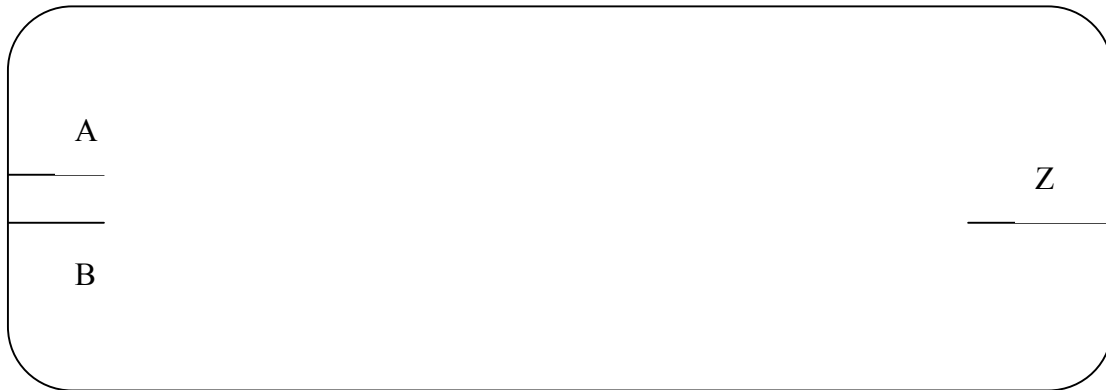Binary Logic Problems

1. A water pump is being designed that will only pump when the main switch (A) is on and there is water present in the system (sensor B). Draw the logic diagram to show this and complete the truth table.

A

Z

B

A	B	Z
0	0	
0	1	
1	0	
1	1	

2. An intruder alarm system uses an IR motion sensor (A) and a magnetic door alarm (B). The alarm should be sounded if either sensor is triggered. Draw the logic diagram to show this and complete the truth table.

A

Z

B

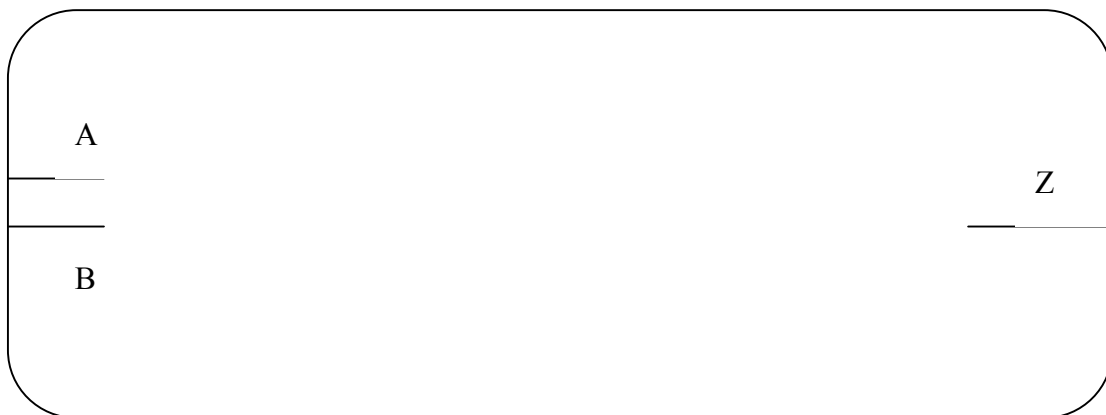| A	B	Z
0	0	
0	1	
1	0	
1	1	

Binary Logic Problems

3. A kettle element should be turned on provided the main switch (A) is on and the temperature sensor (B) is not indicating a temperature of over 100 degrees. Draw the logic diagram to show this and complete the truth table.

A

Z

B

A	B	Z
0	0	
0	1	
1	0	
1	1	

4. A lighting system is only activated when the light switch (A) is on and the motion detector (B) is actively detecting movement. Draw the logic diagram to show this and complete the truth table.

A

Z

B

A	B	Z
0	0	
0	1	
1	0	
1	1	