

ECAT Pre Engineering Entry Test

Sr	Questions	Answers Choice
1	The set $\{-1, 1\}$ is	A. Group under the multiplication B. Group under addition C. Does not form a group D. Contains no identity element
2	The set $\{x + iy \mid x, y \in \mathbb{Q}\}$ forms a group under the binary operation of	A. Addition B. Multiplication C. Division D. Both addition and multiplication
3	The set of integer is	A. Finite group B. A group w.r.t addition C. A group w.r.t multiplication D. Not a group
4	To each element of a group there corresponds inverse element	A. Two B. One C. No D. Three
5	The function $\{f(x,y) \mid y = ax^2 + bx + c\}$ is	A. One-one function B. Constant function C. Onto function D. Quadratic function
6	A function whose range is just one element is called	A. One-one function B. Constant function C. Onto function D. Identity function
7	A function in which the second elements of the order pairs are distinct is called	A. Onto function B. One-one function C. Identity function D. Inverse function
8	The set of the first elements of the orders pairs forming a relation is called its	A. Relation in B B. Range C. Domain D. Relation In A
9	If $\#n = (n-5)2 + 5$, then find $\#3 \times \#4$.	A. 54 B. 12 C. 4 D. 9
10	$(A \cap B)^c =$	A. $A \cap B$ B. $(A \cup B)^c$ C. $A^c \cup B^c$ D. Φ
11	The set $\{ \{a, b\} \}$ is	A. Infinite set B. Singleton set C. Two points set D. Empty set
12	$\{x : x \in \mathbb{Z} \text{ and } x < 1\}$ is	A. Singleton set B. A set with two points C. Empty set D. None of these
13	Φ set is the _____ of all sets	A. Subset B. Union C. Universal D. Intersection
14	In a country 55% of the male population has houses in cities while 30% have houses both in cities and in villages find the percentage of the population that has houses only in villages	A. 45 B. 30 C. 25 D. 50
15	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 student enrolled for English cannot attend 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	A. 40 B. 30 C. 50 D. 60

16	Decimal part of irrational number is	A. Terminating B. Repeating only C. Neither repeating nor terminating D. Repeating and terminating
17	Multiplicative inverse of 0 is	A. 0 B. 1 C. ± 1 D. Does not exist
18	The identity element with respect to subtraction is	A. 0 B. 1 C. -1 D. Does not exist
19	If $A = \{x / x \in \mathbb{R} \wedge x^2 - 16 = 0\}$ then $A =$	A. - x B. Infinite set C. Φ D. $\{-4,4\}$
20	Additive inverse of - a - b is	A. a B. -a + b C. a - b D. a + b
21	If a set S contains n elements then P (S) has number of elements	A. $2^{\sup n}$ B. $2^{\sup n^2}$ C. 2.n D. $n^{\sup 2}$
22	The set $\{-1,1\}$ is closed under the binary operation of	A. Addition B. Multiplication C. Subtraction D. Division
23	If $x = 1/x$ for $x \in \mathbb{R}$ then the value of x is	A. ± 1 B. 0 C. 2 D. 4
24	Total number of subsets that can be formed out of the set {a,b,c} is	A. 1 B. 4 C. 8 D. 12
25	Let A,B and C be any sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$ then	A. $A = B$ B. $B = C$ C. $A \neq C$ D. $A \neq B$
26	If $n(X) = 18$, $n(X \cap Y) = 7$, $n(X \cup Y) = 40$ then $n(Y) =$	A. 1 B. 12 C. 5 D. 29
27	Given X,Y are any two sets such that number of elements in X = 18, number of elements in set Y = 24, and number of elements in set $X \cup Y = 40$, then number of elements in set $X \cap Y =$	A. 3 B. 1 C. 2 D. 4
28	In set builder notation the set $\{0,1,2,\dots,100\}$ can be written as	A. $\{x / x \in \mathbb{B} \wedge x \leq 100\}$ B. $\{x / x \in \mathbb{W} \wedge x \leq 101\}$ C. $\{x / x \in \mathbb{Z} \wedge x \leq 101\}$ D. The set of first 100 whole numbers
29	If $A \subseteq B$ then $A \cup B$ is	A. A B. B C. A' D. $A \cap B$
30	For any set B, $B \cup B'$ is	A. Is set B B. Set B' C. Universal set