CUET 2026 May 30 Shift 2 Mathematics

Question Paper (Memory-Based) With Solution

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

$$\int_0^1 (3x^2 + 2x + 1)\, dx = k,$$

then the value of k is:

(A) 2

(B) 3

(C) 4

(D) 5

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2. If

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

is equal to:

(A) $\ln(x^2 + x + 1) + C$

(B) $\frac{1}{2}\ln(x^2 + x + 1) + C$

(C) $\tan^{-1}(x) + C$

(D) $\frac{x}{x^2+x+1} + C$

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3. The number of 5-digit numbers that can be formed using the digits $1, 2, 3, 4, 5, 6$ without

repetition and divisible by 5 is:

(A) 60

(B) 120

(C) 240

(D) 720

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4. If a random variable X has probability distribution

$$P(X = x) = kx,$$

$$x = 1, 2, 3, 4,$$

then the value of k is:

(A) $\frac{1}{5}$

(B) $\frac{1}{10}$

(C) $\frac{1}{20}$

(D) $\frac{1}{15}$

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5. If

$$z = \frac{1+i}{1-i},$$

then z^8 equals:

(A) 1

(B) -1

(C) i

(D) $-i$

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6. The differential equation of the family of curves

$$y = ce^{2x}$$

is:

(A) $\frac{dy}{dx} = 2y$

(B) $\frac{dy}{dx} = y$

(C) $\frac{d^2y}{dx^2} = 2y$

(D) $\frac{dy}{dx} = 2x$

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7. A bag contains 5 red balls, 4 blue balls and 3 green balls. Two balls are drawn at random without replacement. The probability that both balls are red is:

(A) $\frac{5}{33}$

(B) $\frac{10}{33}$

(C) $\frac{20}{33}$

(D) $\frac{5}{12}$

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8. Find the equation of the tangent to

$$y = x^3 - 3x + 1$$

at the point where $x = 2$.

(A) $y = 9x - 13$

(B) $y = 9x - 15$

(C) $y = 6x - 7$

(D) $y = 12x - 19$

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9. If

$$\sin^{-1} x + \cos^{-1} x = \theta$$

find θ.

(A) 0

(B) π

(C) $\pi/2$

(D) 2π

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10. Find the shortest distance between the skew lines

$$\vec{r} = (1,0,0) + \lambda(1,1,0)$$

and

$$\vec{r} = (0,1,1) + \mu(0,1,1)$$

(A) 1

(B) $\sqrt{2}$

(C) $\frac{1}{\sqrt{2}}$

(D) $\sqrt{3}$
