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 105 vehicles going past during a time-interval were observed as under:

Type of Vehicle	Two-wheeler	Three-wheeler	Four-wheeler
Frequency	25	30	50

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

(i) $\frac{2}{7}$ (ii) $\frac{16}{21}$ (iii) $\frac{5}{21}$ (iv) $\frac{3}{11}$ (v) $\frac{4}{21}$

2. The following table shows the blood-groups of 396 students of a class.

Blood group	O	B	AB	A
Number of students	72	90	108	126

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

(i) $\frac{6}{23}$ (ii) $\frac{17}{22}$ (iii) $\frac{5}{22}$ (iv) $\frac{3}{11}$ (v) $\frac{2}{11}$

3. A bag contains 28 yellow marbles, 60 gray marbles, 40 orange marbles and 32 blue marbles. One marble is drawn at random from the bag. Find the probability that the marble drawn is orange.

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

4. A box contains 9 pink marbles, 24 blue marbles, 42 orange marbles and 27 yellow marbles. One marble is drawn at random from the box. Find the probability that the marble drawn is not pink.

(i) $\frac{3}{34}$ (ii) $\frac{31}{34}$ (iii) $\frac{15}{17}$ (iv) $\frac{16}{17}$ (v) $\frac{32}{35}$

5. A box contains 39 red balls, 18 pink balls, 45 yellow balls and 33 black balls. One ball is drawn at random from the box. Find the probability that the ball drawn is red or black.

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

6. A box contains 10 black marbles, 24 yellow marbles, 26 blue marbles and 6 gray marbles. One marble is drawn at random from the box. Find the probability that the marble drawn is neither blue nor gray.

(i) $\frac{6}{11}$ (ii) $\frac{16}{33}$ (iii) $\frac{9}{17}$ (iv) $\frac{17}{33}$

7. What is the probability of a sure event?

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

8. What is the probability of an impossible event?

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

9. There are 60 students in a class room of whom 22 are boys and 38 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a boy ?

(i) $\frac{1}{3}$ (ii) $\frac{2}{5}$ (iii) $\frac{11}{30}$ (iv) $\frac{12}{31}$ (v) $\frac{19}{30}$

10. There are 72 students in a class room of whom 32 are boys and 40 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a girl ?

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

11. In a lottery, there are 18 prizes and 18 blanks. What is the probability of getting a prize?

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

12. In a lottery, there are 21 prizes and 17 blanks. What is the probability of not getting a prize?

(i) $\frac{17}{38}$ (ii) $\frac{21}{38}$ (iii) $\frac{9}{19}$ (iv) $\frac{6}{13}$ (v) $\frac{8}{19}$

13. Which of the following are true?

a) The probability of an event that is very likely to happen is 1
b) The probability of an event that cannot happen is unknown
c) If the probability is too less, it will become negative
d) Probability of getting 106 marks out of 100 is 1.06
e) If the probability of failing the exam is 0.67, the probability of passing the exam is 0.33

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

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

a) A ball is hit. It reaches the boundary or not
b) A man throws a die. The number on the top is either 4 or not 4
c) A baby is born. It is a boy or girl
d) A true/false question is attempted. The answer is either right or wrong
e) A man starts his vehicle. It starts or it does not starts

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

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

a) $\frac{6}{7}$
b) 0.33
c) $\frac{7}{3}$
d) -3.5
e) 2

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

16. If $P(E) = 0.4$, find $P(\overline{E})$

(i) 8.6 (ii) 1.6 (iii) 0.6 (iv) 2.6 (v) 7.6

17. Which of the following are true?

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

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

18. Which of the following are true?

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

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

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

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

20. A die is thrown 510 times. The number 4 appears on the upper face 94 times. Now the die is thrown at random. What is the probability of getting a 4 ?

(i) $\frac{3}{16}$ (ii) $\frac{46}{255}$ (iii) $\frac{47}{255}$ (iv) $\frac{16}{85}$ (v) $\frac{208}{255}$

21. 225 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	54	81	90

Compute the probability of the family, chosen at random, having 1 girl.

(i) $\frac{2}{5}$ (ii) $\frac{16}{25}$ (iii) $\frac{5}{13}$ (iv) $\frac{9}{25}$ (v) $\frac{8}{25}$

22. Three coins are tossed simultaneously 210 times with the following frequencies of different outcomes :

Outcome	3 heads	2 heads	1 heads	No heads
Frequency	45	50	55	60

If the three coins are simultaneously tossed again, compute the probability of '1 heads' coming up.

(i) $\frac{31}{42}$ (ii) $\frac{5}{21}$ (iii) $\frac{2}{7}$ (iv) $\frac{12}{43}$ (v) $\frac{11}{42}$

23. A die is thrown 280 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	25	35	45	50	55	70

If the die is thrown again randomly, find the probability of getting 4 as outcome.

(i) $\frac{3}{14}$ (ii) $\frac{23}{28}$ (iii) $\frac{5}{28}$ (iv) $\frac{6}{29}$ (v) $\frac{1}{7}$

24. The distances (in km) of engineers from their residence to their place of work were found as follows
21 19 1 18 8 23 25 3
What is the empirical probability that an engineer lives less than 1 km from her place of work?

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

25. The distances (in km) of engineers from their residence to their place of work were found as follows
19 23 11 4 17 13 9 30 9 12 10 16 29
What is the empirical probability that an engineer lives greater than 12 km from her place of work?

