M1. (a) iron

accept any unambiguous correct indication

1

(b) (i) step-down (transformer)

*do **not** accept down step or a description*

1

(ii) less than

accept any unambiguous correct indication

1

(c) (i) 2000

1

(ii) There is no pattern.

1

[5]

M2. (a) (i) iron

1

(ii) step-down (transformer)

1

(b) any **one** from:

- after the power station
- after the generator
- before the power lines
- before the pylons

1

(c) each correct (1)
in its correct place

current

coil

field

core

ends

5

[8]

M3. (a) *there is a* magnetic field *(around the magnet)*

1

(this magnetic field) changes / moves

1

and cuts through coil

accept links with coil

1

so a p.d. *induced* across coil

1

the coil forms *a* complete circuit

1

so a current (*is* induced)

1

(b) ammeter reading does not change

must be in this order

accept ammeter has a small reading / shows a current

1

zero

1

greater than before

accept a large(r) reading

1

same as originally but in the opposite direction

accept a small reading in the opposite direction

1

(c) 0.30

*allow **1** mark for correct substitution, ie 0.05 = Q / 6*

2

C / coulomb

allow A s

1

[13]

M4. (a) step-down (transformer)

1

(b) alternating current

accept minor misspellings but
*do **not** credit 'alternative current'*

1

(c) (i)(ii) magnet

attracts

upwards

correct order essential
accept 'up'

3

[5]

M5. (a) iron

correct positions only

1

primary

1

secondary

1

(b) (it) decreases the p.d.

accept it would increase current
accept voltage for p.d.
the voltage goes from 230(V) to 20(V) is insufficient
*do **not** accept decreases current / energy / power*
*do **not** accept decreases p.d. / voltage and current*

1

(c) an environmental

1

[5]