

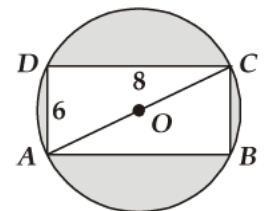
- Q1.** A bag contains 3 red and 2 blue marbles. A marble is drawn at random. What is the probability of drawing a blue marble?
- Q2.** It is known that a box of 600 electric bulbs contains 12 defective bulbs. One bulb is taken out at random from this box. What is the probability that it is a non-defective bulb?
- Q3.** 1000 tickets of a lottery were sold and there are 5 prizes on these tickets. If Saket has purchased one lottery ticket, what is the probability of winning a prize?
- Q4.** A letter is chosen at random from the letters of the word 'ASSASSINATION'. Find the probability that the letter chosen is a (i) vowel (ii) consonant.
- Q5.** In a lottery there are 10 prizes and 25 blanks. What is the probability of getting a prize?
- Q6.** If the probability of winning a game is 0.3, what is the probability of losing it?
- Q7.** Why is tossing a coin considered to be a fair way of deciding which team should choose ends in a game of cricket?
- Q8.** If  $\bar{E}$  denote the complement or negation of an event  $E$ , what is the value of  $P(E) + P(\bar{E})$ ?
- Q9.** Two unbiased coins are tossed simultaneously. Find the probability of getting one tail.
- Q10.** From a well shuffled pack of cards, a card is drawn at random. Find the probability of getting a black queen.
- Q11.** A die is thrown once. Find the probability of getting a number less than 3.
- Q12.** A die is thrown once. What is the probability of getting a number greater than 4?
- Q13.** If a digit is chosen at random from the digits from the digits 1, 2, 3, 4, 5, 6, 7, 8, 9 then the probability that it is odd, is
- (a)  $\frac{4}{9}$                       (b)  $\frac{5}{9}$                       (c)  $\frac{1}{9}$                       (d)  $\frac{2}{3}$
- Q14.** A letter of English alphabet is chosen at random. Determine the probability that the chosen letter is a consonant.
- Q15.** What is the probability that a number selected at random from the numbers 3, 4, 5, ..., 9 is a multiple of 4?
- Q16.** In a single throw of a die, the probability of getting a multiple of 3 is
- (a)  $\frac{1}{2}$                       (b)  $\frac{1}{3}$                       (c)  $\frac{1}{6}$                       (d)  $\frac{2}{3}$
- Q17.** A number  $x$  is chosen at random from the numbers -3, -2, -1, 0, 1, 2, 3 the probability that  $|x| < 2$  is
- (a)  $\frac{5}{7}$                       (b)  $\frac{2}{7}$                       (c)  $\frac{3}{7}$                       (d)  $\frac{1}{7}$
- Q18.** A bag contains three green marbles, four blue marbles, and two orange marbles. If a marble is picked at random, then the probability that it is not an orange marble is
- (a)  $\frac{1}{4}$                       (b)  $\frac{1}{3}$                       (c)  $\frac{4}{9}$                       (d)  $\frac{7}{9}$

