ECAT Mathematics Chapter 10 Mathematical Inductions Online Test

Sr	Questions	Answers Choice
1	If n is not natural number, then the expansion $(1 + x)^n$ is valid for	
2	The last term of (1+2x)-2	A. (-1)-2 (2x)-2 B. (-1)-4(-2x)-2 C. (-1)-3(2x)-3 D. Does not exist
3	If the sum of co-efficient in the expansion of $(a+b)^n$ is 4096, then the greatest co-efficient in the expansion is	A. 1594 B. 792 C. 924 D. 2924
4	If n is add the expansion $(a + x)^n$ has middle terms	A. 2 B. 3 C. 4 D. 5
5	Question Image	A. 28 / 81 B. 28 / 243 C. 81 / 28 D. 243 / 82
6	For≥ -2 , 1+3+5+.....+(2n+5)	A. (n+2)² B. (n-2)² C. 2n+1 D. (n+3)²
7	In the expansion of $(a + x)^n$ the general term T_{r+1} is	
8	n^2 - 1 divisible by 8 when n is	A. an odd integer B. an even integer C. Irrational D. Prime Number
9	Question Image	A. 8 B. 9 C. 10 D. 11
10	If n is any positive integer ,t hen 2+4+6+.....+2 n=	A. 2ⁿ-1 B. 2ⁿ+1 C. n²+1 D. n(n+1)
11	Question Image	A. 3/8 B. 7/8 C. 1/8 D. None
12	The first three terms in the expansion of $(1 + x)^{-2}$ are _____	A. 1 - 2x + 3x² B. 1 - 2x - 3x² C. 1 + 2x + 3x² D. -2 -2x + 3x²
13	The middle term of $(x-y)^8$ is	A. 25 x⁴y⁴ B. 70 x⁴y⁴ C. 120 x⁴y⁴ D. 97x⁴y⁴
14	Question Image	A. ab=-1 B. ab = 1 C. ab = 2 D. None
15	Question Image	A. ¹⁰C₆ B. ¹⁰C₅ C. ¹⁰C₄ D. None
16	If $(1+x-2x^3)^6 = 1+a_1x + a_2x^2 + a_3x^3 +$ ..... the the value of $a_2 + a_4 + a_6 +$ .....$+a_{12}$ will be	A. 32 B. 31 C. 64 D. 1024

17	If the sum of co-efficient in the expansion of $(a+b)^n$is 4096, then the greatest co-efficient in the expansion is	A. 1594 B. 792 C. 924 D. 2924
18	The term involving x^4 in the expansion (3-2x) is	A. 217x⁴ B. 15120x⁴ C. 313x⁴ D. -25x⁴
19	If n is any positive integer then n! > $n^2$for	
20	In the expansion of $(a + x)^n$the sum of exponents of a and x in each term of the expansion is	A. n + 1 B. n - 1 C. n D. 2n
21	The first three terms in the expansion of $(1 - x)^{-1}$are	A. 1 + x + x² B. 1 - x - x² C. -1 -x +x² D. 1 - x + x²
22	If n is odd then the middle terms in the expansion of $(a + x)^n$are	
23	$(1 - x)^3$= _____	A. 1 + 3x + 3x²+ x³ B. 1 + x + x²+ x³ C. 1 - x + x²- x³ D. 1 - 3x + 3x²- x³
24	The greatest term in the expansion of $(3+2x)^9$, when x=1 is	A. 4th B. 4th and 5th C. 5th D. 6th
25	If n is any positive integer then n^2> n + 3 for	
26	Question Image	A. 2 and 9 B. 3 and 2 C. 2/3 and 9 D. 3/2 and 6
27	If $(1+x)^n=C_0+ C_1x +C_2x^2+ .....+C_nx^1$then $C_0C_2+ C_1C_3+ C_2C_4+ .....+C_{n-2}C_n$=	
28	The first three terms in the expansion of $(1 - x)^{-2}$are	A. 1 - 2x + 3x² B. 1 - 2x - 3x² C. 1 + 2x + 3x² D. -2 - 2x +3x²
29	The coefficient of xn in the expansion of (1-x)-1 is	A. (-1)n2n B. 1 C. (-1)n(n+1) D. (n+1)
30	The fifteenth term of $(3-a)^{15}$ is	A. -17a¹² B. -945a¹³ C. -941a¹³ D. -515a¹²
31	The proposition S(k+1) is true when _____ is true $\forall K \in N$	A. S(n) B. S(k) C. S(1) D. S(k-1)
32	The sum even binomial coefficient of (3+2x)5 is _____term	A. 16 B. 30 C. 8 D. 32
33	If a statement S(n) is true for n = 1 and the truth of S(n) for n = k implies the truth of S(n) for = k + 1, then S(n) is true for all	A. Real numbers n B. Integers n C. Positive integers n D. None of these
34	If the expansion of $(1 + x)^{20}$, then co-efficient of rth ad (r + 4)th term are equal, then r is	A. 7 B. 8 C. 9 D. 10
35	For all positive integral value of n,3^n< n! , when	A. n> 6 B. n< 6 C. n<11 D. n>11
		A. 4

