

Jee Main 2026 B.Arch Memory Based Question Paper

Time Allowed :3 Hours

Maximum Marks :300

Total questions :75

Important Instructions

1. The test is of 3 hours duration.
2. This test paper consists of 75 questions. Each subject (PCM) has 25 questions. The maximum marks are 300.
3. This question paper contains Three Parts. Part-A is Physics, Part-B is Chemistry, and Part-C is Mathematics. Each part has only two sections: Section-A and Section-B.
4. Section-A: Attempt all questions.
5. Section-B: Attempt all questions.
6. Section-A (01 – 20): Contains 20 multiple choice questions which have only one correct answer. Each question carries +4 marks for the correct answer and –1 mark for the wrong answer.
7. Section-B (21 – 25): Contains 5 Numerical value-based questions. The answer to each question should be rounded off to the nearest integer. Each question carries +4 marks for the correct answer and –1 mark for the wrong answer.

1. Let m and n be non-negative integers such that for

$$x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right), \quad \tan x + \sin x = m, \quad \tan x - \sin x = n.$$

Then the possible ordered pair (m, n) is:

- (A) (2, 1) but not (3, 4)
(B) (3, 4) but not (2, 1)
(C) both (2, 1) and (3, 4)
(D) neither (2, 1) nor (3, 4)

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2. Let $A = [a_{ij}]$, $\det(A) \neq 0$, and $B = [b_{ij}]$ be two 3×3 matrices. If

$$b_{ij} = 3^{i-j} a_{ij} \quad \text{for all } i, j = 1, 2, 3,$$

then:

- (A) $3 \det(A) = \det(B)$
(B) $27 \det(A) = \det(B)$
(C) $\det(A) = \det(B)$
(D) $\det(A) = 27 \det(B)$

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3. Let $f : [-2a, 2a] \rightarrow \mathbb{R}$ be a thrice differentiable function and define

$$g(x) = f(a+x) + f(a-x).$$

If m is the minimum number of roots of $g'(x) = 0$ in the interval $(-a, a)$ and n is the minimum number of roots of $g''(x) = 0$ in the interval $(-a, a)$, then $m + n$ is equal to:

- (A) 1
 - (B) 2
 - (C) 4
 - (D) 5
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4. Let

$$f(t) = \int_0^t e^{x^2} \left((1 + 2x^2) \sin x + x \cos x \right) dx.$$

Then the value of $f(\pi) - f\left(\frac{\pi}{2}\right)$ is equal to:

- (A) $-\pi e^{\pi^2/4}$
 - (B) $-\frac{\pi}{2} e^{\pi^2/4}$
 - (C) $\frac{\pi}{2} e^{\pi^2/4}$
 - (D) $\pi e^{\pi^2/4}$
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