CHAPTER TEST: PROBABILITY

Mathematics | Class IX (2026/PROB/09/ICSE-CBSE/001)

Time: 1.5 Hours   **Max. Marks: 33**

GENERAL INSTRUCTIONS

– All questions are compulsory.

– Section A: 5 MCQs (1 mark each).

– Section B: 4 Short Answer Questions (2 marks each).

– Section C: 4 Long Answer Questions (4 marks each).

– Section D: 4 NCERT/Exemplar Highlight Questions (1 mark each).

Section A: Multiple Choice Questions (1 Mark Each)

1. The probability of an event happening is p. The probability of the event not happening is:
   (a) $p - 1$ (b) $1 - p$ (c) $1 - \frac{1}{p}$ (d) p

2. 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) 0.46   (b) 0.54   (c) 0.50   (d) 1.46

3. Which of the following cannot be the probability of an event?
   (a) $\frac{2}{3}$ (b) -1.5 (c) 15% (d) 0.7

4. (Exemplar) In a survey of 364 children, 91 like to eat potato chips. If a child is selected at random, the probability that he/she does not like to eat potato chips is:
   (a) 0.25   (b) 0.50   (c) 0.75   (d) 0.80

5. A die is thrown 200 times and the outcomes are noted. The frequency of getting a number greater than 4 is 65. The probability of getting a number less than or equal to 4 is:
   (a) $\frac{13}{40}$ (b) $\frac{27}{40}$ (c) $\frac{3}{4}$ (d) $\frac{1}{2}$

Section B: Short Answer Questions (2 Marks Each)

6. A cricket match player hits a boundary 6 times out of 30 balls she plays. Find the probability that she did not hit a boundary.

7. Two coins are tossed simultaneously 500 times with the following frequencies of different outcomes: Two heads: 105; One head: 275; No head: 120. Find the probability of getting "No head".

8. A bag contains 5 red, 8 white and 4 green balls. A ball is drawn at random from the bag. Find the probability that the ball drawn is not green.

9. 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, what is the probability that the person has a high school certificate?

Section C: Long Answer Questions (4 Marks Each)

10. 1500 families with 2 children were selected randomly, and the following data were recorded:

Number of girls in a family	2	1	0
Number of families	475	814	211

Compute the probability of a family, chosen at random, having:
(i) 2 girls   (ii) 1 girl   (iii) No girl   (iv) Sum of these probabilities.

11. The following table shows the marks obtained by 30 students in a class test:

Marks	0–10	10–20	20–30	30–40	40–50
No. of Students	2	5	8	10	5

Find the probability that a student chosen at random:
(i) Scored less than 20 marks.
(ii) Scored 30 or more marks.
(iii) Scored in the range 10–40.

12. (Exemplar) Over the past 200 working days, the number of defective parts produced by a machine is given in the following table:

No. of defective parts	0	1	2	3	4	5	6	More than 6
Days	50	32	22	18	12	32	10	24

Determine the probability that tomorrow's output will have:
(i) No defective part.
(ii) At least one defective part.
(iii) Not more than 5 defective parts.

13. A die is rolled 300 times and the outcomes are recorded as follows:

Outcome	1	2	3	4	5	6
Frequency	42	60	55	53	60	30

(i) Find the probability of getting an even number.
(ii) Find the probability of getting a prime number.
(iii) Find the probability of getting a number less than 3.

Section D: NCERT/Exemplar Highlights (1 Mark Each)

1. The sum of the probabilities of all the elementary events of an experiment is _____.

2. An event which is impossible to happen has a probability of _____.

3. (Exemplar) If $P(E) = 0.37$, then $P(\text{not } E)$ is _____.

4. Probability of an event E always lies between _____ and _____.

SOLUTIONS & PREPARATION GUIDE

Probability Success Strategies

Keep these key points in mind for your exams:

- **Formula:** Always state the formula $P(E) = \frac{\text{Number of favorable outcomes}}{\text{Total number of trials}}$.

- **Range:** Probability can never be less than 0 or greater than 1 (or 100%). If you get 1.2, re-check your math!

- **Complementary Events:** $P(E) + P(\bar{E}) = 1$. This is very useful for "at least" or "not" questions.

- **Sample Space:** In Class 9, the probability is often experimental/empirical, so the "Total trials" is usually the sum of all frequencies.