

## EXERCISE # 1

### A. Very Short Answer Type Questions

- Q.1** A card is drawn from a pack of 52 cards. What is the probability of getting an ace ?
- Q.2** When a card is drawn from a pack of 52 cards. Find the probability that it may be either a king or a queen.
- Q.3** One card is drawn from a pack of 52 cards. Find the probability that the card drawn is red or king.

### B. Short Answer Type Questions

- Q.4** The king, queen and jack of clubs are removed from a deck of 52 playing cards and then 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
- Q.5** If a coin is tossed two times, what is the probability of getting 'head' at least once ?
- Q.6** A number is chosen at random among the first 100 natural numbers. Find the probability that the number chosen being a multiple of 5.
- Q.7** From a set of 17 cards, numbered 1, 2, ..., 17, one is drawn. What is the probability that is number is multiple of 3 or 7 ?

### C. Long Answer Type Questions

- Q.8** There are 5 green, 6 black and 7 white balls in a bag. A ball is drawn at random from the bag. Find the probability that it may be -  
 (i) a white ball  
 (ii) either a green or a black ball  
 (iii) not a black ball
- Q.9** A bag contains 4 red and 8 blue marbles. A marble is drawn at random. What is the probability of drawing

- (i) a red marble ?  
 (ii) a blue marble ?

- Q.10** A bag contains 6 black, 7 red and 2 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is -  
 (i) Red  
 (ii) Black or white  
 (iii) Not black

- Q.11** Two coins are tossed simultaneously. Find the probability of getting -  
 (i) two tails  
 (ii) at least one tail  
 (iii) no tail

- Q.12** On tossing three coins simultaneously, find the probability of getting -  
 (i) 3 tails  
 (ii) 2 tails  
 (iii) No tail  
 (iv) 2 heads and 1 tail  
 (v) at least one head

- Q.13** 17 cards numbered 1, 2, 3, ..., 16, 17 are put in a box and mixed thoroughly. One person drawn 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) not divisible by 3 and 2 both

### D. Fill in the Blanks Type Question

- Q.14** Fill in the blanks with appropriate correct answer-  
 (i) A pair of fair dice is thrown and one die shows a four. The probability that the other die shown 5 is .....  
 (ii) Probability of a sure event is .....  
 (iii) Probability of an impossible event is .....

- (iv) The probability of an event (other than sure and impossible event) lies between .....
- (v) A die is rolled once. The probability of getting a prime number is .....

**Q.15** Complete the statement :

- (a) Probability of event A + Probability of event 'not A' .....
- (b) Probability of a 'sure' event is .....
- (c) Probability of an 'impossible' event is .....
- (d) Sum of the probabilities of each outcome in an experiment is .....
- (e) Probability of an outcome/ event is greater than or equal to ..... and less than or equal to .....

**Q.16** 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
- (viii) Neither 9 nor 11 as the sum of the numbers on the faces
- (ix) A sum less than 6
- (x) A sum less than 7
- (xi) A sum more than 7

**Q.17** 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
- (vii) Neither an ace nor a king.

## ANSWER KEY

### A. VERY SHORT ANSWER TYPE :

1.  $\frac{1}{13}$                       2.  $\frac{2}{13}$                       3.  $\frac{7}{13}$

### B. SHORT ANSWER TYPE :

4. (i)  $\frac{13}{49}$ ,                      (ii)  $\frac{3}{49}$                       (iii)  $\frac{10}{49}$                       (iv)  $\frac{1}{49}$

5.  $\frac{3}{4}$                                       6.  $\frac{1}{5}$                                       7.  $\frac{7}{17}$

### C. LONG ANSWER TYPE :

8. (i)  $\frac{7}{18}$                       (ii)  $\frac{11}{18}$                       (iii)  $\frac{2}{3}$

9. (i)  $\frac{1}{3}$                       (ii)  $\frac{2}{3}$                                       10. (i)  $\frac{7}{15}$                       (ii)  $\frac{8}{15}$                       (iii)  $\frac{3}{5}$                                       11. (i)  $\frac{1}{4}$                       (ii)  $\frac{3}{4}$                       (iii)  $\frac{1}{4}$

12. (i)  $\frac{1}{8}$                       (ii)  $\frac{3}{8}$                       (iii)  $\frac{1}{8}$                       (iv)  $\frac{3}{8}$                       (v)  $\frac{7}{8}$                       13. (i)  $\frac{9}{17}$                       (ii)  $\frac{7}{17}$                       (iii)  $\frac{5}{17}$                       (iv)  $\frac{15}{17}$

### D. FILL IN THE BLANKS TYPE :

14. (i)  $\frac{1}{36}$                       (ii) 1                      (iii) 0                      (iv) 0 and 1                      (v)  $\frac{1}{2}$

15. (a) 1                      (b) 1                      (c) 0                      (d) 1                      (e) 0, 1

