



JEE (MAIN) 2026

MEMORY BASED QUESTIONS & TEXT SOLUTION

SHIFT-1

DATE & DAY: 22 January 2026 & Thursday

PAPER-1

Duration: 3 Hrs.
Time: 09:00 – 12:00 IST

SUBJECT: MATHEMATICS

Selections in JEE (Advanced)/
IIT-JEE Since 2002

52979

Classroom: 35901 | Distance: 17078

Selections in JEE (Main)/
AIEEE Since 2009

262693

Classroom: 194471 | Distance: 68222

Selections in NEET (UG)/
AIPMT/AIIMS Since 2012

22733

Classroom: 15409 | Distance: 7324

Admission Open for 2026-27

Target: JEE (Advanced) | JEE (Main) | NEET (UG) | PCCP (Class V to X)

100% Scholarship on the basis of Class 10th, 12th
& JEE (Main) 2026 %ile / AIR

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MATHEMATICS

1. If sum of first 4 terms of an A.P is 6 and sum of first 6 terms is 4, then sum of first 12 terms of an A.P is
 (1) -23 (2) -21 (3) -22 (4) -24

Ans. (1)

2. Find the number of real solutions $x|x+4| + 3|x+2| + 10 = 0$

Ans. 0

3. The coefficient of x^{48} in $1 \cdot (1+x) + 2 \cdot (1+x)^2 + 3 \cdot (1+x)^3 + \dots + 100 \cdot (1+x)^{100}$ is
 (1) ${}^{101}C_{46} - 100$ (2) $100({}^{101}C_{49}) - {}^{101}C_{50}$
 (3) $100({}^{101}C_{46}) - {}^{101}C_{47}$ (4) ${}^{101}C_{47} - {}^{101}C_{46}$

Ans. (2)

4. If $A = \begin{bmatrix} 2 & 3 \\ 3 & 5 \end{bmatrix}$, then the value of $|A^{2025} - 3A^{2024} + A^{2023}|$ is
 (1) 18 (2) 17 (3) 20 (4) 16

Ans. (4)

5. If the domain of the function $\frac{1}{\ln(10-x)} + \sin^{-1}\left(\frac{x+2}{2x+3}\right)$ is $(-\infty, -a] \cup (-1, b) \cup (b, c)$, then $(b + c + 3a)$ is equal to
 (1) 22 (2) 23 (3) 24 (4) 21

Ans. (3)

6. Let $M = \{1, 2, 3, \dots, 16\}$ and R be a relation on M defined by xRy if and only if $4y = 5x - 3$. Then, the number of elements required to be added in R to make it symmetric is
 (1) 2 (2) 5 (3) 4 (4) 3

Ans. (1)

7. The solution of the differential equation $xdy - ydx = \sqrt{x^2 + y^2}dx$ is (where c is integration constant)

(1) $\sqrt{x^2 + y^2} = cx + y$ (2) $\sqrt{x^2 + y^2} = cx^2 + y$
 (3) $\sqrt{x^2 + y^2} = cx - y$ (4) $\sqrt{x^2 + y^2} = cx^2 - y$

Ans. (4)

8. The number of values of x satisfying $\tan^{-1}(4x) + \tan^{-1}(6x) = \frac{\pi}{6}$ and $x \in \left[-\frac{1}{2\sqrt{6}}, \frac{1}{2\sqrt{6}}\right]$ is
 (1) 3 (2) 0 (3) 2 (4) 1

Ans. (4)

9. The value of $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{dx}{[x]+4}$ is Where $[.]$ denotes greatest integer function.

(1) $\frac{\pi}{20} + \frac{7}{20}$ (2) $\frac{7\pi}{20} + \frac{1}{60}$ (3) $\frac{7\pi}{20} - \frac{1}{60}$ (4) $\frac{7\pi}{20} - \frac{7}{60}$

Ans. (4)

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10. If the area of the region $\{(x, y) : x^2 + 1 \leq y \leq 3 - x\}$ is divided by the line $x = -1$ in the ratio $m:n$ (where m and n are coprime natural numbers). Then, the value of $m + n$ is:

Ans. (1)

11. The value of α for which the line $\alpha x + 2y = 1$ never touches the hyperbola $\frac{x^2}{9} - \frac{y^2}{1} = 1$ is

(1) $R = \left\{-\frac{\sqrt{5}}{2}, \sqrt{\frac{5}{2}}\right\}$

(3) $R = \left\{-\frac{\sqrt{5}}{3}, \frac{\sqrt{5}}{3}\right\}$

(2) $R = \{-\sqrt{5}, \sqrt{5}\}$

(4) R

Ans. (3)

12. If probability distribution is given by

x	0	1	2	3	4	5	6	7
$P(x)$	k	$2k^2$	$6k^2$	$2k^2 + k$	$4k$	k	k	k

Then, the value of $P(3 < x \leq 6)$ is

(1) 0.6

(2) 0.8

(3) 0.4

(4) 0.2

Ans. (1)

13. If the image of the point $P(3, 2, a)$ reflected about the line $\frac{x-3}{2} = \frac{y-5}{5} = \frac{z-2}{-2}$ is $(5, b, c)$. Then the value of $a^2 + b^2 + c^2$ is

(1) $\frac{4849}{8}$

(2) $\frac{4245}{4}$

(3) $\frac{3947}{8}$

(4) $\frac{2429}{4}$

Ans. (1)

14. If $S = \{1, 2, \dots, 50\}$, two numbers α and β are selected at random find the probability that product is divisible by 3:

(1) $\frac{664}{1225}$

(2) $\frac{646}{1225}$

(3) $\frac{527}{1225}$

(4) $\frac{461}{1225}$

Ans. (1)

15. If the end points of chord of parabola $y^2 = 12x$ are (x_1, y_1) and (x_2, y_2) and it subtend 90° at the vertex of parabola then $(x_1 x_2 - y_1 y_2)$ equals:

(1) 288

(2) 280

(3) 290

(4) not possible

Ans. (1)

16. If $\int (\cos x)^{-5/2} (\sin x)^{-11/2} dx = \frac{p_1}{q_1} (\cot x)^{9/2} + \frac{p_2}{q_2} (\cot x)^{5/2} + \frac{p_3}{q_3} (\cot x)^{1/2} - \frac{p_4}{q_4} (\cot x)^{-3/2} + c$

(where c is constant of integration), then value of $\frac{15p_1 p_2 p_3 p_4}{q_1 q_2 q_3 q_4}$ is

(1) 14

(2) 16

(3) 10

(4) 9

Ans. (2)

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