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JEE MAIN PROBABILITY (CLASS 12) — BAYES' THEOREM — PYQS

Max. Marks: 28 **Questions:** 7

Section A (MCQ) — 6 questions

Q.1 A candidate has to go to the examination centre to appear in an examination. The candidate uses only one means of transportation for the entire distance out of bus, scooter and car. The probabilities of the candidate going by bus, scooter and car, respectively, are $\frac{2}{5}$, $\frac{1}{5}$ and $\frac{2}{5}$. The probabilities that the candidate reaches late at the examination centre are $\frac{1}{5}$, $\frac{1}{3}$ and $\frac{1}{4}$ if the candidate uses bus, scooter and car, respectively. Given that the candidate reached late at the examination centre, the probability that the candidate travelled by bus is :

[JEE Main 2026 (Online) 8th April Evening Shift]

(1) $\frac{11}{37}$ (2) $\frac{12}{37}$ (3) $\frac{13}{37}$ (4) $\frac{14}{37}$

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Q.2 A letter is known to have arrived by post either from KANPUR or from ANANTPUR. On the envelope just two consecutive letters AN are visible. The probability, that the letter came from ANANTPUR, is:

[JEE Main 2026 (Online) 5th April Morning Shift]

(1) $\frac{7}{10}$ (2) $\frac{10}{17}$ (3) $\frac{12}{19}$ (4) $\frac{7}{19}$

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Q.3 A bag contains 10 balls out of which k are red and $(10 - k)$ are black, where $0 \le k \le 10$. If three balls are drawn at random without replacement and all of them are found to be black, then the probability that the bag contains 1 red and 9 black balls is:

[JEE Main 2026 (Online) 28th January Morning Shift]

(1) $\frac{7}{110}$ (2) $\frac{7}{11}$ (3) $\frac{7}{55}$ (4) $\frac{14}{55}$

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Q.4 A bag contains 19 unbiased coins and one coin with head on both sides. One coin drawn at random is tossed and head turns up. If the probability that the drawn coin was unbiased, is $\frac{m}{n}$, $\gcd(m, n) = 1$, then $n^2 - m^2$ is equal to :

[JEE Main 2025 (Online) 7th April Evening Shift]

(1) 64 (2) 80 (3) 60 (4) 72

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Q.5 Given three identical bags each containing 10 balls, whose colours are as follows :

	Red	Blue	Green
Bag I	3	2	5
Bag II	4	3	3
Bag III	5	1	4

A person chooses a bag at random and takes out a ball. If the ball is Red, the probability that it is from bag I is p and if the ball is Green, the probability that it is from bag III is q, then the value of $\left(\frac{1}{p} + \frac{1}{q}\right)$ is:

[JEE Main 2025 (Online) 2nd April Evening Shift]

(1) 6 (2) 9 (3) 7 (4) 8

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Q.6 Bag B_1 contains 6 white and 4 blue balls, Bag B_2 contains 4 white and 6 blue balls, and Bag B_3 contains 5 white and 5 blue balls. One of the bags is selected at random and a ball is drawn from it. If the ball is white, then the probability that the ball is drawn from Bag B_2 is:

[JEE Main 2025 (Online) 28th January Evening Shift]

(1) $\frac{2}{5}$ (2) $\frac{4}{15}$ (3) $\frac{1}{3}$ (4) $\frac{2}{3}$

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Section B (Numerical) — 1 question

Q.7 A card from a pack of 52 cards is lost. From the remaining 51 cards, n cards are drawn and are found to be spades. If the probability of the lost card to be a spade is $\frac{11}{50}$, then n is equal to _____.

[JEE Main 2025 (Online) 4th April Evening Shift]

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ANSWER KEY

Section A (MCQ) — 6 questions

Ques.	1	2	3	4	5	6					
Ans.	**2**	**2**	**4**	**2**	**3**	**2**					

Section B (Numerical) — 1 question

Ques.	7										
Ans.	**2**										