1. A survey of 130 men showed that only 90 of them know Urdu. Out of these men, if one is selected at random, what is the probability that the selected man knows Urdu?

   (i) $\dfrac{4}{13}$ (ii) $\dfrac{9}{13}$ (iii) $\dfrac{10}{13}$ (iv) $\dfrac{5}{7}$ (v) $\dfrac{8}{13}$

2. 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	Four-wheeler	Three-wheeler
Frequency	30	35	40

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

   (i) $\dfrac{1}{2}$ (ii) $\dfrac{1}{3}$ (iii) $\dfrac{2}{3}$ (iv) 0

3. The following table shows the blood-groups of 333 students of a class.

Blood group	A	AB	O	B
Number of students	63	81	90	99

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

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

4. A box contains 8 blue marbles, 36 white marbles, 8 pink marbles and 48 gray marbles. One marble is drawn at random from the box. Find the probability that the marble drawn is pink.

   (i) $\dfrac{1}{25}$ (ii) $\dfrac{3}{25}$ (iii) $\dfrac{3}{26}$ (iv) $\dfrac{23}{25}$ (v) $\dfrac{2}{25}$

5. A box contains 20 blue marbles, 26 gray marbles, 6 orange marbles and 12 white marbles. One marble is drawn at random from the box. Find the probability that the marble drawn is not white.

   (i) $\dfrac{3}{4}$ (ii) $\dfrac{3}{16}$ (iii) $\dfrac{7}{8}$ (iv) $\dfrac{14}{17}$ (v) $\dfrac{13}{16}$

6. A box contains 65 blue balls, 70 black balls, 20 white balls and 25 red balls. One ball is drawn at random from the box. Find the probability that the ball drawn is black or blue.

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

7. A box contains 40 gray balls, 5 red balls, 15 white balls and 50 black balls. One ball is drawn at random from the box. Find the probability that the ball drawn is neither white nor black.

   (i) $\dfrac{5}{11}$ (ii) $\dfrac{13}{22}$ (iii) $\dfrac{10}{23}$ (iv) $\dfrac{9}{22}$ (v) $\dfrac{4}{11}$

8. There are 68 students in a class room of whom 36 are boys and 32 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a boy ?

(i) $\dfrac{8}{17}$ (ii) $\dfrac{10}{17}$ (iii) $\dfrac{5}{9}$ (iv) $\dfrac{9}{17}$

9. There are 62 students in a class room of whom 26 are boys and 36 are girls. From these students, one is choosen at random. What is the probability that the choosen student is a girl ?

(i) $\dfrac{19}{32}$ (ii) $\dfrac{18}{31}$ (iii) $\dfrac{17}{31}$ (iv) $\dfrac{19}{31}$ (v) $\dfrac{13}{31}$

10. In a lottery, there are 14 prizes and 12 blanks. What is the probability of getting a prize?

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

11. In a lottery, there are 11 prizes and 14 blanks. What is the probability of not getting a prize?

(i) $\dfrac{11}{25}$ (ii) $\dfrac{13}{25}$ (iii) $\dfrac{15}{26}$ (iv) $\dfrac{3}{5}$ (v) $\dfrac{14}{25}$

12. Two players Swathi and Priyanka play a tennis match. It is known that the probability of Swathi winning the match is 0.33. What is the probability of Priyanka winning the match?

(i) $\dfrac{68}{101}$ (ii) $\dfrac{33}{50}$ (iii) $\dfrac{67}{100}$ (iv) $\dfrac{17}{25}$ (v) $\dfrac{33}{100}$

13. 162 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	45	54	63

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

(i) 0 (ii) $\dfrac{2}{3}$ (iii) $\dfrac{1}{2}$ (iv) $\dfrac{1}{3}$

14. Three coins are tossed simultaneously 180 times with the following frequencies of different outcomes :

Outcome	3 heads	2 heads	1 heads	No heads
Frequency	35	40	45	60

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

(i) 0 (ii) $\dfrac{1}{2}$ (iii) $\dfrac{2}{3}$ (iv) $\dfrac{1}{3}$

15. 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	30	50	60	85	90	95

If the die is thrown again randomly, find the probability of getting 3 as outcome.

(i) $\dfrac{5}{41}$ (ii) $\dfrac{35}{41}$ (iii) $\dfrac{7}{41}$ (iv) $\dfrac{6}{41}$ (v) $\dfrac{1}{6}$

16. The distances (in km) of engineers from their residence to their place of work were found as follows

5 10 5 26 20 9 5 15 28 10

What is the empirical probability that an engineer lives less than 28 km from her place of work?

(i) $\dfrac{10}{11}$ (ii) $\dfrac{4}{5}$ (iii) 1 (iv) $\dfrac{9}{10}$ (v) $\dfrac{1}{10}$

17. The distances (in km) of engineers from their residence to their place of work were found as follows
25 3 8 21 17 5 10 21 11 10 22 22 24

What is the empirical probability that an engineer lives greater than 25 km from her place of work?

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

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18. Reshma and Shalini are friends. What is the probability that both will have different birthdays? (ignoring a leap year).

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

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19. Manisha and Swetha are friends. What is the probability that both will have same birthdays? (ignoring a leap year).

