Energy Sources

Question Paper

Course	CIE IGCSE Physics
Section	1. Motion, Forces & Energy
Topic	Energy Sources
Difficulty	Medium

Time Allowed 40

Score /28

Percentage /100

Question 1a

Fig.4.1 represents a hydroelectric system for generating electrical energy.

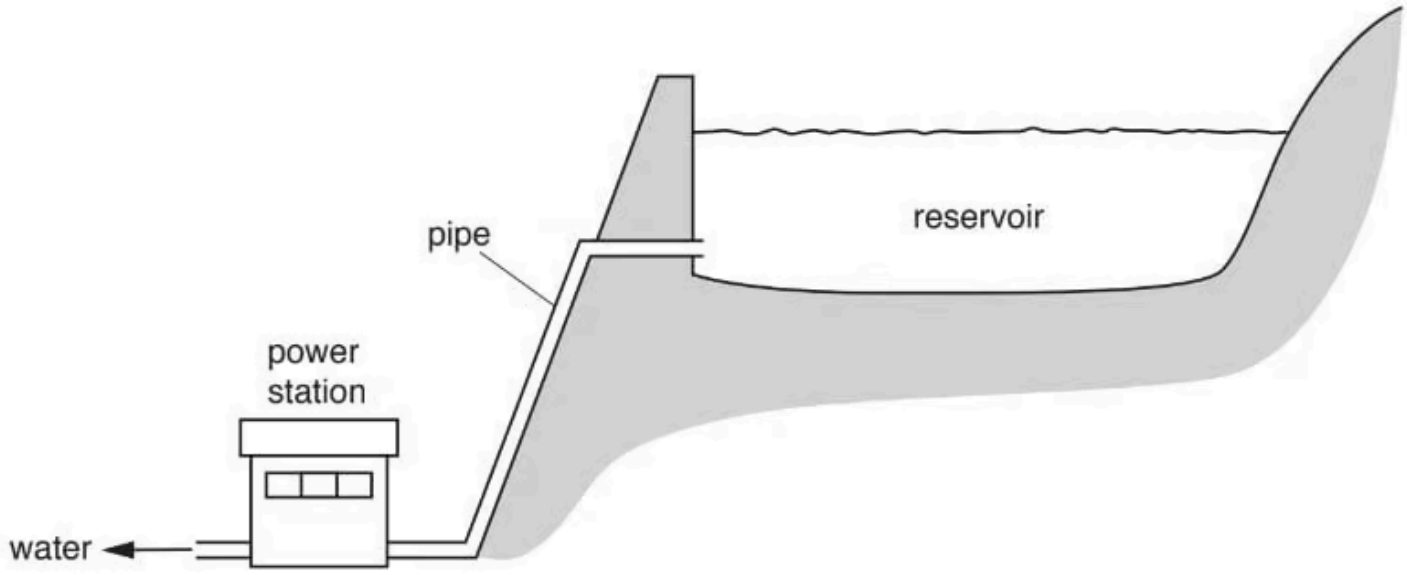


Fig. 4.1

Describe how the power station uses the water in the reservoir to generate electricity.

[3 marks]

Question 1b

State three advantages of generating electricity using a hydroelectric system compared with using a coal-fired power station.

[3 marks]

Question 1c

An electric drill is shown in Fig.4.2.

Fig. 4.2

Complete the sentences about the electric drill.
Use words from the box. Each word may be used once, more than once, or not at all.

efficient	kinetic	potential	powerful	reliable	thermal

(i) Energy is transferred electrically from the mains supply to the ..... store of the drill.

[1]

(ii) A second electric drill transfers the same amount of energy per second as the first one. However, it wastes more of this energy.The second drill is less ..... than the first drill.[1]

[2 marks]

Question 2a

Fig. 5.1 shows a wind turbine.

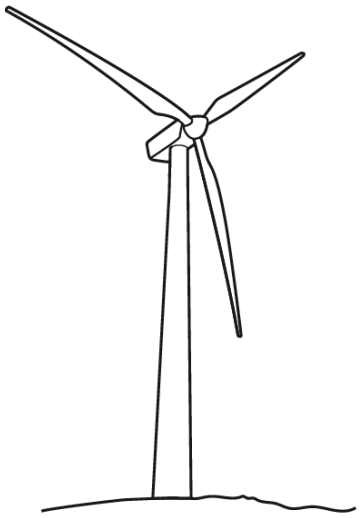


Fig. 5.1

Describe how the wind turbine produces electricity.

[3 marks]

Question 2b

Wind turbines are used in many countries to replace coal-fired power stations.

(i) State one disadvantage of using wind turbines compared to coal-fired power stations.

