



JEE (MAIN) 2026

MEMORY BASED QUESTIONS & TEXT SOLUTION

SHIFT-2

DATE & DAY: 24 January 2026 & Saturday

PAPER-1

Duration: 3 Hrs.

Time: 03:00 PM – 06:00 PM

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

📞 0744-2777777 | 📲 73400 10345 | Follow Us: 📱 📲 📱 📱 @ResonanceEdu | 📱 @Resonance_Edu

⌚ REGISTERED & CORPORATE OFFICE (CIN: U80302RJ2007PLC024029):

CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Rajasthan) - 324005

📞 0744-2777777 | 📲 73400 10345 | 📩 contact@resonance.ac.in | 🌐 www.resonance.ac.in | Follow Us: 📱 📲 📱 📱 @ResonanceEdu | 📱 @Resonance_Edu

MATHEMATICS

1. If words are arranged in a dictionary alphabetically, then rank of UDAYPUR is?

Ans. (1580)

2. The maximum value of n for which 40^n divides $60!$ is equal to

(1) 11 (2) 12 (3) 13 (4) 14

Ans. (4)

3. If $z = (1+i)(1+2i)(1+3i) \dots (1+ni)$, $n \in N$ and $|z|^2 = 44200$, then n is equal to

(1) 6 (2) 5 (3) 8 (4) 4

Ans. (2)

4. The image of the parabola $x^2 = 4y$ in the line $x - y = 1$ is

(1) $(y-1)^2 = 4(x+1)$ (2) $(y+1)^2 = 4(x-1)$
(3) $(y+1)^2 = 4(x+1)$ (4) $(y-1)^2 = 4(x-1)$

Ans. (2)

5. The value of sum

$$S = \left(\frac{1}{3} + \frac{4}{7}\right) + \left(\left(\frac{1}{3}\right)^2 + \left(\frac{4}{7}\right)^2 + \left(\frac{1}{3}\right)\left(\frac{4}{7}\right)\right) + \left(\left(\frac{1}{3}\right)^3 + \left(\frac{1}{3}\right)^2\left(\frac{4}{7}\right) + \left(\frac{1}{3}\right)\left(\frac{4}{7}\right)^2 + \left(\frac{4}{7}\right)^3\right) + \dots, \text{ then } S$$

is equal to

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

Ans. (2)

6. The domain of $\text{Sin}^{-1}\left(\frac{1}{x^2-2x-1}\right)$ is $(-\infty, \alpha] \cup [\beta, \delta] \cup [\lambda, \infty)$. The value of $\alpha + \beta + \delta + \lambda$ is equal to

(1) 17 (2) 4 (3) 3 (4) 6

Ans. (2)

7. Consider these statements regarding the function $f(x) = ||nx| - |x - 1||$

Statement 1: $f(x)$ is differentiable for all $x > 0$

Statement 2: $f(x)$ is increasing in $(1, \infty)$

Statement 3: $f(x)$ is decreasing in $(0, 1)$

(1) Statement 1 and statement 3 is true (2) All Statement are correct
(3) Statement 2 and statement 3 are correct (4) Statement 1 and statement 2 are correct

Ans. (1)

8. $\lim_{x \rightarrow 0} \frac{\tan(\tan x) - \tan(\sin x)}{\tan x - \sin x}$ is equal to

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

Ans. (1)

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No. : +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555  7340010333   twitter.com/ResonanceEdu  www.youtube.com/resowatch  blog.resonance.ac.in

9. If $4x^2 + y^2 < 52$, $x, y \in \mathbb{Z}$, then the number of ordered pairs (x, y) is
 (1) 67 (2) 87 (3) 77 (4) 38

Ans. (3)

10. $3f(x) + 2f\left(\frac{M}{19x}\right) = 15x$, $M = \sum_{i=1}^9 i^2$, $f(5) - f(2) = ?$

Ans. (54)

11. If $f(\alpha)$ is the area bounded in the first quadrant by

$x = 0, x = 1, y = x^2, y = |\alpha x - 5| - |1 - \alpha x| + \alpha x^2$ then find $f(0) + f(1)$.

(1) $\frac{23}{4}$ (2) $\frac{26}{3}$ (3) $\frac{23}{3}$ (4) $\frac{21}{4}$

Ans. (3)

12. If $\int \frac{7x^{10} + 9x^8}{(1+x^2+2x^9)^2} dx = f(x) + c$ and $f(1) = \frac{1}{4}$. Then $f(x)$ is

(1) $\frac{x^9}{2x^2+9+x^9}$ (2) $\frac{x^9}{2+x^2+x^9}$ (3) $\frac{x^9}{1+x^2+2x^9}$ (4) $\frac{x^9}{1+x^9+2x^2}$

Ans. (3)

13. Let $x = \{1, 2, 3, \dots, 19\}$. If new data $Y = \{y_i; y_i = x_i + b, x_i \in x\}$. Such that mean and variance of y is 30 and 120 respectively then the sum of value (s) of b is:

(1) 50 (2) 60 (3) 40 (4) 30

Ans. (2)

14. Let point (h, k) lies on $x^2 + y^2 = 4$, and $(2h + 1, 3k + 2)$ lies on ellipse having eccentricity e . Then the value of $\frac{5}{e^2}$.

Ans. (9)

15. Given $P = [p_{ij}]_{3 \times 3}$ and $Q = [q_{ij}]_{3 \times 3}$ are 3×3 matrices, where $q_{jj} = 2^{i+j-1}p_{ij}$. If $|Q| = 2^{10}$, then the value of $|\text{adj}(\text{adj}(P))|$ is

Ans. (16)

16. Let $y = y(x)$ be a differentiable function in interval $(0, \infty)$ such that

$$y(1) = 2, \lim_{t \rightarrow x} \left(\frac{t^2 y(x) - x^2 y(t)}{x - t} \right) = 3, \text{ for each } x > 0, \text{ Then } 2y(2) =$$

Ans. (23)

Resonance Eduventures Ltd.

Reg. Office & Corp. Office : CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005

Ph. No.: +91-744-2777777, 2777700 | FAX No. : +91-022-39167222

To Know more : sms RESO at 56677 | Website : www.resonance.ac.in | E-mail : contact@resonance.ac.in | CIN : U80302RJ2007PLC024029

Toll Free : 1800 258 5555  7340010333  facebook.com/ResonanceEdu  twitter.com/ResonanceEdu  www.youtube.com/resowatch  blog.resonance.ac.in