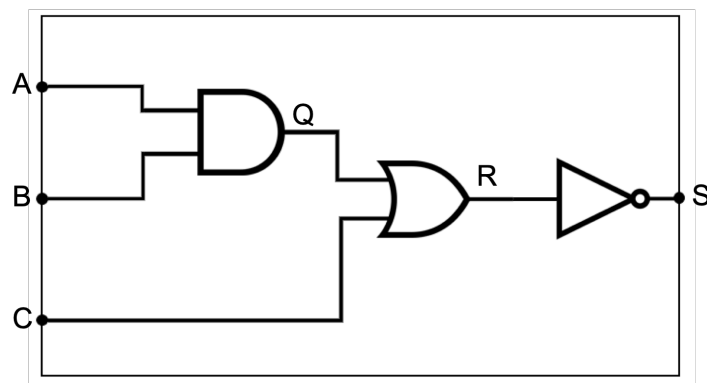**01** A series of logic gates is shown in **Figure 1**. These show a logic system for a house alarm.

Figure 1

01.1 How many inputs are there into the system shown in **Figure 1**?

[1 mark]

3

01.2 Identify the three logic gates used in **Figure 1**.

[3 marks]

Gate Q: AND

Gate R: OR

Gate S: NOT

02 A logic system to control the lights in a classroom is needed.
The system has three inputs:

    A: a manual switch

    B: a second manual switch

    C: a movement sensor which is checked every 10 minutes. If there is no movement in the room the lights should switch off.

The lights should be on if either switch A or switch B is pressed and if the movement sensor is triggered. Draw a logic diagram for the system described.

[2 marks]

Diagram should show:
(A OR B) AND C – the movement sensor needs to be triggered for the lights to be on so there is no need for a NOT gate – max 1 mark if NOT gate included