

ECAT Pre Engineering Entry Test

Sr	Questions	Answers Choice
1	The set of complex numbers forms a group under the binary operation of	A. Addition B. Multiplication C. Division D. Subtraction
2	The graph of a quadratic function is	A. Circle B. Ellipse C. Parabola D. Hexagon
3	The set of the first elements of the ordered pairs forming a relation is called its	A. Function on B B. Range C. Domain D. A into B
4	The set $\{\{a,b\}\}$ is	A. Infinite set B. Singleton set C. Two points set D. None
5	Which of the following is the subset of all sets?	
6	In a school, there are 150 students. Out of these 80 students enrolled for mathematics class, 50 enrolled for English class, and 60 enrolled for Physics class. The students enrolled for English cannot any other class, but the students of mathematics and Physics can take two courses at a time. Find the number of students who have taken both physics and mathematics	A. 40 B. 30 C. 50 D. 20
7	Multiplicative inverse of "1" is	A. 0 B. -1 C. 1 D. $\{0, 1\}$
8	The multiplicative inverse of x such that $x = 0$ is	A. -x B. does not exist C. $1/x$ D. 0
9	The complement of set A relative to universal set U is the set	
10	Question Image	A. $A = C$ B. $A = B$ C. $B = C$ D. None of these
11	Question Image	A. 4 B. 3 C. 2 D. 1
12	Question Image	
13	$G = \{e, a, b, c\}$ is an Abelian group with e as identity element. The order of the other elements are	A. 2, 2, 2 B. 3, 3, 3 C. 2, 2, 4 D. 2, 3, 4
14	Z is the set of integers, $(z, *)$ is a group with $a * b = a + b + 1$, $a, b \in G$. then inverse of a is	A. -a B. $a + 1$ C. $-2 - a$ D. None of these
15	Question Image	
16	Which of the following has the same value as i^{113} ?	A. i B. -1 C. -i D. 1
17	What is the conjugate of $-6 - i$?	A. $-6 + i$ B. $6 + i$ C. $-6 - i$ D. $6 - i$

18	Which element is the additive inverse of (a, b) in Complex numbers?	A. (a, 0) B. (0, b) C. (a, b) D. (-a, -b)
19	If $z_1 = 2 + 6i$ and $z_2 = 3 + 7i$, then which expression defines the product of z_1 and z_2 ?	A. $36 + (-32)i$ B. $-36 + 32i$ C. $6 + (-11)i$ D. $0 + (-12)i$
20	Question Image	A. 15 B. $15i$ C. $-15i$ D. -15
21	Question Image	A. z is purely imaginary B. a is any complex number C. z is real D. None of these
22	Question Image	A. 0 B. 1 C. -1 D. None of these
23	If $Z_1 = 1 + i$, $Z_2 = 2 + 3i$, then $ Z_1 - Z_2 = ?$	
24	$i^{101} =$	A. i B. $i^{>2}$ C. -i D. -1
25	The multiplicative inverse of $-3i$ is	A. $3i$ B. $-3i$ C. $-1/3i$ D. $1/3i$
26	Question Image	
27	In polar form of complex number $r =$	
28	Question Image	
29	Question Image	
30	$(7, 9) + (3, -5) =$	A. (4, 4) B. (10, 4) C. (9, -5) D. (7, 3)