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) $y = C \tan x$

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2. Solve:

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

(A) $y = e^x + e^{-x}$

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

(C) $y = e^x + 1$

(D) $y = 2e^x$

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

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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) $x = 0$

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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

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

(A) 4

(B) 5

(C) 6

(D) 7

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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) $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{1}$

