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**CLASSIFIED**

International Examinations Papers

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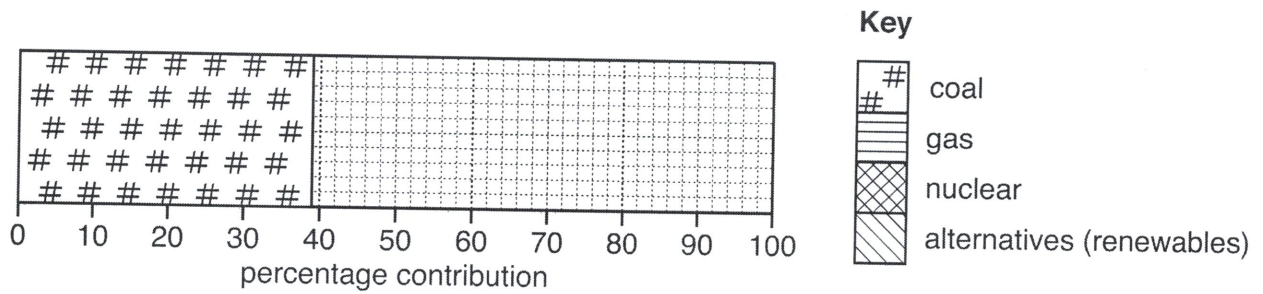
**ENVIRONMENT MANAGEMENT**  
**TOPIC-Energy Resources & Generation**  
**of Electricity**



(d) The table shows the energy sources used to generate electricity in a developed country.

source	percentage contribution
coal	39
gas	28
nuclear	19
alternatives (renewables)	14

(i) Use the information in the table to complete the divided bar graph below. [3]



(ii) Calculate the percentage of electricity which is generated from the two fossil fuels named in the table.

Space for working.

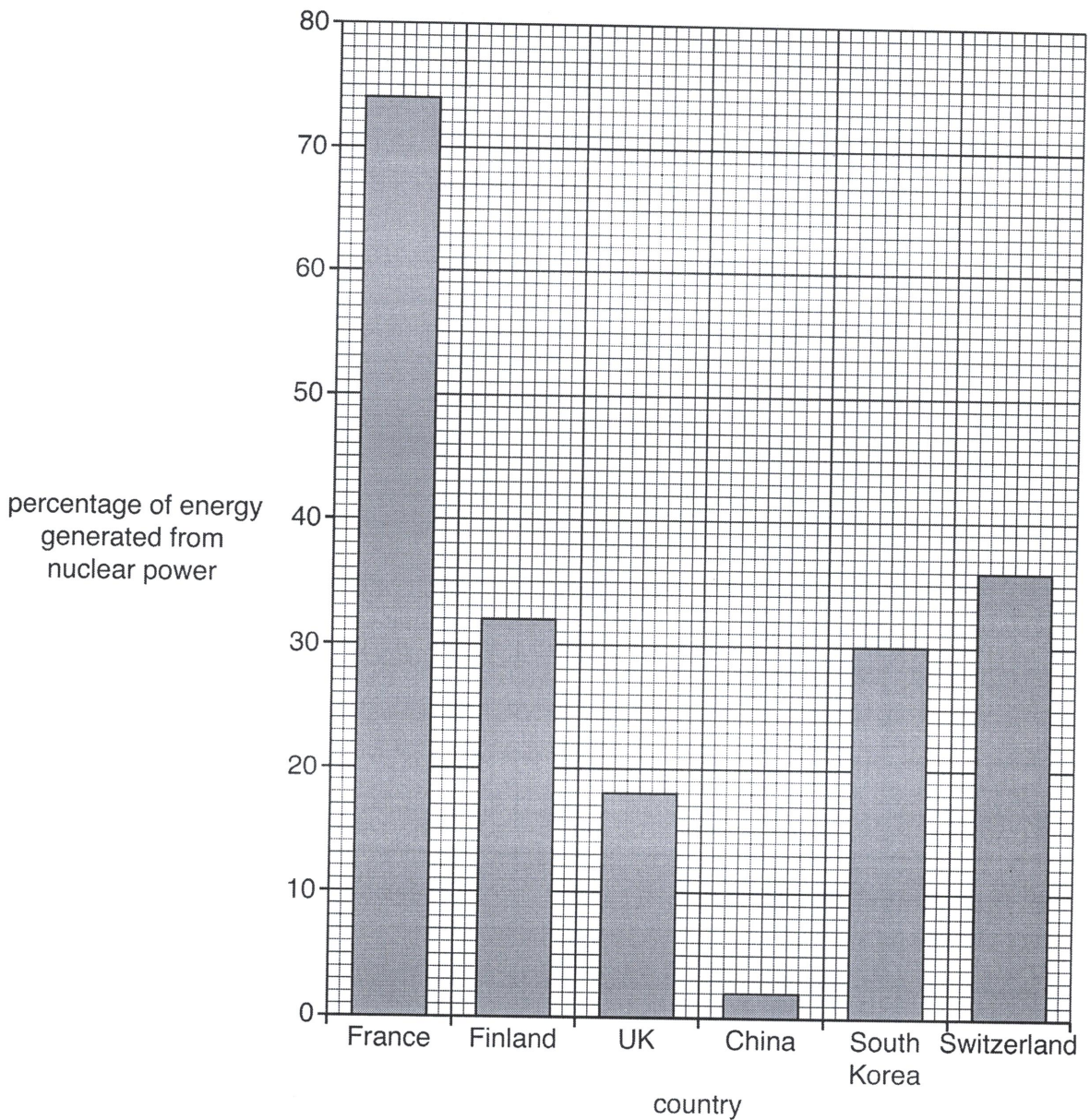
..... % [1]