- Q19.** The probability of guessing the correct answer to a certain test questions is  $\frac{x}{12}$ . If the probability of not guessing the correct answer to this question is  $\frac{2}{3}$ , then  $x =$
- (a) 2                      (b) 3                      (c) 4                      (d) 6
- Q20.** A number is selected at random from the numbers 3, 5, 5, 7, 7, 7, 9, 9, 9, 9. The probability that the selected number is their average is
- (a)  $\frac{1}{10}$                       (b)  $\frac{3}{10}$                       (c)  $\frac{7}{10}$                       (d)  $\frac{9}{10}$
- Q21.** What is the probability that a non-leap year has 53 Sundays?
- (a)  $\frac{6}{7}$                       (b)  $\frac{1}{7}$                       (c)  $\frac{5}{7}$                       (d) None of these
- Q22.** The probability of a certain event is
- (a) 0                      (b) 1                      (c)  $\frac{1}{2}$                       (d) no existent
- Q23.** Which of the following cannot be the probability of occurrence of an event?
- (a) 0.2                      (b) 0.4                      (c) 0.9                      (d) 1.6
- Q24.** Which of the following cannot be the probability of an event?
- (a)  $\frac{2}{3}$                       (b) -1.5                      (c) 15%                      (d) 0.7
- Q25.** In a single throw of pair of dice, the probability of getting the sum a perfect square is
- (a)  $\frac{1}{18}$                       (b)  $\frac{7}{36}$                       (c)  $\frac{1}{6}$                       (d)  $\frac{2}{9}$
- Q26.** A number is selected from numbers 1 to 25. The probability that it is prime is
- (a)  $\frac{2}{3}$                       (b)  $\frac{1}{6}$                       (c)  $\frac{1}{3}$                       (d)  $\frac{5}{6}$
- Q27.** The probability that a non-leap year has 53 Sundays, is
- (a)  $\frac{2}{7}$                       (b)  $\frac{5}{7}$                       (c)  $\frac{6}{7}$                       (d)  $\frac{1}{7}$
- Q28.** A card is accidently dropped from a pack of 52 playing cards. The probability that it is an ace is
- (a)  $\frac{1}{4}$                       (b)  $\frac{1}{13}$                       (c)  $\frac{1}{52}$                       (d)  $\frac{12}{13}$
- Q29.** The probability of throwing a number greater than 2 with a fair dice is
- (a)  $\frac{3}{5}$                       (b)  $\frac{2}{5}$                       (c)  $\frac{2}{3}$                       (d)  $\frac{1}{3}$
- Q30.** If a number  $x$  is chosen from the numbers 1, 2, 3 and a number  $y$  is selected from the numbers 1, 4, 9. Then  $P(xy < 9)$ .
- (a)  $\frac{7}{9}$                       (b)  $\frac{5}{9}$                       (c)  $\frac{2}{3}$                       (d)  $\frac{1}{9}$
- Q31.** What is the probability that a leap year has 52 Mondays?
- (a)  $\frac{2}{7}$                       (b)  $\frac{4}{7}$                       (c)  $\frac{5}{7}$                       (d)  $\frac{6}{7}$

- Q32.** Two dice are rolled simultaneously. The probability that they show different faces is
- (a)  $\frac{2}{3}$                       (b)  $\frac{1}{6}$                       (c)  $\frac{1}{3}$                       (d)  $\frac{5}{6}$
- Q33.** Two numbers 'a' and 'b' are selected successively without replacement in that order from the integers 1 to 10. The probability that  $\frac{a}{b}$  is an integer, is
- (a)  $\frac{17}{45}$                       (b)  $\frac{1}{5}$                       (c)  $\frac{17}{90}$                       (d)  $\frac{8}{45}$
- Q34.** A number is selected from first 50 natural numbers. What is the probability that it is a multiple of 3 or 5?
- (a)  $\frac{13}{25}$                       (b)  $\frac{21}{50}$                       (c)  $\frac{12}{25}$                       (d)  $\frac{23}{50}$
- Q35.** The probability of getting an even number, when a die is thrown once is
- (a)  $\frac{1}{2}$                       (b)  $\frac{1}{3}$                       (c)  $\frac{1}{6}$                       (d)  $\frac{5}{6}$
- Q36.** A die is thrown once. The probability of getting a prime number is
- (a)  $\frac{2}{3}$                       (b)  $\frac{1}{3}$                       (c)  $\frac{1}{2}$                       (d)  $\frac{1}{6}$
- Q37.** Two dice are thrown together. The probability of getting the same number on both dice is
- (a)  $\frac{1}{2}$                       (b)  $\frac{1}{3}$                       (c)  $\frac{1}{6}$                       (d)  $\frac{1}{12}$
- Q38.** A month is selected at random in a year. The probability that it is March or October, is
- (a)  $\frac{1}{12}$                       (b)  $\frac{1}{6}$                       (c)  $\frac{3}{4}$                       (d) None of these
- Q39.** A box contains 90 discs, numbered from 1 to 90. If one disc is drawn at random from the box, the probability that it bears a prime number less than 23, is
- (a)  $\frac{7}{90}$                       (b)  $\frac{10}{90}$                       (c)  $\frac{4}{45}$                       (d)  $\frac{9}{89}$
- Q40.** The probability that a number selected at random from the numbers 1, 2, 3, ..., 15 is a multiple of 4, is
- (a)  $\frac{4}{15}$                       (b)  $\frac{2}{15}$                       (c)  $\frac{1}{5}$                       (d)  $\frac{1}{3}$
- Q41.** In a family of 3 children, the probability of having at least one boy is
- (a)  $\frac{7}{8}$                       (b)  $\frac{1}{8}$                       (c)  $\frac{5}{8}$                       (d)  $\frac{3}{4}$
- Q42.** A bag contains cards numbered from 1 to 25. A card is drawn at random from the bag. The probability that the number on this card is divisible by both 2 and 3 is
- (a)  $\frac{1}{5}$                       (b)  $\frac{3}{25}$                       (c)  $\frac{4}{25}$                       (d)  $\frac{2}{25}$
- Q43.** Two different coins are tossed simultaneously. The probability of getting at least one head is
- (a)  $\frac{1}{4}$                       (b)  $\frac{1}{8}$                       (c)  $\frac{3}{4}$                       (d)  $\frac{7}{8}$
- Q44.** If two different dice are rolled together, the probability of getting an even number on both dice, is
- (a)  $\frac{1}{36}$                       (b)  $\frac{1}{2}$                       (c)  $\frac{1}{6}$                       (d)  $\frac{1}{4}$

