

**QUICK DRILL · CBSE CLASS 11**

# Probability

Applied Mathematics · Chapter 5 · 15 MCQs · 20 minutes · PYQ-tagged with time budgets

DATE	TOTAL MARKS	DURATION	MARKING	TARGET
_____	<b>15</b>	<b>20 min</b>	<b>+1 / 0</b>	<b>≥ 12/15</b>

**OBJECTIVES**

Reinforce the four core topics of Probability via 15 PYQ-derived MCQs. Identify weak sub-topics via concept-node IDs (see answer key). Build per-question time budget habit.

**INSTRUCTIONS**

Attempt all 15. Time budget shown per Q (use it as pacing guide). Mark answers (A/B/C/D) in the margin. Answer key + explanations on the last page. **Don't peek — score yourself honestly.**

**SECTION · QUICK DRILL**
**Q 1-15 · 20 MIN**
**Q1.** A fair die is rolled. What is the probability of getting a number greater than 4?

- (A)  $1/6$  (B)  $1/3$   
 (C)  $1/2$  (D)  $2/3$

PYQ 2023 · Delhi · 1m · 30s

**Q2.** Two coins are tossed simultaneously. The probability of getting at least one head is:

- (A)  $1/4$  (B)  $1/2$   
 (C)  $3/4$  (D)  $1$

PYQ 2022 · OD · 1m · 30s

**Q3.** Two dice are rolled. The probability that the sum equals 7 is:

- (A)  $1/12$  (B)  $1/9$   
 (C)  $1/6$  (D)  $5/36$

PYQ 2024 · Delhi · 1m · 45s

**Q4.** A card is drawn from a well-shuffled pack of 52. The probability that it is a face card is:

- (A)  $3/13$  (B)  $1/13$   
 (C)  $1/4$  (D)  $4/13$

PYQ 2023 · OD · 1m · 30s

**Q5.** If  $P(A) = 0.4$  and  $P(B) = 0.5$  and A, B are mutually exclusive, then  $P(A \cup B)$  is:

- (A)  $0.2$  (B)  $0.7$   
 (C)  $0.9$  (D)  $1.0$

PYQ 2022 · Delhi · 1m · 30s

**Q6.** A card is drawn from a pack of 52. The probability that it is a king OR a heart is:

- (A)  $1/4$  (B)  $4/13$   
 (C)  $17/52$  (D)  $16/52$

PYQ 2024 · Delhi · 2m · 60s

**Q7.** If  $P(A) = 1/2$ ,  $P(B) = 1/3$  and  $P(A \cap B) = 1/6$ , then A and B are:

- (A) Mutually exclusive (B) Independent  
 (C) Equally likely (D) Exhaustive

PYQ 2023 · Delhi · 2m · 60s

**Q8.** If  $P(A) = 0.6$ , then  $P(A')$  equals:

- (A)  $0.6$  (B)  $0.4$   
 (C)  $1.0$  (D)  $0$

PYQ 2022 · OD · 1m · 20s

**Q9.**  $P(A|B)$  is defined as:

- (A)  $P(A \cap B)/P(A)$  (B)  $P(A \cap B)/P(B)$   
 (C)  $P(A) \cdot P(B)$  (D)  $P(A) + P(B)$

PYQ 2023 · Delhi · 1m · 20s

**Q10.** A bag contains 5 red and 3 black balls. Two balls are drawn without replacement. The probability that both are red is:

- (A)  $25/64$  (B)  $5/14$   
 (C)  $10/28$  (D)  $20/56$

PYQ 2024 · OD · 3m · 90s

**Q11.** If A and B are independent and  $P(A) = 0.3$ ,  $P(B) = 0.4$ , then  $P(A \cup B)$  is:

(A) 0.12

(B) 0.58

(C) 0.70

(D) 0.42

PYQ 2023 · OD · 2m · 60s

**Q12.** The probability of an impossible event is:

(A) 1

(B)  $1/2$

(C) 0

(D) Undefined

PYQ 2022 · Delhi · 1m · 15s

**Q13.** Two dice are thrown. The probability of getting a doublet is:

(A)  $1/6$

(B)  $1/12$

(C)  $1/3$

(D)  $5/36$

PYQ 2024 · Delhi · 1m · 30s

**Q14.** A box has 3 defective and 7 good items. One item is drawn at random.  $P(\text{defective})$  is:

(A)  $3/7$

(B)  $7/10$

(C)  $3/10$

(D)  $1/3$

PYQ 2023 · OD · 1m · 20s

**Q15.** In a class, 40% students play cricket, 30% play football, 10% play both.  $P(\text{a student plays cricket OR football})$  is:

(A) 0.70

(B) 0.60

(C) 0.80

(D) 0.12

PYQ 2024 · Delhi · 2m · 60s

## ANSWER KEY & EXPLANATIONS

Q 1-15 · MARK YOUR SCORE

**Q1. Answer: B**

Favourable outcomes: {5, 6}, so  $n(E) = 2$ ,  $n(S) = 6$ .  $P = 2/6 = 1/3$ .

**Q2. Answer: C**

$S = \{HH, HT, TH, TT\}$ ,  $|S| = 4$ . Complement of 'at least one H' is 'no head' = {TT}.  $P(\text{at least one H}) = 1 - 1/4 = 3/4$ .

**Q3. Answer: C**

Pairs giving sum 7: (1,6),(2,5),(3,4),(4,3),(5,2),(6,1) → 6 outcomes;  $|S| = 36$ .  $P = 6/36 = 1/6$ .

**Q4. Answer: A**

Face cards = J, Q, K of all 4 suits = 12 cards.  $P = 12/52 = 3/13$ .

**Q5. Answer: C**

Mutually exclusive:  $P(A \cap B) = 0$ , so  $P(A \cup B) = P(A) + P(B) = 0.4 + 0.5 = 0.9$ .

**Q6. Answer: B**

$P(\text{king}) = 4/52$ ,  $P(\text{heart}) = 13/52$ ,  $P(\text{king of hearts}) = 1/52$ .  $P(K \cup H) = 4/52 + 13/52 - 1/52 = 16/52 = 4/13$ .

**Q7. Answer: B**

$P(A) \cdot P(B) = (1/2)(1/3) = 1/6 = P(A \cap B)$ , so by definition A and B are independent.

**Q8. Answer: B**

Complement:  $P(A') = 1 - P(A) = 1 - 0.6 = 0.4$ .

**Q9. Answer: B**

Conditional probability:  $P(A|B) = P(A \cap B)/P(B)$ , provided  $P(B) > 0$ .

**Q10. Answer: B**

$P(R1) = 5/8$ ;  $P(R2|R1) = 4/7$ .  $P(\text{both red}) = (5/8)(4/7) = 20/56 = 5/14$ .

**Q11. Answer: B**

Independent:  $P(A \cap B) = P(A) \cdot P(B) = 0.12$ .  $P(A \cup B) = 0.3 + 0.4 - 0.12 = 0.58$ .

**Q12. Answer: C**

By axiom,  $P(\emptyset) = 0$ . The empty set has no favourable outcomes.

**Q13. Answer: A**

Doublets: (1,1),(2,2),(3,3),(4,4),(5,5),(6,6) → 6 outcomes;  $|S| = 36$ .  $P = 6/36 = 1/6$ .

**Q14. Answer: C**

Total items = 10, defective = 3.  $P(\text{defective}) = 3/10$ .

**Q15. Answer: B**

$P(C \cup F) = P(C) + P(F) - P(C \cap F) = 0.40 + 0.30 - 0.10 = 0.60$ .