(iii) Name a fossil fuel **not** included in the table.

.....

.....[1]

(iv) Look at the bar graph below, which shows the percentage of energy generated from nuclear power in some countries.

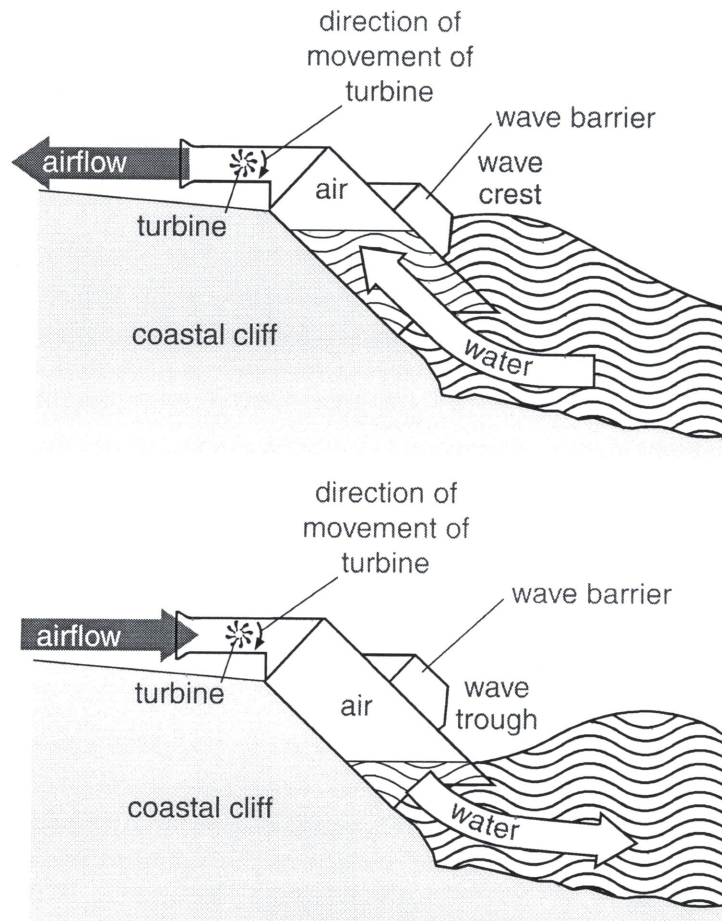


Write the countries in rank order (highest to lowest) in the spaces below. France and Finland have been completed for you. [2]

1. France
2. ....
3. Finland
4. ....
5. ....
6. ....



- 2 (a) Look at the diagram below, which shows the limpet; a device installed on a coastal cliff in Western Europe. It is used to generate electricity.



- (i) State the energy source being used in the diagram to generate electricity.

.....[1]

- (ii) Using the information in the diagram, suggest how electricity is generated in the limpet.

.....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....[3]

- (iii) Electricity can be generated in hydro-electric power stations (HEP). State **two** advantages and **two** disadvantages of HEP.

advantages .....

.....

.....

.....

disadvantages .....

.....

.....

.....[4]

- (b) The limpet and HEP are described as sustainable ways of generating electricity. State what this means.

.....

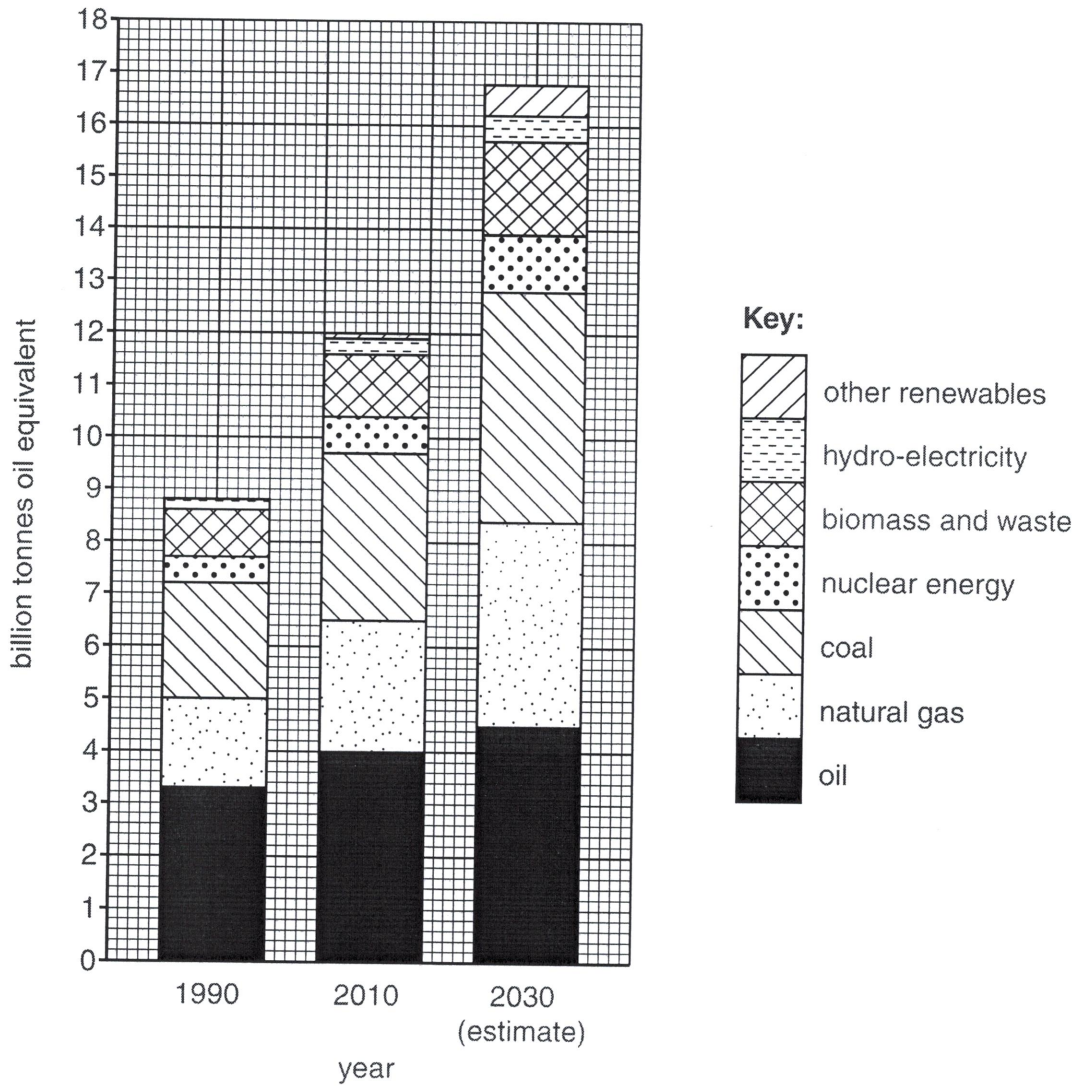
.....

