Name of the Student:_____
Max. Marks : 25 Marks **Time : 25 Minutes**

Mark Schemes

Q1.

(a) to vary the (output) potential difference
allow different devices require different potential differences
1

so that you don't need a different generator for each type of device
allow so that it is compatible with different devices
*do **not** allow answers in terms of power*
1

(b)

$$\frac{1.5}{5.0} = \frac{150}{N_s}$$
1

$$N_s = \frac{150}{0.3}$$
1

$N_s = 500$
1

(c) the coil moves through the magnetic field

or

the coil cuts magnetic field lines
1

a potential difference is <u>induced</u> (across the coil)
1

there is a complete circuit, so a current is induced (in the coil)
1

every half turn the potential difference reverses direction
1

so (every half turn) the current changes direction
1

(d) provides a continuous / moveable contact / connection (between the coil and the transformer / contacts / brushes)

or

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stops the wires from twisting together

1

(e) (after disconnection) there is no induced current

1

so no magnetic field (produced around / by the coil)

1

to oppose the movement of the coil

1

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Q2.

(a) chicken

allow a correct answer indicated in Table 3 provided the answer space in blank

1

(b) 2×10^{-6}

1

(c)

*an answer 0.025 (m) scores **4** marks*

time = 8μs = 8×10^{-6} (s)
or
4 × their answer to part (b)

subsequent marks may be scored if the number of squares is miscounted or t = 2μs is used

1

distance = ½ × 6300 × 8×10^{-6}

allow 8×10^{3} or 8×10^{-3} or 8×10^{-9} for 8×10^{-6}

1

distance = 0.0252 (m)

allow a correctly calculated answer using 8×10^{3} or 8×10^{-3} or 8×10^{-9}

1

distance = 0.025 (m)

allow a calculated value correctly rounded to 2 sig figs
*an answer 0.050 (m) scores **3** marks*
*an answer 0.05 or 0.0504 (m) scores **2** marks*

1

(d) to convert (the pressure variations in) sound (waves) into variations in current / p.d

allow electrical signal for variations in current / p.d.
*do **not** accept amplifies sound*

1

(e) sound (waves) cause the diaphragm to vibrate

diaphragm moves is insufficient

1

the diaphragm causes the coil / wire to vibrate

*do **not** accept moves the coil / wire up and down*

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*if m.p.1 and m.p.2 do not score, allow sound (waves) cause the coil / wire to vibrate for **1** mark*

1

the coil / wire moves through the magnetic field
or
the coil / wire cuts magnetic field lines

1

a potential difference is induced (across the ends of the coil / wire)

allow induced current for induced p.d.

1

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