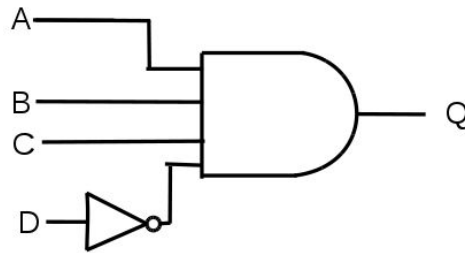


Worksheet 2 – MM2EMD Digital electronics

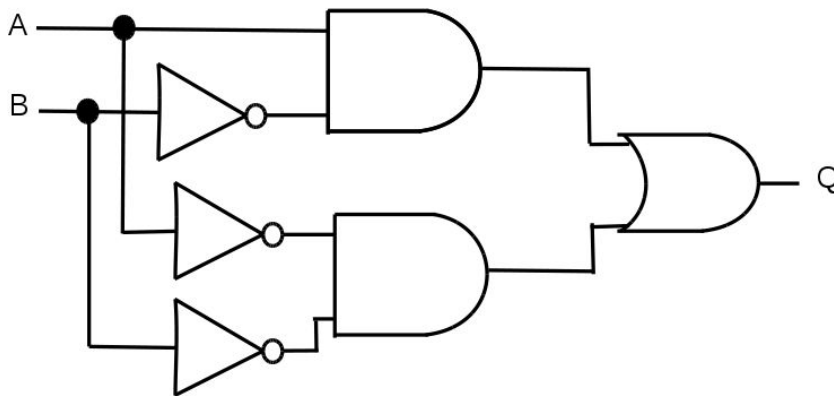
Q1. Draw the truth table of the following circuit



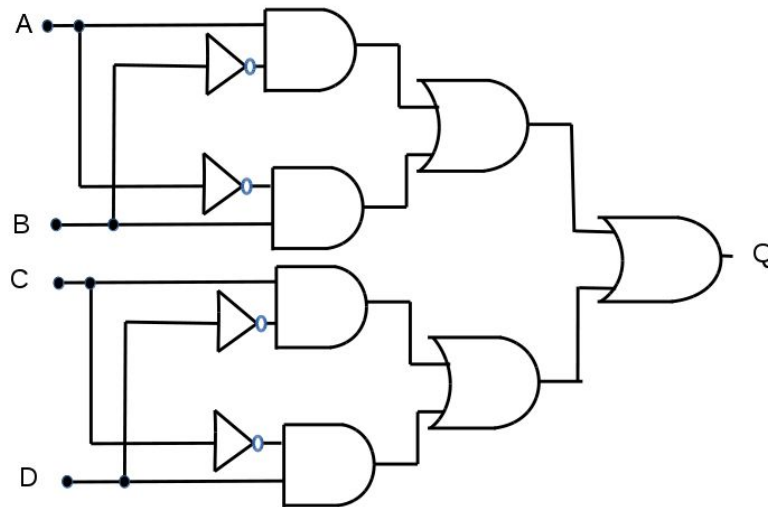
Q2. Draw the truth table of the following circuit



Q3. Draw the truth table of the following circuit



Q4. Draw the truth table of the following circuit



Hint – if you know the truth table of an XOR gate you can get to the answer quicker.

Q5. Draw the truth table of a JK flip-flop.

Q6. Explain in words why it is impractical to use a simple OR gate with a feedback loop as a latch.

Q7. Draw a shift register. And name one application of this type of circuit.

Roderick MacKenzie 16/02/15



Q1.

A	B	Q
0	0	1
0	1	0
1	0	0
1	1	0

Q2.

A	B	C	D	Q
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	0
1	1	0	0	0
1	1	0	1	0
1	1	1	0	1
1	1	1	1	0



Q3.

A	B	Q
0	0	1
0	1	0
1	0	1
1	1	0

Q4.

A	B	C	D	Q
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	1	1	0
0	1	0	0	1
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	0
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

Q5.

J	K	Q	Comment
0	0	Q	No change
1	0	1	Set Q to 1
0	1	0	Set Q to 0
1	1	flip	Flip

Q6. You can't reset a latch made of a single OR gate.

Q7. See lecture notes. An example of use is in a serial to parallel converter.