

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

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

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) $\sqrt{3}$
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