- Q45.** A card is drawn at random from a pack of 52 cards. The probability that the drawn card is not an ace is  
 (a)  $\frac{1}{13}$                       (b)  $\frac{9}{13}$                       (c)  $\frac{4}{13}$                       (d)  $\frac{12}{13}$
- Q46.** A number is selected at random from the numbers 1 to 30. The probability that it is a prime number is  
 (a)  $\frac{2}{3}$                       (b)  $\frac{1}{6}$                       (c)  $\frac{1}{3}$                       (d)  $\frac{11}{30}$
- Q47.** What is the probability that a number selected from the numbers 1, 2, 3, ..., 25 is a prime number, when each of the given numbers is equally likely to be selected?
- Q48.** Tickets numbered from 1 to 20 are mixed up together and then a ticket is drawn at random. What is the probability that the ticket has a number which is a multiple of 3 or 7?
- Q49.** What is the probability that a number selected from the numbers 1, 2, 3, ..., 15 is a multiple of 4?
- Q50.** Two unbiased dice are thrown. Find the probability that the total of the numbers on the dice is greater than 10.
- Q51.** A and B throw a pair of dice. If A throws 9, find B's chance of throwing a higher number.
- Q52.** A bag contains 5 red balls, 8 white balls, 4 green balls and 7 black balls. If one ball is drawn at random, find the probability that it is:  
 (i) black                      (ii) red                      (iii) not green
- Q53.** Tickets numbered from 1 to 20 are mixed up and a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 7?
- Q54.** What is the probability that a number selected at random from the number 1, 2, 2, 3, 3, 3, 4, 4, 4, 4 will be their average?
- Q55.** A bag contains 4 red balls, 5 black balls and 6 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is:  
 (i) white                      (ii) red                      (iii) not black                      (iv) red or white
- Q56.** A bag contains 3 red balls, 5 black balls and 4 white balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is:  
 (i) white?                      (ii) red?                      (iii) black?                      (iv) not red?
- Q57.** A card is drawn at random from a pack of 52 cards. Find the probability that the card drawn is  
 (i) neither a red card nor a queen.                      (ii) neither a king nor a queen.
- Q58.** The faces of a red cube and a yellow cube are numbered from 1 to 6. Both cubes are rolled. What is the probability that the top face of each cube will have the same number?
- Q59.** Two unbiased coins are tossed simultaneously. Find the probability of getting at least one head.
- Q60.** There are 30 cards, of same size, in a bag on which numbers 1 to 30 are written. One card is taken out of the bag at random. Find the probability that the number on the selected card is not divisible by 3.
- Q61.** A box contains cards numbered 3, 5, 7, 8, ..., 35, 37. A card is drawn at random from the box. Find the probability that the number on the drawn card is a prime number.
- Q62.** A box contains 100 red cards, 200 yellow cards and 50 blue cards. If a card is drawn at random from the box, then find the probability that it will be (i) a blue card (ii) not a yellow card (iii) neither yellow nor a blue card.
- Q63.** Find the probability that a number selected from the number 1 to 25 is not a prime number when each of the given numbers is equally likely to be selected.

