

Q.1	Consider sets A = { $x_1, x_2, x_3, x_4, x_5, x_6$ }, B = { $y_1, y_2, y_3, y_4, y_5, y_6$ }. the task is to find the number one-to-one mapping from A to B such that $f(x_i) \neq y_v i = 1,2,3,4,5,6$ is					
	(a) 720	(b) 265	(c) 360	(d) 145		
Q.2	A father with 8 childre	n takes them to the zool	ogical gardens in groups	of 3, as frequently as		
	possible without having	the same set of 3 children	n together more than once	. The question asks for		
	the total number of times he will visit the garden.					
	(a) 336	(b) 112	(c) 56	(d) None of these		
Q.3	The total ways of colorin	ng the faces of a cube with	six distinct colors is:			
	(a) 30	(b) 1	(c) 6	(d) None of these		
Q.4	The count of divisors of	the number 38808 (exclu	ding 1 and the number its	elf) is:		
	(a) 70	(b) 72	(c) 71	(d) None of these		
Q.5	The number of divisors	in the form $(4n + 2)$, $n \ge$	0 for the integer 240 is:			
	(a) 4	(b) 8	(c) 10	(d) 3		
Q.6	Determine the number repetition is permitted.	of 5-letter words that	can be formed from the	word "PULSE" when		
	(a) 25	(b) 120	(c) 125	(d) 3125		
Q.7	How many 5-digit numb	ers can be formed withou	it repeating digits?			
	(a) 27216	(b) 50400	(c) 100000	(d) 90000		
Q.8	If an event can occur in 'm' different ways, followed by another event that can occur in 'n' differe ways, then the total number of occurrences of the events in the given order is					
	(a) m + n	(b)m-n	$(c)m \times n$	$(d)\frac{m}{n}$		
Q.9	If ${}^{2n+1}P_{n-1}: {}^{2n-1}P_n: 3:5$, t	he value of n is equivalent	t to	11		
·	(a) 4	(b) 3	(c) 2	(d) 1		
Q.10	If ¹² P _r then r is equal to					
-	(a) 5	(b) 4	(c) 3	(d) 2		
Q.11	If a, b, $c \in N$, find the number of points with position vectors in the form $ai + bj + ck$ such that bic					
	\leq a + b + c \leq 10, is					
	(a) 110	(b) 116	(c) 120	(d) 27		
Q.12	If ${}^{56}P_{r+6}: {}^{54}P_{r+3} = 30800$:1, then the value of r is				
	(a) 40	(b) 51	(c) 41	(d) 510		
Q.13	20 persons are invited t	to a party. Determine the	number of different ways	they and the host can		
	be seated at a circular ta	able, given that the two p	articular persons are to be	e seated on either side		
	of the host.					
	(a) 20!	(b) 2!×18!	(c) 18!	(d)None of these		
Q.14	There are 9 balls to be p	laced in 9 boxes, and 5 of	the balls cannot fit into 3 s	mall boxes. Determine		
	the number of ways to a	rrange one ball in each of	the boxes.			
	(a) 18720	(b) 18270	(c) 17280	(d) 12780		
Q.15	A father with 8 children	takes them to the zoologic	al garden in groups of 3, as	frequently as possible		
	without having the same set of 3 children together more than once. The number of times he will					
	visit the garden is:					
	(a) 112	(b) 56	(c) 336	(d) None of these		

Q16	An n-digit number is a positive number with precisely n digits. To form nine hundred distinct n- digit numbers, only the digits 2, 5, and 7 are to be used. Determine the smallest value of n for which this is possible						
	(a) 6	(b) 7	(c) 8	(d) 9			
Q.17	Eight chairs are number	ed from 1 to 8. Two wom	en and three men want to	occupy one chair each.			
-	First, the women choose	e chairs from among thos	e marked 1 to 4, and then	the men select chairs			
	from the remaining ones	s. Determine the number	of possible arrangements.				
