Name of the Student:_____

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

Mark Schemes

Q1.

(a) (i) 4 (V)

*allow **1** mark for correct substitution*

2

(ii) 5 (V) or (9 – their (a)(i)) correctly calculated

e.c.f

*do **not** allow a negative answer*

1

(b) (i) thermistor

c.a.o

1

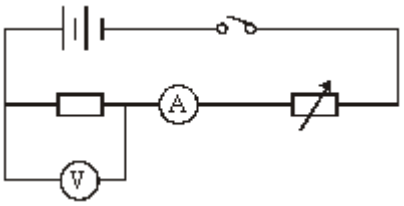
(ii) 0°C to 20°C

1

[5]

Q2.

(a) all symbols correct



accept push switch symbol switch may be open or closed
*any lines through symbols = **0** marks*

1

correct circuit drawn

polarity of cells not relevant provided they are joined correctly

1

voltmeter must be across resistor only

two cells are required in the diagram
ignore the order of the components
allow small gaps in circuit
*omission of any component = **0** marks*

1

(b) (i) potential difference = current × resistance

accept voltage or p.d. for potential difference

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accept V= I × R

accept 

provided I R subsequent use correct

*do **not** accept C for current*

1

(ii) 2

*allow **1** mark for correct substitution*
wrong working loses both marks

2

(iii) straight line drawn <u>through the origin</u>

judge by eye

straight line passes through I = 0.4, V = their (b)(ii) / 2 **and** 0.0

this mark may be awarded if all points shown including these points are correct even if no line is drawn
*N.B. a curve scores **0** marks*

1

(c) temperature <u>increases</u>

accept filament lamp / it gets <u>hotter</u>
allow heat for temperature

1

[8]

Q3.

(a) (i) $A_1 = 0.5$

ignore any units

1

$A_4 = 0.5$

*allow **1** mark for $A_1 = A_4 \neq 0.5$*

1

(ii) the resistance of **P** is more than 20 Ω

1

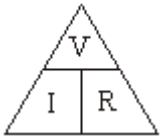
a smaller current goes through P / A_2 (than 20 Ω)

dependent on getting 1st mark correct
accept converse

1

(b) (i) potential difference = current × resistance

accept pd / voltage for potential difference
accept V = I × R, correct symbols and correct case only
accept volts = amps × ohms
accept



provided subsequent method is correct

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allow combination of
physical quantities and named units
allow voltage = I × R

1

(ii) 6

*allow **1** mark for correct substitution*

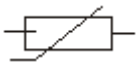
2

(iii) 6

accept their (b)(ii)

1

(c) thermistor or



accept correct circuit symbol
allow phonetic spelling

1

resistance goes down (as temperature of thermistor goes up)

*do **not** accept changes for goes down*
*do **not** accept an answer in terms of current only*
answers in terms of other components are incorrect

1

[10]

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