

## 21AIE303: DBMS; Batch: B

### Assignment 1:

Total Mark: 10

Date: 18/07/2025 , Duration: 35 mins

File system, Relation function, Proposition logics, Binary Search Tree

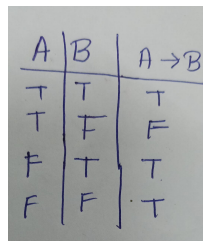
**Q1:** Let  $A = B = \{x | -2 \leq x \leq 2; x \in \text{integer}\}$  for each of the following functions state whether it is injective, surjective or bijective [3]

(a)  $f(x) = |x|$

(b)  $h(x) = 2x + 3$

**Q2:** Explain *Atomicity* in context of DBMS [2] Atomicity ensures that a series of database operations within a transaction are treated as a single unit. This means that either all operations in a transaction are executed successfully and committed to the database, or none of them are.

**Q3:** A: "It is raining."; B: "I will carry an umbrella.". Write the logical expression (mathematical expression using symbol) and truth table of the statement "If it is raining, then I will carry an umbrella" [2] the answer to



A	B	$A \rightarrow B$
T	T	T
T	F	F
F	T	T
F	F	T

truth table

**Q4:** Let  $S$  be the set of all students at a school. Define the relation  $R$  as: For all students  $x$  and  $y$  in  $S$  ( $x \in S$  and  $y \in S$ ),  $xRy$  iff  $x$  and  $y$  are taking the same class. Is  $R$  an equivalence relation?

If  $R$  satisfies all three properties (reflexivity, symmetry, and transitivity), then  $R$  is an equivalence relation. [2]

**Q5:** Write Postorder traversal of the following binary search tree. [1]