.....

.....[2]

- 1 (a) Look at the graph which shows world energy demand by type for 1990 and 2010, with an estimate for 2030.

World energy demand 1990, 2010 and an estimate for 2030



- (i) What was the total world energy demand in 2010 (in billion tonnes of oil equivalent)?  
 ..... [1]
- (ii) By how many billion tonnes did total world energy demand increase between 1990 and 2010?  
 ..... [1]



(iii) Describe what the graph shows about the importance of oil in the past, now and in the future.

.....  
.....  
.....  
.....  
.....  
..... [3]

(b) The world in 2010 depended on oil for:

- 90% of its transport needs,
- 10% of electricity production.

Explain why world dependence on oil

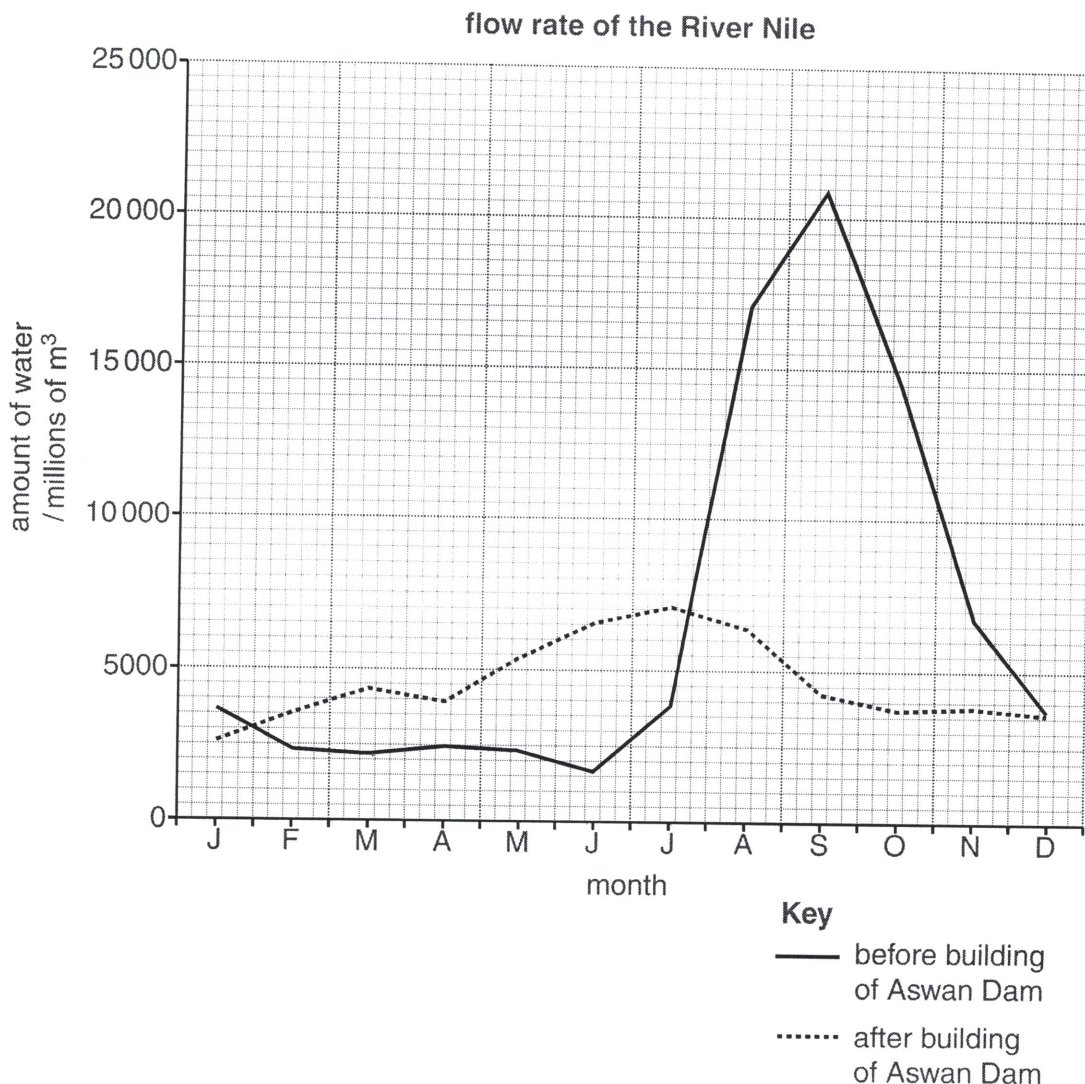
(i) is so high for transport,

.....  
.....  
.....  
..... [2]

(ii) is much lower for electricity.

