

Topics : Permutation & Combination, Binomial Theorem

Type of Questions

M.M., Min.

Single choice Objective (no negative marking) Q.1,2,3,4

(3 marks, 3 min.)

[12, 12]

Subjective Questions (no negative marking) Q.5,6

(4 marks, 5 min.)

[8, 10]

Match the Following (no negative marking) Q.7

(8 marks, 8 min.)

[8, 8]

- In the expansion of $\left(x^3 - \frac{1}{x^2}\right)^n$, $n \in \mathbb{N}$, if the sum of the coefficients of x^5 and x^{10} is 0, then n is :
 (A) 25 (B) 20 (C) 15 (D) None of these
- The sum of the coefficients of all the integral powers of x in the expansion of $(1 + 2\sqrt{x})^{40}$ is :
 (A) $3^{40} + 1$ (B) $3^{40} - 1$ (C) $\frac{1}{2}(3^{40} - 1)$ (D) $\frac{1}{2}(3^{40} + 1)$
- The coefficient of the term independent of x in the expansion of $\left(\frac{x+1}{x^{\frac{2}{3}} - x^{\frac{1}{3}} + 1} - \frac{x-1}{x - x^{\frac{1}{2}}}\right)^{10}$ is :
 (A) 70 (B) 112 (C) 105 (D) 210
- A number of different seven digit numbers that can be written using only three digits 1, 2 & 3 under the condition that the digit 2 occurs exactly twice in each number, is
 (A) 672 (B) 640 (C) 512 (D) None of these
- There are 720 permutations of the digits 1, 2, 3, 4, 5, 6 suppose these permutations are arranged from smallest to largest numerical values beginning from 123456 and ending with 654321.
 (a) What number falls on the 124th position
 (b) What is the position of the number 321546
- How many different words can be formed out of the letters of the word 'ALLAHABAD'? In how many of them the vowels occupy the even positions?
- Match the column
[Note : - Repetition is not allowed]

Column- I	Column- II
(A) Number of 3 - digit numbers which are even	(p) 7200
(B) Number of 4 - digit numbers which are odd	(q) 328
(C) Number of 4 - digit numbers which are multiples of 5	(r) 2240
(D) Number of 7 - digit numbers where even digits occupies only even places	(s) 952

Answers Key

1. (C) 2. (D) 3. (D) 4. (A)

5. (a) 213564 (b) 267 6. 7560, 60

7. (A) \rightarrow (q), (B) \rightarrow (r), (C) \rightarrow (s), (D) \rightarrow (p)