

Design & Technology



S3 Engineering Science Homework Booklet



Design & Technology

Name:	
Class:	
Teacher:	

Homework 1 - Logic

- 1. Complete the truth tables for the following logic gates.
- a) **OR** gate

Input A	Input B	Z
0	0	
0	1	
1	0	
1	1	

b) AND gate

Input A	Input B	Z
0	0	
0	1	
1	0	
1	1	

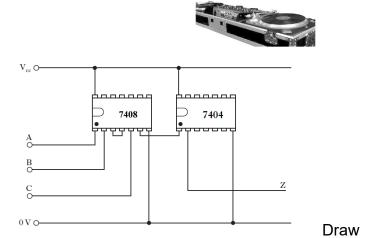
c) **NOT** gate

Input	Output
0	
1	

KU	RN
1 0	
1 0	
1 0	

Homework 3—IC Chips (Cont.)

2. A set of DJ turntables has a number of indicator lights. Part of the circuitry for the control of these lights is shown below.



KU

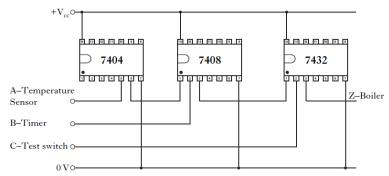
RNA

the logic diagram for the wiring circuit shown above.

A O———	
В О	Z
C	

Homework 3 - IC Chips

3. Part of an electronic circuit used to control a central heating system is shown below.



a) Complete, with reference to the Data Booklet and the wiring diagram, the logic diagram for the central heating system.

KU RNA 6 3

Homework 1 - Logic (Cont.)

- 2. Draw the correct symbols for the following logic gates in the spaces provided.
- a) OR gate

b) AND gate

c) **NOT** gate

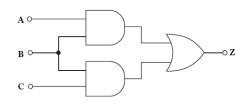
KU	RNA	
2 1 0		
2 1 0		
2 1 0		
9		

Homework 2 - Combinational Logic

KU

Comdia-

The following logic diagram is required for an electronic alarm system.



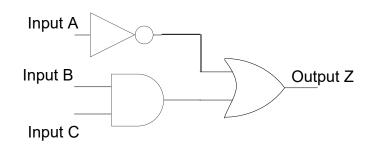
plete the truth table below for the logic gram.

Α	В	С	D	Е	Z
0	0	0			
0	0	1			
0	1	0			
0	1	1			
1	0	0			
1	0	1			
1	1	0			
1	1	1			

RNA	

Homework 2 - Combinational Logic (Cont)

2. Complete the truth table below for the combinational logic circuit.



Α	В	С	D	Е	Z
0	0	0			
0	0	1			
0	1	0			
0	1	1			
1	0	0			
1	0	1			
1	1	0			
1	1	1			

I	3
I	2
I	1
I	0
I	
I	
١	