CUET 2026 May 31 Shift 2 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. If

$$y(x) = \det\begin{pmatrix} \sin x & \cos x & \sin x + \cos x + 1 \\ 27 & 28 & 27 \\ 1 & 1 & 1 \end{pmatrix},$$

for $x \in \mathbb{R}$, then

$$\frac{d^2y}{dx^2} + y$$

is equal to:

(A) 0

(B) -1

(C) 1

(D) 2

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2. Let $y = f(x)$ be the solution of $\frac{dy}{dx} + \frac{xy}{x^2-1} = \frac{x^6+4x}{\sqrt{1-x^2}}$, $-1 < x < 1$, such that $f(0) = 0$. If $6\int_{-\frac{1}{2}}^{\frac{1}{2}} f(x)\,dx = 2\pi - \alpha$, then α^2 is:

(A) 16

(B) 36

(C) 64

(D) 100

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3. If the system $2x+\lambda y+3z=5,\ 3x+2y-z=7,\ 4x+5y+\mu z=9$ has infinitely many solutions, then $\lambda^2+\mu^2$ is:

(A) 26

(B) 34

(C) 41

(D) 50

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4. Let $f:\mathbb{R}\to\mathbb{R}$ be a thrice differentiable odd function satisfying $f''(x)=f(x),\ f(0)=0,\ f'(0)=3$. Then $9f(\ln 3)$ is:

(A) 12

(B) 18

(C) 24

(D) 36

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5. Let $y=y(x)$ be the solution of $\cos x(\ln(\cos x))^2 dy+(\sin x-3y\sin x\ln(\cos x))\,dx=0$. If $y\left(\frac{\pi}{4}\right)=-\frac{1}{\ln 2}$, then $y\left(\frac{\pi}{6}\right)$ is:

(A) $-\dfrac{8}{3\ln 3}$

(B) $-\dfrac{4}{3\ln 3}$

(C) $-\dfrac{2}{\ln 3}$

(D) $-\dfrac{1}{\ln 3}$

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6. If $f(x)=\int \frac{1}{x^{1/4}(1+x^{1/4})}\,dx$ and $f(0)=-6$, then $f(1)$ is equal to:

(A) -2

(B) -4

(C) 0

(D) 2

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7. The number of relations on $A=\{1,2,3\}$ containing at most 6 elements including $(1,2)$, that are reflexive and transitive but not symmetric, is:

(A) 4

(B) 5

(C) 6

(D) 7

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8. The number of singular matrices of order 2, whose elements are from the set $\{2, 3, 6, 9\}$, is:

(A) 36

(B) 40

(C) 44

(D) 48

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9. Let $a \in \mathbb{R}$ and A be a 3×3 matrix such that $\det(A) = -4$ and $A + I = \begin{pmatrix} 1 & a & 1 \\ 2 & 1 & 0 \\ a & 1 & 2 \end{pmatrix}$. If $\det((a+1)\,\mathrm{adj}((a-1)A)) = 2^m 3^n$, then $m + n$ is:

(A) 10

(B) 12

(C) 14

(D) 16

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10. Let $A = \begin{pmatrix} \log_5 128 & \log_4 5 \\ \log_5 8 & \log_4 25 \end{pmatrix}$. If A_{ij} denotes the cofactor of a_{ij}, $C_{ij} = \sum_{k=1}^{2} a_{ik} A_{jk}$, and $C = [C_{ij}]$, then $8|C|$ is equal to:

(A) 1

(B) 2

(C) 4

(D) 8
