Twelfth Grade - Probability and Combinatorics

1) In how many different ways can the letters of the word 'LEADING' be arranged in such a way that the vowels always come together?

- 720
- 640
- 900
- 340

2) In how many different ways can the letters of the word 'CORPORATION' be arranged so that the vowels always come together?

- 50000
- 50600
- 50400
- 50500

3) In how many ways can the letters of the word 'LEADER' be arranged?

- 320
- 360
- 350
- 340

4) 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?

- 50
- 60
- 20
- 40

5) In how many ways a committee, consisting of 5 men and 6 women can be formed from 8 men and 10 women?

- 10060
- 11760
- 12760
- 10760

6) There are 5 freshmen, 8 sophomores, and 7 juniors in a chess club. A group of 6 students will be chosen to compete in a competition. How many combinations of students are possible if the group is to consist of exactly 3 freshmen?

- 4550
- 4770
- 4570
- 4050

7) There are 5 freshmen, 8 sophomores, and 7 juniors in a chess club. A group of 6 students will be chosen to compete in a competition. How many combinations of students are possible if the group is to consist of exactly 3 freshmen and 3 sophomores?

- 560
- 530
- 540
- 520

8) There are 5 freshmen, 8 sophomores, and 7 juniors in a chess club. A group of 6 students will be chosen to compete in a competition. How many combinations of students are possible if the group is to consist of an equal number of freshmen, sophomores, and juniors?

- 5900
- 5888
- 5880
- 5780

9) How many combinations of students are possible if the group is to consist of all members of the same class? There are 5 freshmen, 8 sophomores, and 7 juniors in a chess club. A group of 6 students will be chosen to compete in a competition.

- 76
- 45
- 65
- 35

10) How many ways can 4 prizes be given away to 3 boys, if each boy is eligible for all the prizes?

- 71
- 75
- 48
- 24

11) How many multiples of 5 are there from 10 to 95?

- 19
- 13
- 15
- 18

12) In a city, the bus route numbers consist of a natural number less than 100, followed by one of the letters A, B, C, D, E and F. How many different bus routes are possible?

- 894
- 594
- 600
- 694

13) Suppose you can travel from a place A to a place B by 3 buses, from place B to place C by 4 buses, from place C to place D by 2 buses and from place D to place E by 3 buses. In how many ways can you travel from A to E?

- 76
- 72
- 74
- 78

14) Suppose you want to arrange your English, Hindi, Mathematics, History, Geography and Science books on a shelf. In how many ways can you do it?

- 700
- 760
- 720
- 740

15) If you have 6 New Year greeting cards and you want to send them to 4 of your friends, in how many ways can this be done?

- 365
- 355
- 370
- 360

16) In how many ways can an animal trainer arrange 5 lions and 4 tigers in a row so that no two lions are together?

- 2990
- 2880
- 2980
- 2680

17) There are 4 books on fairy tales, 5 novels and 3 plays. In how many ways can you arrange these so that books on fairy tales are together, novels are together and plays are together and in the order, books on fairy tales, novels and plays.

- 17280
- 17380
- 17480
- 17580

18) Suppose there are 4 books on fairy tales, 5 novels and 3 plays. They have to be arranged so that the books on fairy tales are together, novels are together and plays are together, but we no longer require that they should be in a specific order. In how many ways can this be done?

- 106680
- 105680
- 103680
- 104680

19) In how many ways can 4 girls and 5 boys be arranged in a row so that all the four girls are together?

- 16280
- 15280
- 14280
- 17280

20) How many arrangements of the letters of the word ‘BENGALI’ can be made if the vowels are to occupy only odd places.

- 667
- 600
- 576
- 767

21) In how many different ways can the letters of the word 'DETAIL' be arranged in such a way that the vowels occupy only the odd positions?

- 45
- 36
- 56
- 37

22) How many 4-letter words with or without meaning, can be formed out of the letters of the word, 'LOGARITHMS', if repetition of letters is not allowed?

- 5050
- 5030
- 5020
- 5040

23) How many integers, greater than 999 but not greater than 4000, can be formed with the digits 0, 1, 2, 3 and 4, if repetition of digits is allowed?

- 356
- 366
- 336
- 376

24) In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?

- 750
- 700
- 680
- 720

25) A college has 10 basketball players. A 5-member team and a captain will be selected out of these

10 players. How many different selections can be made?

- 1230
- 1260
- 1250
- 1240

26) A coach must choose five starters from a team of 12 players. How many different ways can the coach choose the starters?

- 739
- 749
- 719
- 729

27) There are 7 non-collinear points. How many triangles can be drawn by joining these points?

- 25
- 35
- 30
- 15

28) The Indian Cricket team consists of 16 players. It includes 2 wicket keepers and 5 bowlers. In how many ways can a cricket eleven be selected if we have to select 1 wicket keeper and at least 4 bowlers?

- 1087
- 1022
- 1082
- 1092

29) From a total of six men and four ladies a committee of three is to be formed. If Mrs. X is not willing to join the committee in which Mr. Y is a member, whereas Mr. is willing to join the committee only if Mrs. Z

is included, how many such committee are possible?

- 91
- 71
- 81
- 61

30) In a box, there are 5 black pens, 3 white pens and 4 red pens. In how many ways can 2 black pens, 2 white pens and 2 red pens can be chosen

- 120
- 170
- 180
- 160