

1. (a) There are **two** groups of energy sources.

- Group 1 – Finite or non-renewable.
- Group 2 – Infinite or renewable.

(i) Name **two** finite energy sources. [2]

(I)

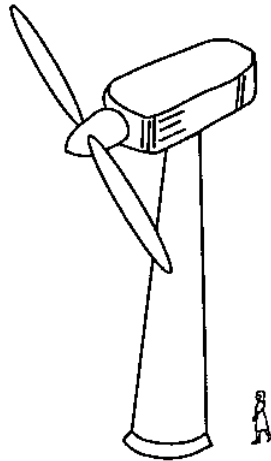
(II)

(ii) Name **two** infinite energy sources. [2]

(I)

(II)

(b) Wind turbines like the one shown below are becoming an increasingly common sight in the UK.



Describe **three** important design features that a designer would have to include in the design of such a turbine. [3]

(i)

.....

(ii)

.....

(iii)

.....

(c) When wind turbines are grouped together in one place the development is called a wind farm. Give **two** important considerations when deciding on the *site* for a wind farm. [4]

(i)
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.....
.....

(ii)
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.....
.....

(d) The homes we live in need to be as energy efficient as possible.

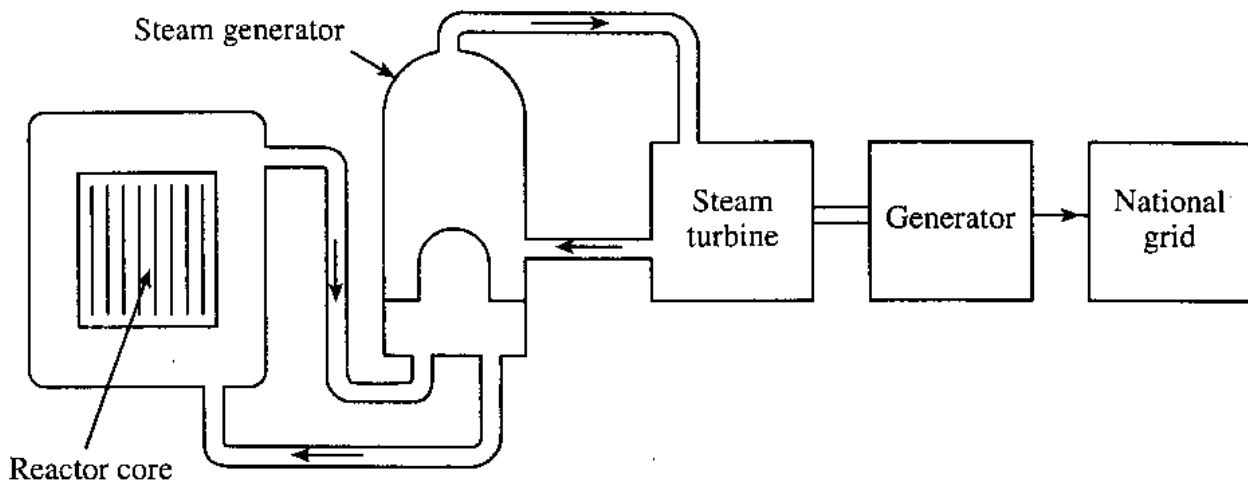
(i) List **three** energy saving features you should look for when purchasing a new home. [3]

(I)
(II)
(III)

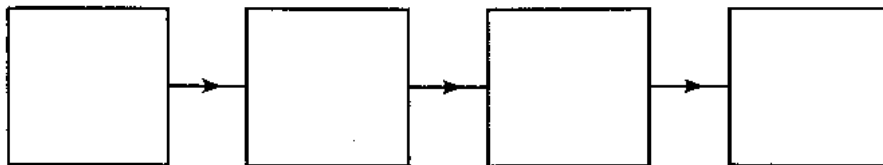
(ii) Name **two** materials that make good heat insulators. [2]

(I)
(II)

(e) A simplified diagram of a nuclear power station is shown below.



(i) Complete the block diagram below to show the energy conversions that take place in the system. [4]



(ii) Several nuclear power stations have been closed down in the UK in recent years. State **two** consequences of closing a nuclear power station. [2]

(I)

.....

.....

(II)

.....

.....

1. (a) (i) **Group** the energy sources given below under the headings *renewable* or *non-renewable*. [6]

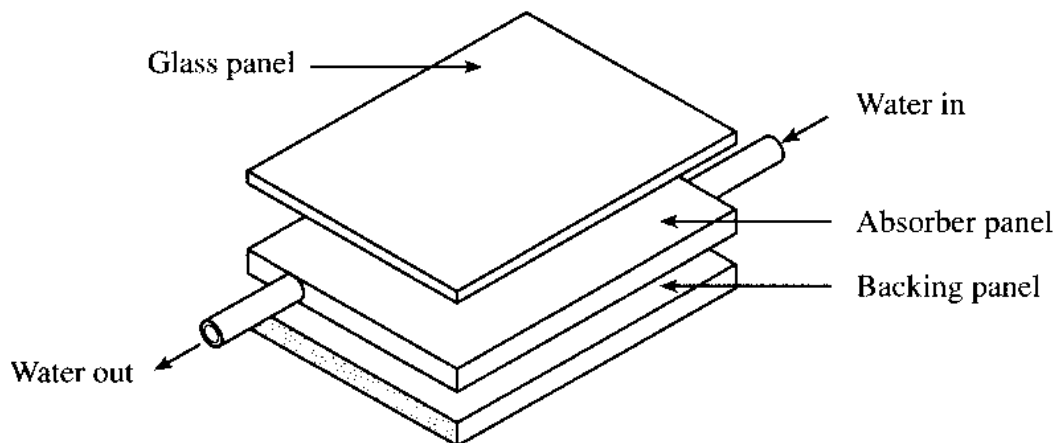
SOLAR; GEOTHERMAL; COAL; NATURAL GAS; WAVE; NUCLEAR.