- Q64.** A bag contains 5 red, 8 white and 7 black balls. A ball is drawn at random from the bag.
- Q65.** Two coins are tossed simultaneously. Find the probability of getting exactly one head.
- Q66.** The king, queen and jack of clubs are removed from a deck of 52 plain cards and the well shuffled. One card is selected from the remaining cards. Find the probability of getting.
- (i) a heart                      (ii) a king                      (iii) a club                      (iv) the '10' of hearts.
- Q67.** Find the probability that a leap year selected at random will contain 53 Sundays.
- Q68.** An unbiased die is thrown. What is the probability of getting:
- (i) an even number                      (ii) a multiple of 3  
 (iii) An even number or a multiple of 3                      (iv) an even number and a multiple of 3  
 (v) a number 3 or 4                      (vi) an odd number  
 (vii) a number less than 5                      (viii) a number greater than 3  
 (ix) a number between 3 and 6.
- Q69.** 17 cards numbered 1, 2, 3, ..., 17 are put in a box and mixed thoroughly. One person draws a card from the box. Find the probability that the number on the card is:
- (i) odd                      (ii) a prime                      (iii) divisible by 3                      (iv) divisible by 3 and 2 both
- Q70.** In a simultaneous throw of a pair of dice, find the probability of getting:
- (i) 8 as the sum                      (ii) a doublet  
 (iii) a doublet of prime numbers                      (iv) a doublet of odd numbers  
 (v) a sum greater than 9                      (vi) an even number on first  
 (vii) an even number on one and a multiple of 3 on the other
- Q71.** A number  $x$  is selected from the numbers 1, 2, 3 and then a second number  $y$  is randomly selected from the numbers 1, 4, 9. What is the probability that the product  $xy$  of the two numbers will be less than 9?
- Q72.** A jar contains 54 marbles each of which is blue, green or white. The probability of selecting a blue marble at random from the jar is  $\frac{1}{3}$ , and the probability of selecting a green marble at random is  $\frac{4}{9}$ . How many white marbles does the jar contain.
- Q73.** Cards marked with the numbers 2 to 101 are placed in a box and mixed thoroughly. One card is drawn from this box. Find the probability that the number on the card is:
- (i) an even number.                      (ii) a number less than 14.  
 (iii) a number which is a perfect square.                      (iv) a prime number less than 20.
- Q74.** In figure, a dart is thrown and lands in the interior of the circle. What is the probability that the dart will land in the shaded region?



- Q75.** Five cards – the ten, jack, queen, king and ace of diamonds, are well-shuffled with their face downwards. One card is then picked up at random.
- (i) What is the probability that the card is the queen?  
 (ii) If the queen is drawn and put aside, what is the probability that the second card picked up is (a) an ace? (b) a queen?
- Q76.** The probability of selecting a green marble at random from a jar that contains only green, white and yellow marbles is  $\frac{1}{4}$ . The probability of selecting a white marble at random from the same jar is  $\frac{1}{3}$ . If this jar contains 10 yellow marbles. What is the total number of marbles in the jar?