(i) $\frac{8}{13}$ (ii) $\frac{6}{13}$ (iii) $\frac{7}{13}$ (iv) $\frac{4}{7}$

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

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

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

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

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

29. A carton consist of 91 shirts of which 75 are good, 11 have minor defects and 5 have major defects. Vivek, a trader, will only accept the shirts which are good, but Anjali, 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 Vivek?

(i) $\frac{75}{91}$ (ii) $\frac{74}{91}$ (iii) $\frac{16}{91}$ (iv) $\frac{76}{91}$ (v) $\frac{19}{23}$

30. A carton consist of 67 shirts of which 53 are good, 9 have minor defects and 5 have major defects. Arjun, a trader, will only accept the shirts which are good, but Sowjanya, 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 Sowjanya?

(i) $\frac{63}{67}$ (ii) $\frac{63}{68}$ (iii) $\frac{62}{67}$ (iv) $\frac{61}{67}$ (v) $\frac{5}{67}$

31. A lot of 37 bulbs contain 7 defective ones. One bulb is drawn at random from the lot. What is the probability that this bulb is defective ?

(i) $\frac{8}{37}$ (ii) $\frac{4}{19}$ (iii) $\frac{7}{37}$ (iv) $\frac{30}{37}$ (v) $\frac{6}{37}$

32. A lot of 22 bulbs contain 17 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) $\frac{17}{21}$ (ii) $\frac{5}{21}$ (iii) $\frac{4}{21}$ (iv) $\frac{5}{22}$ (v) $\frac{1}{7}$

33. 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 two-digit number.

(i) $\frac{71}{80}$ (ii) $\frac{8}{9}$ (iii) $\frac{7}{8}$ (iv) $\frac{9}{10}$ (v) $\frac{9}{80}$

34. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears a perfect square number.

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

35. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears a number divisible by 5.

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

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

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

37. 52 cards are numbered 1,2,3,....52 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) $\frac{5}{6}$ (ii) $\frac{4}{5}$ (iii) $\frac{2}{3}$ (iv) $\frac{3}{4}$ (v) $\frac{1}{2}$

38. 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 a prime number?

(i) $\frac{16}{59}$ (ii) $\frac{42}{59}$ (iii) $\frac{17}{59}$ (iv) $\frac{3}{10}$ (v) $\frac{18}{59}$

39. 62 cards are numbered 1,2,3,....62 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) $\frac{7}{31}$ (ii) $\frac{5}{31}$ (iii) $\frac{25}{31}$ (iv) $\frac{6}{31}$ (v) $\frac{7}{32}$

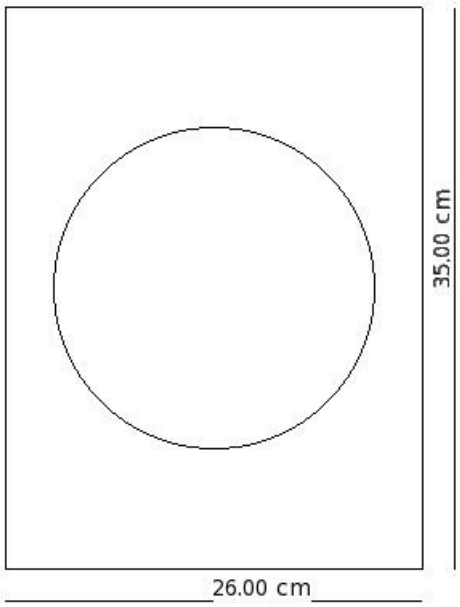
40. 84 cards are numbered 1,2,3,....84 and put in a box and mixed thoroughly. A card is drawn at random. What is the probability that the number on the drawn card is less then 24?

(i) $\frac{61}{84}$ (ii) $\frac{23}{84}$ (iii) $\frac{2}{7}$ (iv) $\frac{24}{85}$ (v) $\frac{11}{42}$

41. 69 cards are numbered 1,2,3,....69 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 28?

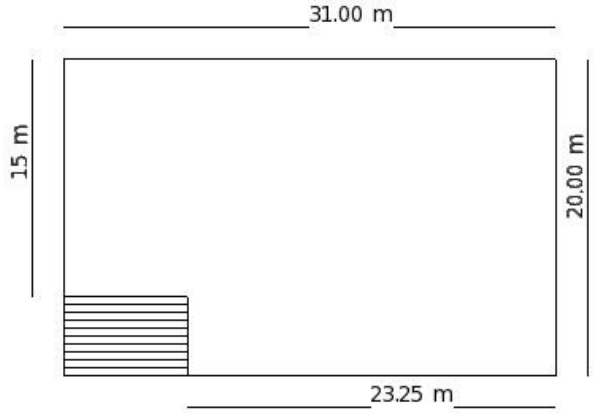
(i) $\frac{40}{69}$ (ii) $\frac{3}{5}$ (iii) $\frac{14}{23}$ (iv) $\frac{41}{69}$ (v) $\frac{28}{69}$

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 20.00 cm?



(i) $\frac{417}{637}$ (ii) $\frac{220}{637}$ (iii) $\frac{219}{637}$ (iv) $\frac{17}{49}$ (v) $\frac{221}{638}$

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) $\frac{1}{16}$ (ii) $\frac{15}{16}$ (iii) $\frac{2}{17}$ (iv) $\frac{1}{8}$ (v) 0

Assignment Key

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