



MKH

# Daffodil International University

Department of Software Engineering

Class Test-2, Fall-2025 (47-C/E) Sp-26

Course Title: Computer Fundamentals

Course Code: SE-111

Time: 45 Minutes

Total Marks: 15

## Instructions:

- Answer all the questions.
- Marks allotted are indicated in the right margin.
- Symbols and abbreviations bear their standard meaning.

1. In a laboratory, a **chemical reaction chamber** has two safety conditions:

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- Sensor A detects high temperature.
- Sensor B detects high pressure.

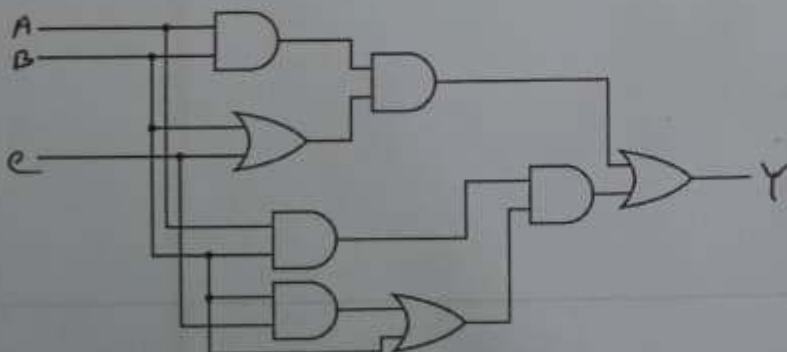
The alarm system should turn OFF only when **both temperature and pressure are high at the same time**.

In all other situations, the alarm should remain ON.

- Which logic gate represents this system?
- Construct the truth table.
- Write the Boolean expression for the system.

2. Identify the final output for the below logic circuit diagram also simplify the output result and prove your simplification using truth table.

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3. Draw a logic circuit for the following Boolean expression.

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$$F = AB'(AC+BC)' + A'C + A'B'(BC') + AC + B'C$$