




CHAPTER-7
PERMUTATIONS & COMBINATIONS
01 MARK TYPE QUESTIONS

Q. NO	QUESTION	MARK
1.	 <p>Teacher ask the student, suppose there are 10 boys and 8 girls in a class room, we want to select either a boy or a girl to represent the class in a function. In how many ways the selection can be made?</p> <p>(a) 10 (b) 8 (c) 18 (d) 80</p>	1
2.	 <p>Meera ask her friend Neeta that if we have a 4 flags of different colours, then how many different signals can be generated if a signals requires the use of 2 flags one below the other?</p> <p>(a) 4 (b) 3 (c) 2 (d) 12</p>	1
3.	<p>In a class room discussion teacher ask the students, tell me about how many 3- digits even numbers can be formed from the digits 1,2,3,4,5,6 if no digit are repeated?</p> <p>(a) 60 (b) 85 (c) 108 (d)98</p>	1
4.	<p>In a class room discussion teacher ask the students, tell me about how many 3- digits even numbers can be formed from the digits 1,2,3,4,5,6 if digit are repeated?</p> <p>(a) 125 (b) 216 (c) 108 (d)98</p>	1

5.	<div>2023 CALENDAR</div> <div><div><div>JANUARY</div><div>FEBRUARY</div><div>MARCH</div><div>APRIL</div></div><div><div>MAY</div><div>JUNE</div><div>JULY</div><div>AUGUST</div></div><div><div>SEPTEMBER</div><div>OCTOBER</div><div>NOVEMBER</div><div>DECEMBER</div></div></div> <div>A mint prepares metallic calendars specifying months, dates and days in the form of monthly sheets (one plate for each month). How many types of calendars should it prepare to serve for all the possibilities in future years?</div> <div>(a) 11 (b) 12 (c) 13 (d) 14</div>	1
6.	<div><div><div><div><div>2</div><div>2</div></div><div><div>16</div><div>16</div></div><div><div>=</div><div>=</div></div><div><div>log</div><div>log</div></div><div><div>2</div><div>2</div></div><div><div>=</div><div>=</div></div><div><div>x</div><div>x</div></div></div><div>Logarithms</div></div></div> <div>Sunita went to market with her friend Divya, on walking in the market Sunita see the Banner were it is written as‘LOGARITHMS’. Divya asked sunita can you guess how many words with or without meaning can be formed out of the letters of the word ‘LOGARITHMS’. If each letter are used once?</div> <div>(a) 5040 (b) 7200 (c) 8400 (d) 5400</div>	1
7.	<div>Vowel or Consonant</div> <div><div>Vowel:</div><div>Consonant:</div></div> <div><div>A E I O U</div><div>B C D F G H</div><div>J K L M N</div><div>P Q R S T</div><div>V W X Y Z</div></div> <div>Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed?</div> <div>(a) 2520 (b) 25200 (c) 252 (d) 25400</div>	1
8.	<div>If ${}^{n+1}C_3 = 2 \cdot {}^nC_2$, then n = ?</div> <div>(a) 3 (b) 4 (c) 5 (d) 6</div>	1
9.	<div></div> <div>Among 14 players, 5 are bowlers. In how many ways a team of 11 may be formed with at least 4 bowlers?</div> <div>(a) 265 (b) 263 (c) 264 (d) 275</div>	1
10.		1

Bharat

	<p>The number of word BHARAT</p> <p>arrangements of the letters of the taking 3 at a time is -----</p> <p>(a) 72 (b) 120 (c) 14 (d) None of these</p>	
11.	<p>In an examination there are three MCQ and each question has 4 choices. Number of ways in which a student can fail to get all answer correct is.</p> <p>a)11 b) 12 c)63 d)27</p>	1
12.	<p>Out of 18 points in a plane, no three are in the same line except five points which are collinear. Number of lines that can be formed joining the points are.</p> <p>a) 164 b)144 c)145 d)154</p>	1
13.	<p>The number of possible outcomes when a coin is tossed 6 times is.</p> <p>a) 36 b)64 c)24 d)100</p>	1
14.	<p>If $n_{pr} = 840$ $n_{cr} = 35$ then r is</p> <p>a) 4 b) 6 c)10 d)8</p>	1
15.	<p>How many ways are there to arrange the letter of the word GARDEN with the vowels in alphabetical order?</p> <p>a) 840 b) 720 c) 360 d) 960</p>	1
16.	<p>There are 10 non-collinear points in a plane by joining them how many triangles can be made.</p> <p>a) 120 b) 160 c) 200 d) 240</p>	1
17.	<p>How many ways can 4 red, 3 yellow and 2 green balls be arranged in a row if the balls of the same colour are distinguishable.</p> <p>a) 1260 b) 1200 c) 1160 d) non</p>	1
18.	<p>A gentle men has 6 friends to invited to his birthday party. He has to send invitation. Number of ways he can send invitation card to them by three of his servants.</p> <p>a) 729 b) 216 c) 512 d) 18</p>	1
19.	<p>There are 12 persons in a party and if each two of them shake hands with each other, then number of handshakes happened is</p> <p>a) 60 b) 24 c) 66 d) 65</p>	1
20.	<p>Five persons are doing morning walk in a park. There are three vacant seats. Number of ways they can occupy the seats.</p> <p>a) 30 b) 60 c) 20 d) non</p>	1
21.	<p>Find the value of 5P_2.</p> <p>a) 5 b) 10 c) 15 d)20</p>	1
22.	<p>There are four bus routes between A and B ; and three bus routes between B and C. A man can travel round trip in number of ways by bus from A to C via B. If he does not want to use a bus route more than once, in how many ways can he make round trip?</p> <p>a) 72 b) 144 c) 14 d) 19</p>	1
23.	<p>If ${}^8C_x = {}^8C_1$ then x will be:</p> <p>a) 6 b) 5 c) 7 d) 4</p>	1

