Mathematics — Ganita Manjari

Chapter 7 Test 6

The Mathematics of Maybe: Introduction to Probability

Class IX | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

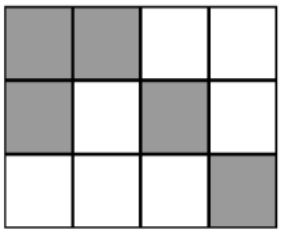
General Instructions

1. All 13 questions are compulsory. Choose one option in A; show working in B–D.
2. No calculators. Give exact answers unless an approximation is requested.
3. Use the stated fairness and replacement conditions in each question.

SECTION A

(5 questions × 1 mark = 5 marks)

1. One cell of the equal-cell grid is selected uniformly. What is the probability that it is shaded?



(A) $\frac{5}{12}$ (B) $\frac{7}{12}$

(C) $\frac{5}{7}$ (D) $\frac{1}{12}$

2. A car either starts or fails to start. Without further information, the probability of starting:

(A) Is always $1/2$ (B) Is always 1

(C) Is always 0 (D) Needs more information

3. For $S = \{1,2,3,4,5,6\}$ and $E = \{2,4,6\}$, which statement is correct?

(A) E contains all of S (B) E is a subset of S

(C) E is impossible (D) S has three outcomes

4. Which sample is most suitable for estimating school-wide lunch preferences?

(A) Only football players (B) Only one friend group

(C) Random pupils from every grade (D) Only canteen visitors

5. Which probability can be calculated from fairness alone, without collecting trial data?

(A) Chance of tomorrow's rain (B) Chance of a bus delay

(C) Chance of a cup landing upright (D) Chance of 2 on a fair standard die

SECTION B

(4 questions × 2 marks = 8 marks)

6. A bag contains 5 green, 4 white and 3 black identical balls. A ball is drawn uniformly. Find the probability that it is not white, using both direct counting and subtraction.

7. An event occurs 24 times and has experimental probability 0.16. How many trials were performed?

8. A fair coin selects class A (20 pupils) or class B (30 pupils), then a pupil is chosen uniformly from that class. Compare the selection probabilities of one A-pupil and one B-pupil.

9. A fair die is to be rolled 120 times. What count of sixes is predicted from its theoretical probability? Must the actual count equal this value?

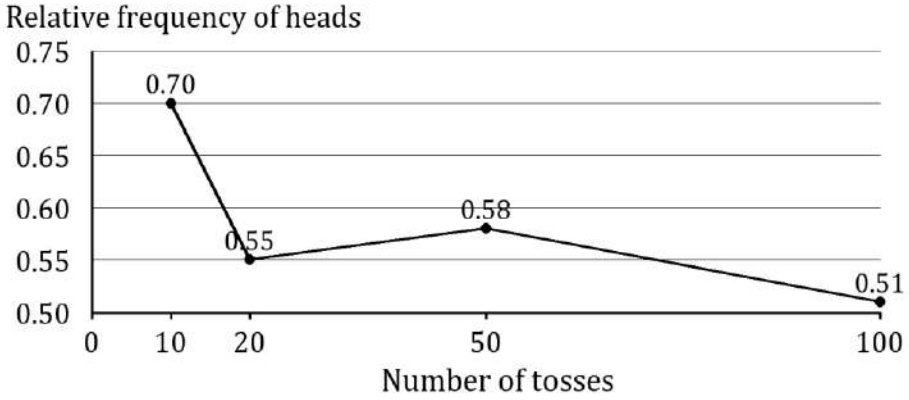
SECTION C

(3 questions × 3 marks = 9 marks)

10. Two fair dice are rolled independently. List the ordered pairs with a prime sum greater than 5 and find the probability.

11. A bag contains 2 red, 2 green and 1 blue ball. Two balls are drawn uniformly without replacement. Find the probability that their colours differ.

12. The graph shows the running relative frequency of heads. At which plotted trial count is it closest to 1/2? Does the graph show that closeness improves at every plotted step? Explain.



SECTION D

(1 application question × 3 marks = 3 marks)

13. A bag contains 4 red and 3 blue balls. Two balls are drawn uniformly without replacement. Find the probability of red then blue and compare it with the probability if the first ball is replaced.