Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Mark Schemes

Q1.

(a) the polarity (of the supply) does not change
allow potential difference in one direction (only)
1

(b) energy transferred = power × time
1

(c) 162 000 000 = 7200 × t
1

$$t = \frac{162\,000\,000}{7200}$$
1

t = 22 500 (s)
1

(d) $V = I \times R$
1

(e) 480 = 15 × R
1

$$R = \frac{480}{15}$$
1

R = 32 (Ω)
1

(f) time taken using system **A** is double the time of system **B**
1

[10]

Q2.

(a) ammeter and voltmeter symbols correct
1

voltmeter in parallel with lamp
1

ammeter in series with lamp
1

(b) smooth curved line of correct shape

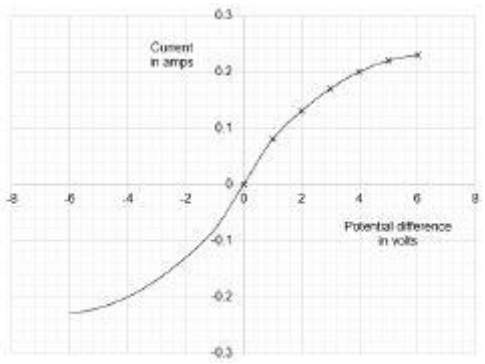
do not accept a line that becomes horizontal

1

passing through - 4.0 V, - 0.2 A

or

– 6.0 V, - 0.23 A



2nd mark conditional on scoring 1st mark

1

(c) potential difference = current × resistance

or

V = IR

1

(d) I = 0.08 (A)

1

1.0 = 0.08 × R

allow 1.0 = their I × R provided their I has been obtained from the graph

1

$R = \frac{1.0}{0.08}$

allow R = $\frac{1.0}{\text{their I}}$

1

R = 12.5 (Ω)

allow an answer consistent with their I

1

(e) ammeter displays a reading when not connected (to a circuit)

1

[11]