Energy Resources – 2023 IGCSE Physics 0625

1. Nov/2023/Paper_ 0625/11/No.9

Which energy resource is non-renewable?

A geothermal

B natural gas

C solar

D wind

2. Nov/2023/Paper_ 0625/12/No.9

In a small power station, biofuel is used to generate electricity.

Which energy store is reduced by this process?

A chemical

B kinetic

C nuclear

D thermal

3. Nov/2023/Paper_ 0625/13/No.9

Electrical power is generated from different resources. Some of these resources are listed.

- chemical energy stored in biofuels
- chemical energy stored in fossil fuels
- energy stored in tides
- geothermal resources
- hydroelectric resources
- light from the Sun
- nuclear fuel

How many of the resources listed are classified as renewable?

A 3 **B** 4 **C** 5 **D** 6

4. Nov/2023/Paper_ 0625/31/No.6(a, c)

Fig. 6.1 shows four wind turbines.

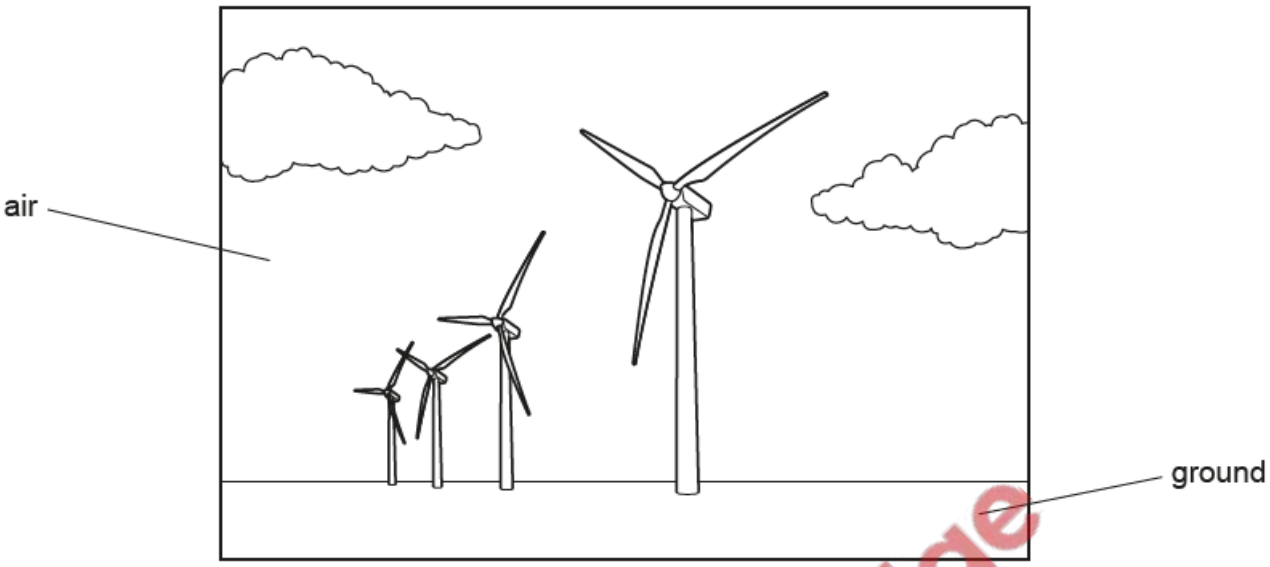


Fig. 6.1

(a) Describe how a wind turbine generates electrical power.

.....

.....

..... [3]

(c) For transmission, the output voltage is increased to 132 kV.

State **two** advantages of transmitting electrical power at high voltage.

1 .....

2 .....

[2]

5. Nov/2023/Paper_ 0625/41/No.5

Many methods of generating electrical power involve the use of water.

(a) Describe **one** method of generating electrical power from energy stored in water.

.....

.....

.....

.....

..... [3]

(b) For the method you chose in **(a)**, state **one** advantage and **one** disadvantage of generating electricity this way.

advantage .....

.....

disadvantage .....

.....

[2]

(c) State **two** methods of generating electrical power for which the main source of energy is **not** the Sun.

1 .....

2 .....

[2]

[Total: 7]

6. Nov/2023/Paper_ 0625/43/No.5

(c) **(i)** Describe how thermal energy from nuclear reactions is used to generate electricity in a power station.

.....

.....

.....

..... [3]

(ii) State **one** advantage and **one** disadvantage of using nuclear fuels in a power station instead of using fossil fuels.

advantage .....

.....

disadvantage .....

.....

[2]

7. June/2023/Paper_0625/23/No.11

Research is being carried out to produce electrical energy from the fusion of hydrogen nuclei.

Which row shows two of the problems in designing a fusion reactor?

	temperature needed	why obtaining a high density of hydrogen nuclei is difficult
A	very low	the nuclei are negatively charged and repel each other
B	very low	the nuclei are positively charged and repel each other
C	very high	the nuclei are negatively charged and repel each other
D	very high	the nuclei are positively charged and repel each other

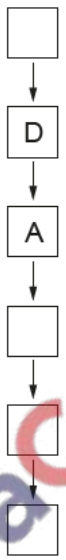
8. June/2023/Paper_0625/31/No.3

Electricity is distributed from wind turbines to homes and industry.

(a) Statements A–F describe the main stages in the transfer of energy from the Sun to electrical energy in a wind turbine generator.
The statements A–F are **not** in the correct order.

A Air moves from regions of high pressure to regions of low pressure.
B The turbine blades turn a generator.
C Energy from the Sun heats the atmosphere unevenly.
D Uneven heating of the atmosphere produces regions of different atmospheric pressure.
E The generator produces electrical energy.
F Moving air turns the turbine blades.

Complete the flow chart to describe how a wind turbine uses energy from the Sun to generate electrical energy. Insert the missing letters in the empty boxes.



[3]

(b) State **two** disadvantages, apart from cost, of using wind turbines to produce electrical energy for homes and industry.

1 .....

2 .....

[2]

[Total: 5]

9. June/2023/Paper_0625/33/No.2

Fig. 2.1 shows an engineer working with wind turbines.

Fig. 2.1

(a) Complete the sentences describing how electrical power is generated by energy in the wind.

(i) The source of the wind energy is ..... . [1]

(ii) When the blades turn, electrical power is generated in the ..... . [1]

(b) Describe **two** advantages, apart from cost, of generating electrical power by using wind turbines compared with using a coal-fired power station.

1 .....

.....

2 .....

.....

[2]

[Total: 4]

10. June/2023/Paper_0625/43/No.2(b, c)

(b) State **two** energy resources for which the Sun is **not** the main source.

1 .....

2 .....

[2]

(c) State and explain whether each of the following methods of electrical power generation is renewable.

(i) power generation in a nuclear power station

statement .....

explanation .....

.....

[2]

(ii) power generation from waves in the sea

statement .....

explanation .....

.....

[2]