BBDNIIT
AKTU Code : 056

Department of Computer Science & Engineering
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CSE SECOND YEAR / THIRD SEMESTER / 2024-25

ASSIGNMENT NO. : 02

1. **Name of Subject: Discrete Structures and Theory of Logic**
2. **AKTU Subject Code: BCS-303**
3. **NBA Subject Code : C204**
4. **Unit Covered: II**
5. **Date of Issue : 28 Oct 24** **Last Date of Submission: 9 Nov 24** **Max Marks: 25**

Q #	Question Description	CO	BTL	MM
1	What is Boolean algebra? Write the axioms of Boolean algebra.	CO 02	II	5
2	Determine whether each of these functions is a bijective from R to R. a. $F(x) = x^2 + 1$ b. $F(x) = x^3$ c. $F(x) = (x^2 + 1)/(x^2 + 1)$	CO 02	III	5
3	Define minterm and maxterm in Boolean algebra.	CO 02	I	5
4	If X and Y are two non-empty sets and f:X→Y is one-one and onto function then for any subsets A and B of Y, prove that - a. If $A \subseteq B$ then $f^{-1}(A) \subseteq f^{-1}(B)$. b. $f^{-1}(A - B) = f^{-1}(A) - f^{-1}(B)$. c. $f^{-1}(Y-A) = X- f^{-1}(A)$.	CO 02	III	5
5	Simplify the following 4-variable Boolean function in SOP form to obtain the minimal SOP expression. $F(A,B,C,D)=\sum m(0,1,3,5,7,6,10,13,14,15)$	CO 02	III	5

CO: *Course Outcome* ***BTL:*** *Bloom's Taxonomy Level* ***MM:*** *Max Marks*

Name of Faculty: Ms. ALIZA RAZA RIZVI