

1. OBJECTIVE QUESTIONS

1. Probability of an event can be

(a) -0.7 (b) $\frac{11}{9}$

(c) 1.001 (d) 0.6

Ans : (d) 0.6

Probability of an event always lies between 0 and 1. (both inclusive)

2. A die is tossed 216 times. The results are as follows:

Outcome	Frequency
1	40
2	35
3	25
4	35
5	36
6	45

The probability of getting 2 is

(a) $25/216$ (b) $35/216$

(c) $36/216$ (d) $40/216$

Ans : (b) $35/216$

$$P(\text{Getting } 2) = \frac{35}{216}$$

3. In a class of 40 students there are 120% boys. Then the number of boys is

(a) 48 (b) 24

(c) 80 (d) None of these

Ans : (d) None of these

120% is not valid.

4. A coin is tossed 100 times and head appears 46 times. Now, if we toss a coin at random, what is the probability of getting a tail?

(a) $23/50$ (b) $27/50$

(c) $28/50$ (d) $26/50$

Ans : (b) $27/50$

$$P(\text{head appears}) = \frac{46}{100}$$

$$P(\text{head not appears}) = P(\text{tail appears})$$

$$P(\text{tail appears}) = 1 - \frac{46}{100} = \frac{54}{100} = \frac{27}{50}$$

5. A die is thrown 260 times. Prime numbers appeared on the upper face 39 times. If a die is thrown at random, what is the probability of getting a prime number?

(a) $3/2$ (b) $2/3$

(c) $3/20$ (d) $1/20$

Ans : (c) $3/20$

$$P(\text{getting a prime number}) = \frac{39}{260} = \frac{3}{20}$$

6. A coin is tossed 40 times and it showed tail 24 times. The probability of getting a head was

(a) $\frac{2}{5}$ (b) $\frac{3}{5}$

(c) $\frac{1}{2}$ (d) $\frac{17}{40}$

Ans : (a) $\frac{2}{5}$

$$P(\text{getting a head}) = \frac{40 - 24}{40} = \frac{16}{40} = \frac{2}{5}$$

7. The probability of happening of an event is 37%. Then probability of the event is.

(a) 37 (b) 0.037

(c) 3.7 (d) 0.37

Ans : (d) 0.37

$$\text{Required probability} = 37\% = \frac{37}{100} = 0.37$$

8. 12 packets of salt, each marked 2 kg, actually contained the following weights (in kg) of salt:

1.980, 2.000, 2.025, 1.985, 1.990, 2.040, 1.950, 2.050, 2.060, 1.980, 2.030, 1.970

Out of these packets, one packet is chosen at random.

What is the probability that the chosen packet contains more than 2 kg of salt?

(a) $1/12$ (b) $1/6$

(c) $1/4$ (d) $5/12$

Ans : (d) $5/12$

$$\text{Number of total packets of salt} = 12$$

$$n(S) = 12$$

E : Number of packets contains salt more than 2 kg

$$= (2.025, 2.040, 2.050, 2.060, 2.030)$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{5}{12}$$

9. Three coins are tossed simultaneously 200 times with the following frequencies of different outcomes

Outcome	Frequency
3 heads	23
2 heads	72

Outcome	Frequency
1 heads	77
No head	28

If the three coins are simultaneously tossed again, compute the probability of getting no head

- (a) $23/25$ (b) $7/25$
 (c) $28/50$ (d) $7/50$

Ans : (d) $7/50$

$$n(S) = 200$$

Let E be the event of getting no head.

$$n(E) = 28$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{28}{200} = \frac{7}{50}$$

10. In a cricket match, a batsman hits a boundary 16 times out of 30 balls he plays. Find the probability that he does not hit a boundary.

- (a) $7/15$ (b) $8/15$
 (c) $2/15$ (d) $12/15$

Ans : (a) $7/15$

$$n(S) = 30$$

Let E be the event that batsman does not hit a boundary.

$$n(E) = 30 - 16 = 14$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{14}{30} = \frac{7}{15}$$

11. The given table shows the marks obtained by 80 students in a class test with maximum marks 100.

Marks	No. of students
0-15	6
15-30	13
30-45	17
45-60	24
60-75	16
Above 75	04

A student of the class is selected at random. Find the probability that he gets less than 15% marks.