	(a) ${}^{6}C_{3} \times {}^{4}C_{2}$ (b) ${}^{4}P_{2} \times {}^{6}P_{3}$ (c) ${}^{4}C_{2} + {}^{4}P_{3}$ (d) None						
Q18	The number of ways in w	which all four S come cons	secutively in the word MIS	SISSIPPI, is			
	(a) 420	(b) 840	(c) 210	(d) 630			
Q.19	The number of words that can be formed from the letters of the word 'SERIES' which start with S and end with S are						
	(a) 24	(b) 48	(c) 12	(d) 16			
Q.20	If all the letters of the wo	ord 'AGAIN' be arranged a	as in a dictionary, then the	fiftieth word is			
	(a) NAAGI	(b) NAAIG	(c) NIAAG	(d) NAIAG			
Q.21	How many different words, each containing 2 vowels and 3 consonants can be formed with 5 vowels and 17 consonants?						
	(a) ${}^{5}C_{2} \times {}^{17}C_{3}$	(b) ${}^{5}C_{2} \times 5!$	(c) ${}^{17}C_3 \times 5!$	(d) ${}^{5}C_{2} \times {}^{17}C_{3} \times 5!$			
Q.22	The number of 6 digit n	umbers that can be made	e with the digits 1, 2, 3 and	d 4 and having exactly			
	two pairs of digits, is						
	(a) 480	(b) 540	(c) 1080	(d) 680			
Q.23	The number of five digit	even number that can be	made with the digits 0, 1,	2 and 3 is			
	(a) 384	(b) 192	(c) 768	(d) 576			
Q.24	The expression's value is	s given by: ${}^{50}C_4 + \sum_{r=1}^{6} {}^{5}$	$56-rC_3$ is.				
	(a) ⁵⁶ C ₄	(b) ⁵⁶ C ₃	(c) ${}^{55}C_3$	(d) ⁵⁵ C ₄			
Q.25	If ${}^{n}C_{r-1} = 36$, ${}^{n}C_{r} = 84$	4 and ${}^{n}C_{r+1} = 126$, the	en				
	(a) n = 8, r = 4	(b) n = 9, r = 3	(c) $n = 7, r = 5$	(d) None of these			
Q.26	If ${}^{n}C_{r}$, denotes the num	nber of combinations of	n things takes r at a time	e, then the expression			
	${}^{n}C_{r+1} + {}^{n}C_{r-1} + 2 \times {}^{n}C_{r}$ equals						
	(a) ${}^{n+2}C_r$	(b) $^{n+2}C_{r+1}$	(c) $^{n+1}C_r$	(d) $^{n+1}C_{r+1}$			
Q.27	If ${}^{189}C_{35} + {}^{189}C_x = {}^{190}C_x$	C _x then x is equal to					
	(a) 34	(b) 35	(c) 36	(d) 37			
Q.28	The value of ${}^{47}C_4 + \sum_{r=4}^{5} {}^{52-r}C_3$ is equal to						
	(a) ${}^{47}C_6$	(b) ${}^{52}C_{5}$	(c) ${}^{52}C_4$	(d) None of these			
0.29	${}^{n}P_{r} = 3024 \text{ and } {}^{n}C_{r} = 1$	26, then r is					
•	(a) 5	(b) 4	(c) 3	(d) 2			
Q.30	$If^{n-1}C_3 + {}^{n-1}C_4 > {}^{n}C_3$	then					
-	(a) $n \ge 4$	(b) n > 5	(c) n > 7	(d) None of			
Q.31	How many triangles can	be formed by using four	points on a circle?				
-	(a) 4	(b) 6	(c) 8	(d) 10			
Q.32	The number of triangles	that can be formed by 5	points in a line and 3 point	ts on a parallel line is			
	(a) ⁸ C ₃	(b) ${}^{8}C_{3} - {}^{5}C_{3}$	(c) ${}^{8}C_{3} - {}^{5}C_{3} - 1$	(d) ${}^{5}C_{3}$			
Q.33	There are n points in a p	plane of which p points ar	e collinear. How many lin	es can be formed from			
	these points?						
