

PART 1 - MATHEMATICS

Topic : Probability (class 12)

SECTION-A : (Maximum Marks : 8)

This section contains **TWO** questions.

Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is(are) correct answer(s).

For each question, choose the option(s) corresponding to (all) the correct answer(s).

Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 ONLY if (all) the correct option(s) is(are) chosen;

Partial Marks : +3 If all the four options are correct but ONLY three options are chosen;

Partial Marks : +2 If three or more options are correct but ONLY two options are chosen, both of which are correct;

Partial Marks : +1 If two or more options are correct but ONLY one option is chosen and it is a correct option;

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);

Negative Marks : -1 In all other cases.

For example, in a question, if (A), (B) and (D) are the ONLY three options corresponding to correct answers, then choosing ONLY (A), (B) and (D) will get +4 marks; choosing ONLY (A) and (B) will get +2 marks; choosing ONLY (A) and (D) will get +2 marks; choosing ONLY (B) and (D) will get +2 marks; choosing ONLY (A) will get +1 mark; choosing ONLY (B) will get +1 mark; choosing ONLY (D) will get +1 mark; choosing no option (i.e. the question is unanswered) will get 0 marks; and choosing any other combination of options will get -1 marks.

1. Suppose that Box I contains 6 red balls and 9 green balls, and Box II contains 8 red balls and 12 green balls. All the balls of Box I and Box II are mixed together and a ball is chosen at random from them. Let E_1 be the event that the ball chosen belonged to Box I and let E_2 be the event that the ball chosen belonged to Box II. Let F_1 be the event that the ball chosen is red and let F_2 be the event that the ball chosen is green.

Then which of the following statements is (are) TRUE ?

[JEE Advanced 2026 Paper 1]

(A) The events E_1 and F_1 are independent

(B) The events E_2 and F_2 are dependent

(C) The conditional probability $P(F_1 | E_1)$ is equal to the conditional probability $P(F_1 | E_2)$

(D) The conditional probability $P(F_1 | E_1)$ is greater than the conditional probability $P(F_2 | E_2)$

Scan or tap for the
full solution



Space for Rough Work

2. Three students S_1 , S_2 , and S_3 are given a problem to solve. Consider the following events:
U: At least one of S_1 , S_2 , and S_3 can solve the problem,
V: S_1 can solve the problem, given that neither S_2 nor S_3 can solve the problem,
W: S_2 can solve the problem and S_3 cannot solve the problem,
T: S_3 can solve the problem.

For any event E, let $P(E)$ denote the probability of E. If

$$P(U) = \frac{1}{2}, \quad P(V) = \frac{1}{10}, \quad \text{and} \quad P(W) = \frac{1}{12},$$

then $P(T)$ is equal to

(A) $\frac{13}{36}$

(B) $\frac{1}{3}$

(C) $\frac{19}{60}$

(D) $\frac{1}{4}$

[JEE Advanced 2025 Paper 1]

Scan or tap for the
full solution



Space for Rough Work

JEE ADVANCED PROBABILITY (CLASS 12) —
INDEPENDENT EVENTS — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-A																							
Ques.	1	2																					
Ans.	A, C	A																					