James Smith - 863266

CS-150 Coursework-3

1 a)i False, Binary 1 is usually in the range of 2v - 5v

ii) False, for they give the same output when both inputs are the same

Nand

A	B	X
0	0	1
1	1	0

NOR

A	B	X
0	0	1
1	1	0

iii) True

iv) True — $(A+B)' = A'B'$

v) False XOR →

AB	X
00	0
01	1
10	1
11	0

vi) True

b)i) An incoming voltage of 0.8v or bellow (anything above zero) is read as low(0) and a voltage between 2v - 5v is read as High (1)

ii) A gate consists of one component (the gate itself) while Circuits are made up of multiple gates

iii) Boolian expressions
Truth Tables
Circuit diagrams

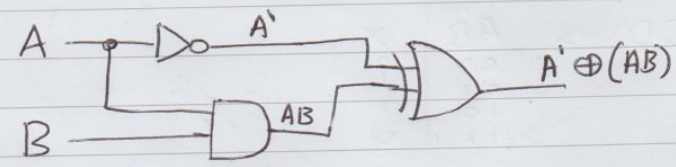
c)

i)

A	B	C	X
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

ii) $X = (A \cdot B)' + (C \cdot D)'$

iii)



iv)

A	B	Sum	Carry
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1