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JEE MAIN SEQUENCES AND SERIES — SUM TO N TERMS OF SPECIAL SERIES (ΣN, ΣN², ΣN³) — PYQS

Max. Marks: 24 **Questions:** 6

Section A (MCQ) — 5 questions

Q.1 The value of $1^3 - 2^3 + 3^3 - \ldots + 15^3$ is :

[JEE Main 2026 (Online) 6th April Morning Shift]

(1) 1706 (2) 1856 (3) 1982 (4) 2403

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Q.2 The sum $1 + \frac{1}{2}(1^2 + 2^2) + \frac{1}{3}(1^2 + 2^2 + 3^2) + \ldots$ upto 10 terms is equal to :

[JEE Main 2026 (Online) 6th April Evening Shift]

(1) 130 (2) 155 (3) $\frac{315}{2}$ (4) $\frac{325}{2}$

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Q.3 The sum $\frac{1^3}{1} + \frac{1^3 + 2^3}{1+3} + \frac{1^3 + 2^3 + 3^3}{1+3+5} + \ldots$ up to 8 terms, is :

[JEE Main 2026 (Online) 2nd April Evening Shift]

(1) 70 (2) 71 (3) 72 (4) 73

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Q.4 The positive integer **n**, for which the solutions of the equation

$x(x+2) + (x+2)(x+4) + \cdots + (x+2n-2)(x+2n) = \frac{8n}{3}$ are two consecutive even integers, is :

[JEE Main 2026 (Online) 21st January Evening Shift]

(1) 3 (2) 6 (3) 9 (4) 12

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Q.5 $1 + 3 + 5^2 + 7 + 9^2 + \ldots$ up to 40 terms is equal to

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

(1) 40870 (2) 41880 (3) 43890 (4) 33980

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Section B (Numerical) — 1 question

Q.6 If $\sum_{k=1}^{n} a_k = 6n^3$, then $\sum_{k=1}^{6} \left(\frac{a_{k+1} - a_k}{36}\right)^2$ is equal to _____.

[JEE Main 2026 (Online) 2nd April Morning Shift]

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ANSWER KEY

Section A (MCQ) — 5 questions

Ques.	1	2	3	4	5						
Ans.	**2**	**3**	**2**	**1**	**2**						

Section B (Numerical) — 1 question

Ques.	6										
Ans.	**91**										