

Name of the Student: _____

Max. Marks : 16 Marks

Time : 16 Minutes

Mark Schemes

Q1.

- | | |
|---|-----|
| (a) geothermal | 1 |
| (b) $36 \times 10^9 \text{ J}$ | 1 |
| (c) Level 3: Relevant points (reasons / causes) are identified, given in detail and logically linked to form a clear account. | 5-6 |
| Level 2: Relevant points (reasons / causes) are identified, and there are attempts at logical linking. The resulting account is not fully clear. | 3-4 |
| Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking. | 1-2 |
| No relevant content | 0 |

Indicative content

Figure 1

- the power output from wind increased
- because more wind turbines were built
- the power output from solar increased
- because more solar panels were built
- power output from wind and solar may have increased due to climate change

For 2015 and 2016

- wind power was lower in 2016 than in 2015
- because 2016 was less windy than 2015

Figure 2

- for most of the year the electricity generated from wind is greater than from solar.
- the electricity generated from wind is greater in winter than in summer
- because winter is windier than summer
- the electricity generated from solar is greater in summer than in winter
- because hours of sunlight are longer in summer
- and because the intensity of sunlight is greater in summer

to access Level 3, the answer should describe trends in both graphs, and in solar power and wind power, and give some explanation for changes.

[8]

Q2.

- (a) 16 500(GW) **and** 30 000 (GW) read from graph

1

$$\text{percentage} = \frac{16500}{30000} (\times 100\%)$$

allow a correct substitution using a value of 15300 or 18000 for gas

1

$$\text{percentage} = 55\%$$

allow an answer consistent with a value of 15300 or 18000 for gas

1

- (b) coal and gas

1

- (c) the national grid

1

- (d) potential difference increases

allow large potential difference

1

current is reduced

allow small current

1

so there is less / low energy loss (to the surroundings)

allow less / low heating in the transmission cables

ignore resistance

*do **not** allow no energy loss*

1

[8]