.....  
.....  
.....  
.....  
.....  
..... [3]

- 6 Study the graph below of the amount of water flowing in the river Nile before and after the building of the Aswan High Dam. The measurements were taken below the dam, between the site of the dam and the sea.



- (a) (i) State the **three** months when the river Nile used to flood below the dam, before it was built.

.....[1]

- (ii) Explain why farmers near the river Nile, below the dam, needed to buy more fertiliser after the dam was built.

.....

.....

.....

.....[2]

(b) (i) The Aswan High Dam provides electricity. State the name given to electricity generated from fast flowing water.

.....[1]

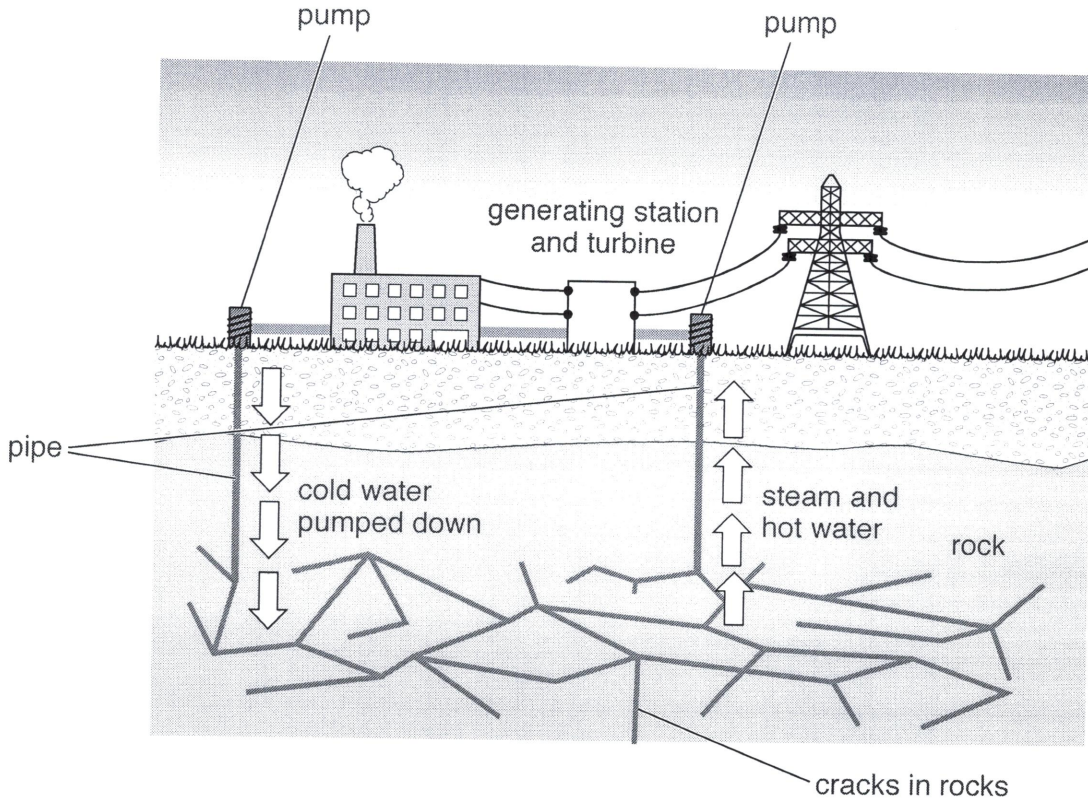
(ii) Explain why electricity generated from fast flowing water is a renewable and sustainable energy resource.

