

ECAT Mathematics Chapter 10 Mathematical Inductions

Sr	Questions	Answers Choice
1	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
2	Question Image <input style="width: 500px; height: 20px;" type="text"/>	A. 2 and 9 B. 3 and 2 C. 2/3 and 9 D. 3/2 and 6
3	For all positive integral value of $n, 3^n < n!$, when	A. $n > 6$ B. $n \leq 6$ C. $n \leq 11$ D. $n > 11$
4	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
5	If n is any positive integer then $3 + 6 + 9 + \dots + 3n =$ _____	
6	The proposition $S(n)$ is true $\forall n \in \mathbb{N}, S(k+1)$ true when _____ is true	A. $S(1)$ B. Both a & c C. $S(k)$ D. None
7	The greatest term in the expansion of $(3+2x)^9$, when $x=1$ is	A. 4th B. 4th and 5th C. 5th D. 6th
8	The sum of first n even number is	A. n^2 B. $n(n+1)$ C. $n+1$ D. $n+2$
9	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
10	Question Image <input style="width: 500px; height: 20px;" type="text"/>	
11	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	
12	The sum of the cubes of three consecutive natural number is divisible by	A. 9 B. 6 C. 5 D. 10
13	$1+3x+6x^2+10x^3+\dots=$	A. $(1+x)^{-3}$ B. $(1-x)^{-2}$ C. $(1-x)^{-3}$ D. $(1+x)^{-2}$
14	The expansion of $(1 - 3x)^{-1}$ is valid if	A. $ x < 1$ B. $ x < 3$ C. $ x < 1/3$ D. None of these
15	If $(1+x)^n = C_0 + C_1x + C_2x^2 + \dots + C_nx^n$ then $C_0C_2 + C_1C_3 + C_2C_4 + \dots + C_{n-2}C_n =$	
16	If n is any positive integer then $2^n > 2(n + 1)$ is true for all	
17	The coefficient of x^n in the expansion of $(1-2x)^{-1}$ is	A. $(-1)^n 2^n$ B. 2^n C. $(-1)^{(n+1)} x^n$ D. $(n+1) 2^n$
18	$a + x$ is _____	A. A trinomial B. A binomial C. A monomial

D. None of these

19 The middle term of $[1/x-x]^{10}$ is

- A. -152
- B. -252
- C. 371
- D. -421

20 The fifth term of $(a+2x)^{17}$ is

- A. $4013 x^3 a^{13}$
- B. $2208 a^{13} x^{12}$
- C. $223 x^7 a^{18}$
- D. $38080 a^{13} x^{12}$