	(a) ${}^{n-p}C_2$		(b) ${}^{n}C_{2} - {}^{p}C_{2}$				
	(c) ${}^{n}C_{2} - {}^{p}C_{2} + 1$		(d) ${}^{n}C_{2} - {}^{p}C_{2} - 1$				
Q.34	The greatest possible nu	mber of points of interse	ction of 8 straight lines an	d 4 circles is			
	(a) 32	(b) 64	(c) 76	(d) 104			
Q.35	The number of parallel	ograms that can be form	ed from a set of four par	allel lines intersecting			
	another set of three para	allel lines is					
	(a) 6	(b) 18	(c) 12	(d) 9			

Q.36	A parallelogram is cut by two set of m lines parallel to its sides. The number of parallelograms thus							
	formed is							
	(a) $({}^{\rm m}C_2)^2$	(b) $({}^{m+1}C_2)^2$	(c) $({}^{m+2}C_2)^2$	(d) $^{m+1}C_2$				
Q.37	The number of triangl	es whose vertices are at t	the vertices of an octagon	but none of whose sides				
	happen to come from the sides of the octagon is							
	(a) 24	(b) 52	(c) 48	(d) 16				
Q.38	The number of integer	solution for the equation	x + y + z + t = 20, wher	e x, y, z, t are all ≥ -1 , is				
	(a) ²⁰ C₄	(b) ${}^{23}C_{2}$	(c) ${}^{27}C_4$	(d) ${}^{27}C_2$				
0.39	The number of poin	ts in space, whose eac	ch co-ordinate is a neg	ative integer such that				
L	x + y + z + 12 = 0	·····						
	(a) 385	(h) 55	(c) 110	(d) 120				
0.40	The number of wave in	which an examiner can a	(c) 110 Secion 30 marks to 8 gues	tions giving not less than				
Q.40	2 marks to any questi	meriumber of ways in which an examiner can assign 50 marks to 6 questions, giving not less than						
	2 marks to any question	(h) 21c	(a) $21c$	(3) 20c				
0.41	(a) L_7	(D) L_8	(c) C_9	$(u) C_7$				
Q.41	If ${}^{n}C_{x} = 56 \text{ and}, {}^{n}P_{x} =$	= 336, then n is equal to		(1) 10				
0.42	(a) /	(D) 8	(C) 0	(0) 10				
Q.42	How many numbers g	reater than a million can i	be formed with the digits	5, 5, 2, 2, 1, 7, 6?				
0.42	(a) 1320 Number of noticeal num	(D) 1180 whome not even oding 4221	(C) 1000	(0) 1200				
Q.43	is allowed in	nders not exceeding 4321	can be formed with the d	lights 1, 2, 3, 4 if repetition				
	IS allowed IS	(h) 124	(a) 122	(4) 222				
0.44	(d) 515 Number of word in wh	(D) 154	d DAINDOW he emenged	(U) 222 auch that N and P and				
Q.44	together is	lich the letters of the word	u RAINDOW De all'aligeu	such that N and D are				
	(a) 2E(0)	(h) 1 = 10	(a) E 40	(d) 240				
0.45	(a) 2000 A norson has E shirts	(D) 1540 4 costs and 7 tios. Numbe	(0) 540	(u) 240				
Q.45	A person has 5 shirts, (a) 100	4 coats and 7 des. Numbe	(a) 140	(d) 124				
0.46	(a) 100 Number of wave in w	(D) 90 high 15 different healss ((0) 140	(0) 124				
Q.40	hould be an anget he together in							
	(2) 14 \times 15	(b) 12×141	(c) 141×151	(d)(151)2				
0.47	$(a) 14 \times 15$	(0) 15 x 14:	(t) 14: \land 13:	(u) (13:)2 • 1122262				
Q.47	(a) 156	(h) 180	(c) 280	(d) 120				
0.48	Number of three digit	numbers such that at leas	c) 200 st one of the digits is 9 if i	renetitions allowed is				
Q.10	(a) 252	(h) 648	(c) 864	(d) 468				
0 49	Number of three letter	words that can be forme	ed using only yowels but e	each only once is				
Q.17	(a) 100	(h) 50	(c) 60	(d) 80				
0 50	Number of 6 digit num	hers that can be formed usi	ing the digit 2 two times ar	nd the digit 5 four times is				
Q.00	(a) 16	(h) 15	(c) 24	(d) 18				
0.51	How many different	nine digit numbers ca	n he formed with the	number 223355888 by				
QIOT.	rearranging its digits so that the odd digits occurv even nositions?							