**Q77.** A card is drawn at random from a pack of 52 cards. Find the probability that the card drawn is

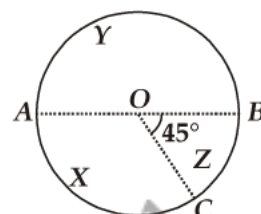
- (i) a black king.
- (ii) either a black card or a king.
- (iii) black and a king.
- (iv) a jack, queen or a king.
- (v) neither a heart nor a king.
- (vi) spade or an ace.

**Q78.** What is the probability that an ordinary year has 53 Sundays?

**Q79.** Three coins are tossed together. Find the probability of getting:

- (i) exactly two heads.
- (ii) at most two heads.
- (iii) at least one head and one tail.
- (iv) no tails.

**Q80.** In the accompanying diagram a fair spinner is placed at the centre  $O$  of the circle. Diameter  $AOB$  and radius  $OC$  divide the circle into three regions labeled  $X, Y$  and  $Z$ . If  $\angle BOC = 45^\circ$ . What is the probability that the spinner will land in the region  $X$  (see figure)?



**Q81.** A square dart board is placed in the first quadrant from  $x = 0$  to  $x = 6$  and  $y = 0$  to  $y = 6$ . A triangular region on the dart board is enclosed by the lines  $y = 2, x = 6$  and  $y = x$ . Find the probability that a dart that randomly hits the dart board will land in the triangular region formed by the three lines.

**Q82.** What is the probability that a leap year has 53 Tuesdays and 53 Mondays?

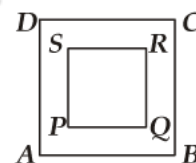
**Q83.** In a simultaneous throw of a pair of dice, find the probability of getting:

- (i) even number on each die.
- (ii) 5 as the sum.
- (iii) 2 will come up at least once
- (iv) 2 will not come either time.

**Q84.** Three unbiased coins are tossed together. Find the probability of getting

- (i) all heads
- (ii) two heads
- (iii) one head
- (iv) at least two heads

**Q85.** In the figure, a square dart board is shown. The length of a side of the larger square is 1.5 times the length of a side of the smaller square. If a dart is thrown and lands on the larger square. What is the probability that it will land in the interior of the smaller square?



**Q86.** A bag contains 6 red balls and some blue balls. If the probability of drawing a blue ball from the bag is twice that of a red ball, find the number of blue balls in the bag.

**Q87.** Cards marked with numbers 13, 14, 15, ..., 60 are placed in a box and mixed thoroughly. One card is drawn at random from the box. Find the probability that number on the card drawn is

- (i) divisible by 5
- (ii) a number is a perfect square.

**Q88.** From a pack of 52 playing cards jacks, queen, kings and aces of red colour are removed. From the remaining, a card is drawn at random. Find the probability that the card drawn is (i) a black queen, (ii) a red card, (iii) a black jack and (iv) a picture card (jack, queens and kings are picture cards).

**Q89.** Find the probability that a number selected at random from the numbers 1, 2, 3 ..., 35 is a (i) prime number (ii) multiple of 7 (iii) a multiple of 3 or 5.

**Q90.** A bag contains cards which are numbered from 2 to 90. A card is drawn at random from the bag. Find the probability that it bears.

- (i) a two digit number.
- (ii) a number which is a perfect square.