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

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

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21. A carton consist of 69 shirts of which 60 are good, 8 have minor defects and 1 have major defects. Kiran, a trader, will only accept the shirts which are good, but Sujatha, 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 Kiran?

(i) $\dfrac{19}{23}$ (ii) $\dfrac{3}{23}$ (iii) $\dfrac{7}{8}$ (iv) $\dfrac{20}{23}$ (v) $\dfrac{21}{23}$

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22. A carton consist of 86 shirts of which 70 are good, 13 have minor defects and 3 have major defects. Nagarjuna, a trader, will only accept the shirts which are good, but Geetika, 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 Geetika?

(i) $\dfrac{83}{86}$ (ii) $\dfrac{42}{43}$ (iii) $\dfrac{28}{29}$ (iv) $\dfrac{41}{43}$ (v) $\dfrac{3}{86}$

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23. A lot of 31 bulbs contain 10 defective ones. One bulb is drawn at random from the lot. What is the probability that this bulb is defective ?

(i) $\dfrac{9}{31}$ (ii) $\dfrac{10}{31}$ (iii) $\dfrac{11}{32}$ (iv) $\dfrac{21}{31}$ (v) $\dfrac{11}{31}$

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24. A lot of 23 bulbs contain 14 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) $\dfrac{7}{11}$ (ii) $\dfrac{3}{11}$ (iii) $\dfrac{5}{11}$ (iv) $\dfrac{5}{12}$ (v) $\dfrac{4}{11}$

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25. A box contains 60 discs which are numbered from 1 to 60. If one disc is drawn at random from the box, find the probability that it bears a two-digit number.

(i) $\dfrac{3}{20}$ (ii) $\dfrac{4}{5}$ (iii) $\dfrac{17}{20}$ (iv) $\dfrac{9}{10}$ (v) $\dfrac{6}{7}$

26. 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) 0 (ii) $\dfrac{9}{10}$ (iii) $\dfrac{2}{11}$ (iv) $\dfrac{1}{5}$ (v) $\dfrac{1}{10}$

27. A box contains 60 discs which are numbered from 1 to 60. If one disc is drawn at random from the box, find the probability that it bears a number divisible by 5.

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

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

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

29. 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 an odd number?

(i) $\dfrac{30}{59}$ (ii) $\dfrac{31}{60}$ (iii) $\dfrac{31}{59}$ (iv) $\dfrac{29}{59}$

30. 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) $\dfrac{17}{59}$ (ii) $\dfrac{16}{59}$ (iii) $\dfrac{3}{10}$ (iv) $\dfrac{42}{59}$ (v) $\dfrac{18}{59}$

31. 82 cards are numbered 1,2,3,....82 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) $\dfrac{33}{41}$ (ii) $\dfrac{8}{41}$ (iii) $\dfrac{7}{41}$ (iv) $\dfrac{3}{14}$ (v) $\dfrac{9}{41}$

32. 88 cards are numbered 1,2,3,....88 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 23?

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

33. 83 cards are numbered 1,2,3,....83 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 22?

(i) $\dfrac{62}{83}$ (ii) $\dfrac{61}{83}$ (iii) $\dfrac{22}{83}$ (iv) $\dfrac{60}{83}$ (v) $\dfrac{31}{42}$

34. 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 6.00 cm?

20.00 cm

14.00 cm
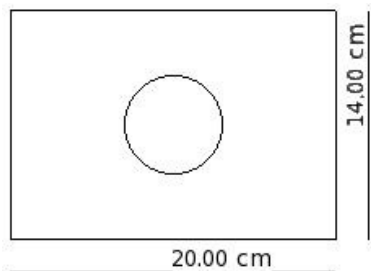
(i) $\dfrac{100}{981}$ (ii) $\dfrac{881}{980}$ (iii) $\dfrac{1}{10}$ (iv) $\dfrac{5}{49}$ (v) $\dfrac{99}{980}$

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35. 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?

32.00 m

12 m

24.00 m

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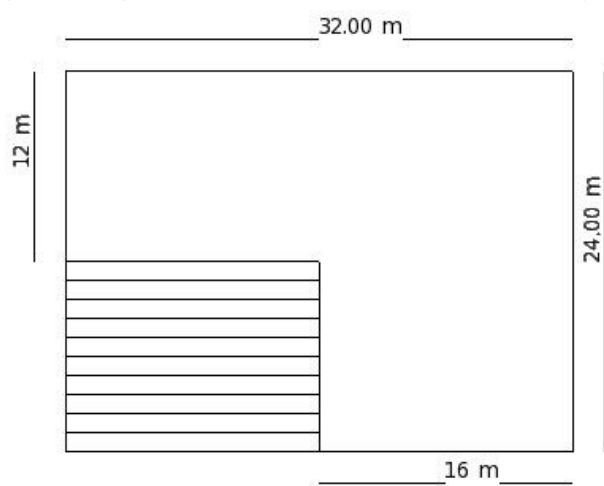
(i) $\dfrac{1}{2}$ (ii) 0   (iii) $\dfrac{2}{5}$ (iv) $\dfrac{3}{4}$ (v) $\dfrac{1}{4}$

Assignment Key

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