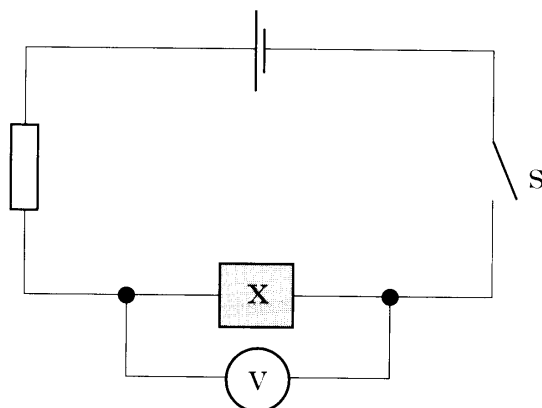


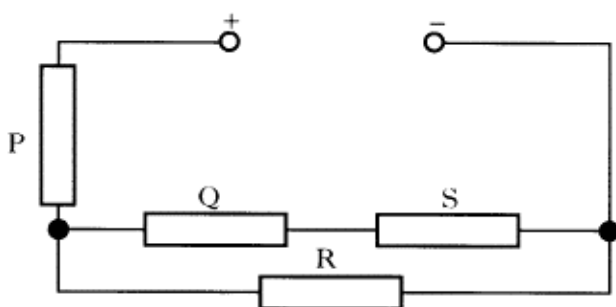
SG General Electronics Test

1. In the circuit shown below, a voltmeter is connected across an unknown component X. When switch S is closed, the reading on the voltmeter rises very slowly to a maximum value.



Which of the following components is X?

- A Capacitor
 B Resistor
 C Bulb
 D Diode
 E LED
2. In the circuit below, the resistors P, Q, R and S have the same value.



In which of the resistors is the current the same?

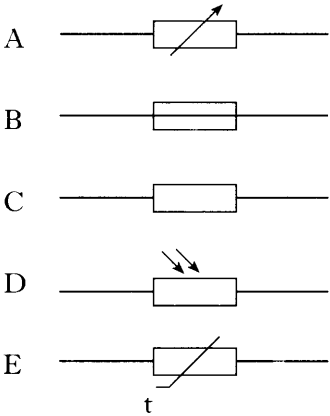
- A Q and S only
 B P, Q and S only
 C P, Q, R and S
 D P and R only
 E R and Q only

1

1

SG General Electronics Test

3. Which of the following is the circuit symbol for a thermistor?



4. Which of the following is an output device?

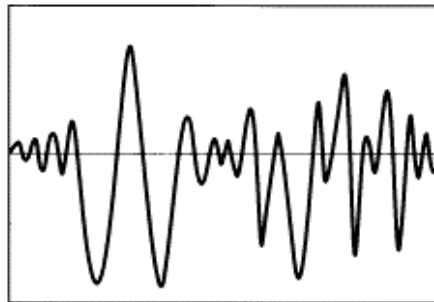
- A LDR
- B LED
- C Microphone
- D Solar cell
- E Thermistor

Marks	K&U	PS
1		
1		

- INPUT DEVICE X — AMPLIFIER — OUTPUT DEVICE Y
- In baby's bedroom In parents' room

(a) From the list of the following devices:
loudspeaker bulb microphone LED;

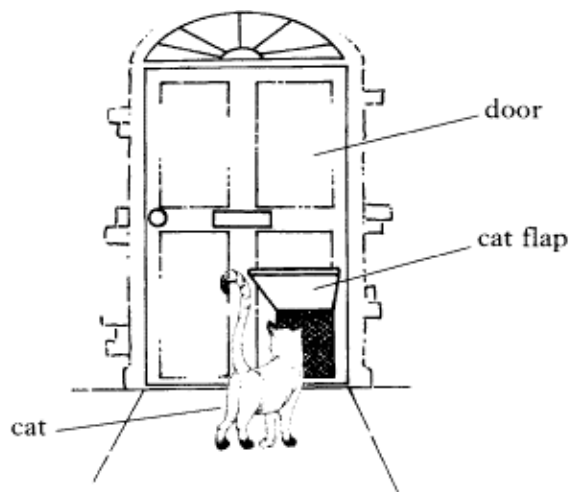
- (b) The output signal from the amplifier is displayed on an oscilloscope and is shown below.



