}$ (ii) $\frac{4}{5}$ (iii) $\frac{9}{40}$ (iv) $\frac{3}{4}$ (v) $\frac{31}{40}$

34. A box contains 80 discs which are numbered from 1 to 80. If one disc is drawn at random from the box, find the probability that it bears a perfect square number.

(i) $\frac{2}{11}$ (ii) $\frac{1}{10}$ (iii) $\frac{9}{10}$ (iv) 0 (v) $\frac{1}{5}$

35. A box contains 40 discs which are numbered from 1 to 40. If one disc is drawn at random from the box, find the probability that it bears a number divisible by 5.

(i) $\frac{1}{3}$ (ii) $\frac{4}{5}$ (iii) 0 (iv) $\frac{2}{5}$ (v) $\frac{1}{5}$

36. A game consists of tossing a coin 3 times and noting its outcome each time. Gowtham wins if all the tosses give the same result i.e., three heads or three tails, and loses otherwise. Calculate the probability that Gowtham will lose the game.

(i) $\frac{4}{5}$ (ii) $\frac{3}{4}$ (iii) 1 (iv) $\frac{1}{2}$ (v) $\frac{1}{4}$

37. 98 cards are numbered 1,2,3,....98 and put in a box and mixed thoroughly. A card is drawn at random. What is the probability that the number on the drawn card is an odd number?

(i) $\frac{1}{2}$ (ii) $\frac{4}{5}$ (iii) $\frac{2}{3}$ (iv) $\frac{5}{6}$ (v) $\frac{3}{4}$

38. 85 cards are numbered 1,2,3,....85 and put in a box and mixed thoroughly. A card is drawn at random. What is the probability that the number on the drawn card is a prime number?

(i) $\frac{24}{85}$ (ii) $\frac{62}{85}$ (iii) $\frac{23}{85}$ (iv) $\frac{12}{43}$ (v) $\frac{22}{85}$

39. 65 cards are numbered 1,2,3,....65 and put in a box and mixed thoroughly. A card is drawn at random. What is the probability that the number on the drawn card is divisible by 5?

(i) 0 (ii) $\frac{4}{5}$ (iii) $\frac{1}{3}$ (iv) $\frac{1}{5}$ (v) $\frac{2}{5}$

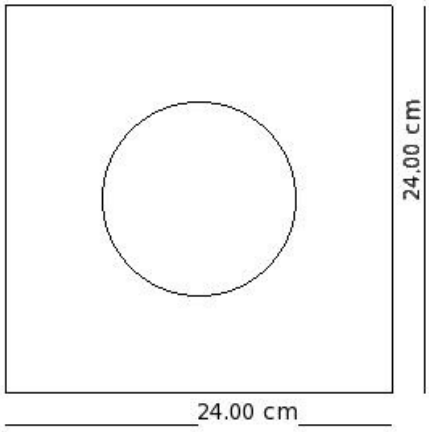
40. 93 cards are numbered 1,2,3,....93 and put in a box and mixed thoroughly. A card is drawn at random. What is the probability that the number on the drawn card is less then 13?

(i) $\frac{4}{31}$ (ii) $\frac{5}{31}$ (iii) $\frac{5}{32}$ (iv) $\frac{27}{31}$ (v) $\frac{3}{31}$

41. 59 cards are numbered 1,2,3,....59 and put in a box and mixed thoroughly. A card is drawn at random. What is the probability that the number on the drawn card is greater then 14?

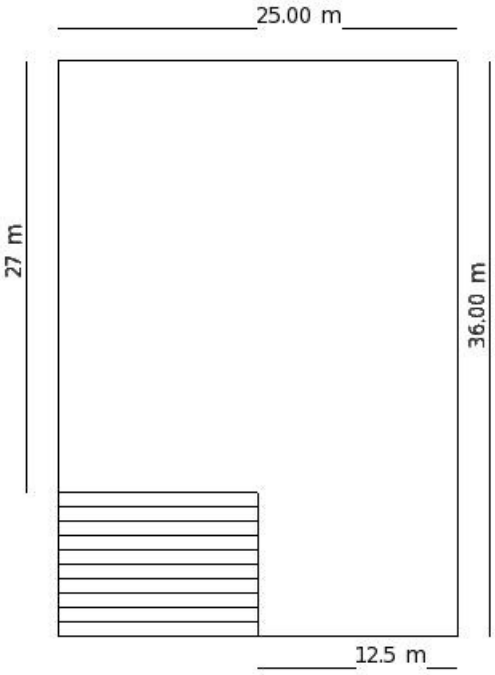
(i) $\frac{14}{59}$ (ii) $\frac{45}{59}$ (iii) $\frac{46}{59}$ (iv) $\frac{23}{30}$ (v) $\frac{44}{59}$

42. Suppose a die is thrown on a rectangular region as shown below. What is the probability that it will land inside the circle of diameter 12.00 cm?



(i) $\frac{3}{14}$ (ii) $\frac{4}{19}$ (iii) $\frac{11}{56}$ (iv) $\frac{45}{56}$ (v) $\frac{5}{28}$

43. A missing helicopter is reported to have crashed somewhere in the rectangular region shown in fig. What is the probability that it crashed inside the shaded region as shown in the figure?



(i) $\frac{7}{8}$ (ii) 0 (iii) $\frac{1}{4}$ (iv) $\frac{1}{8}$ (v) $\frac{2}{9}$

Assignment Key

1) (iv)	2) (ii)	3) (v)	4) (i)	5) (iii)	6) (ii)
7) (i)	8) (iii)	9) (iv)	10) (i)	11) (v)	12) (iii)
13) (i)	14) (ii)	15) (iv)	16) (i)	17) (i)	18) (iv)
19) (iv)	20) (iv)	21) (i)	22) (iii)	23) (ii)	24) (ii)
25) (i)	26) (iii)	27) (iii)	28) (i)	29) (v)	30) (ii)
31) (iii)	32) (ii)	33) (v)	34) (ii)	35) (v)	36) (ii)
37) (i)	38) (iii)	39) (iv)	40) (i)	41) (ii)	42) (iii)
43) (iv)					