- (a) $1/4$ (b) $3/40$
 (c) $9/20$ (d) none of these

Ans : (b) $3/40$

$$n(S) = 80$$

Let E be the event of getting less than 15% marks.

$$n(E) = 6$$

$$P(E) = \frac{6}{80} = \frac{3}{40}$$

12. In a one day match, a player played 40 balls. The runs scored are as follows :

Ans :

Runs scored	No. of balls
0	13

Runs scored	No. of balls
1	15
2	5
3	1
4	4
6	2

Find the probability that player hits a four or a six.

- (a) $3/20$ (b) $1/2$
 (c) $1/4$ (d) $9/20$

Ans : (a) $3/20$

$$n(S) = 40$$

Let, E = Player hit a four or a six.

$$P(E) = \frac{n(E)}{n(S)} = \frac{4+2}{40} = \frac{6}{40} = \frac{3}{20}$$

13. A bag contains 10 balls, out of which 4 balls are white and the others are non-white. The probability of getting a non-white ball is

- (a) $\frac{2}{5}$ (b) $\frac{3}{5}$
 (c) $\frac{1}{2}$ (d) $\frac{2}{3}$

Ans : (b) $\frac{3}{5}$

$$\text{Total no. of balls} = 10$$

$$\text{No. of white balls} = 4$$

$$\text{No. of non-white balls} = 10 - 4 = 6$$

$$\text{So, Required probability} = \frac{6}{10} = \frac{3}{5}$$

14. A number from 1 to 11 is chosen at random. What is the probability of choosing an odd number?

- (a) $1/11$ (b) $5/11$
 (c) $6/11$ (d) None of these

Ans : (c) $6/11$

$$\text{Total numbers} = 11$$

$$n(S) = 11$$

Let, E = odd numbers

$$= 1, 3, 5, 7, 9, 11$$

$$n(E) = 6$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{6}{11}$$

15. At Middle School, 3 out of 5 students make honour roll. What is the probability (in%) that a student does not make honour roll?

- (a) 65% (b) 40%
 (c) 60% (d) None of these

Ans : (b) 40%

$$\text{Number of students make honour roll} = 3$$

$$P(\text{Student does not make honour roll}) = 2/5$$

$$\text{Probability (in\%)} \text{ that a student does not make}$$

$$\text{honour roll} = \left(\frac{2}{5} \times 100\right)\%$$

= 40%

16. A large basket of fruits contains 3 oranges, 2 apples and 5 bananas. If a piece of fruit is chosen at random, what is the probability of getting an orange?
 (a) 4/5 (b) 1/2
 (c) 7/10 (d) 3/10

Ans : (d) 3/10

Number of fruits in the basket = 10 = $n(S)$
 Let E = Chosen fruit is orange $n(E) = 3$

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{10}$$

17. A pair of dice is rolled. What is the probability of getting a sum of 2?
 (a) 1/6 (b) 1/3
 (c) 1/36 (d) None of these

Ans : (c) 1/36

When a pair of dice is rolled, number of elements in sample space is $6 \times 6 = 36 = n(S)$
 Let E = getting a sum of 2 i.e., (1, 1).

$$n(E) = 1$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{1}{36}$$

18. In an experiment, the sum of probabilities of different events is
 (a) 1 (b) 0.5
 (c) -2 (d) 0

Ans : (a) 1

In an experiment, the sum of probabilities of different events is 1.

Download All PDF files from www.rava.org.in.

19. In rolling a dice, the probability of getting number 8 is
 (a) 0 (b) 1
 (c) -1 (d) 1/2

Ans : (a) 0

Required probability is zero because number 8 does not appear on a dice.

