

## Objective

Understand various logic gates

1. Complete questions below a, b, c below

(a) Draw a clearly labelled gate symbol, detail the functional notation, and create a truth table for the following logic functions

(i) XOR

(4 marks)

(ii) NOR

(4 marks)

(b) Draw a transistor level circuit diagram and truth table for a AND Gate which consists of NAND and NOT gates

(5 marks)

(c) Draw a transistor level circuit diagram and truth table for a OR Gate which consists of NOR and NOT gates

(6 marks)

2. Complete questions below

(c) Draw a transistor level circuit diagram and truth table for a **XOR Gate** which consists of **NOR** and **NOT** gates

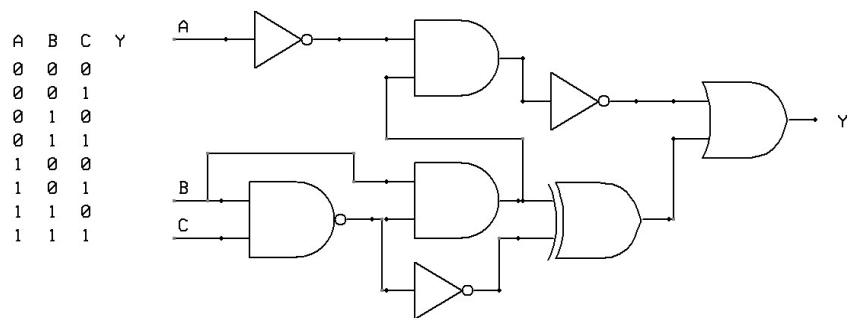
(6 marks)

(d) Draw a logic gate circuit diagram and truth table for a **Half Adder** using only **NAND**, **OR** and **AND** gates

(14 marks)

### 3. Complete questions below

Construct the following Circuit using NAND and NOT Gates and complete Truth Tables



Complete Questions in Logbook

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