American International University-Bangladesh
Course: CSC 1101: Introduction to Computer Studies

***Lab Exam**: FINAL-TERM* ***Section**: B7* ***Semester**: Spring 24-25* ***Time**: 30 mins* ***Total Marks**: 15*

Name:	**ID:**	**Marks:**

CO4: Explain a complex engineering problem using Logic gates and Boolean Algebra to make a solution.

Evaluation Criteria	**Evaluation Definition**	**Marks**	**T (15)**
Knowledge and proper use of Logic gates and Boolean algebra	Proper knowledge and concept of relevant topics are reflected.		
Mathematical Knowledge	Understanding mathematical terminologies and their application in the Computer Science area.		
Solution Design	Design the equivalent logic circuit.		

Problem Scenario: $\boldsymbol{Y = (A + AB) \,.\, (B + BC) \,.\, (C + AB)}$

From the above scenario, form the Boolean expression for the vault logic output Y.

a) Draw the logic circuit using any one universal gate.

b) Clearly label all gates and inputs in the diagram.

Solution: