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Exam Preparation and Free Resources

Name of the Student:_____

Max. Marks : 23 Marks   **Time : 23 Minutes**

Mark Schemes

Q1.

(a) $97\,500 = 65.0 \times t$

1

$$t = \frac{97500}{65.0}$$

1

$t = 1500$ (s)
>   *an answer of 1500 (s) scores **3** marks*
>   *an answer of 1.5 scores **2** marks*

1

(b) $19.6 = I^2 \times 1.60$

1

$$I^2 = \frac{19.6}{1.60}$$

1

$I = 3.5$ (A)
>   *allow 1 mark for a correct value for I correctly multiplied by 4*

1

current through battery = 14 (A)
>   *an answer of 14 (A) scores **4** marks*

1

[7]

Q2.

(a)   negatively charged

1

electrons are transferred

1

from the (neutral) object

1

(b)   minimum of four lines drawn perpendicular to surface of sphere
>   *judge by eye*

1

minimum of one arrow shown pointing away from sphere
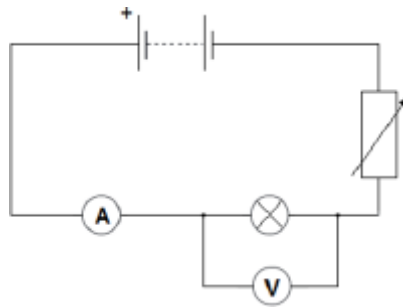>   *do **not** accept any arrow pointing inwards.*

(c)   Q

1

[6]

Q3.

(a)

battery in series with bulb and ammeter

1

voltmeter in parallel with bulb

1

variable resistor
or
variable power pack
or
potentiometer

1

(b)   A is brighter because it has a higher current (than lamp B at any p.d.)

1

(therefore A has a) higher power output (than bulb B)
        accept higher energy output per second

1

(c)   lower current (than lamp A) for the same potential difference
        accept answer in terms of R = V / I
        allow reference to a comparison of the gradients

1

this is true for all values (of p.d. on the graph)

1

(d)   0 – 2 Volts
        allow a range from 0 V up to any value between 1 and 2 V.

1

(for an ohmic conductor) current is directly proportional to potential difference
        allow lines (of best fit) are straight and pass through the origin

1

(so) resistance is constant

1

[10]