36	If in the expansion of $(1+x)^n$, co-efficients of 2nd, 3rd and 4th terms are in A.P., then x=	B. 5 C. 6 D. 7
37	If nis positive integers, then $2^n>2n+1$, only when	A. n≤ 3 B. n≥ 3 C. n≤ 2 D. n≤ 1
38	The coefficient of the third term of $(8a-b)^{1/3}$, after simplification is	A. -228 B. 1/288 C. 1/220 D. -1/177
39	If n is any positive integer then $4^n>3^n+4$ is true for all	
40	For n€ N,$2^{n>2}$ > n is to only when	A. n<2 B. n≤ 4 C. n≥ 4
41	The number of terms in the expansion of $(a + x)^{12}$is	A. 13 B. 12 C. 11 D. 10
42	The 8th term of $(1+2x)^{-1/2}$is	A. -221/16 x⁷ B. -225/18 x⁷ C. -407/9 x³ D. -429/16 x⁷
43	The proposition S(n) is true∀n∈N,S(k+1) true when _____is true	A. S(1) B. Both a & c C. S(k) D. None
44	In the expansion of (x+y)n the coefficient of 5th and 12th terms are equal then n=	A. 12 B. n=14 C. 17 D. n=15
45	If $\|x\| < 1$, then the first two terms of $(1 - x)^{1/2}$are	
46	The middle term of the expansion $(1 + 2x)^6$is _____	A. 1st term B. 4th term C. 2nd term D. 5th term
47	(2.02)4 s equal to	A. 16 B. 16.6496 C. 17 D. 18
48	The sum of even coefficient in the binomial expansion is	A. 2ⁿ⁺¹ B. 2ⁿ C. 2ⁿ⁻¹ D. 2n
49	The term involving x^4in the expansion of $(3 - 2x)^7$is	A. 120 B. 1512 C. 1250 D. 15120
50	The sum of the coefficient in the expansion of $(a + x)^5$is	A. 32 B. 16 C. 8 D. 5
51	$(0.90)^{1/2}$is equal to	A. 0.99 B. 0.90 C. 0.80 D. 0.88
52	$(1 + 2x)^4$= _____	A. 1 + 4x + 6x²+ 4x³+ x⁴ B. 1 - 4x + 6x²- 4x³+ x⁴ C. 1 - 8x + 24x²- 32x³+ 16x⁴ D. 1 + 8x+ 24x²+ 32x³+ 16x⁴
53	The third term in the expansion of (1+2x) is	A. -2x2 B. -4x2 C. 2x2 D. 4x2
		A. 10 B. 12

