

Paper-I (Abstract-Algebra)Introduction to Group:-Define Group

Group: - Let G be a non-empty set and \circ be a binary operation. Then the set G together with the operation ' \circ ' satisfying the following Postulates is called a Group.

If $a, b, c \in G$ then

(i) $a \circ b \in G$ (Closure axiom)

(ii) $a \circ (b \circ c) = (a \circ b) \circ c$ (Associative axiom)

(iii) There exists an element $e \in G$ such that
 $a \circ e = e \circ a = a$

The element e is called an identity. etc

(iv) For e

(iv) For every $a \in G$, there exists an element

$a^{-1} \in G$ such that,

$$a^{-1} \circ a = a \circ a^{-1} = e.$$

Thus a^{-1} is called the inverse of a in G .
 (Inverse axiom)

(Defⁿ) Finite group: - If in a group G the underlying set G consists of a finite number of distinct elements then the group is called a finite group.