

Probability — CBSE Pattern Test 1

Class 11 Maths · 90 minutes · 40 marks · Sections A–D with answer key · Narayan Gurukul Academy

Test 1 — CBSE Pattern (90 minutes, 40 marks)

Class 11 Maths · Probability · Narayan Gurukul Academy (ClassApna)

General Instructions: (1) This paper has four sections — Section A (1×10), Section B (2×4), Section C (3×4) and Section D (5×2) — total 40 marks. Time allowed: 90 minutes.
(2) All questions are compulsory. No overall choice is given; internal choice, where allowed, is clearly marked.
(3) For MCQ questions choose the single correct option; for VSA answers write a single line.
(4) Take $g = 10 \text{ m/s}^2$. All symbols carry their usual meaning. Use of a calculator is not permitted.

Section A — MCQ & VSA ($10 \times 1 = 10$ marks)

- A random experiment is one whose outcomes
 - cannot be predicted with certainty
 - are always known in advance
 - have no sample space
 - are all equally likely
- The set of all possible outcomes of a random experiment is called the
 - sample space
 - event
 - probability
 - complement
- The number of outcomes when a coin is tossed twice is
 - 4
 - 2
 - 1
 - 8
- A sure (certain) event has probability
 - 1
 - 0
 - $1/2$
 - undefined
- For any event A, $0 \leq P(A) \leq$
 - 1
 - 2
 - ∞
 - 0.5
- For an event A, $P(A) + P(A')$ equals
 - 1
 - 0
 - 2
 - undefined
- Two events A and B are mutually exclusive if
 - $A \cap B =$

- (B) $A * B = S$
 (C) $A = B$
 (D) $A \cap B = S$

8. If odds in favour of an event are $m : n$, then $P(\text{event})$ is

- (A) $m/(m + n)$
 (B) $n/(m + n)$
 (C) m/n
 (D) n/m

9. Define a random experiment.

10. What is an event?

Section B — Short Answer I ($4 \times 2 = 8$ marks)

11. Define an outcome.
 12. What is a sure event? What is its probability?
 13. State the range of $P(A)$.
 14. State the general addition theorem.

Section C — Short Answer II ($4 \times 3 = 12$ marks)

15. Write the sample space when a coin is tossed twice.
 16. If $P(A) = 0.4$, find $P(A')$.
 17. If $P(A) = 0.3$ and $P(B) = 0.5$ with A, B mutually exclusive, find $P(A * B)$.
 18. If $P(A) = 3/5$, find the odds in favour of A .

Section D — Long Answers ($2 \times 5 = 10$ marks)

19. If $P(A) = 0.5$, $P(B) = 0.6$ and $P(A \cap B) = 0.3$, find $P(A * B)$ and $P(A' \cap B')$.
 20. When a die is rolled, find the probability of getting an even number or a number greater than 4. The odds against an event are $5 : 2$; find the probability of its occurrence.

Answer Key (Marking Scheme)

- Q1 — (A) cannot be predicted with certainty. Q2 — (A) sample space. Q3 — (A) 4. Q4 — (A) 1.
 Q5 — (A) 1. Q6 — (A) 1. Q7 — (A) $A \cap B = .$ Q8 — (A) $m/(m + n)$.
 Q9 — An experiment whose outcomes cannot be predicted with certainty.
 Q10 — A subset of the sample space.
 Q11 — A possible result of a random experiment.
 Q12 — An event that always occurs; probability 1.
 Q13 — $0 \leq P(A) \leq 1$.
 Q14 — $P(A * B) = P(A) + P(B) - P(A \cap B)$.
 Q15 — HH, HT, TH, TT.
 Q16 — 0.6.
 Q17 — 0.8.
 Q18 — $3 : 2$.

Q19 — $P(A \cap B) = 0.8$; $P(A' \cap B') = 0.2$.

Q20 — $2/3$; $P = 2/7$.