



MATHS

BOOKS - JEE MAINS PREVIOUS YEAR

ENGLISH

PERMUTATIONS AND COMBINATIONS

Others

1. The set $S = \{1, 2, 3, \dots, 12\}$ is to be partitioned into three sets A, B, C of equal size.

Thus,

$$A \cup B \cup C = S, A \cap B = B \cap C = A \cap C = \varnothing$$

. The number of ways to partition S is (1)

$$\frac{12!}{3!(4!)^3} \quad (2) \quad \frac{12!}{3!(3!)^4} \quad (3) \quad \frac{12!}{(4!)^3} \quad (4) \quad \frac{12!}{(4!)^4}$$



Watch Video Solution

2. In a shop, there are five types of ice-creams available. A child buys six ice-creams.

Statement-1: The number of different ways the child can buy the six ice-creams is ${}^{10}C_4$.

Statement-2: The number of different ways the

child can buy six ice-creams is equal to the number of different ways to arranging 6A's and 4B's in a row.



[View Text Solution](#)

3. How many different words can be formed by jumbling the letters in the word MISSISSIPPI in which no two S are adjacent? (1)

$$8 \binom{6}{4} \binom{7}{4} \quad (2) \quad 6 \cdot 7 \binom{8}{4} \quad (3) \quad 6 \cdot 8 \binom{7}{4}$$

$$(4) \quad 7 \binom{6}{4} \binom{8}{4}$$



[Watch Video Solution](#)

4. From 6 different novels and 3 different dictionaries, 4 novels and 1 dictionary are to be selected and arranged in a row on a shelf so that the dictionary is always in the middle. Then, the number of such arrangements is



[Watch Video Solution](#)

5. Four numbers are chosen at random (without replacement) from the set $\{1, 2, 3, \dots, 20\}$. Statement-1: The probability that the

chosen numbers when arranged in some order will form an AP is $\frac{1}{85}$. Statement-2: If the four chosen numbers from an AP, then the set of all possible values of common difference is $\{1, 2, 3, 4, 5\}$.



[Watch Video Solution](#)

6. There are two urns. Urn A has 3 distinct red balls and urn B has 9 distinct blue balls. From each urn two balls are taken out at random and then transferred to the other. The number

of ways in which this can be done is (1)

36

(2) 66

(3)

108

(4) 3



[Watch Video Solution](#)

7. Statement-1 : The number of ways of distributing 10 identical balls in 4 distinct boxes such that no box is empty is 9C_3 .

Statement-2 : The number of ways of choosing any 3 places from 9 different places is 9C_3 .

Statement-1 is true, Statement-2 is true;

Statement-2 is a correct explanation for Statement-1. Statement-1 is true, Statement-2 is true; Statement-2 is not a correct explanation for Statement-1. Statement-1 is true, Statement-2 is false. Statement-1 is false, Statement-2 is true.



[Watch Video Solution](#)

8. Assuming the balls to be identical except for difference in colours, the number of ways in which one or more balls can be selected from

10 white, 9 green and 7 black balls is (1)

880 (2) 629 (3)

630 (4) 879



[Watch Video Solution](#)

9. Let A and B be two sets containing 2 elements and 4 elements respectively. The number of subsets of $A \times B$ having 3 or more elements is (1) 220 (2) 219 (3) 211 (4) 256



[View Text Solution](#)

10. Let T_n be the number of all possible triangles formed by joining vertices of an n -sided regular polygon. If $T_{n+1} - T_n = 10$, then the value of n is (1) 5 (2) 10 (3) 8 (4) 7



[Watch Video Solution](#)

11. The number of integers greater than 6,000 that can be formed, using the digits 3, 5, 6, 7 and 8, without repetition, is :



[View Text Solution](#)

12. A man X has 7 friends, 4 of them are ladies and 3 are men. His wife Y also has 7 friends, 3 of them are ladies and 4 are men. Assume X and Y have no common friends. Then the total number of ways in which X and Y together can throw a party inviting 3 ladies and 3 men, so that 3 friends of each of X and Y are in the party, is : 469 (2) 484 (3) 485 (4) 468



[View Text Solution](#)