

CHAPTER-1

RELATIONS AND FUNCTIONS

GLOSSARY :

- 👤 **Associative operation** : An operation $*$ on X , if $(a * b) * c = a * (b * c)$ for a, b, c in X .
- 👤 **Binary operation** : A function $*$ from $A \times A \rightarrow A$.
- 👤 **Composition of function** : Let $f : A \rightarrow B$ and $g : B \rightarrow C$ be two functions then g composition is defined as $g \circ f : A \rightarrow C$, given by $(g \circ f)(x)$.
- 👤 **Empty relation** : A relation in a set A , if no element of A is related to any element of A i.e. $\phi \subset A \times A$.
- 👤 **Equivalence relation R** : A relation in X , which is reflexive, symmetric and transitive.
- 👤 **One-one or Injective function** : A function $f : X \rightarrow Y$ with $f(x_1) = f(x_2) \Rightarrow x_1 = x_2$ for all; $x_1, x_2 \in X$.

- 🌸 **Onto or Surjective function** : A function $f : X \rightarrow Y$ with $y \in Y$ and $x \in X$ such that $f(x) = y$.
- 🌸 **One-one onto or Bijective function** : A function f which is both one-one and onto.
- 🌸 **Random variable** : A real valued function x which is assigned to each $\omega_i \in S_i$, a unique real number $x(\omega_i) \in x_i$.
- 🌸 **Universal relation** : A relation R in a set A : if each element of A is related to every element A i.e. $R = A \times A$.