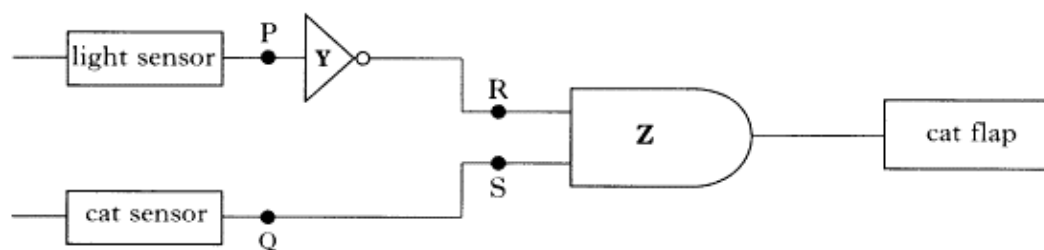
- Signals may be classified as digital or analogue.
Which type is the above signal?
- When the input signal to the amplifier has a value of 0.01 volt, the value of the output signal is 1.5 volts.

Calculate the voltage gain of the amplifier.

7. A pupil designs an electronic system to control the opening and shutting of a cat flap in a door. The flap opens when the cat approaches the door in daylight.



The diagram below shows the electronic system which is used by the pupil.



When the cat approaches, the logic level at Q changes from logic 0 to logic 1.

In daylight, the logic level at P is logic 0.

In darkness, the logic level at P is logic 1.

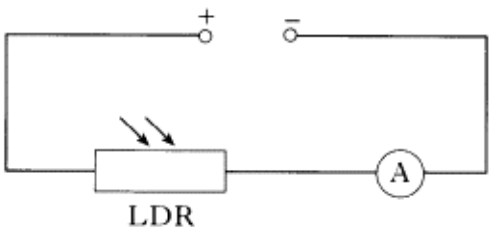
The cat flap opens when the output from Z goes to logic 1.

- Name the logic gate Z.
- Draw the truth table for logic gate Z.
- Explain why the NOT gate Y is required.

Marks	K&U	PS
1		
2		
1		
2		
1		

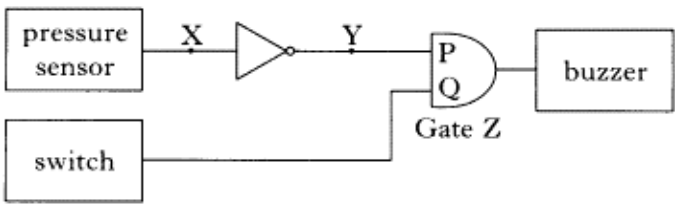
SG General Electronics Test

8. The intensity of the light at the LDR in the circuit shown below is increased.



Does the reading on the ammeter **increase**, **decrease**, or **stay the same**?

9. A large gold cup in a museum is protected by an alarm system. The cup stands on a pressure sensor. If the cup is lifted, a buzzer sounds. The diagram below shows part of the alarm system.



The logic states are as shown.

		Logic level
Pressure sensor output	cup present	1
	cup absent	0
Switch	on	1
	off	0
Buzzer input	buzzer sounds	1
	buzzer silent	0

(a) Copy and complete the table for the logic levels at points X and Y in the diagram.

	Logic level at X	Logic level at Y
Cup present		
Cup absent		

- (b)
- i) What type of logic gate is Z?
 - ii) P and Q are the inputs to gate Z. Draw the truth table for gate Z.
- (c) What is the purpose of the switch in the alarm system?

