

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Mark Schemes

Q1.

- (a) four calculations correctly shown

$$200 \times 10 - 1800 = \text{£}200$$

$$100 \times 10 - 2400 = -\text{£}1400$$

$$50 \times 10 - 600 = -\text{£}100$$

$$20 \times 10 - 75 = 125$$

accept four final answers only **or** obvious rejection of solar water heater and underfloor heating, with other two calculations completed any 1 complete calculation correctly shown **or** showing each saving $\times 10$ of all four calculations = 1 mark answers in terms of savings as a percentage of installation cost **may** score savings mark only

2

hot water boiler

correct answers only

1

- (b) less electricity / energy to be generated / needed from power stations

accept less demand

1

reduction in (fossil) fuels being burnt

accept correctly named fuel

accept answer in terms of:

fewer light bulbs required because they last longer (1 mark)

less energy used / fuels burnt in production / transport etc. (1 mark)

ignore reference to CO₂ or global warming

ignore reference to conservation of energy

1

[5]**Q2.**

- (a) hydrogen converted to helium

1

(nuclear) fusion

1

((small) loss in mass) which is converted to large amount of energy

1

- (b) (i) any
- two**
- from

it is running out/ takes millions of years/finite

not non renewable

allow acid rain **do not** allow waste

pollution **or** problem with CO₂ production

allow a specific example

more responsible to use fossil fuels for
(important) chemical functions

2

(ii) any **three** from

need lots of land for generators **or** many generators needed

generators may not be conveniently located

uncertainty of supply

accept the wind may not always blow

social resistance **or** visual pollution

noise pollution

high initial costs

(possible) interference with (local) radio and TV signals

3

[8]

Q3.

(a) internal **or** thermal **or** heat **or** kinetic **or** movement

electrical

*both answers required for **one** mark*

1

(b) (i) Sun **or** solar

*do **not** accept sunshine*

1

(ii) any **one** of the follow:

- wind turbines produce no (gaseous) pollutants
 - wind turbines use renewable energy
 - wind turbines produce no (solid) waste
 - reduced running costs
- do **not** allow safety*

1

a supporting statement **or** comparison **or** explanation

1

[4]