

PYQSide

JEE MAIN CONTINUITY AND DIFFERENTIABILITY — DIFFERENTIABILITY AND ITS RELATION WITH CONTINUITY — PYQS

Max. Marks: 20

Questions: 5

Section A (MCQ)

- Q.1** Let $\alpha, \beta \in \mathbb{R}$ be such that the function $f(x) = \begin{cases} 2\alpha(x^2 - 2) + 2\beta x, & x < 1 \\ (\alpha + 3)x + (\alpha - \beta), & x \geq 1 \end{cases}$ be differentiable at all $x \in \mathbb{R}$. Then $34(\alpha + \beta)$ is equal to
- [JEE Main 2026 (Online) 24th January Morning Shift]
- (1) 48 (2) 84 (3) 36 (4) 24

Scan or tap for the full solution



Section B (Numerical)

- Q.2** The number of points, at which the function $f(x) = \max\{6x, 2 + 3x^2\} + |x - 1|\cos\left|x^2 - \frac{1}{4}\right|$, $x \in (-\pi, \pi)$, is not differentiable, is _____.

[JEE Main 2026 (Online) 4th April Morning Shift]

Scan or tap for the full solution



- Q.3** Let $f(x) = \begin{cases} e^x - 1, & x < 0 \\ x^2 - 5x + 6, & x \geq 0 \end{cases}$ and $g(x) = f(|x|) + |f(x)|$. If the number of points where g is not continuous and is not differentiable are α and β respectively, then $\alpha + \beta$ is equal to _____.

[JEE Main 2026 (Online) 4th April Evening Shift]

Scan or tap for the full solution



- Q.4** Let m and n be the number of points at which the function $f(x) = \max\{x, x^3, x^5, \dots, x^{21}\}$, $x \in \mathbb{R}$, is not differentiable and not continuous, respectively. Then $m + n$ is equal to _____.

[JEE Main 2025 (Online) 4th April Morning Shift]

Scan or tap for the full solution



- Q.5** Let $f(x) = \begin{cases} 3x, & x < 0 \\ \min\{1 + x, [x]\}, & 0 \leq x \leq 2 \\ 5, & x > 2 \end{cases}$ where $[.]$ denotes greatest integer function. If α and β are the number of points, where f is not continuous and is not differentiable, respectively, then $\alpha + \beta$ equals _____.

[JEE Main 2025 (Online) 28th January Morning Shift]

Scan or tap for the full solution



ANSWER KEY

Section A (MCQ)

Ques.	1																		
Ans.	1																		

Section B (Numerical)

Ques.	2	3	4	5															
Ans.	3	4	3	5															