	(a) 16	(h) 36	(c) 60	(d) 80				
0.52	The number of words	which can be formed out o	of the letters of the word l	PARTICLE so that yowels				
2.02	occupy the even place	is						
	(a) 7!	(b) ${}^{4}C_{4} \times {}^{3}C_{2}$	(c) 180	(d) 4! × 5				
0.53	In a meeting everyone	had shaken hands with ev	vervone else it was found	that 66 handshakes were				
Q100	exchanged Number of	f persons present in the m	neeting is	that of handbhakes were				
	(a) 17	(h) 12	(c) 13	(d) 18				
0 54	Number of ways in wh	(5) 12	5 minus (-) signs he arra	anged in a row so that no				
	two minus signs are together is							
	(a) 6	(b) 7	(c) 8	(d) 10				
0.55	${}^{n}C_{r+1} + {}^{n}C_{r-1} + 2 \cdot {}^{1}$	¹ C _r equals						
•	(a) $^{n+2}C_{r+1}$	(b) $^{n+1}C_r$	(c) $^{n+1}C_{r+1}$	(d) $^{n+2}C_r$				
	X / 1 / 1		1	< / i				



- **Q.1** If, $\frac{1}{8!} + \frac{1}{9!} = \frac{x}{10!}$, then find x.
- **Q.2** Find, n, if (n + 1)! = 12. n!
- **Q.3** If, ${}^{8}C_{r} {}^{7}C_{3} = {}^{7}C_{2}$, find the value of r.
- **Q.4** In how many ways can 7 student be selected from 12 student?
- **Q.5** How many triangle can be formed by joining nine points when no three of them are collinear?
- **Q.6** How many different arrangements of the letters in the word DELHI are possible, ensuring that the letters E and H are placed only in positions with even numbers?
- **Q.7** Determine the total number of ways in which six men and five women can be seated in a row, ensuring that the women are positioned only at even places.
- **Q.8** Rajeev intends to organize 3 Economics, 2 History, and 7 English books on a shelf, with distinct books on the same subject. Calculate the number of potential arrangements when all books on a specific subject are grouped together.
- **Q.9** A group comprises 4 girls and 6 boys. Determine the number of ways to select a team of 4 members from this group.
- 1.No girls2.At least two boys and one girl?
- **Q.10** 1. How many triangles can be formed by joining the vertices of a nanogon?
 - 2. Calculate the number of diagonals in an octagonal polygon.
- **Q11** Determine the number of ways to form committees consisting of five members and a chairperson from a pool of 15 persons.
- **Q.12** From a box containing two white balls, three black balls, and four red balls, find the number of ways to draw three balls such that the draw includes at least one black ball.
- **Q.13** A man has three friends. Determine the number of ways he can invite one friend each day for dinner over six successive nights, ensuring that no friend is invited more than three times.
- **Q.14** The number of ways a person can select three squares on a chessboard, where one of the squares shares two sides with the other two squares, is equal to.
- **Q.15** The number of words (with or without meaning) that can be formed from all the letters of the word "LETTER" in which vowels never come together is.
- **Q.16** The students S₁, S₂... S₁₀ are to be allocated into three groups, A, B, and C. Each group must have at least one student, and group C can have at most three students. Determine the total number of possibilities for forming such groups.
- **Q17** Determine the total count of numbers, ranging between 100 and 1000 that can be created using the digits 1, 2, 3, 4, 5, without repetition. These numbers should be divisible by either 3 or 5.
- **Q.18** A palindrome is a number that reads the same backward as forward. For instance, 285582 is a six-digit palindrome. Determine the number of six-digit palindromes that are divisible by 55.
- **Q.19** Find the count of four-digit numbers that are not multiples of either 7 or 3.
- **Q.20** Determine the count of six-letter words (meaningful or not) formed by using all the letters of the word 'VOWELS,' while ensuring that none of the consonants appear consecutively.

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Q.	1	2	3	4	5	6	7	8	9	10
Ans.	b	С	а	а	а	d	а	С	а	С
Q.	11	12	13	14	15	16	17	18	19	20
Ans.	а	С	b	С	b	b	b	b	С	b
Q.	21	22	23	24	25	26	27	28	29	30
Ans.	d	С	а	а	b	b	С	С	b	С
Q.	31	32	33	34	35	36	37	38	39	40
Ans.	а	С	С	d	b	С	d	d	b	а
Q.	41	42	43	44	45	46	47	48	49	50
Ans.	b	d	а	d	b	b	b	а	С	b
Q.	51	52	53	54	55		•		•	
Ans.	С	d	b	а	а					

ANSWER KEY – LEVEL – I