"3-a-day" A-Level Exam Practice Unit 1 (006)

Question 1

The truth table below has two inputs, A and B, and two outputs, S and C.

INPUTS		OUTPUTS	
A	B	S	C
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

(i) Write a logic expression for S in terms of A and B.

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.....

.....**[1]**

(ii) Write a logic expression for C in terms of A and B.

.....

.....

.....**[1]**

Question 2

Use the expressions for S and C to draw a single logic circuit for the truth table.

Question3

Using the rules for manipulating Boolean expressions simplify the following:
$A \wedge B \vee A \wedge (B \vee C) \vee B \wedge (B \vee C)$

.....

.....

.....

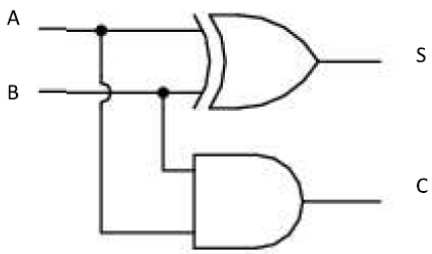
.....

.....**[4]**

Answer 1

(i)	• S=A XOR B	**1** **AO2.2 (1)**	For 1 mark.
(ii)	• C=A AND B	**1** **AO2.2 (1)**	For 1 mark.

Answer 2



2

AO2.2 (2)

For 2 marks – two gates with correct inputs.

Answer 3

check last step!???

- A∧B ∨ A∧(B∨C) ∨ B∧(B∨C)
- A∧B ∨ A∧B ∨ A∧C ∨ B∧B ∨B∧C
- A∧B ∨ A∧C ∨ B ∨ B∧C
- A∧B ∨ A∧C ∨ B

B ∨ A∧C

4

AO2.2 (4)

For 4 marks - 1 mark for each bullet completed correctly.