

INDIAN SCHOOL AL WADI AL KABIR

Class XI, Mathematics **Worksheet- PERMUTATIONS AND COMBINATIONS**
2024-25

OBJECTIVE TYPE (1 Mark)

- Q1. How many distinct triangles can be formed using 10 non-collinear points?
- Q2. How many natural numbers are there between 100 and 1000 with distinct digits ?
- Q3. If $nC_2 = nC_8$, find nC_2
- Q4. Evaluate: $20C_{13} + 20C_{14} - 20C_6 - 20C_7$,
- Q5. How many four-letter codes can be formed using the first 10 letter of the English alphabet, if no letter can be repeated?

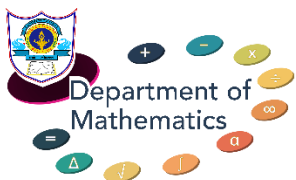
VERY SHORT ANSWER (2 Marks)

- Q6 A convex polygon has 35 diagonals. Find the number of sides
- Q7 There are 10 points, out of these 4 points are collinear. Find the number of straight lines obtained from the points?
- Q8 There are 10 points, out of these 4 points are collinear. Find the number of triangles obtained from the points?
- Q9 Find r if $nC_r - 7C_3 = 7C_2$ and $nP_r = 336$.
- Q10 How many words with or without meaning can be formed using all letters of the word "ALGEBRA"

LONG ANSWER TYPE(3 or 5 marks)

- Q11 Find n and r if $5P_r = 2(6P_{r-1})$

Q12.	If all words formed by using all the letters of the word LIMIT, are arranged in dictionary order, what is the rank of the word 'TIILM'
Q13.	In a question paper there are 6 questions in section A and 7 questions in section B. How many ways one can attempt 8 question such that at least 3 questions to be answered from each section.
Q14	Find the number of words with or without meaning can formed by using all letters of the word "GEOMETRY" (a) How many of these words starts with E and ends with E? (b) How many of these words are with vowels together? (c) How many of these words starts with vowels together and consonants together?
Q15	Find the number of integers greater than 7000 that can be formed with the digits 3, 5, 7, 8 and 9 where no digits are repeated.
Q16	If nC_4 , nC_5 and nC_6 are three consecutive terms of an AP, find n .
Q17	Find the number of ways of choosing 4 cards from a pack of 52 playing cards. In how many of these (i) four cards of the same suit? (ii) four cards belong to four different suits? (iii) are face cards? (iv) two red cards and two are black cards? (v) cards of the same colour?



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OBJECTIVE TYPE (1 Mark)

Answers

Answers	1	120	2	648	3.	45	4	0
	5	5040	6	10	7	40	8	116
	9	3 or 5	10	2520	11	$r = 3$	12	49
	13	1155	14	20160 (i) 720 (ii) 2160 (iii) 720	15	$120 + 72 = 192$	16	$n = 7 \text{ or } 14$
	17	270725 (i) 286. (ii) 13^4 (iii) 495 (iv) 105625 (v) 29900						

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