

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

Max. Marks : 17 Marks

Time : 17 Minutes

Mark Schemes

**Q1.**

(a) decrease in oil

PLUS

any **one** from:

- increase in (proportion of) coal
- increase in (proportion of) nuclear
- increase in (proportion of) gas  
*must have decrease in (proportion of) oil and increase in (proportion of) coal / nuclear / gas*

1

(b) (i) (nuclear) fission

*accept fission*

*do **not** accept any answer that looks like fusion*

1

(ii) water heated to produce (high pressure) steam

1

steam turns turbine which drives generator

1

(iii) any **two** from:

- produces no pollutant gases  
*accept named gas or greenhouse gases*  
*accept no atmospheric pollution*  
*accept harmful for pollutant*  
*accept does not contribute to global warming*  
*do **not** accept no pollution on its own*  
*do **not** accept better for the environment unless qualified*
- it is reliable **or** can generate all of the time
- concentrated energy source **or** produces a lot of energy from a small mass
- produces only small volume of (solid) waste
- fossil fuels will last longer  
*accept a named fossil fuel*

*accept fossil fuels are running out*  
*do **not** accept fossil fuels are non-renewable unless qualified*

- *will need to buy less fuel from other countries*  
*accept no new fossil fuel power stations needed*  
*do **not** accept it is cheap*  
*do **not** accept import less electricity*

2

- (iv) it is / can be radioactive  
*do **not** accept answers in terms of kills cells / cancer*

**or** emits radiation (from the nuclei)  
*accept emits gamma (rays)*

1

- (c) coal (burning) power stations / burning coal produces carbon dioxide  
*they refers to coal-burning power stations*  
*accept sulfur dioxide / nitrogen oxides for CO<sub>2</sub>*

1

(increased) CO<sub>2</sub> increases / contributes to / causes global warming /  
greenhouse effect

*mention of ozone layer negates this mark*  
*do **not** accept CO<sub>2</sub> warms atmosphere*

1

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## Q2.

- (a) (i) replaced faster than it is used  
*accept replaced as quick as it is used*  
*accept will never run out*  
*do **not** accept can be used again*

1

- (ii) any **two** from:  
**two** sources required for the mark

- wind
- waves(\*)
- tides(\*)  
*(\*)do **not** accept water / oceans*  
*accept OTEC*
- fall of water  
*accept hydroelectric*
- biomass
- geothermal  
*accept a named biomass / biofuel eg wood*

1

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

- increases from 20° to 30°
- reaches maximum value at 30°
- then decreases from 30°
- same pattern for each month  
*accept peaks at 30° for **both** marks*  
*accept goes up then down for **1** mark*  
*ignore it's always the lowest at 50°*

2

(ii) 864

*an answer of 108 gains **2** marks*  
*allow **1** mark for using 720 value only from table*  
*allow **2** marks for answers 852, 816, 768, 825*  
*allow **1** mark for answers 106.5, 102, 96, 103 (.125)*

3

(c) the solar cells will not meet demand at all times of the year / day  
*accept to maintain a constant supply of electricity / energy*

**or** to make up the shortfall in energy required at certain times of the year

**or** to be able to sell surplus electricity (to the National Grid)

*accept to provide energy at night*  
*do **not** accept because it's cloudy on it's own*

1

[8]