- Q91.** A black die and a white die are thrown at the same time. Write all the possible outcomes. What is the probability?
- (i) That the product of numbers appearing on the top of the dice is less than 9.  
(ii) That the difference of the numbers appearing on the top of the two dice is 2.
- Q92.** A black die and a white die are thrown at the same time. Write all the possible outcomes. What is the probability?
- (i) that the sum of the two numbers that turn up is 8?  
(ii) of obtaining a total of 6? (iii) of obtaining a total of 10?
- Q93.** A dice is rolled twice. Find the probability that (i) 5 will not come up either time, (ii) 5 will come up exactly one time.
- Q94.** Cards numbered 1 to 30 are put in a bag. A card is drawn at random from this bag. Find the probability that the number on the drawn card is (i) not divisible by 3, (ii) a prime number greater than 7 and (iii) not a perfect square number.
- Q95.** A group consists of 12 persons, of which 3 are extremely patient, other 6 are extremely honest and rest are extremely kind. A person from the group is selected at random. Assuming that each person is equally likely to be selected, find the probability of selecting a person who is (i) extremely patient (ii) extremely kind or honest. Which of the above you prefer more.
- Q96.** Two dice are thrown simultaneously. What is the probability that: (i) 5 will not come up on either of them? (ii) 5 will come up on at least one? and (iii) 5 will come up at both dice?
- Q97.** The king, queen and jack of clubs are removed from a deck of 52 playing cards and the remaining cards are shuffled. A card is drawn from the remaining cards. Find the probability of getting a card of (i) heart (ii) queen (iii) clubs.
- Q98.** A bag contains tickets numbered 11, 12, 13, ..., 30. A ticket is taken out from the bag at random. Find the probability that the number on the drawn ticket (i) is a multiple of 7 (ii) is greater than 15 and a multiple of 5.
- Q99.** All jacks, queens and kings are removed from a pack of 52 cards. The remaining cards are well-shuffled and then a card is randomly drawn from it. Find the probability that this card is (i) a black face card (ii) a red card.
- Q100.** All kings and queens are removed from a pack of 52 cards. The remaining cards are well-shuffled and then a card is randomly drawn from it. Find the probability that this card is (i) a red face card and (ii) a black card.
- Q101.** A bag contains cards numbered from 1 to 49. A card is drawn from the bag at random, after mixing the card thoroughly. Find the probability that the number on the drawn card is
- (i) an odd number (ii) a multiple of 5  
(iii) a perfect square (iv) an even prime number.
- Q102.** Cards numbered from 11 to 60 are kept in a box. If a card is drawn at random from the box, find the probability that the number on the drawn card is
- (i) an odd number (ii) a perfect square number  
(iii) divisible by 5 (iv) a prime number less than 20.
- Q103.** A piggy bank contains hundred 50 paise coins, fifty Rs. 1 coins, twenty Rs. 2 coins and ten Rs. 5 coins. If it is equally likely that one of the coins will fall out when the bank is turned upside down, find the probability that the coin which fell
- (i) will be a 50 paise coin (ii) will be of value more than Rs. 1  
(iii) will be of value less than Rs. 5 (iv) will be a Rs 1 or Rs. 2 coin.

- Q104** All red face cards are removed from a pack of playing cards. The remaining cards are well shuffled and then a card is drawn at random from them. Find the probability that the drawn card is (i) a red card (ii) a face card and (iii) a card of clubs.
- Q105** Red queens and black jacks are removed from a pack of 52 playing cards. A card is drawn at random from the remaining cards, after reshuffling them. Find the probability that the card drawn is (i) a king (ii) of red colour (iii) a face card (iv) a queen
- Q106** In a bag there are 44 identical cards with figure of circle or square on them. There are 24 circles, of which 9 are blue and rest are green and 20 squares of which 11 are blue and rest are green. One card is drawn from the bag at random. Find the probability that it has the figure of (i) square (ii) green colour, (iii) blue circle and (iv) green square.
- Q107** A box contains 20 cards numbered from 1 to 20. A card is drawn at random from the box. Find the probability that the number on the drawn card is (i) divisible by 2 or 3 (ii) a prime number
- Q108** One card is drawn from a pack of 52 cards, each of the 52 cards being equally likely to be drawn. Find the probability that the card drawn is (i) an ace (ii) red (iii) either red or king (iv) red and a king (v) a face card (vi) a red face card (vii) '2' of spades (viii) '10' of a black suit
- Q109** Two dice are thrown simultaneously. Find the probability of getting: (i) an even number as the sum. (ii) the sum as a prime number. (iii) a total of at least 10. (iv) a doublet of even number. (v) a multiple of 2 on one dice and a multiple of 3 on the other. (vi) same number on both dice *i.e.*, a doublet. (vii) a multiple of 3 as the sum.

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