

JEE MAIN PROBABILITY — PYQS

Max. Marks: 92

Questions: 23

Section A (MCQ) — 16 questions

- Q.1** A bag contains 6 blue and 6 green balls. Pairs of balls are drawn without replacement until the bag is empty. The probability that each drawn pair consists of one blue and one green ball is :

[JEE Main 2026 (Online) 6th April Evening Shift]

- (1) $\frac{63}{925}$ (2) $\frac{17}{231}$ (3) $\frac{16}{231}$ (4) $\frac{64}{925}$

Scan or tap for the full solution



- Q.2** A man throws a fair coin repeatedly. He gets 10 points for each head he throws and 5 points for each tail he throws. If the probability that he gets exactly 30 points is $\frac{m}{n}$, $\gcd(m, n) = 1$, then $m + n$ is equal to :

[JEE Main 2026 (Online) 2nd April Evening Shift]

- (1) 53 (2) 55 (3) 107 (4) 105

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- Q.3** Two distinct numbers a and b are selected at random from 1, 2, 3, ..., 50. The probability, that their product ab is divisible by 3, is

[JEE Main 2026 (Online) 22nd January Morning Shift]

- (1) $\frac{272}{1225}$ (2) $\frac{561}{1225}$ (3) $\frac{664}{1225}$ (4) $\frac{8}{25}$

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- Q.4** The probability of forming a 12 persons committee from 4 engineers, 2 doctors and 10 professors containing at least 3 engineers and at least 1 doctor, is

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

- (1) $\frac{129}{182}$ (2) $\frac{17}{26}$ (3) $\frac{19}{26}$ (4) $\frac{103}{182}$

Scan or tap for the full solution



- Q.5** Two numbers k_1 and k_2 are randomly chosen from the set of natural numbers. Then, the probability that the value of $i^{k_1} + i^{k_2}$, ($i = \sqrt{-1}$) is non-zero, equals

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

- (1) $\frac{3}{4}$ (2) $\frac{1}{2}$ (3) $\frac{1}{4}$ (4) $\frac{2}{3}$

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- Q.6** Let S be the set of all the words that can be formed by arranging all the letters of the word GARDEN. From the set S , one word is selected at random. The probability that the selected word will NOT have vowels in alphabetical order is:

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

- (1) $\frac{1}{4}$ (2) $\frac{1}{2}$ (3) $\frac{1}{3}$ (4) $\frac{2}{3}$

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- Q.7** One die has two faces marked 1, two faces marked 2, one face marked 3 and one face marked 4. Another die has one face marked 1, two faces marked 2, two faces marked 3 and one face marked 4. The probability of getting the sum of numbers to be 4 or 5, when both the dice are thrown together, is

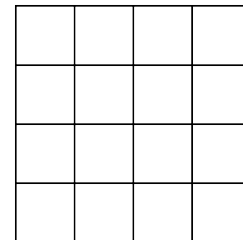
[JEE Main 2025 (Online) 23rd January Morning Shift]

- (1) $\frac{2}{3}$ (2) $\frac{3}{5}$ (3) $\frac{4}{9}$ (4) $\frac{1}{2}$

Scan or tap for the full solution



- Q.8** A board has 16 squares as shown in the figure :



Out of these 16 squares, two squares are chosen at random. The probability that they have no side in common is :

[JEE Main 2025 (Online) 23rd January Evening Shift]

- (1) $\frac{3}{5}$ (2) $\frac{4}{5}$ (3) $\frac{23}{30}$ (4) $\frac{7}{10}$

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- Q.9** If an unbiased dice is rolled thrice, then the probability of getting a greater number in the i^{th} roll than the number obtained in the $(i - 1)^{\text{th}}$ roll, $i = 2, 3$, is equal to

[JEE Main 2024 (Online) 9th April Evening Shift]

- (1) $\frac{5}{54}$ (2) $\frac{2}{54}$ (3) $\frac{1}{54}$ (4) $\frac{3}{54}$

Scan or tap for the full solution



- Q.10** Let the sum of two positive integers be 24. If the probability, that their product is not less than $\frac{3}{4}$ times their greatest possible product, is $\frac{m}{n}$, where $\gcd(m, n) = 1$, then $n - m$ equals

[JEE Main 2024 (Online) 8th April Morning Shift]

- (1) 10 (2) 11 (3) 9 (4) 8

Scan or tap for the full solution



- Q.11** If three letters can be posted to any one of the 5 different addresses, then the probability that the three letters are posted to exactly two addresses is :

[JEE Main 2024 (Online) 6th April Evening Shift]

- (1) $\frac{18}{25}$ (2) $\frac{12}{25}$ (3) $\frac{6}{25}$ (4) $\frac{4}{25}$

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- Q.12** The coefficients a, b, c in the quadratic equation $ax^2 + bx + c = 0$ are chosen from the set $\{1, 2, 3, 4, 5, 6, 7, 8\}$. The probability of this equation having repeated roots is :

