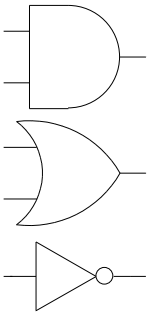
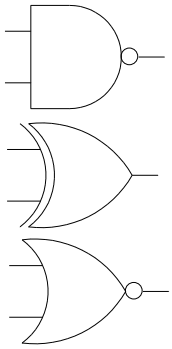
Exercise 4: Introduction to Logic Circuit Design

SECTION A

1. Identify the following gates:-





2. Draw the Truth Tables which describe relevant gates and display the output.

A	B	C

A	B	C

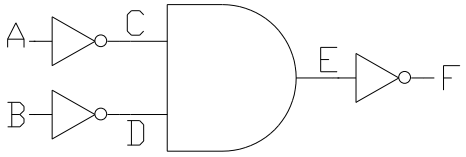
A	B	C

A	B	C

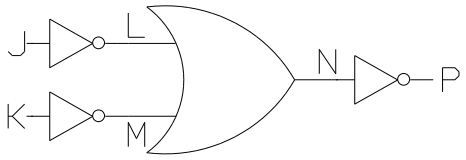
A	B

A	B	C

3. Construct the following circuits, and fill-in the truth tables for them. Indicate which gate could be used to replace each circuit.



A	B	C	D	E	F



J	K	L	M	N	P

SECTION B

1) An **AND** gate can have only two inputs. (True/False)
2) If any input to an **OR** gate is 1, the output is 1. (True/False)
3) If all inputs to an **AND** gate are 1, the output is 0. (True/False)
4) When the input to an inverter is HIGH (1), the output is
   (a) HIGH or 1
   (b) LOW or 1
   (c) HIGH or 0
   (d) LOW or 0

5) An inverter performs an operation known as
   (a) Complementation
   (b) Assertion
   (c) Inversion
   (d) Both answers (a) and (c)

6) The output of an AND gate with inputs A, B, and C is a 1 (HIGH) when
   (a) A = 1, B = 1, C = 1
   (b) A = 1, B = 0, C = 1
   (c) A = 0, B = 0, C = 0

7) The output of an OR gate with inputs A, B, and C is a 1 (HIGH) when
   (a) A = 1, B = 1, C = 1
   (b) A = 0, B = 0, C = 1
   (c) A = 0, B = 0, C = 0
   (d) Answers (a), (b), and (c)
   (e) Only answers (a) and (b)