Name of the Student:_____
Max. Marks : 17 Marks **Time :17 Minutes**

Mark Schemes

Q1.

(a) (i) an electrical conductor

1

(ii) increase current

accept increase p.d. / voltage

or

use stronger magnets

accept move magnets closer

*do **not** accept use larger magnets*

1

(iii) reverse the poles / ends (of the magnet)

either order

1

reverse the connections (to the power supply)

1

(b) (i) environmental

1

(ii) ethical

allow political (instability)

allow economic (migration)

1

[6]

Q2.

(a) (it is) magnetic

***or** will carry (an alternating) magnetic field*

***or** magnetises and demagnetises (easily)*

reference to conduction negates the mark

1

(b) so the current / electricity does not flow through the iron / core

accept 'so the current / electricity / wires do not short (circuit)'

responses in terms of heat insulation negate the mark

ignore references to safety

1

(c) 5.75 or 5.8 or 6(.0)

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*allow for **1** mark **either***

$$\frac{230}{p.d.} = \frac{20\,000}{500}$$

or

p.d. = 230 ÷ 40

2

V / volt(s)

1

[5]

Q3.

(a) electric drill, electric fan, electric food mixer and electric screwdriver

all four ticked and no others (2)

***either** all four of these ticked and only one other (1)*

***or** any three of these ticked and none/one/two of the others (1)*

2

(b) (i) reverse (the direction of the) current (1)

***or** reverse the connections (to the battery)*

reverse (the direction of the) magnetic field (1)

***or** reverse the (magnetic) poles /ends*

*do **not** credit 'swap the magnets (around)'*

2

(ii) any **two** from:

- increase the strength of the magnet(s)/(magnetic) field

  *do **not** credit 'use a bigger magnet'*

- increase the current

  allow 'increase the voltage/p.d.'
  allow add cells/batteries
  allow increase the (electrical) energy
  allow increase the power supply
  allow 'decrease the resistance'
  allow 'increase charge'
  allow ' increase the electricity'

  *do **not** credit 'use a bigger battery'*

- reduce the gap (between coil/armature and poles/magnets)

  allow increase the (number of) coils

- increase the turns (on the coil/armature)

  *do **not** credit 'use a bigger coil'*

2

[6]

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