.....  
.....  
.....  
.....[2]

(iii) Suggest environmental problems of building large dams in developing countries.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....[4]

2 (a) Look at the diagram below which shows one way of generating electricity at a power station.



(i) State the name of the energy source being used at the power station.  
 .....[1]

(ii) Use the diagram to describe how this energy source is converted into electricity.  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....[3]

(iii) The energy source in the diagram is an example of alternative energy. State the names of **two** other alternative energy sources.  
 1 .....  
 2 .....  
 [2]

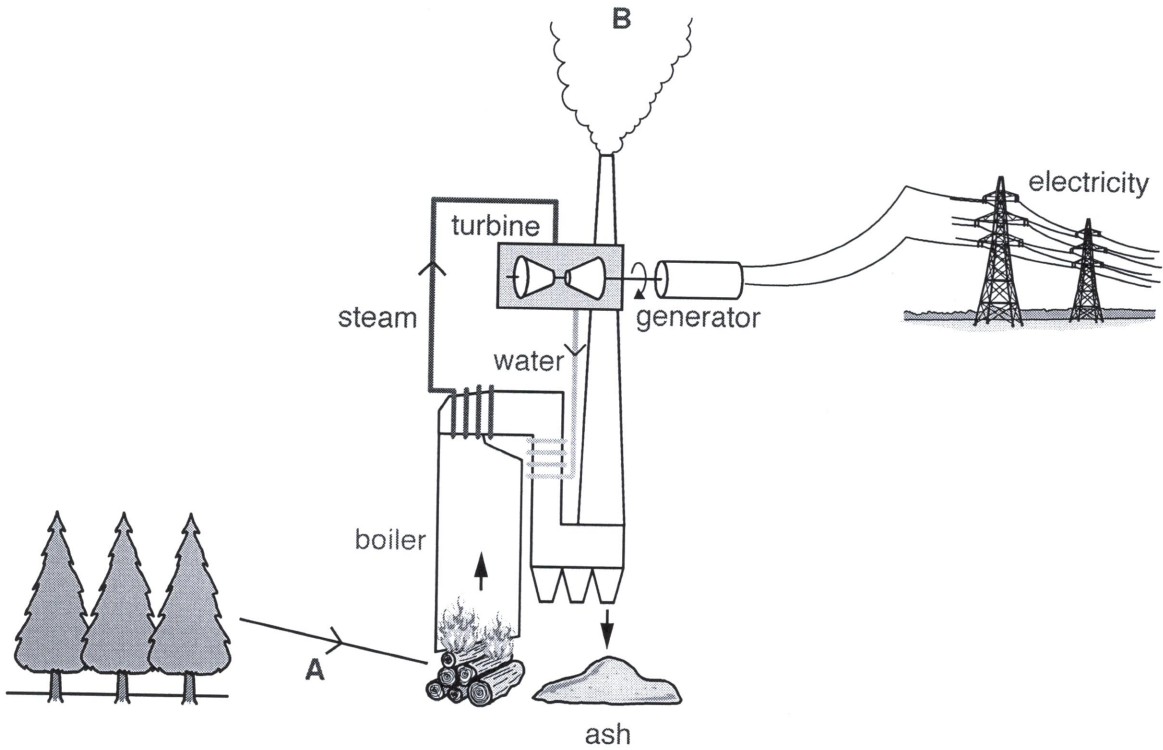
(b) (i) Define the term *alternative energy*.

.....  
.....[1]

(ii) Suggest reasons for needing alternative energy sources.

.....  
.....  
.....  
.....  
.....  
.....  
.....[3]

2 Look at the diagram below which shows a power station.



(a) (i) State the source of the energy in this power station at **A**.

..... [1]

(ii) Using the diagram and your own knowledge, explain how electricity is generated in this power station.

.....  
 .....  
 .....  
 .....  
 .....  
 .....  
 ..... [3]

(b) (i) A waste gas emitted at **B** is carbon dioxide. Explain why less of this gas enters the atmosphere from this type of power station than it would if the energy source was coal.

.....  
.....  
.....  
.....  
.....  
.....  
..... [3]

(ii) Give the name of another waste gas emitted at **B**.

..... [1]

(c) Suggest what could be done with the ash shown in the diagram.

.....  
.....  
.....  
..... [2]