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

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

Mark Schemes

## Q1.

(a) electric current
(rate of) flow of (electric) charge / electrons

*accept* $I = \frac{Q}{t}$
*with Q and t correctly named*

**1**

potential difference
work done / energy transferred per coulomb of charge
(that passes between two points in a circuit)

*accept* $V = \frac{W}{Q}$
*with W and Q correctly named*

**1**

(b) metals contain free electrons (and ions)
*accept mobile for free*

**1**

as temperature of filament increases ions vibrate faster /
with a bigger amplitude
*accept atoms for ions*
*accept ions/atoms gain energy*
*accept vibrate more for vibrate faster*
*do not accept start to vibrate*

**1**

electrons collide more (frequently) with the ions
**or**
(drift) velocity of electrons decreases
*do not accept start to collide*
*accept increasing the p.d. increases the temperature (**1** mark)*
***and***
*(and) resistance increases with temperature (**1** mark) if no other marks scored*

**1**

(c) 7.8
*allow **1** mark for obtaining value 1.3 from graph*
***or** allow **1** mark for a correct calculation using an incorrect current in*

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*the range 1.2-1.6 inclusive*

**2**

**[7]**

## Q2.

(a) (i) 7.6

*allow **1** mark for correct substitution and / or transformation*

*ie* $0.95 = \frac{x}{8}$

*95 × 8.0*

**2**

(ii) 25 (hours)

*allow **1** mark for obtaining number of kWh = 200*

*an answer of 26(.3) gains both marks*

**2**

(b) any **two** from

- transferred to the surroundings / air / atmosphere
- becomes spread out
- shared between (many) molecules
- (wasted as) heat / sound

**2**

**[6]**

## Q3.

(a) (i) (connect) 30 (cells)

**1**

in series

**1**

(ii) current always flows in the same direction
**or**
current only flows one way

**1**

(iii) 36 000

*allow **1** mark for correctly converting 2 hours to 7200 seconds*

*answers 10 or 600 score **1** mark*

**2**

coulombs / C

*do **not** accept c*

**1**

(b) (i) 2160

*allow **1** mark for correct substitution, ie ½ × 120 × $6^2$*

*answers of 1620 or 540 score **1** mark*

**2**

(ii) reduce it

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1

any **one** from:

- draws a larger current (from battery)
- motor draws greater power (from battery)
  *accept energy per second for power*
  *accept more energy needed to move the bicycle*
- greater resistance force (to motion) / air resistance / drag / friction
  *accept less streamlined*
  *more mass to carry is insufficient*

1

**[10]**

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