Section-4, Q-1

XOR gate in an inverter.

A	B	Out
0	0	0
0	1	1
1	0	1
1	1	0

figure above shows the truth table of a 2-input XOR gate. It has two input A, B and an output out. On looking we observe that.

- If one of the inputs (A or B) is 0, out is equal to the other input. for instance when B=0
  - out = 0 when A = 0
  - out = 1 when A = 1

Similarly if one of the inputs is 1, out is equal to invert of the other input. for instance, when B=1

out = 1 when A = 0

out = 0 when A = 1

Using this information, XOR gate can be easily converted to an inverter

Inverter design using XOR gate: Similarly we can realize an inverter using a XOR gate by connecting one of the inputs to logic '1' As shown in the truth table below

A	B	out
1	0	1
1	1	0