

## ECAT Mathematics Chapter 10 Mathematical Induction

Sr	Questions	Answers Choice
1	The first three terms in the expansion of $(1 - x)^{-3}$ are	A. $1 + 3x + 6x^2$ B. $1 - 3x + 6x^2$ C. $-3 - 3x - 6x^2$ D. $1 - 3x - 6x^2$
2	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
3	The 5th term of $(3a-2b)^{-1}$ is	A. $77b^2/a^5$ B. $16b^2/243a^5$ C. $17b^4/43a^5$ D. $25b^3/43a^5$
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		A. ${}^nC_r$ B. ${}^{n+1}C_{r+1}$ C. ${}^{n+1}C_r$ D. None
6	For every positive integers n $1+5+9+\dots+(4n-3)$ is	A. $n(2n-1)$ B. $(2n-1)$ C. $n-1$ D. n
7	For each even natural number n $(n^2-1)$ is divisible by	A. 6 B. 3 C. 4 D. 8
8	The sum of the even coefficients in the expansion $(1+x)^n$ is	A. $2^{n-1}$ B. $2^{n-2}$ C. $2^{n-1}$ D. $2^n$
9	If $n \in \mathbb{N}$ , then $n(n+3)$ is always	A. Multiple of 3 B. Multiple of 6 C. odd D. even
10		A. 2 and 9 B. 3 and 2 C. $2/3$ and 9 D. $3/2$ and 6
11	If n is positive integers, then $2^n > 2n+1$ , only when	A. $n \leq 3$ B. $n \geq 3$ C. $n \leq 2$ D. $n \leq 1$
12		A. $n < 8/5$ B. $n < 5/8$ C. $ n  < 8/5$ D. $ n  > 8/5$
13	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. $(n+1)2^n$
14	If the exponent in the binomial expansion is 6, then the middle term is	A. 2nd B. 3rd C. 4th D. 5th

15	$7^{2n} + 3^{n-1} \cdot 2^{3n-3}$ is divisible by	B. 25 C. 9 D. 13
16	The sum of even coefficient in the binomial expansion is	A. $2^{n+1}$ B. $2^n$ C. $2^{n-1}$ D. $2n$
17	The coefficient of $x^{10}$ in the expansion $(x^3 + 3/x^2)^{10}$ is	A. 1700 B. 17023 C. 17027 D. 17010
18	$(51)^4$ is equal to	A. 7065201 B. 8065201 C. 6765201 D. 6565201
19	The coefficient of $x^{10}$ in the expansion $(x^3 + 3/x^2)^{10}$ is	A. 1700 B. 17023 C. 17027 D. 17010
20	The 8th term of $(1+2x)^{-1/2}$ is	A. $-221/16 x^7$ B. $-225/18 x^7$ C. $-407/9 x^3$ D. $-429/16 x^7$