[1]

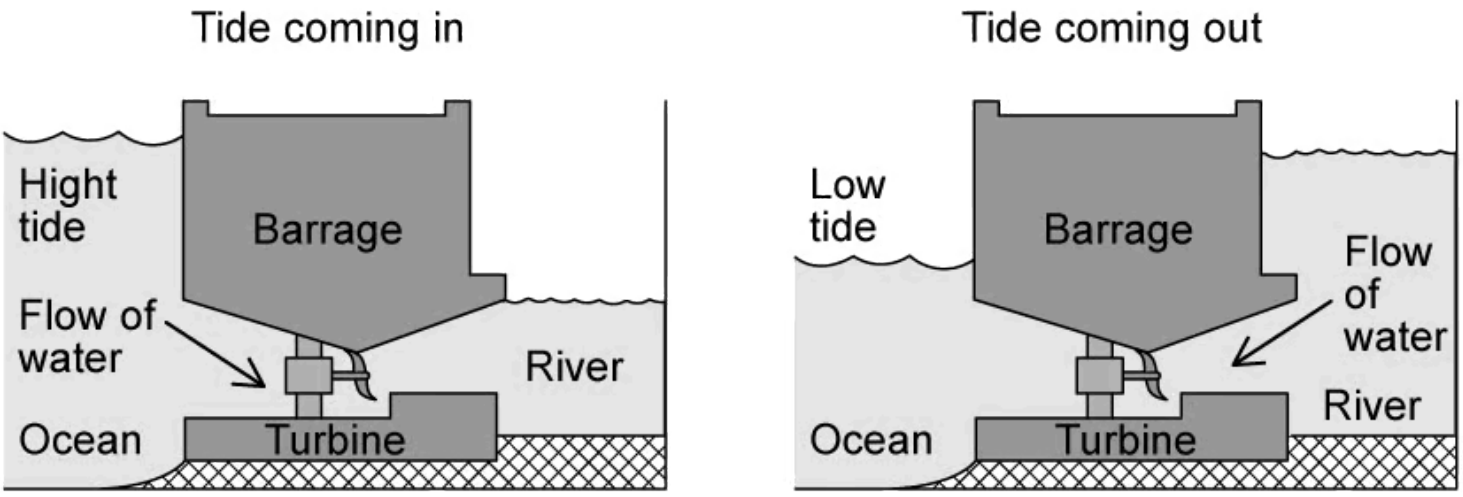
(ii) State two advantages of using wind turbines instead of coal-fired power stations.

[2]

[3 marks]

Question 3a

A tidal barrage (dam) produces electricity using tides. Fig. 5.1 shows a diagram of a tidal barrage (simplified).



The water behind the barrage (dam) has most of its energy in one of its energy stores. State the name of this energy store.

[1 mark]

Question 3b

Explain how the tidal barrage (dam) produces electricity.

[3 marks]

Question 4a

Fig. 5.1 shows a geothermal power station. It generates electricity.

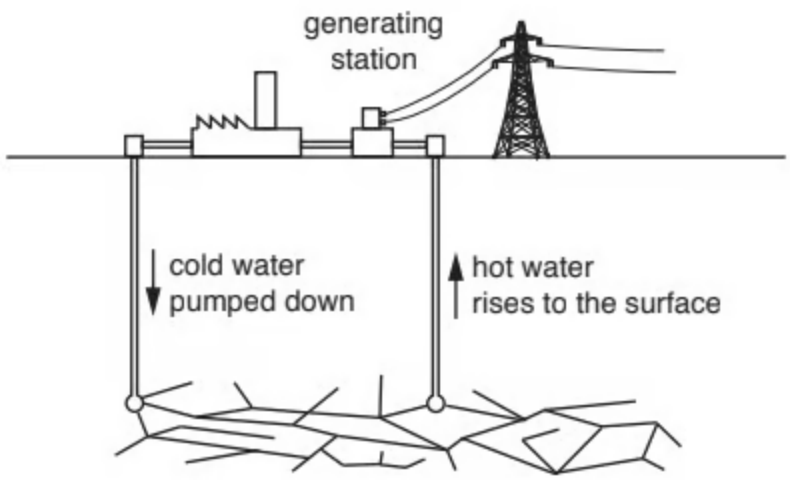


Fig. 5.1

In a geothermal power station, the process of generating electricity includes seven stages.

Four of the stages are shown below.

P steam turns a turbine
Q hot underground rocks heat the cold water
R the turbine spins a generator
S hot water rises to the surface

The flow chart in Fig. 5.2 shows the seven stages, but it is incomplete. Complete the flow chart by adding the letters P, Q, R and S in the correct sequence.

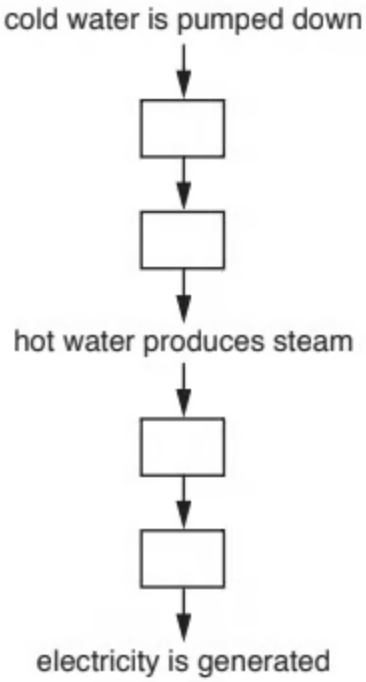


Fig. 5.2

[3 marks]

Question 4b

The cost of electricity obtained from a geothermal power station is similar to the cost of electricity obtained from wind turbines.

Describe one advantage and one disadvantage of using a geothermal power station to generate electricity compared with using wind turbines.

[2 marks]

Question 5a

Nuclear fission is used in nuclear power stations to release energy.

Describe how the energy is used to generate electricity.

[3 marks]

Question 5b

Describe two environmental problems that arise from using nuclear power stations.

[2 marks]