



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. Evaluate: $\int (3x^2 + 4x - 5) dx$

- (A) $x^3 + 2x^2 - 5x + C$
 - (B) $3x^3 + 4x^2 - 5x + C$
 - (C) $x^2 + 2x - 5 + C$
 - (D) $x^3 + 4x^2 - 5 + C$
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2. If $y = e^{2x}$, then find $\frac{dy}{dx}$.

- (A) $2e^{2x}$
 - (B) e^x
 - (C) $2xe^{2x}$
 - (D) $e^{2x} + 2$
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3. Find the value of:

$$\int \frac{1}{x} dx$$

- (A) $\log x + C$
 - (B) $\frac{1}{x^2} + C$
 - (C) $x \log x + C$
 - (D) $e^x + C$
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4. Find the solution of the differential equation:

$$\frac{dy}{dx} = 3x^2$$

- (A) $y = x^3 + C$
 - (B) $y = 3x^3 + C$
 - (C) $y = x^2 + C$
 - (D) $y = 9x + C$
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5. If $\frac{dy}{dx} = y$, then which of the following is the correct solution?

- (A) $y = Ce^x$
 - (B) $y = Cx$
 - (C) $y = x^2 + C$
 - (D) $y = \log x$
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6. Which of the following functions has derivative equal to $\cos x$?

- (A) $\sin x$
 - (B) $-\sin x$
 - (C) $\tan x$
 - (D) $\sec x$
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7. Match the following:

List-I	Mathematical Expression	List-II	Resulting Value	Correct Match
(P)	$\det \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	(I)	1	$P \rightarrow I$
(Q)	$\int 2x \, dx$	(III)	$x^2 + C$	$Q \rightarrow III$
(R)	$\frac{d}{dx}(x^2)$	(II)	$2x$	$R \rightarrow II$

- (A) P-I, Q-III, R-II
 (B) P-II, Q-I, R-III
 (C) P-III, Q-II, R-I
 (D) P-I, Q-II, R-III

8. If

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

then find $|A|$.

- (A) 5
 (B) 8
 (C) 11
 (D) 13

9. Find the simple interest on Rs 5000 at 10% per annum for 2 years.

- (A) Rs 500
 (B) Rs 1000
 (C) Rs 1500
 (D) Rs 2000

10. A shopkeeper earns 20% profit on an article whose cost price is Rs 800. Find the selling price.

- (A) Rs 920
 - (B) Rs 940
 - (C) Rs 960
 - (D) Rs 1000
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