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JEE MAIN PERMUTATIONS AND COMBINATIONS — PERMUTATIONS WHEN OBJECTS ARE NOT ALL DISTINCT — PYQS

Max. Marks: 32 **Questions:** 8

Section A (MCQ) — 5 questions

Q.1 The number of seven-digit numbers, that can be formed by using the digits 1, 2, 3, 5 and 7 such that each digit is used at least once, is :

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

(1) 15400 (2) 17800 (3) 16800 (4) 29400

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Q.2 Let S = {1, 2, 3, 4, 5, 6, 7, 8, 9}. Let x be the number of 9-digit numbers formed using the digits of the set S such that only one digit is repeated and it is repeated exactly twice. Let y be the number of 9-digit numbers formed using the digits of the set S such that only two digits are repeated and each of these is repeated exactly twice. Then,

[JEE Main 2026 (Online) 28th January Morning Shift]

(1) 56x = 9y (2) 21x = 4y

(3) 45x = 7y (4) 29x = 5y

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Q.3 The letters of the word "UDAYPUR" are written in all possible ways with or without meaning and these words are arranged as in a dictionary. The rank of the word "UDAYPUR" is

[JEE Main 2026 (Online) 24th January Evening Shift]

(1) 1579 (2) 1578 (3) 1580 (4) 1581

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Q.4 The number of sequences of ten terms, whose terms are either 0 or 1 or 2, that contain exactly five 1s and exactly three 2s, is equal to :

[JEE Main 2025 (Online) 2nd April Morning Shift]

(1) 360 (2) 2520 (3) 1820 (4) 45

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Q.5 Let P be the set of seven digit numbers with sum of their digits equal to 11. If the numbers in P are formed by using the digits 1, 2 and 3 only, then the number of elements in the set P is :

[JEE Main 2025 (Online) 29th January Morning Shift]

(1) 164 (2) 158 (3) 161 (4) 173

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Section B (Numerical) — 3 questions

Q.6 The number of 4-letter words, with or without meaning, which can be formed using the letters PQRPQRSTUVP, is _____.

[JEE Main 2026 (Online) 23rd January Morning Shift]

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Q.7 Let S denote the set of 4-digit numbers abcd such that a > b > c > d and P denote the set of 5-digit numbers having product of its digits equal to 20 . Then n(S) + n(P) is equal to _____

[JEE Main 2026 (Online) 23rd January Evening Shift]

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Q.8 The number of 6-letter words, with or without meaning, that can be formed using the letters of the word MATHS such that any letter that appears in the word must appear at least twice, is _____.

[JEE Main 2025 (Online) 29th January Morning Shift]

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ANSWER KEY

Section A (MCQ) — 5 questions

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

Section B (Numerical) — 3 questions

Ques.	6	7	8				
Ans.	**1422**	**260**	**1405**				