20. A city survey found that 47% of teenagers have a part time job. The same survey found that 30% plan to attend college. Find the probability that a teenager has a part time job.
 (a) 37/100 (b) 30/100
 (c) 40/100 (d) 47/100

Ans : (d) 47/100

$$n(S) = 100$$

Let A be the event of teenager having part time job.

$$n(A) = 47$$

$$P(A) = \frac{47}{100}$$

21. In a school, 14% of students take computer classes and 67% take drama classes. What is the probability

that a student neither takes computer class nor takes drama class?

- (a) 8/100 (b) 29/100
 (c) 53/100 (d) 19/100

Ans : (d) 19/100

$$n(S) = 100$$

$$n(\text{computer}) = 14$$

$$n(\text{drama}) = 67$$

Let E = rest of people who neither takes computer class nor takes drama class

$$n(E) = 100 - 67 - 14 = 19$$

$$P(\text{rest of people}) = \frac{n(E)}{n(S)} = \frac{19}{100}$$

22. If E is an event, then
 (a) $0 < P(E) < 1$ (b) $0 \leq P(E) < 1$
 (c) $0 \leq P(E) \leq 1$ (d) $0 < P(E) \leq 1$

Ans : (c) $0 \leq P(E) \leq 1$

23. If a coin was tossed 100 times, out of which 65 times we got head and 35 times tail. Then the probability of not getting a tail is
 (a) 6.5 (b) 7.5
 (c) 0.65 (d) 35

Ans : (c) 0.65

$$\text{Required probability} = \frac{100 - 35}{100} = \frac{65}{100} = 0.65$$

24. From a deck of 52 cards, the probability of drawing a face card is
 (a) 4/13 (b) 3/13
 (c) 1/13 (d) 1/4

Ans : (b) 3/13

$$n(S) = 52$$

$$n(\text{face cards}) = 12$$

$$P(\text{face card}) = \frac{n(\text{face cards})}{n(S)} = \frac{12}{52} = \frac{3}{13}$$

25. Two dice are rolled simultaneously. The probability that they show different faces is.
 (a) 6/5 (b) 1/6
 (c) 1/3 (d) 5/6

Ans : (d) 5/6

$$P = \frac{30}{36} = \frac{5}{6}$$

26. A dice is tossed twice. The probability of having a number greater than 4 on each toss is
 (a) 1/9 (b) 1/3
 (c) 1/12 (d) 2/3

Ans : (a) 1/9

$$n(S) = 6 \times 6 = 36$$

Let E = number greater than 4 on each toss

$$= (5, 5), (5, 6), (6, 5), (6, 6) \text{ i.e.,}$$

$$n(E) = 4$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{4}{36} = \frac{1}{9}$$

27. The following data shows the relation between the number of families and number of children they have. What is the probability if a family is chosen at random having at least two children?

Number of families	Children
3	3
6	4
10	5
12	0
7	1
15	2

- (a) 33/53 (b) 35/53
(c) 34/53 (d) 19/53

Ans : (c) 34/53

Number of families,

$$n(S) = 53$$

Let E = Number of families having at least 2 children

$$n(E) = 3 + 6 + 10 + 15 = 34$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{34}{53}$$

28. Among first 20 natural numbers, probability of getting o odd number is

- (a) 1/2 (b) 1/3
(c) 1/5 (d) 1/7

Ans : (a) 1/2

$$n(S) = 20$$

Let E = Number of odd numbers.

$$n(E) = 10$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{10}{20} = \frac{1}{2}$$

29. In a city, the weekly observations made on cost of living index are given below. One week is chosen at random.

Cost of living index	Number of weeks
140–150	5
150–160	10
160–170	20
170–180	9
180–190	6
190–200	2

Find the probability that chosen weeks has cost of living greater than 150 but less than 170.

- (a) 14/15 (b) 15/26
(c) 9/26 (d) 13/28

Ans : (b) 15/26

Number of weeks,

$$n(S) = 52$$

Let E = Number of weeks having cost of living greater than 150 but less than 170.

$$n(E) = 30$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{30}{52} = \frac{15}{26}$$

30. The heights (in cm) of 50 students of a class are given below :

Height (in cm)	No. of students
156	8
154	4
155	10
151	6
157	7
152	3
153	12

One student is selected at random. Find the probability that his minimum height is 157 cm.