24.	If ${}^nC_3 = {}^nC_5$ then find n: a) 4 b) 6 c) 8 d) 10	1
25.	In how many ways a committee consisting of 3 men and 2 women, can be chosen from 7 men and 5 women? a) 45 b) 350 c) 4200 d) 230	1
26.	A five digit number divisible by 3 is to be formed using the numbers 0, 1, 2, 3, 4 and 5 without repetitions. The total number of ways this can be done is (a) 216 (b) 600 (c) 240 (d) 3125	1
27.	Sum of ${}^nC_1 + {}^nC_2 + {}^nC_3 + {}^nC_4 + \dots + {}^nC_n = \dots$ a) 2^{n-1} b) 2^n c) 2^{n+1} d) None of these	1
28.	In an examination, there are three multiple choice questions and each question has 4 choices. Number of ways in which a student can fail to get all answer correct is a) 11 b) 12 c) 27 d) 63	1
29.	Let T_n denote the no. of triangles which can be formed using the vertices of a regular polygon on n sides? If $T_{n+1} - T_n = 21$ then n should be a) 5 b) 7 c) 6 d) 4	1
30.	Four dice are rolled. Then the number of possible outcomes in which at-least two dice show 6 is- a) 216 b) 900 c) 150 d) 171	1
31.	The number of ways 7 boys and 6 girls can be seated in a row so that they are alternate is a) 3620800 b) 3062800 c) 3628800 d) 3645280	1
32.	In the figure, two 4-digit numbers are to be formed by filling the places with digits. The number of different ways in which the places can be filled by digits so that the sum of the numbers formed is also a 4-digit number and in no place the addition is with carrying, is Th H T U <div style="display: flex; align-items: center; margin: 5px 0;"> <div style="border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div> </div> <div style="text-align: center; margin: 5px 0;">+</div> <div style="display: flex; align-items: center; margin: 5px 0;"> <div style="border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 30px; height: 20px;"></div> </div> a) 45^4 b) 240 c) 55^4 d) None of these	1
33.	How many three digit numbers are there with all distinct digits 1,2,3,4,5,6,7,8,9,0 ? (a) 458 (b) 568 (c) 648 (d) 748	1
34.	The H.C.F. of $6!$, $8!$, $9!$, $11!$. is	1

	(a) 6! (b) 8! (c) 9! (d) 11!	
35.	A polygon has 14 sides then number of its diagonals are: (a) 91 (b) 77 (c) 28 (d) none of these	1
36.	If $n_{C_5} = n_{C_7}$, find n (a) 12 (b) 15 (c) 14 (d) 18	1
37.	Number of words from the letters of the word BHARAT in which B and H will never come together is: (a) 210 (b) 240 (c) 422 (d) 400	1
38.	There are 10 true-false questions in a examination. If all questions are compulsory then these questions can be answered in: (a) 210 (b) 512 (c) 422 (d) 1024	1
39.	If $15_{C_r} : 15_{C_{r-1}} = 11:5$ then r equals (a) 15 (b) 11 (c) 5 (d) 4	1
40.	A polygon has 35 diagonals. Find the number of its sides. (a) 7 (b) 16 (c) 10 (d) 70	1
41.	Three persons enter a railway compartment if there are 5 seat vacant, in how many ways can they take these seats. (a)60 (b)20 (c)15 (d)125	1
42.	ASSERTION-REASON In the following question, a statement of assertion (A) is followed by a statement of Reason(R). Assertion (A) $13_{C_9} = 13_{C_4}$ Reason(R): Selection of the r distinct things out of n is equal to the rejection of the (n-r) distinct things out of n. Choose the correct answer out of the following choices. (a) Both A and R are true and R is the correct explanation of A. (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true.	1

ANSWERS:

Q. NO	ANSWER	MARKS
1.	c	1
2.	d	1
3.	a	1
4.	c	1
5.	d	1
6.	a	1
7.	b	1
8.	c	1
9.	c	1
10.	a	1
11.	c) 63	1
12.	b) 144	1
13.	b) 64	1
14.	a) 4	1
15.	c) 360	1
16.	a) 120	1
17.	a) 1260	1
18.	a) 729	1
19.	c) 66	1
20.	b) 60	1
21.	d	1
22.	a	1
23.	c	1
24.	c	1
25.	b	1
26.	a	1
27.	b	1

28.	d	1
29.	b	1
30.	d	1
31.	(c) 3628800	1
32.	(d) None of these	1
33.	(c) $9.9.8 = 648$	1
34.	(a) $6!$	1
35.	(b) 77	1
36.	(a) $7 + 5 = 12$	1
37.	(b) 240	1
38.	(d) 1024	1
39.	(c) 5	1
40.	(c) 10	1
41.	(a) 20	1
42.	(a) Both A and R are true and R is the correct explanation of A.	1