Logic Gates – Worksheet 1

1. Logic gates are small hardware items capable of decision-making.
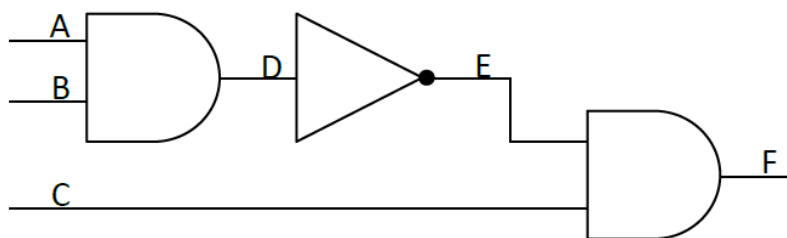
    a. Name one **use** of logic gates in a computer system.

    _____

    b. Give the truth table for an OR gate with inputs A and B and output C.
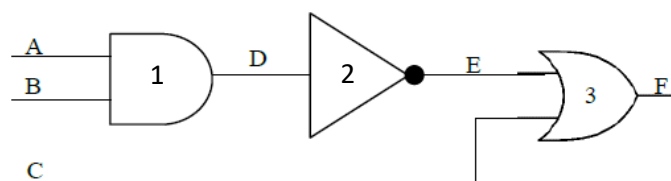
A	B	C

    c. Complete the truth table for the logic circuit below:

A	B	C	D	E	F
0	0	0			
0	0	1			
0	1	0			
0	1	1			
1	0	0			
1	0	1			
1	1	0			
1	1	1			

2. Consider the logic circuit below:

a. Write **the number** of the gate that:

    i. Is an AND gate.   _____
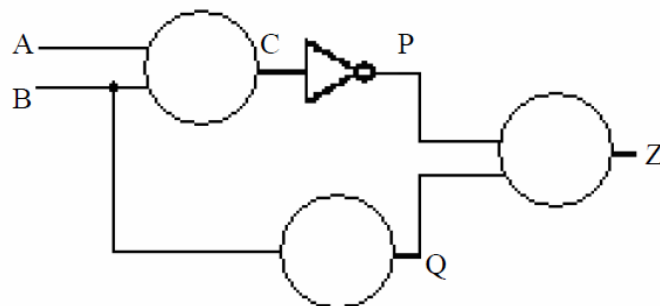
    ii. Is an inverter gate.   _____

    iii. Returns a logic 1 only if both inputs are 1.   _____

b. Complete the truth table for the above logic circuit.

A	B	C	D	E	F
0	0		0	1	
0	0		0	1	
0	1		0	1	
0	1		0	1	
1	0		0	1	
1	0		0	1	
1	1		1	0	
1	1		1	0	

3. Study the following incomplete logic circuit and its incomplete truth table and then answer the questions below.

A	B	C	P	Q	Z
0	0				
0	1	1	0	0	
1	0		0	1	0
1	1				

a. Label the gates that are represented by the three circles in the circuit.
b. Complete the truth table so that it matches the logic circuit.