INDIAN SCHOOL AL WADI AL KABIR
DEPARTMENT OF MATHEMATICS 2023 – 2024
Permutations and Combinations - Work Sheet – Class XI

1	How many words, with or without meaning can be made from the letters of the word MONDAY. Assuming that no. letter is repeated, it (i) 4 letters are used at a time (ii) All letters are used but first letter is a vowel?
2	A bag contains 5 black and 6 red balls determine the number of ways in which 2 black and 3 red balls can be selected.
3	In how many ways can 5 girls and 3 boys be seated in a row so that no two boys are together?
4	How many words, with or without meaning, each of 3 vowels and 2 consonants can be formed from the letters of the word INVOLUTE.
5	A group consists of 4 girls and 7 boys. In how many ways can a team of 5 members be selected if the team has: (i) no girl? (ii) (ii) at least one boy and one girl? (iii) (iii) at least 3 girls?
6	Find the number of words with or without meaning which can be made using all the letters of the word AGAIN. If these words are writer as in a dictionary, what will be the 50th word?
7	How many numbers greater than 1000000 can be formed by using the digits 1,2,0,2,4,2,4?
8	In how many ways can the letters of the word ASSA SS IN ATION be arranged so that all the S's are together?
9	Write relation between nCr and nPr
10	A committee of 7 has to be farmed from 9 boys and 4 girls in how many ways can this be done when the committee consists of (i) Exactly 3 girls? (ii) Attest 3 girls? (iii) Almost 3 girls?
11	Convert the following products into factorials 5 x 6 x 7 x 8 x 9
12	Evaluate ${}_{15}C_8 + {}_{15}C_9 - {}_{15}C_6 - {}_{15}C_7$
13	Find n if ${}_{2n}C_3 : {}_nC_3 = 11 : 1$
14	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?

15	In how many ways can final eleven be selected from 15 cricket players' if (i) there is no restriction (ii) one of then must be included (iii) cone of them, who is in bad form, must always be excluded (iv) Two of them being leg spinners, one and only one leg spinner must be included?
16	How many four-letter words can be formed using the letters of the letters of the word 'FAILURE' so that (i) F is included in each word (ii) F is excluded in each word.
17	Evaluate $_{10}C_7 + {}_{10}C_6$
18	How many words with or without meaning can be formed using all the letters of the word 'EQUATION' at a time so that vowels and consonants occur together
19	From a class of 25 students 10 are to be chosen for an excursion Party. There are 3 students who decide that either all of them will join or none of them will join. In how many ways can excursion party be chosen?
20	A committee of 5 is to be formed out of 6 gents and 4 Ladies. In how many ways this can be done, when (i) at least two ladies are included? (ii) at most two ladies are included?

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Permutations and Combinations (Answer Key)

1	360 & 48
2	50
3	14400
4	2880
5	21, 441, 91
6	60, N A A I G
7	360
8	151200
10	504, 588, 1632
11	9! / 4!
12	0
13	**6**
14	5040
15	1365, 1001, 364, 572
16	480, 360
17	330
18	1440
19	817190
20	186, 1814400, 2419200