- (a) 3/50 (b) 2/25
(c) 8/25 (d) 7/50

Ans : (d) 7/50

Number of students;

$$n(S) = 50$$

Let E = Number of students having minimum height 157 cm

$$n(E) = 7$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{7}{50}$$

31. The given table shows the number of students participating in various activities in a school.

Activities	No. of Students
Game	27
Music	36
Singing	15
Drama	12

From the above information one student is chosen. Find the probability that the student participates in games.

- (a) 0.3 (b) 0.5
(c) 0.7 (d) 0.1

Ans : (a) 0.3

Number of students,

$$n(S) = 90$$

Let E = Number of students participating in games

$$n(E) = 27$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{27}{90} = \frac{3}{10} = 0.3$$

2. FILL IN THE BLANK

DIRECTION : Complete the following statements with an appropriate word/term to be filled in the blank space(s).

1. Number of favourable outcomes for an event cannot be than the number of total outcomes.
Ans : Greater
2. An for an experiment is the collection of some outcomes of the experiment.
Ans : Event
3. An activity which results in a well defined end is called an
Ans : Experiment
4. Probability is a measure of
Ans : Uncertainty
5. Total number of results are called
Ans : Outcomes
6. An experiment is called a experiment if all the possible outcomes are pre-decided.
Ans : Random
7. Probability of an event can be any from 0 to 1.
Ans : Fraction
8. A is an action which results in one of several outcomes.
Ans : Trial

3. TRUE/FALSE

DIRECTION : Read the following statements and write your answer as true or false.

1. The experimental probability of an event is a negative number.
Ans : False
2. When a die is rolled, the probability that the number on the face showing up is greater than 6 is zero.
Ans : True
3. If a coin is tossed thrice, the total number of outcomes is 8.
Ans : True
4. When a die is rolled, the number of outcomes for getting a composite number is 2.
Ans : True
5. Probability of the occurrence of an event always lies between 1 and -1.
Ans : False

6. Tossing a coin 50 times is called an experiment.
Ans : True
7. Total number of outcomes in a throw of two dice is 12.
Ans : False
8. The experimental probability of an event is greater than 1.
Ans : False
9. The sum of probabilities of occurrence and not occurrence of an event is always equal to 1.
Ans : True
10. $P(E) = \frac{\text{Total number of trials}}{\text{Number of trials in which } E \text{ has happened}}$
Ans : False

4. MATCHING QUESTIONS

DIRECTION : Each question contains statements given in two columns which have to be matched. Statements (P, Q, R, S, T, U, V, W, X) in Column-I have to be matched with statements (1, 2, 3, 4, 5, 6, 7, 8) in Column-II.

1.

	Column-I	Column-II	
(P)	The probability of getting one or more tails in the toss of two coins simultaneously is	(1)	$\frac{2}{13}$
(Q)	During rainy season of 90 days, it was observed that it rained on 20 days only. Then the probability that it did not rain on a day is	(2)	0.8
(R)	The probability of not getting a prime number in a single throw of a die is	(3)	$\frac{7}{10}$
(S)	In a one-day cricket match Kohli faced 30 balls and hit 9 boundaries. The probability that he did not hit a boundary on a ball is	(4)	$\frac{1}{2}$
(T)	The sum of all the probabilities is	(5)	$\frac{3}{6}$
(U)	Probability of getting an even number on a die will be	(6)	$\frac{6}{11}$
(V)	A bag contains 12 pencils, 3 sharpeners and 7 pens. If we take out one item from the bag at random, probability of drawing a pencil is	(7)	$\frac{7}{9}$

(W)	In a sample study of 642 people, it was found that 514 people have a high school certificate. If a person is selected at random, the probability that the person has a high school certificate is	(8)	$\frac{3}{4}$
(X)	The probability of getting a king or a queen, if a card is drawn from a well shuffled pack of cards, is	(9)	1