54	The exponent of x in 10th term in the expansion of (a+x)n	C. 11 D. 9
55	The expansion $(1 + x)^{-3}$holds when	A. |x| > 1 B. |x| < 1 C. x < 1 D. x > 1
56	The first three terms in the expansion of $(1 + x)^{-1}$are	A. 1 + x + x² B. 1 - x - x² C. -1 -x + x² D. 1 - x + x²
57	There is no integer n for which 3n is	A. Even B. Prime C. Odd D. Real
58	The sum of the even coefficients in the expansion $(1 + x)^{n}$is	A. n² B. 2ⁿ⁻² C. 2ⁿ⁻¹ D. 2ⁿ
59	The 5th term of $(3a-2b)^{-1}$ is	A. 77b²/a⁵ B. 16b²/243 a⁵ C. 17b⁴/43a⁵ D. 25b³/43a⁵
60	The general term in the expansion of (a+x)n is	A. (r-1)th term B. (r+1)th term C. rth term D. none
61	The coefficient of x^{10}in the expansion $(x^3+3/x^2)^{10}$is	A. 1700 B. 17023 C. 17027 D. 17010
62	Question Image	A. ⁿC_r B. ⁿ⁺¹C_{r+1} C. ⁿC_{r+1} D. None
63	The expansion of $(1 + 2x)^{-2}$is valed if	A. | x | < 1/2 B. | x | < 1 C. | x | < 2 D. | x | < 3
64	The expansion of $(1 - 3x)^{-1}$is valid if	A. | x | < 1 B. | x | < 3 C. | x | < 1/3 D. None of these
65	The coefficient of x^{18} in $(ax^4-bx)^9$ after expansion is	A. 84a³ b⁶ B. 22a³b⁶ C. 27a⁴b⁵ D. 28a³b⁶
66	The sum of coefficients in the binomial expansion equals to	A. 2 B. 2ⁿ⁺¹ C. 2ⁿ⁻¹ D. 2ⁿ
67	The sum of the cubes of three consecutive natural number is divisible by	A. 9 B. 6 C. 5 D. 10
68	The coefficient of the second term of $(a+b)^4$ is	A. 1 B. 9 C. 3 D. 5
69	$^nC_2$= exists when n is _____	
70	When we expand $(a + 2b)^5$then	A. a⁵+ 10a⁴b + 40a³b²+ 80a²b³+ 80ab⁴+ 32b⁵ B. a⁵+ a⁴b + a³b²+ a²b³+ ab⁴+ b⁵

		C. 5a⁵+ 4a⁴b + 3a³b²+ 2a²b³+ 1 ab⁴+ b⁵ D. None
71	The sum of the odd coefficients in the expansion of $(a + x)^4$is	A. 14 B. 12 C. 8 D. 4
72	The positive integer just greater than $(1+0.0001)^{10000}$is	A. 4 B. 5 C. 2 D. 3
73	The seventh term of (x3+1/x)8is	A. 71 B. -22 C. 27 D. 28
74	If the exponent in the binomial expansion is 6, then the middle term is	A. 2nd B. 3rd C. 4th D. 5th
75	The proposition S(n) for any n∈ N is only true if k∈ N and	A. S(k +1) is true B. S(1) is true and S(k+1) is true whenever S (k) is true C. S(k+1) is true whenever S (k) is true D. S(k) is true
76	The no of term is the expansion of (a+x)n-1 is	A. n+1 B. n-1 C. n D. n-2
77	If n∈Z+ then(a+x)n is a/an	A. Finite series B. Convergent series C. Infinite series D. Divergent series
78	The middle term of $[1/x-x]^{10}$ is	A. -152 B. -252 C. 371 D. -421
79	For each natural number n, n (n+1) is	A. an even B. an odd C. multiple of 3 D. Irrational
80	If x+y+z+.....+2n = 2n+1-1 ∀ n∈W,then cube root of xyz is equal to	A. 1 B. 4 C. 2 D. 8
81	$7^{2n}+ 3^{n-1}. 2^{3n-3}$is divisible by	A. 24 B. 25 C. 9 D. 13
82	There is no integer n for which 3^n is	A. Odd B. even C. Natural D. Prime
83	There are two middle terms in the expansion of (a+x)n if n is	A. Even +ve integer B. +ve integer C. Odd +ve integer D. All
84	Number of terms in the expansion of $(a+x)^n$is	A. n - 1 B. n + 1 C. n + 2 D. n + 3
85	If n is any positive integer then $2^n > 2(n + 1)$ is true for all	
86	The first three terms in the expansion of $(1 - x)^{-3}$are	A. 1 + 3x + 6x² B. 1 - 3x + 6x² C. -3 - 3x - 6x² D. 1 - 3x - 6x²
87	Question Image	
		A. Imaginary

