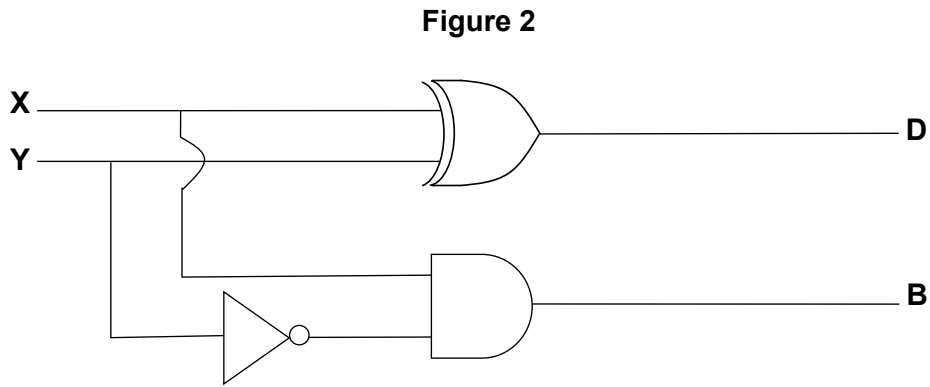


2 **Figure 2** below shows a logic circuit.



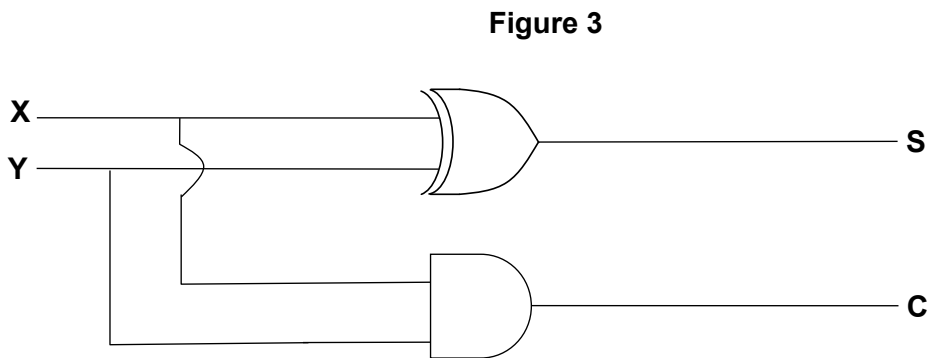
2 (a) Write a Boolean expression for **D**.

..... (1 mark)

2 (b) Write a Boolean expression for **B**.

..... (1 mark)

2 (c) **Figure 3** below shows a different logic circuit.



2 (c) (i) Complete the truth table below for the logic circuit in **Figure 3**.

Inputs		Outputs	
X	Y	C	S
0	0		
0	1		
1	0		
1	1		

(2 marks)

2 (c) (ii) What arithmetic function does the logic circuit in **Figure 3** perform?

..... (1 mark)



2 (d) **Without** using a truth table, simplify the Boolean expression below.

$$(X + Y) \cdot (X + \overline{Y})$$

Show the stages of your working.

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(3 marks)

Final answer

(1 mark)

9

Turn over for the next question

Turn over ▶

