**EXERCISE**

**1.**How many different 4 letter words can be formed from the letters in the word  **MATH** ?

**2.**How many different 5-letter arrangements are there of the letters in the word  **DIGIT** ?

3.There are 6 periods in each working day of a school. In how many ways can one organize 5 subjects such that each subject is allowed at least one period?  
**A. 3200 B. 2400 C. 1800 D. 3600**  
   
**4.**How many 6 digit telephone numbers can be formed if each number starts with 35 and no digit appears more than once?  
**A. 720 B. 360 C. 1420 D. 1680**    
**5.**25 buses are running between two places P and Q. In how many ways can a person go from P to Q and return by a different bus?  
**A. None of these B. 600 C. 576 D. 625**   
**6.**In how many different ways can the letters of the word 'CORPORATION' be arranged so that the vowels always come together?  
**A. 47200 B. 48000 C. 42000 D. 50400**

**7.**In how many different ways can the letters of the word 'MATHEMATICS' be arranged such that the vowels must always come together?  
**A. 9800 B. 100020 C. 120960 D. 140020**

**8.**How many 3-letter words with or without meaning, can be formed out of the letters of the word, 'LOGARITHMS', if repetition of letters is not allowed?  
**A. 720 B. 420 C. 3200 D. 5040**

**9.**In how many different ways can the letters of the word 'DETAIL' be arranged such that the vowels must occupy only the odd positions?  
**A. 32 B. 64 C. 120 D. 36**

**10.**If a three digit number is formed from the digits  1,2,3,4,5,6, and 7, with **no repetitions**, tell how many of these three digit numbers will have a number value between 100 and 500.  
   
**11.**In a group of 6 boys and 4 girls, four children are to be selected. In how many different ways can they be selected such that at least one boy should be there?  
**A. 159 B. 209 C. 201 D. 212**  
   
**12.**From a group of 7 men and 6 women, five persons are to be selected to form a committee so that at least 3 men are there on the committee. In how many ways can it be done?  
**A. 624 B. 702 C. 756 D. 812**  
   
**13.**There are 8 men and 10 women and you need to form a committee of 5 men and 6 women. In how many ways can the committee be formed?  
**A. 10420 B. 11 C. 11760 D. None of these**  
   
**14.**How many 3 digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9 which are divisible by 5 and none of the digits is repeated?  
**A. 20 B. 16 C. 8 D. 24**

**15.**A box contains 4 red, 3 white and 2 blue balls. Three balls are drawn at random. Find out the number of ways of selecting the balls of different colours?  
**A. 62 B. 48 C. 12 D. 24**

**16.**A committee is composed of a president, a vice president, and a treasurer. If six people are trying out for the three positions, how many different committees result?

**(A) 20      (B) 40       (C) 60     (D) 105      (E) 120**

**17.**A committee of three is to be chosen from six. How many unique committees result?

**(A) 20      (B) 40      (C) 60      (D) 105      (E) 120**

**18.**A committee is composed of a president, a vice president, and a treasurer. If five people are running for president, six people are running for vice president, and three are running for treasurer, how many unique committees result?

**(A)15 (B) 45 (C) 75 (D) 90 (E) 120**

**19.**How many triangles can be formed by joining the vertices of an octagon?  
**A. 56 B. 28 C. 112 D. 120**

**20.**If there are 9 horizontal lines and 9 vertical lines in a chess board, how many rectangles can be formed in the chess board?  
**A. 920 B. 1024 C. 64 D. 1296**

**21.**In a birthday party, every person shakes hand with every other person. If there was a total of 28 handshakes in the party, how many persons were present in the party?  
**A. 9 B. 8 C. 7 D. 6**

**22.**How many quadrilaterals can be formed by joining the vertices of an octagon?  
**A. 60 B. 70 C. 65 D. 74**

**23.**There are 8 points in a plane out of which 3 are collinear. How many straight lines can be formed by joining them?  
**A. 16 B. 26 C. 22 D. 18**

**24.**How many straight lines can be formed by joining 12 points on a plane out of which no points are collinear?  
**A. 72 B. 66 C. 58 D. 62**

**25.**If **nC8 = nC27** , what is the value of n?  
**A. 35 B. 22 C. 28 D. 41**

**26.**In how many ways can 10 books be arranged on a shelf such that a particular pair of books should always be together?  
**A. 9! × 2! B. 9! C. 10! × 2! D. 10!**

**27.**Arun wants to send invitation letter to his 7 friends. In how many ways can he send the invitation letter if he has 4 servants to carry the invitation letters?  
**A. 16384 B. 10801 C. 14152 D. 12308**

**28.**How many three digit numbers divisible by 5 can be formed using any of the digits from 0 to 9 such that none of the digits can be repeated?  
**A. 108 B. 112 C. 124 D. 136**

**29.**How many numbers, between 100 and 1000, can be formed with the digits 3, 4, 5, 0, 6, 7? (Repetition of digits is not allowed)  
**A. 142 B. 120 C. 100 D. 80**

**30.**In how many ways can 11 persons be arranged in a row such that 3 particular persons should always be together?  
**A. 9! × 3! B. 9! C. 11! D. 11! × 3!**

**31.**A company has 11 software engineers and 7 civil engineers. In how many ways can they be seated in a row so that no two of the civil engineers will sit together?  
**A. 12! B. 11!×12! / 5! C. 11! D. 12!×12! / 5!**

**32.**Kiran has 8 black balls and 8 white balls. In how many ways can he arrange these balls in a row so that balls of different colours are alternate?  
**A. 8! × 7! B. 2 × 8! × 7! C. 2 × (8!)2 D. (8!)2**