



1.4.3 Boolean Logic Questions

- a. Complete the following truth table for the XOR gate.

Input A	Input B	Output Q
0	0	
0	1	
1	0	
1	1	

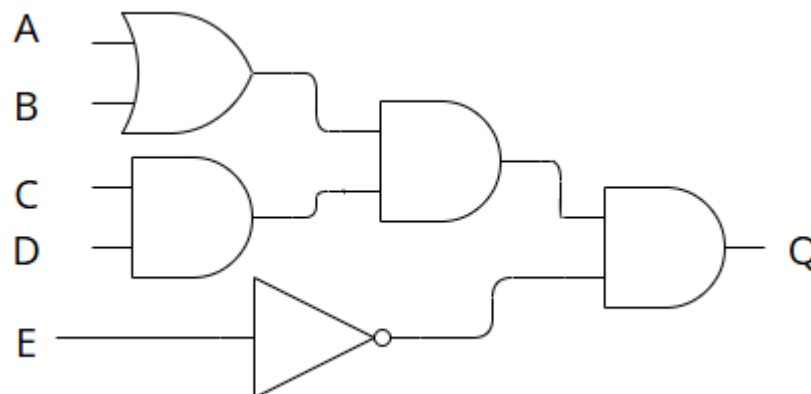
[1]

- b. Draw logic circuits for the following Boolean expressions:

- $Q = A \cup B \vee \neg B$
- $Q = \neg A \wedge B \vee C$
- $Q = \neg(A \vee B) \vee (A \wedge C)$

[3]

2. The Figure below shows a logic circuit.



- a. Write the equivalent Boolean expression.

[4]

- b. What are the values of F, G, H, K & Q if A, B, C, D & E are all equal to 1?

[5]

3. Three sensors A, B & C are used to monitor a process. A signal X is output from the circuit. X has the value 1 if either of the following condition are met:

Sensor A outputs 1 AND sensor B outputs 0

Sensor B outputs 1 OR sensor C outputs 0

Draw a logic circuit to represent these conditions.

[5]

