Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Electricity (High Demand)

Name of the Student:_____
Max. Marks : 23 Marks **Time : 23 Minutes**

Mark Schemes

Q1.

(a) (the variable resistor) changes the resistance of the circuit **1**

to keep the current the same **1**

so the temperature of the wire is kept constant
allow to control the temperature of the wire **1**

(b) $0.17 = \frac{X+0.18+0.15}{3}$
allow X = 3 × 0.17 – 0.18-0.15 **1**

X = 0.18 (V) **1**

(c) resistance is directly proportional to length
allow length is directly proportional to resistance
allow as length increases resistance increases for 1 mark
allow positive correlation for 1 mark **2**

(d) resistance = 7.5 (Ω)
allow a range from 7.4 to 7.6 **1**

0.90 = I × 7.5
allow their value of R read from the graph correctly substituted **1**

$I = \frac{0.90}{7.5}$
allow a correct re-arrangement using their value of R read from the graph **1**

I = 0.12 (A)
allow a value consistent with their value of R read from the graph **1**

(e) the length/width/volume (of the blood sample) affects the resistance of the blood sample

allow length/width/volume (of the blood sample) should be a control variable

allow shape/size of the tube should be a control variable

ignore amount of blood

1

so only glucose concentration affects resistance

1

[13]

Q2.

(a) less than 20 Ω

1

(b) the resistance of the lamp is added to the total resistance of the resistors in parallel

allow resistors in series add up

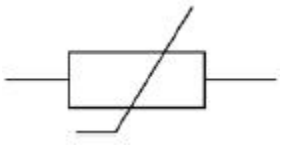
1

the resistors in parallel have a total resistance of less than 10 ohms

allow resistors in parallel have a smaller resistance than the lowest value resistor

1

(c)



1

(d) the current increased

1

(because) the resistance (of the thermistor) decreased

allow because the resistance of the circuit decreased

1

(e) **the resistor**

the potential difference across the resistor becomes 0V

1

because there is a short circuit across the resistor

allow because there is no current in the resistor allow switch has no resistance

1

*If neither of the first two marking points awarded, allow **1** mark for p.d. decreases because there is less current in the resistor*

or

p.d. decreases because components in parallel have less resistance

or

p.d. decreases because there is an alternative route for the current

the lamp

the potential difference across the lamp increases

allow the potential difference across the lamp will be the same as the battery

1

because the current increases

allow because the resistance of the circuit decreases

allow because there is less p.d. across the resistor

1

[10]