

8 (a) Draw the symbol for an XOR logic gate **and** complete the truth table for it.

XOR logic gate symbol:



Truth table:

A	B	X
0	0	
0	1	
1	0	
1	1	

[2]

(b) Consider the logic rules in the following table:

Input	Binary value	Description
<b>A</b>	0	operator <b>not</b> present
	1	operator present
<b>B</b>	0	ignition key present
	1	ignition key <b>not</b> present
<b>C</b>	0	operator code correct
	1	operator code <b>not</b> correct

A crane is a machine with a long arm used to lift heavy objects. The crane will only move:

- if the operator is present and
- either the ignition key is present, or the operator code is correct.

The crane moving is represented by **X = 1**.

(i) Write the logic expression for the crane moving.

**X =** ..... [2]

(ii) Complete the truth table for the crane moving.

A	B	C	Working space	X
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

[4]