

ECAT Pre Engineering Entry Test

Sr	Questions	Answers Choice
1	The maximum value of $\sin\theta\cos\theta$ is	A. 1 B. $1/2$ C. $1/4$ D. $1/6$
2	If $\cos 20^\circ = K$ and $\cos x = 2K^2 - 1$, then the possible values of x between 0° and 360° are	A. 140° B. 50° and 140° C. 50° and 130° D. 40° and 320°
3	If $\sin\theta$ and $\cos\theta$ are the roots of the equation $ax^2 - bx + c = 0$, then a, b, c satisfy the relation	A. $b^2 - 4ac = 2ac$ B. $A^2 - 4b^2 = 2ac$ C. $A^2 - 4b^2 + c^2 = 2ac$ D. $B^2 - 4a^2 + a^2 = 2ac$
4	Question Image	A. Less than 1 B. Equal to 1 C. Greater than 1 but less than 2 D. Greater than or equal to 2
5	If n is odd the expansion $(a + x)^n$ has middle terms	A. 2 B. 3 C. 4 D. 5
6	The middle term of the expansion $(1 + 2x)^6$ is _____	A. 1st term B. 4th term C. 2nd term D. 5th term
7	The expansion $(1 + x)^{-3}$ holds when	A. $ x > 1$ B. $ x < 1$ C. $x < 1$ D. $x > 1$
8	1st four terms of the expansion $(1 - x)^{-2}$ are	A. $1 + 2x + 3x^2 + 4x^3$ B. $3x^2 + 2x + 1$ C. $1 + 3x + 4x^2 + 5x^3$ D. None of these
9	nC_2 exists when n is _____	
10	Question Image	A. $n < 8/5$ B. $n < 5/8$ C. $ n < 8/5$ D. $ n > 8/5$
11	Number of terms in the expansion of $(a + x)^n$ is	A. $n - 1$ B. $n + 1$ C. $n + 2$ D. $n + 3$
12	Question Image	A. Imaginary B. Rational C. Irrational D. Real numbers
13	$(0.90)^{1/2}$ is equal to	A. 0.99 B. 0.90 C. 0.80 D. 0.88
14	Question Image	
15	$(0.90)^{1/2}$ is equal to	A. 0.99 B. 0.90 C. 0.80 D. 0.88

16	The term involving x^4 in the expansion of $(3 - 2x)^7$ is	A. 120 B. 1512 C. 1250 D. 15120
17	$(51)^4$ is equal to	A. 7065201 B. 8065201 C. 6765201 D. 6565201
18	$7^{2n} + 3^{n-1} \cdot 2^{3n-3}$ is divisible by	A. 24 B. 25 C. 9 D. 13
19	$(2.02)^4$ is equal to	A. 16 B. 16.6496 C. 17 D. 18
20	When we expand $(a + 2b)^5$ then	A. $a^5 + 10a^4b + 40a^3b^2 + 80a^2b^3 + 80ab^4 + 32b^5$ B. $a^5 + a^4b + a^3b^2 + a^2b^3 + ab^4 + b^5$ C. $5a^5 + 4a^4b + 3a^3b^2 + 2a^2b^3 + ab^4 + b^5$ D. None
21	For every positive integers n $1+5+9+\dots+(4n-3)$ is	A. $n(2n-1)$ B. $(2n-1)$ C. $n-1$ D. n
22	Question Image	A. 3/8 B. 7/8 C. 1/8 D. None
23	Question Image	A. nC_r B. ${}^{n+1}C_{r+1}$ C. ${}^nC_{r+1}$ D. None
24	If $(1+x-2x^3)^6 = 1+a_1x+a_2x^2+a_3x^3+\dots$ the the value of $a_2+a_4+a_6+\dots+a_{12}$ will be	A. 32 B. 31 C. 64 D. 1024
25	The greatest integer which divides the number $101^{100} - 1$ is	A. 100 B. 1000 C. 10000 D. 100000
26	If $(1+x)^n = C_0 + C_1x + C_2x^2 + \dots + C_nx^n$ then $C_0C_2 + C_1C_3 + C_2C_4 + \dots + C_{n-2}C_n =$	
27	Question Image	A. $ab = -1$ B. $ab = 1$ C. $ab = 2$ D. None
28	If the 4th term in the expansion of $(px + x^{-1})^m$ is 2.5 for all $x \in R$, then	
29	The greatest term in the expansion of $(3+2x)^9$, when $x=1$ is	A. 4th B. 4th and 5th C. 5th D. 6th
30	The sum of co-efficient in $(1+x-3x^2)^{4163}$ is	A. 0 B. 1 C. -1 D. None