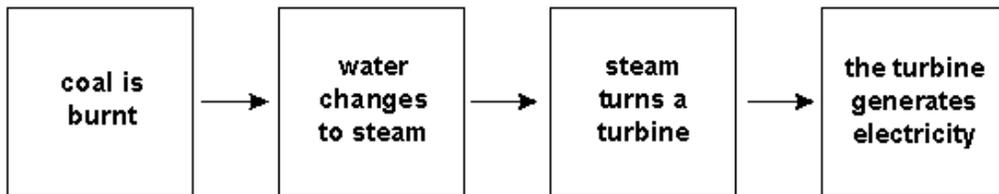


Q1. In a power station, coal can be used to generate electricity.



(a) Use words from the box to answer the questions below.

chemical	electrical	gravitational potential
kinetic	light	sound
		thermal

1 mark

(i) What is the useful energy transfer when coal is burnt?

..... energy is transferred to energy

1 mark

(ii) Some of the energy stored in coal is wasted when it is burnt.

Give the name of **one** type of energy released that is **not** useful.

.....

1 mark

(b) Wind turbines are also used to generate electricity. The wind turns the turbine blades and the turbine blades turn a generator.



Use words from the **box opposite**. Complete the sentence to show the useful energy transfer in a wind turbine and generator.

..... energy is transferred to energy

1 mark

(c) Suggest **one** disadvantage of using wind to generate electricity.

.....
.....

1 mark

(d) Sugar cane is a plant.

The sugar from the cane is used to make alcohol.
Alcohol is a fuel.



(i) Which energy source do plants use to produce sugar?

.....

1 mark

(ii) Is sugar cane a renewable **or** non-renewable source of energy?
Tick one box.

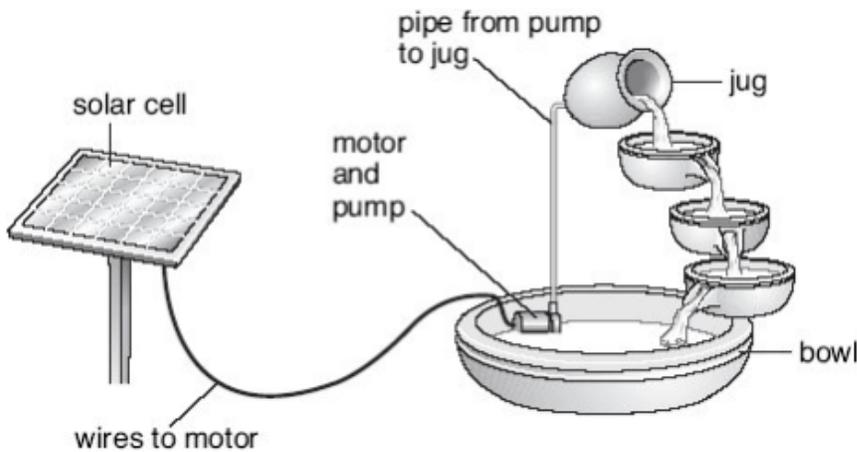
renewable source non-renewable source

Give a reason for your answer.

.....

1 mark
maximum 7 marks

Q2. The drawing below shows a garden water feature. It is solar-powered.



The solar cell absorbs energy from the Sun.
The solar cell is connected to a motor in the bowl.
The motor drives a pump.
Water is pumped up to the jug and it flows back down to the bowl.

- (a) Use the information above to help you to complete the following sentences.
Choose words from the list.

chemical **electrical** **gravitational potential** **kinetic**

light **sound** **thermal**

(i) The useful energy change in the solar cell is from light to energy. 1 mark

(ii) The useful energy change in the motor is from electrical energy to energy. 1 mark

(iii) As the water flows from the jug to the bowl energy is changed into energy. 2 marks

- (b) Give **one** advantage and **one** disadvantage of using a solar cell to power the water feature.

advantage
..... 1 mark

disadvantage
..... 1 mark
maximum 6 marks

- M1.** (a) (i) • chemical
answers must be in the correct order 1 (L6)
- thermal
accept 'kinetic'
'heat' is insufficient
'movement' is insufficient 1 (L6)
- (ii) any **one** from
- sound
- light 1 (L6)
- (b) • kinetic
electrical
answers must be in the correct order
both answers are required for the mark
'movement' is insufficient for kinetic 1 (L6)
- (c) any **one** from
- the wind speed varies
accept 'it depends on the weather'
- sometimes the wind does not blow
accept 'the wind is unreliable'
- the wind cannot be controlled
accept 'it varies'
accept 'it could be too windy'
responses that do not refer to wind, such as 'they spoil the landscape' or 'they kill birds' or 'they are too noisy' or 'interfere with TV and radio signals' are insufficient 1 (L5)
- (d) (i) • Sun(light)
accept 'light'
accept 'solar (energy)'
do not accept 'heat'
'photosynthesis' is insufficient 1 (L5)

- (ii) • renewable source ✓
***both** the correct answer and a correct explanation are required for the mark*

you can grow more plants
 accept 'you grow it (again)'
 do **not** accept 'you can use it again'
 'it is a biofuel' is insufficient

1 (L6)

[7]

M2. (a) (i) electrical

1 (L5)

(ii) kinetic
 accept 'movement'

1 (L6)

(iii) • gravitational potential
 accept 'gravitational' **or** 'potential'

1 (L6)

- kinetic **or** sound **or** thermal
 accept 'heat' for thermal
 accept for two marks 'kinetic into sound'
or 'kinetic into thermal'
 answers must be in the correct order

1

(b) advantage

- the energy will always be replaced
 accept 'it will not run out'
- it is renewable
 accept 'it does not use fuel **or** mains electricity'
- it is free to run
 accept 'it is cheap'
- a battery might leak
 accept 'no pollution with a solar cell'

1 (L5)

disadvantage

- if the Sun goes in the pump will stop
- it will not work at night **or** in the dark
accept 'it must be in the Sun to work'
accept 'it is not sunny all the time'
do **not** accept 'can be used again'

1 (L5)

[6]

