

ECAT Pre Engineering Entry Test

Sr	Questions	Answers Choice
1	$1+3x+6x^2+10x^3+\dots=$	A. $(1+x)^{-3}$ B. $(1-x)^{-2}$ C. $(1-x)^{-3}$ D. $(1+x)^{-2}$
2	The general term in the expansion of $(a+x)^n$ is	A. $(r-1)$ th term B. $(r+1)$ th term C. r th term D. none
3	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
4	The sum of first n even number is	A. n^2 B. $n(n+1)$ C. $n+1$ D. $n+2$
5	The third term in the expansion of $(1+2x)$ is	A. $-2x^2$ B. $-4x^2$ C. $2x^2$ D. $4x^2$
6	If $n \in \mathbb{Z}^+$ then $(a+x)^n$ is a/an	A. Finite series B. Convergent series C. Infinite series D. Divergent series
7	The proposition $S(k+1)$ is true when _____ is true $\forall K \in \mathbb{N}$	A. $S(n)$ B. $S(k)$ C. $S(1)$ D. $S(k-1)$
8	If $x+y+z+\dots+2n = 2n+1-1 \forall n \in \mathbb{W}$, then cube root of xyz is equal to	A. 1 B. 4 C. 2 D. 8
9	The exponent of x in 10th term in the expansion of $(a+x)^n$	A. 10 B. 12 C. 11 D. 9
10	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. $n=15$
11	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
12	The no of term is the expansion of $(a+x)^{n-1}$ is	A. $n+1$ B. $n-1$ C. n D. $n-2$
13	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
14	The coefficient of x^n in the expansion of $(1-x)^{-1}$ is	A. $(-1)^{n2n}$ B. 1 C. $(-1)^{n(n+1)}$ D. $(n+1)$
15	The middle term(s) of $(a+x)^{11}$ is	A. 6th term B. 6th or 7th C. 7th term D. 6th and 7th

16	The proposition $S(n)$ for any $n \in \mathbb{N}$ is only true if $k \in \mathbb{N}$ 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
17	For any positive integer n	A. $AB^n = B^n A \Leftrightarrow AB = BA$ B. $AB^n = B^n A \Leftrightarrow A, B$ are square matrices and $AB = BA$ C. $AB^n = B^n A \Leftrightarrow A + B$ D. $AB^n = B^n A \Leftrightarrow A$ and B are square matrices
18	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. $(n+1) 2^n$
19	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
20	There is no integer n for which $3n$ is	A. Even B. Prime C. Odd D. Real
21	The sum even binomial coefficient of $(3+2x)^5$ is _____ term	A. 16 B. 30 C. 8 D. 32
22	Which one is not defined $\forall n \in \mathbb{Z}^+$	A. $-n!$ B. $n!$ C. $(-n)!$ D. $n! + 0! = n! + 1$
23	Number of combination of zero or more things out of n different things	A. nP_n B. nPr C. nCr D. 2^n
24	How many committees of 5 numbers can be chosen from a group of 8 players person when each committee must include 2 particular persons	A. 8! B. $5!3!$ C. 5! D. 20
25	How many 6-Digit number can be formed without repeating any digit from the digits 0,1,2,3,4,5	A. 720 B. 600 C. 120 D. $6-5!$
26	Probability of an impossible event is	A. 0 B. -1 C. 1 D. ∞
27	A key ring is an example of	A. Permutation B. Circular permutation C. Combination D. None
28	The factorial of a positive integers is a (an)	A. Rational number B. Positive integer C. Real number D. None
29	How many different 5-digit even numbers are possible form digit 1,2,4,6,8	A. $4 : 4!$ B. $4!$ C. $5!$ D. $4! + 4!$
30	If for two events A and B , $P(A \cup B) = 1$, then events A and B are	A. Certain events B. Mutually exclusive C. Complementary events D. Independent