PERMUTATIONS AND COMBINATIONS

PERMUTATIONS

EXERCISE

Q1. If ${}^{2n+1}P_{n-1} : {}^{2n-1}P_n : 3: 5$, the value of n is equivalent to

(a)4 (b)3 (c)2 (d)1

Q2. If ${}^{12}P_r$ then r is equal to

(a)5 (b)4 (c)3 (d)2

Q3. If a, b, c ∈ N, find the number of points with position vectors in the form $a\hat{i} + b\hat{j} + c\hat{k}$ such that $6 \leq a + b + c \leq 10$, is

(a)110 (b)116 (c)120 (d)127

Q4. If ${}^{56}P_{r+6} : {}^{54}P_{r+3} = 30800 :1$, then the value of r is

(a) 40 (b)51 (c) 41 (d)510

Q5. 20 persons are invited to a party. Determine the number of different ways they and the host can be seated at a circular table, given that the two particular persons are to be seated on either side of the host.

(a) 20! (b) 2!×18! (c) 18! (d)None of these

Q6. There are 9 balls to be placed in 9 boxes, and 5 of the balls cannot fit into 3 small boxes. Determine the number of ways to arrange one ball in each of the boxes.

(a)18720 (b)18270 (c)17280 (d)12780

Q7. A father with 8 children takes them to the zoological garden in groups of 3, as frequently as possible without having the same set of 3 children together more than once. The number of times he will visit the garden is:

(a) 112 (b) 56 (c)336 (d)None of these

Q8. An n-digit number is a positive number with precisely n digits. To form nine hundred distinct n-digit numbers, only the digits 2, 5, and 7 are to be used. Determine the smallest value of n for which this is possible.

(a)6 (b)7 (c)8 (d)9

Q9. Eight chairs are numbered from 1 to 8. Two women and three men want to occupy one chair each. First, the women choose chairs from among those marked 1 to 4, and then the men select chairs from the remaining ones. Determine the number of possible arrangements.

(a) ${}^{6}C_{3}\times{}^{4}C_{2}$ (b)${}^{4}P_{2}\times{}^{6}P_{3}$ (c)${}^{4}C_{2}+{}^{4}P_{3}$ (d)None of these

ANSWER

1. (a)

2. (c)

3. (a)

4. (c)

5. (b)

6. (c)

7. (b)

8. (b)

9. (b)