

CUET 2026 May 18 Shift 1 Mathematics

Question Paper (Memory-Based)

Conducted by National Testing Agency (NTA)



General Instructions

- (i) The examination will be conducted in Computer-Based Test (CBT) mode.
- (ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.
- (iii) The total number of questions are 50.
- (iv) Duration of the exam is 1 hour (60 minutes).

1. Solve:

$$\frac{dy}{dx} = y \tan x$$

- (A) $y = C \sec x$
- (B) $y = C \cos x$
- (C) $y = C \sin x$
- (D) $y = C \tan x$

2. Solve:

$$\frac{dy}{dx} + y = e^x, \quad y(0) = 2$$

- (A) $y = e^x + e^{-x}$
- (B) $y = \frac{1}{2}e^x + \frac{3}{2}e^{-x}$
- (C) $y = e^x + 1$
- (D) $y = 2e^x$

3. Evaluate:

$$\int \frac{1}{x^2 + 4x + 5} dx$$

- (A) $\tan^{-1}(x + 2) + C$
 (B) $\frac{1}{2} \tan^{-1}(x + 2) + C$
 (C) $\tan^{-1}(2x + 4) + C$
 (D) $\ln(x^2 + 4x + 5) + C$
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4. Evaluate:

$$\int_0^1 \frac{1}{1 + x^2} dx$$

- (A) $\frac{\pi}{2}$
 (B) $\frac{\pi}{4}$
 (C) 1
 (D) $\ln 2$
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5. For $y = x^3 - 3x^2 + 2$, slope at $x = 2$:

- (A) 0
 (B) 2
 (C) 4
 (D) 6
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6. If

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix}$$

then $A^{-1} =$

- (A) $\frac{1}{5} \begin{bmatrix} 4 & -3 \\ -1 & 2 \end{bmatrix}$
 (B) $\frac{1}{5} \begin{bmatrix} 4 & 3 \\ 1 & 2 \end{bmatrix}$

(C) $\frac{1}{3} \begin{bmatrix} 4 & -3 \\ -1 & 2 \end{bmatrix}$

(D) $\begin{bmatrix} 4 & -3 \\ -1 & 2 \end{bmatrix}$

7. Solve:

$$\begin{vmatrix} x & 1 \\ 2 & x \end{vmatrix} = 0$$

- (A) $x = \pm\sqrt{2}$
- (B) $x = \pm 1$
- (C) $x = \pm 2$
- (D) $x = 0$

8. If $\vec{a} = 2\hat{i} + \hat{j}$, $\vec{b} = \hat{i} + 3\hat{j}$, then $\vec{a} \cdot \vec{b} =$

- (A) 5
- (B) 7
- (C) 8
- (D) 6

9. Distance between $A(1, 2, 3)$ and $B(4, 6, 3)$:

- (A) 4
- (B) 5
- (C) 6
- (D) 7

10. Line through $(1, 2, 3)$ parallel to $\hat{i} + 2\hat{j} + 3\hat{k}$:

- (A) $\frac{x-1}{1} = \frac{y-2}{2} = \frac{z-3}{3}$
- (B) $\frac{x}{1} = \frac{y}{2} = \frac{z}{3}$
- (C) $\frac{x+1}{1} = \frac{y+2}{2} = \frac{z+3}{3}$
- (D) $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{1}$