Twelfth Grade - Probability and Combinatorics

• 40

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?
 900 640 340 720
2) In how many different ways can the letters of the word 'CORPORATION' be arranged so that the vowels always come together?
50000506005040050500
3) In how many ways can the letters of the word 'LEADER' be arranged?
 320 350 340 360
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?
506020

5) In	ı how many	/ ways a comr	nittee, cons	sisting of 5	men and	6 women	can be	formed 1	from 8	men	and
10 v	vomen?										

•	1	27	ൈ

- 11760
- 10060
- 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?

- 4570
- 4770
- 4550
- 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?

- 530
- 540
- 520
- 560

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?

- 5780
- 5880
- 5888
- 5900

600594894694

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.
 45 76 65 35
10) How many ways can 4 prizes be given away to 3 boys, if each boy is eligible for all the prizes?
 75 24 71 48
11) How many multiples of 5 are there from 10 to 95?
 18 15 19 13
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?

• 2980

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 Δ to E2

can you travel from A to E?
 76 74 78 72
14) Suppose you want to arrange your English, Hindi, Mathematics, History, Geography and Scienc books on a shelf. In how many ways can you do it?
760740720700
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?
360365355370
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?
268028802990

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.

•	17380

- 17580
- 17280
- 17480

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?

- 103680
- 105680
- 104680
- 106680

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

- 17280
- 14280
- 15280
- 16280

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

- 576
- 767
- 667
- 600

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

21) In how many different ways can the letters of the word 'DETAIL' be arranged in such a way that to vowels occupy only the odd positions?
 36 37 45 56
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?
5020503050505040
23) How many integers, greater than 999 but not greater than 4000, can be formed with the digits 0, 2, 3 and 4, if repetition of digits is allowed?
 356 376 336 366
24) In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowel always come together?
 720 700 750 680

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

1250123012401260

coach choose the starters?

719729

10 players. How many different selections can be made?

7	/ 8
29) From a total of six men and four ladies a committee of three is to be formed. If Mrs. X is not willi join the committee in which Mr. Y is a member, whereas Mr. is willing to join the committee only if N	_
1082108710221092	
28) The Indian Cricket team consists of 16 players. It includes 2 wicket keepers and 5 bowlers. In h many ways can a cricket eleven be selected if we have to select 1 wicket keeper and at least 4 bowlers?	IOW
30352515	
27) There are 7 non-collinear points. How many triangles can be drawn by joining these points?	
749739	

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

is included, how many such committee are possible?

- 61
- 81
- 71
- 91

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

- 170
- 180
- 160
- 120