88	Question Image	A. Imaginary B. Rational C. Irrational D. Real numbers
89	Question Image	
90	The term independent of x is the expansion $(x^3+1/x)^{12}$	A. 295 B. 495 C. 395 D. 722
91	If the exponent in the binomial expansion is 6, then the middle term is	A. 2nd term B. 3rd term C. 4th term D. 5th term
92	The sum of co-efficient in $(1+x-3x^2)^{4163}$is	A. 0 B. 1 C. -1 D. None
93	1+3x+6x2 +10x3 +....=	A. (1+x)-3 B. (1-x)-2 C. (1-x)-3 D. (1+x)-2
94	If n is any positive integer then $n! > 2^{n-1}$for	
95	n(n-1)(2n-1), for all natural numbers n, is divisible by	A. 12 B. 6 C. 2 D. 18
96	If the sum of even coefficients in the expansion of (1+x)n is 128 then	A. n=7 B. n=9 C. n=8 D. None
97	The middle term(s) of (a+x)11 is	A. 6th term B. 6thor 7th C. 7th term D. 6thand7th
98	for n€ N, 3^{2n+7} is divisible by	A. 7 B. 8 C. 9 D. 10
99	The middle term in the expansion of $(a+x)^{12}$is	A. 7th B. 8th C. 9th D. 6th
100	Digit in the unit place of the number $183! + 3^{183}$	A. 7 B. 6 C. 3 D. 0
101	If the 4th term in the expansion of $(px + x^{-1})^m$is 2.5 for all x $\in R$, *then*	
102	The fifth term of (a+2x3)17 is	A. 4013 x3a13 B. 2208a13 x12 C. 223x7a18 D. 38080a13 x12
103	$(51)^4$is equal to	A. 7065201 B. 8065201 C. 6765201 D. 6565201
104	The greatest integer which divides the number 101^{100}- 1 is	A. 100 B. 1000 C. 10000 D. 100000
105	The coefficient of xn in the expansion of (1-2x)-1 is	A. (-1)n2n B. 2n C. (-1)(n+1)xr D. (n+1)2n
106	The coefficient of x^{10}in the expansion $(x^3+3/x^2)^{10}$is	A. 1700 B. 17023 C. 17027 D. 17010
		A. n < 8/5 B. n < 5/8

107	Question Image	B. n < 5/8 C. |n| < 8/5 D. |n|>8/5
108	The sum of first n even number is	A. n2 B. n(n+1) C. n+1 D. n+2
109	$(x^3-1/2x)^6$ is	A. 15/16 x² B. 2/13 x² C. 17/7 x² D. 16/15 x²
110	Question Image	A. 405 / 256 B. 504 / 259 C. 450 / 263 D. None
111	Question Image	A. Even B. Odd C. Prime D. None of these
112	If n is any positive integer then 3 + 6 + 9 + ...+ 3n = _____	
113	$n! > 2^n-1$ is true when	A. n≤ 3 B. n≤ 6 C. n≥ 4 D. n≤ 6
114	1st four terms of the expansion $(1-x)^{-2}$are	A. 1 + 2x + 3x²+ 4x³ B. 3x²+ 2x + 1 C. 1 + 3x + 4x²+ 5x³ D. None of these
115	Question Image	A. 2 B. 7 C. 8 D. 12
116	If a statement S(n) is true for n = i where i is some natural number and the truth of S(n) for n = k > i implies the truth of S(n) for n = k +1 then S(n) is true for all positive integers	
117	$(0.90)^{1/2}$is equal to	A. 0.99 B. 0.90 C. 0.80 D. 0.88
118	The 7th term of $(3^8 + 6^4x)^{11/4}$ is	A. -19217/3 x⁶ B. 189/2 6⁴x C. 2227/12 x³ D. -19712/3 x⁶
119	For each even natural number n (n^2-1) is divisible by	A. 6 B. 3 C. 4 D. 8
120	The term involving x4 the expansion (3-2x)7 is	A. 217 x4 B. 15120x4 C. 313x4 D. -25x4
121	(x3-1/x)12	A. 295 B. 495 C. 395 D. 722
122	If n € N , then n(n+3) is always	A. Multiple of 3 B. Multiple of 6 C. odd D. even
123	The number of terms in the expansion of $(a + b)^9$is	A. 10 B. 11 C. 9 D. 12
124	The first three terms in the expansion of $(1 + x)^3$are	A. 1 + 3x +6x² B. 1- 3x + 6x²\ C. -3 -3x -6x² D. 1- 3x -6x²
125	For every positive integers n 1+5+9+....+ (4n - 3) is	A. n(2n - 1) B. (2n - 1) C. n - 1

		D. n
126	a + x is _____	A. A trinomial B. A binomial C. A monomial D. None of these