Ans : P – 8, Q – 7, R – 5, S – 3, T – 9, U – 4, V – 6, W – 2, X – 1

2. Match the following :

Column-I		Column-II	
(P)	A trial is	(1)	the possible outcome of an experiment.
(Q)	An experiment is	(2)	an action which results in one or several outcomes.
(R)	An event is	(3)	an action which results in some well defined outcome

Ans : P – 2, Q – 3, R – 1

Add 89056 29969 in Your Class Whatsapp Group to Get All PDF Files.

3. A die is rolled if the number on a die is even then a coin is tossed once and if the number on a die is odd, then a coin is tossed twice. Match the events in Column-I with their probabilities in Column-II

Column-I		Column-II	
(P)	Probability that 2 heads	(1)	$\frac{2}{3}$
(Q)	Probability that at least 1 head appear	(2)	0
(R)	Probability that a die shows an even number and a coin shows exactly two heads.	(3)	$\frac{1}{6}$
(S)	Probability that a die shows an odd number and a coin shows at least one tail	(4)	$\frac{1}{2}$

	P	Q	R	S
(a)	1	2	3	4
(b)	3	1	2	4
(c)	3	2	1	4
(d)	4	3	2	1

Ans : (b) P – 3, Q – 1, R – 2, S – 4

$S = \{2H, 2T, 4H, 4T, 6H, 6T, 1HH, 1TH, 1TT, 1HT, 3HH, 3HT, 3TH, 3TT, 5HH, 5HT, 5TH, 5TT\}$

(P)

$$n(S) = 18$$

Let E be the event that 2 heads appears then $n(E) = 3$

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{18} = \frac{1}{6}$$

(Q)

$$n(S) = 18$$

Let F be the event that at least 1 head appears then

$$n(F) = 12$$

$$P(F) = \frac{n(F)}{n(S)} = \frac{12}{18} = \frac{2}{3}$$

(R)

$$n(S) = 18$$

Let G be the event that die shows an even number and coin shows exactly two heads. Then $n(G) = 0$

$$P(G) = \frac{n(G)}{n(S)} = \frac{0}{18} = 0$$

(S)

$$n(S) = 18$$

Let H be the event that die shows an odd number and coin shows at least one tail.

$$n(H) = 9$$

$$P(H) = \frac{n(H)}{n(S)} = \frac{9}{18} = \frac{1}{2}$$

4. A NGO selected 2000 families at random and surveyed them to determine number of children in a family. The data is given below:

Number of Families	Boy	Girl
400	1	1
600	2	1
300	1	2
500	2	0
200	0	2

If one family is chosen at random then, match the Column-I with their corresponding probabilities in Column-II.

	Column-I	Column-II	
(P)	The probability that the family chosen has 1 boy and 2 girls is	(1)	$\frac{1}{10}$
(Q)	The probability that the family chosen has no boy is	(2)	$\frac{3}{10}$
(R)	The probability that the family chosen has 1 boy and 1 girl is	(3)	$\frac{3}{20}$
(S)	The probability that the family chosen has 2 boys and 1 girl is	(4)	$\frac{1}{5}$

Ans : P – 3, Q – 1, R – 4, S – 2

(P) Let E be the event that chosen family has 1 boy and 2 girls

Hence, $n(E) = 300$

$$P(E) = \frac{300}{2000} = \frac{3}{20}$$

(Q) Let F be the event that chosen family has no boy

$$n(F) = 200$$

$$P(F) = \frac{200}{2000} = \frac{1}{10}$$

(R) Let G be the event that chosen family has 1 boy and 1 girl

Hence, $n(G) = 400$

$$P(G) = \frac{400}{2000} = \frac{1}{5}$$

(S) Let H be event that chosen family has 2 boys and 1 girl

Hence, $n(H) = 600$

$$P(H) = \frac{600}{2000} = \frac{3}{10}$$

5. ASSERTION AND REASON

DIRECTION : In each of the following questions, a statement of Assertion is given followed by a corresponding statement of Reason just below it. Of the statements, mark the correct answer as

- (a) Both assertion and reason are true and reason is the correct explanation of assertion.
- (b) Both assertion and reason are true but reason is not the correct explanation of assertion.
- (c) Assertion is true but reason is false.
- (d) Assertion is false but reason is true.

