

Name of the Student: _____

Max. Marks : 23 Marks

Time : 23 Minutes

Mark Schemes

Q1.

- (a) 4 symbols correct accept

(accept  for bulb; lose 1 mark if line through symbols, lose 1 mark if circuit incorrect, switch may be open or closed)

(allow   or )
gains 1 mark

4

but

all correct

gains 2 marks

ammeter in series with lamp

for one mark

voltmeter in parallel with lamp / lamp and switch / lamp, switch and ammeter

for one mark

- (b) (i) 5 points correctly plotted
allow (0, 0) correct if graph goes through the origin even if no × or O
gains 1 mark

but

6 points correctly plotted

gains 2 marks

smooth curve through points – not straight line / curve + straight line

for one mark

3

- (ii) 2 (A)

allow ± 0.05 ($\frac{1}{2}$ square) from candidates' graph

for one mark

1

- (iii) $R = V / I$ or $R = 10 / 2$

gains 1 mark

but

$R = 5$ (Ohms) ecf

gains 2 marks

2

- (c) (i) resistance increases
for one mark
- (ii) temperature (of filament) has increased / filament gets hot
for one mark

2

[12]

Q2.

- (a) (i) variable resistor
accept rheostat
- (ii) potential difference = current $\times$ resistance
accept $V = IR$ **or** any correct combinations
- (b) (i) as the potential difference increases, the current increases
accept it increases

1

1

1

at low values of the potential difference the current is (directly) proportional
accept at low values of the potential difference (the filament) obeys
Ohm's law

1

or

at higher values of potential difference the current is not (directly) proportional

or

accept at higher values of the potential difference (the filament) does
not obey Ohm's law

accept it increases but not proportionally for 2 marks

- (ii) the resistance (of the filament) increases

1

the temperature (of the filament) increases

1

[6]

Q3.

- (a) variable resistor
accept rheostat
- (b) voltmeter
- (c) straight line correct between 0.2 and 0.8
if line incorrect, or no line, and correct plots 0.2 to 0.8 award 1 mark
- (d) diode / rectifier

1

1

2

1

[5]