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

Mark Schemes

Q1.

(a) induced

1

(b) any **two** from:

- use the same (strength) magnet
  same size magnet is insufficient
- the speed that the magnet is moved
  accept movement of the magnet
- the area of the turns
  same type / length of wire is insufficient
- the magnetic pole being moved towards the coil (of wire).
  use the same voltmeter is insufficient

2

(c) (i) voltmeter misread
or
number of turns miscounted
result misread is insufficient
human error is insufficient
allow the magnet was moved at a (slightly) different speed (into the coil) than for the other readings
allow spacing between the turns had changed

1

(ii) line of best fit passing through all points except (100, 0.034)
line does not need to go back to origin

1

(d) any **one** from:

- can re-check data / readings.
  accept can go back to data
- can take more readings (in a given time)
  can store data is insufficient
- easier to identify maximum value.
  automatically records data is insufficient
  accept is more accurate
  accept eliminates human error

1

[6]

Q2.

(a) (i) live

1

(ii) react faster

1

(iii) live and neutral

1

(b) (i) ammeter

1

to measure current

accept to measure amps

1

plus any **one** from:

- *variable resistor* (1)
  to vary current (1)
  accept variable power supply
  accept change or control

- *switch* (1)
  to stop apparatus getting hot / protect battery
  or
  to reset equipment (1)

- fuse (1)
  to break circuit if current is too big (1)

2

(ii) any **two** from:

- use smaller mass(es)
- move mass closer to pivot
- reduce gap between coil and rocker
- more turns (on coil)*coil / loop*
- iron core in coil

  accept use smaller weight(s)

2

[9]

Q3.

(a) step-down

1

(b) (i) 1.6

correct order only

1

12.8

1

(ii) values of p.d. are smaller than 230 V

1

(c) (i) a.c. is constantly changing direction

accept a.c. flows in two / both directions
accept a.c. changes direction(s)
a.c. travels in different directions is insufficient

1

d.c. flows in one direction only

1

(ii) an alternating current / p.d. in the primary creates a changing / alternating magnetic field

1

(magnetic field) in the (iron) core
current in the core negates this mark
accept voltage for p.d.

1

(and so) an alternating p.d.

1

(p.d.) is induced across secondary coil

1

[10]