

Name of the Student: \_\_\_\_\_

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

**Q1.**

(a) higher 1

(b) low(er) 1

 hot(ter)  
*allow warm(er)* 1

 (c) advantage:  
 • water heated continuously (by the Sun) 1
**one** disadvantage from:

- temperature of water is lower (for most of the time than water heated by immersion heater)
- water may not be hot enough  
*allow less control over water temperature*

- it takes longer to heat the water 1

 (d)  $\frac{4030000}{4070000}$  1

 0.99  
*an answer of 99% scores 2 marks*  
*an answer of 99 or 0.99% scores 1 mark* 1  
*an answer of 0.99 scores 2 marks*  
*allow an answer that rounds to 0.99 for 2 marks*

 (e) power = energy transferred / time  
*allow  $P = E / t$*  1

 (f)  $5000 = \frac{4070000}{t}$  1

$$t = \frac{4070000}{5000}$$

1

$$t = 814$$

1

seconds

*other units of time must be consistent with numerical value*

1

*an answer of 814 seconds scores 4 marks*

*an answer of 13.57 minutes scores 4 marks*

[12]

## Q2.

(a) any **two** from:

- nuclear
- oil
- (natural) gas

2

(b) 4 (hours)

1

(c) a system of cables and transformers

1

(d) The power output of wind turbines is unpredictable

1

(e) 1500 / 0.6

1

2500 (wind turbines)

1

*allow 2500 with no working shown for 2 marks*

(f) Most energy resources have negative environmental effects.

1

[8]