Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Mark Schemes

Q1.

(a) (i) **D**

1

(ii) plastic or rubber

accept a specific type of plastic
accept electrical insulator

1

(b) 460

*allow **1** mark for correct substitution ie 2 × 230*

2

(c) any **two** from:

- not all appliances need a 13 A fuse
  idea that 13 A is (much) bigger than required by many appliances
  *do **not** accept some appliances require more than 13 A*
  *do **not** accept 13 A fuse will blow*
- can choose the most suitable fuse (for the appliance)
  accept install correct fuse for the appliance
- (in the event of a fault) 13 A fuse may allow too much current to flow through an appliance
  or
  fuse may not melt (before appliance is damaged)
- may already have the fuse
  idea of reusing a fuse
  *do **not** accept cheaper unless explained correctly*

2

[6]

Q2.

(a) radio

radio must be chosen for reason to score

1

gives out sound

inclusion of other forms of energy negates mark

or

others give out heat / thermal energy

1

(b) Kettle

accept 2.5 (kW)

1

(c) 60 (p)

accept £0.6(0)
*allow **1** mark for correct substitution ie 4 × 15*
substitution only scores if no subsequent step shown
*£60 scores **1** mark*

2

(d) (bigger volume) takes more time (to boil)

accept explanation using data from graph

1

(so) more energy transferred

*do **not** accept electricity for energy*

1

(and) this costs more money

ignore references to cost of water

1

[8]

Q3.

(a) fleece rubs against shirt

it refers to the fleece

1

or
friction (between fleece and shirt)

(causing) <u>electrons</u> to transfer from one to the other

accept a specific direction of transfer
*do **not** accept charge for electrons*
positive electrons negates this mark
movement of protons negates this mark

1

(b) Electrical charges move easily through metals.

1

An electric current is a flow of electrical charge.

1

(c) (i) copper

reason only scores if copper chosen

1

(good electrical) conductor

accept it is a metal
any mention of heat conduction negates this mark

1

(ii) lower than

1

(iii) accept any sensible suggestion,eg:

- too many variables (to control)
- lightning strikes / storms are random / unpredictable
- do not know which building will be struck
- do not know when a building will be struck
- do not know when lightning will happen
- (very) difficult to create same conditions in a laboratory
- lightning storms are not the same

it is not safe is insufficient

*do **not** accept lightning does not strike the same place twice*

1

[8]