16. (i)  $\frac{5}{36}$                       (ii)  $\frac{1}{6}$                       (iii)  $\frac{1}{12}$                       (iv)  $\frac{1}{12}$                       (v)  $\frac{1}{6}$                       (vi)  $\frac{1}{2}$                       (vii)  $\frac{11}{36}$                       (viii)  $\frac{5}{6}$                       (ix)  $\frac{5}{18}$   
(x)  $\frac{5}{12}$                       (xi)  $\frac{5}{12}$

17. (i)  $\frac{1}{26}$                       (ii)  $\frac{7}{13}$                       (iii)  $\frac{1}{26}$                       (iv)  $\frac{3}{13}$                       (v)  $\frac{9}{13}$                                       (vi)  $\frac{9}{13}$                       (vii)  $\frac{11}{13}$

## EXERCISE # 2

- Q.1** What is the probability of an impossible event?
- Q.2** What is the probability of sure event ?
- Q.3** What is a sample space ?
- Q.4** What is an elementary event ?
- Q.5** What is a compound event ?
- Q.6** What is a complementary event ?
- Q.7** What are equally likely events ?
- Q.8** State whether the following statements are true or false :
- (i) if the probability of an event is 1, then it is an impossible event
  - (ii) if the probability of an event is 0, then it is a sure event.
  - (iii) the sum of the probabilities of all the elementary events of an experiment is 1.
  - (iv) the probability of an event is greater than or equal to 0 and less than or equal to 1.
  - (v) the probability of an event  $E$  + the probability of the event "not  $E$ " = 1.
  - (vi) the probability of an event can be negative
  - (vii) the probability of an event can be greater than 1.
- Q.9** Which of the following experiments have equally likely outcomes ?
- (i) A coin is tossed. It shows head or tail.
  - (ii) A driver attempts to start a car. The car starts or does not start.
  - (iii) A player attempts to shoot a basket ball. He/she shoots or misses the shot.
  - (vi) A die is thrown. It shows up any of the six numbers 1, 2, 3, 4, 5, 6.
- Q.10** A coin is tossed twice. What are the possible outcomes ?
- Q.11** A die is thrown twice. What is the number of possible outcomes ?
- Q.12** Two dice are thrown once. What is the number of possible outcomes ?
- Q.13** If the probability of winning a game is  $\frac{4}{9}$ , what is the probability of its losing ?
- Q.14** If  $P(E) = 0.07$ , what is  $P(\bar{E})$  ?
- Q.15** If a die is thrown once, then what is the probability of getting
- (i) an even number ?
  - (ii) a prime number less than 5 ?
  - (iii) a number between 3 and 5 ?
  - (iv) a number divisible by 3 ?
- Q.16** A bag contains 4 blue balls and 3 red balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is.
- (i) blue ?
  - (ii) not blue ball
  - (iii) red ?
  - (iv) green ?
- Q.17** A box contains 11 cards numbered 1, 2, 3, ..., 11 and are mixed thoroughly. A card is

drawn at random from the box. What is the probability that the number on the card is

- (i) odd ?
- (ii) even ?
- (iii) prime ?
- (iv) divisible by 3 ?

**Q.18** A card is drawn from a well shuffled pack of 52 playing cards. What is the probability of getting ?

- (i) a king ?
- (ii) not a king ?
- (iii) a red queen ?
- (iv) a face card ?
- (v) a black face card ?
- (vi) a black card ?

**Q.19** Rashmi has a die whose six faces show the letters as given below :

A
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B
---

C
---

D
---

A
---

C
---

She throws the die once. What is the probability of getting.

- (i) A ?
- (ii) B ?

**Q.20** Two coins are tossed simultaneously. What is the probability of getting two tails ?

**Q.21** Two dice are thrown simultaneously. What is the probability of getting sum of the numbers 2 ?

**ANSWER KEY**

1. 0

2. 1

8. (i) False (ii) False (iii) True (iv) True (v) True (vi) False (vii) False

9. The experiments (i) and (iv) have equally likely outcomes.

10. If H and T denote head and tail respectively, then possible outcomes are HH, HT, TH, TT

11. 36

12. 36

13.  $\frac{5}{9}$ 

14. 0.93

15. (i)  $\frac{1}{2}$  (ii)  $\frac{1}{3}$  (iii)  $\frac{1}{6}$  (iv)  $\frac{1}{3}$ 16. (i)  $\frac{4}{7}$  (ii)  $\frac{3}{7}$  (iii)  $\frac{3}{7}$  (iv) 017. (i)  $\frac{6}{11}$  (ii)  $\frac{5}{11}$  (iii)  $\frac{5}{11}$  (iv)  $\frac{3}{11}$ 18. (i)  $\frac{1}{13}$  (ii)  $\frac{12}{13}$  (iii)  $\frac{1}{26}$  (iv)  $\frac{3}{13}$  (v)  $\frac{3}{26}$  (vi)  $\frac{1}{2}$ 19. (i)  $\frac{1}{3}$  (ii)  $\frac{1}{6}$ 20.  $\frac{1}{4}$ 21.  $\frac{1}{36}$