[JEE Main 2024 (Online) 5th April Morning Shift]

- (1) $\frac{1}{128}$ (2) $\frac{1}{64}$ (3) $\frac{3}{256}$ (4) $\frac{3}{128}$

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- Q.13** The coefficients a, b, c in the quadratic equation $ax^2 + bx + c = 0$ are from the set $\{1, 2, 3, 4, 5, 6\}$. If the probability of this equation having one real root bigger than the other is p , then $216p$ equals :

[JEE Main 2024 (Online) 5th April Evening Shift]

- (1) 38 (2) 76 (3) 57 (4) 19

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- Q.14** Let Ajay will not appear in JEE exam with probability $p = \frac{2}{7}$, while both Ajay and Vijay will appear in the exam with probability $q = \frac{1}{5}$. Then the probability, that Ajay will appear in the exam and Vijay will not appear is :

[JEE Main 2024 (Online) 1st February Evening Shift]

- (1) $\frac{9}{35}$ (2) $\frac{3}{35}$ (3) $\frac{24}{35}$ (4) $\frac{18}{35}$

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- Q.15** Two integers x and y are chosen with replacement from the set $\{0, 1, 2, 3, \dots, 10\}$. Then the probability that $|x - y| > 5$, is :

[JEE Main 2024 (Online) 30th January Morning Shift]

- (1) $\frac{31}{121}$ (2) $\frac{60}{121}$ (3) $\frac{62}{121}$ (4) $\frac{30}{121}$

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- Q.16** An integer is chosen at random from the integers 1, 2, 3, ..., 50. The probability that the chosen integer is a multiple of at least one of 4, 6 and 7 is

[JEE Main 2024 (Online) 29th January Evening Shift]

- (1) $\frac{8}{25}$ (2) $\frac{9}{50}$ (3) $\frac{14}{25}$ (4) $\frac{21}{50}$

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Section B (Numerical) — 7 questions

- Q.17** A coin is tossed 8 times. If the probability that exactly 4 heads appear in the first six tosses and exactly 3 heads appear in the last five tosses is p , then $96p$ is equal to _____.

[JEE Main 2026 (Online) 4th April Morning Shift]

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- Q.18** From a month of 31 days, 3 different dates are selected at random. If the probability that these dates are in an increasing A.P. is equal to $\frac{a}{b}$, where $a, b \in \mathbb{N}$ and $\gcd(a, b) = 1$, then $a + b$ is equal to _____. [JEE Main 2026 (Online) 4th April Evening Shift]

Scan or tap for the full solution



- Q.19** Let $a, b, c \in \{1, 2, 3, 4\}$. If the probability, that $ax^2 + 2\sqrt{2}bx + c > 0$ for all $x \in \mathbb{R}$, is $\frac{m}{n}$, $\gcd(m, n) = 1$, then $m + n$ is equal to _____.

[JEE Main 2026 (Online) 2nd April Morning Shift]

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- Q.20** Let S be a set of 5 elements and $P(S)$ denote the power set of S . Let E be an event of choosing an ordered pair (A, B) from the set $P(S) \times P(S)$ such that $A \cap B = \emptyset$. If the probability of the event E is $\frac{3^p}{2^q}$, where $p, q \in \mathbb{N}$, then $p + q$ is equal to _____.

[JEE Main 2026 (Online) 24th January Evening Shift]

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- Q.21** From the first 100 natural numbers, two numbers first a and then b are selected randomly without replacement. If the probability that $a - b \geq 10$ is $\frac{m}{n}$, $\gcd(m, n) = 1$, then $m + n$ is equal to _____.

[JEE Main 2026 (Online) 23rd January Morning Shift]

Scan or tap for the full solution



- Q.22** Three distinct numbers are selected randomly from the set $\{1, 2, 3, \dots, 40\}$. If the probability, that the selected numbers are in an increasing G.P., is $\frac{m}{n}$, $\gcd(m, n) = 1$, then $m + n$ is equal to _____.

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

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- Q.23** Let a , b and c denote the outcome of three independent rolls of a fair tetrahedral die, whose four faces are marked 1, 2, 3, 4. If the probability that $ax^2 + bx + c = 0$ has all real roots is $\frac{m}{n}$, $\gcd(m, n) = 1$, then $m + n$ is equal to _____.

[JEE Main 2024 (Online) 9th April Morning Shift]

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ANSWER KEY

Section A (MCQ) — 16 questions

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	3	3	3	1	1	2	4	2	1	1	2
Ques.	12	13	14	15	16						
Ans.	2	1	4	4	4						

Section B (Numerical) — 7 questions

Ques.	17	18	19	20	21	22	23
Ans.	9	944	81	15	311	2477	19