<i>RENEWABLE</i>	<i>NON-RENEWABLE</i>

- (ii) **State** the energy source that will be used up the quickest. [1]

.....

- (b) Solar panels like the one shown below are used to heat water using the sun's rays. Each of the three sections of the panel has an important purpose. **Complete each** of the sentences given below.



- (i) The top panel is made from glass because [2]
 [2]
- (ii) The absorber panel is painted black because [2]
 [2]
- (iii) The backing panel is needed to prevent [2]
 [2]

(c) All energy production methods have some effect on the environment.
Describe an environmental problem caused by each of the following:

[4]

(i) Coal-fired power stations;

.....
.....

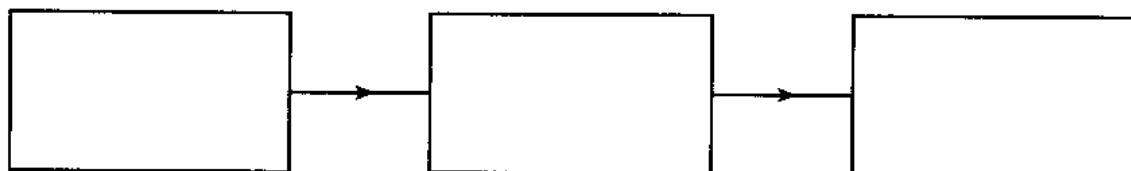
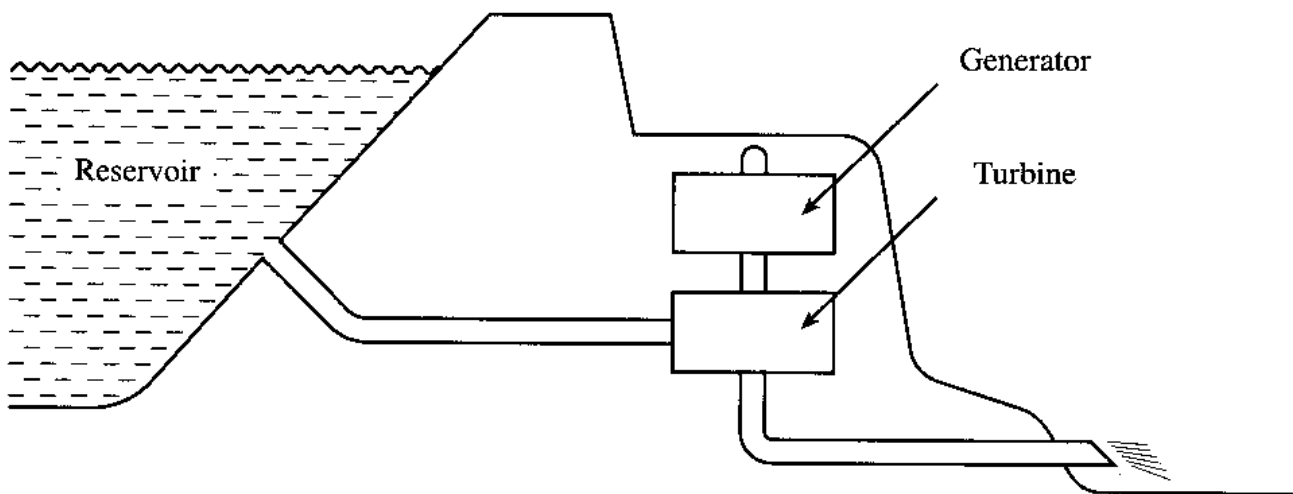
(ii) Nuclear power stations.

.....
.....

(d) A simplified drawing of a hydro-electric power station is shown below.

Complete the block diagram to show the energy conversions that take place in the system.
Make your own choice from the list given below. [3]

NUCLEAR; KINETIC; HEAT; CHEMICAL; ELECTRICAL; MECHANICAL; POTENTIAL.



1. (a) In the table below name **one** renewable and **one** non-renewable energy source. Complete the table by adding an environmental issue and an efficiency issue associated with the use of these energy sources to produce electricity. [6]

	<i>Energy source</i>	<i>Environmental issue</i>	<i>Efficiency issue</i>
Renewable
Non-renewable

- (b) Nearly all power stations feed their electricity into the national grid. Give **two** important functions of the national grid. [2]

Function 1

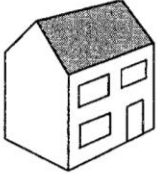
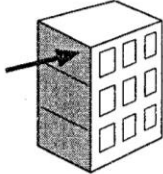
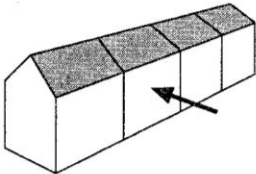
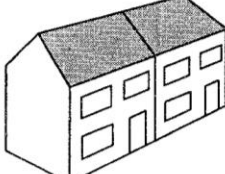
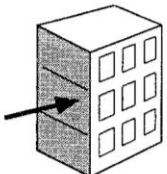
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Function 2

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- (c) (i) Because of their design some types of home are more expensive to heat than others. Place the homes listed below **in order** from the most to the least expensive to heat.

[5]

Detached house;	Top floor flat;	Terraced house;	Semi-detached house;	Middle floor flat.
				

Most expensive to heat

1	
2	
3	
4	
5	

Least expensive to heat

- (ii) Give **two** reasons for placing the middle floor flat where you have in the list. [2]

Reason 1

.....

Reason 2

.....

- (d) Describe **two** ways in which a production line in a factory could be made more efficient in its use of energy. [4]

1st way

.....

2nd way

.....