Download All PDF files from www.rava.org.in.

1. **Assertion :** Two coins are tossed. Number of elements in the sample space is 4.

Reason : When a coin is tossed n times then the number of elements in its sample space is 2^n .

Ans : (a) Both assertion and reason are true and reason is the correct explanation of assertion.

2. **Assertion :** If E_1, E_2, \dots, E_n are n elementary events associated to a random experiment, then

$$P(E_1) + P(E_2) + \dots + P(E_n) = 1$$

Reason : For any event ' A ' associated to an experiment, we have $-1 \leq P(A) \leq 1$

Ans : (c) Assertion is correct but Reason is incorrect.

3. **Assertion :** A die is thrown. Let E be the event that number appears on the upper face is less than 1, then $P(E) = \frac{1}{6}$

Reason : Probability of impossible event is 0.

Ans : (d) Assertion is false but reason is true.

When a die is thrown, then number of outcomes are 1, 2, 3, 4, 5, 6

$$P(\text{number appear on the upper face is less than 1})=0$$

4. **Assertion :** A coin is tossed two times. Probability of getting at least two heads is $\frac{1}{4}$.

Reason : When a coin is tossed two times, then the sample space is $\{HH, HT, TH, TT\}$

Ans : (a) Both assertion and reason are true and reason is the correct explanation of assertion.

Number of total outcomes when a coin is tossed 2 times i.e., $\{HH, HT, TH, TT\} = 4$

$$P(\text{getting at least two heads}) = \frac{1}{4}$$

5. **Assertion :** Tossing a coin 50 times is called an event.
Reason : The possible outcomes of an experiment are called events.

Ans : (d) Assertion is incorrect but Reason is correct. Tossing a coin 50 times is called an experiment.

6. **Assertion :** In a class there are x boys. and y girls, A student is selected at random, then the probability of selecting a girl is $\frac{y}{x}$.

Reason : Probability of an event E of an experiment is ratio of the number of trials in which event E has happened to the total number of trials.

Ans : (d) Assertion is incorrect but Reason is correct.

$$P(\text{selecting a girl}) = \frac{y}{x+y}$$

7. **Assertion :** A fair die is rolled. Then the probability of getting an even number is $\frac{1}{2}$ and probability of getting an odd number is $\frac{1}{2}$.

Reason : Possible outcomes when a fair die is rolled is (1, 2, 3, 4, 5, 6).

Ans : (a) Both assertion and reason are true and reason is the correct explanation of assertion.

Possible outcomes when a die is thrown

$$= \{1, 2, 3, 4, 5, 6\}$$

$$P(\text{getting an odd number}) = \frac{3}{6} = \frac{1}{2}$$

$$P(\text{getting an even number}) = \frac{3}{6} = \frac{1}{2}$$

8. **Assertion :** Two well balanced dice are rolled and the numbers that turn up are observed. Then the number of elements in sample space is 12.

Reason : When two dice are rolled, number of elements in sample space is 6×6 .

Ans : (d) Assertion is false but reason is true.

WWW.CBSE.ONLINE

NO NEED TO PURCHASE ANY BOOKS

For session 2019-2020 free pdf will be available at www.cbse.online for

1. Previous 15 Years Exams Chapter-wise Question Bank
2. Previous Ten Years Exam Paper (Paper-wise).
3. 20 Model Paper (All Solved).
4. NCERT Solutions

All material will be solved and free pdf.

Disclaimer : www.cbse.online is not affiliated to Central Board of Secondary Education, New Delhi in any manner. www.cbse.online is a private organization which provide free study material pdfs to students. At www.cbse.online CBSE stands for Canny Books For School Education.