Question: 1

Look at the diagram of different **photocells**.

They are all exposed to the **same** brightness of **light**.

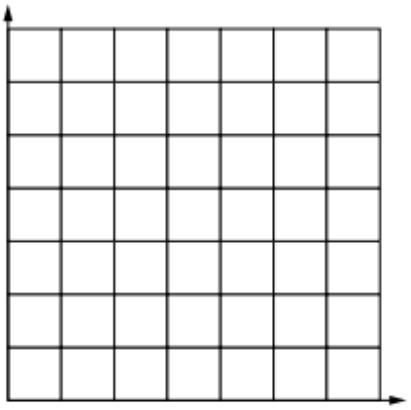
(a) Will they all produce the same current?

Explain your answer.

_____

_____ **[1]**

(b) Sketch a graph to show what happens to the current as the size of the photocells changes.



Make sure you label the axes. **[2]**

[total =3]

Question: 2

The Sun is a stable source of energy that provides heat and light.

We can use this heat or light as an energy source in the home.

(a) Complete the sentences.

Photocells transfer light into ..... .

The power of a photocell depends on the surface ..... exposed to light.**[2]**

(b) Describe **other** ways in which the Sun's heat and light are harnessed in the home.

[2]

[Total: 4]

Question: 1

This question is about generating electricity

(a) Wind is used to drive wind turbines.

What is the source of the wind's energy?

[1]

(b) In a science lesson Becky makes a model electrical generator.

The electrical output from the generator is very low.

Write down two ways in which she could **increase** the electrical output of her generator.

1

2 **[2]**

[Total: 3]

Question: 2

(a) Look at the list of stages in the production and distribution of electricity.

They are not in the correct order.

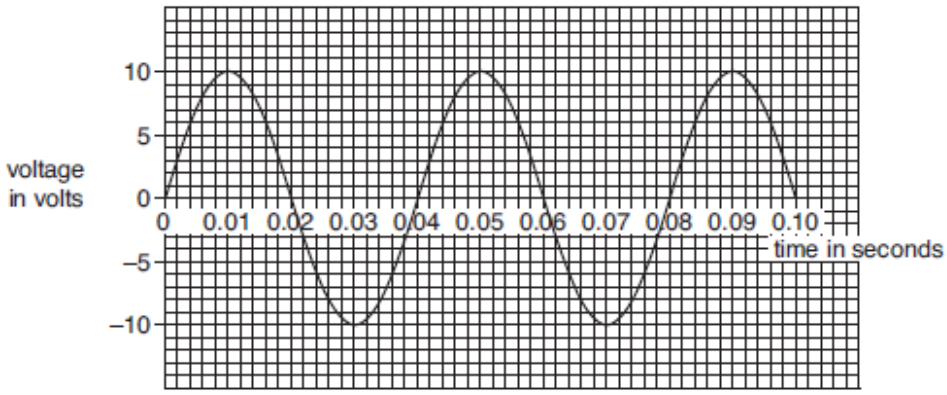
- **A** electricity is generated
- **B** electricity is sent along power lines to consumers
- **C** consumers such as homes, factories and farms use electricity
- **D** fuels such as oil and coal are burnt in a power station

Put the letters in the correct order to show the order of the stages. **[2]**

……

(b) Look at the graph of the output from a transformer.

(i) What is the peak output voltage?



answer

..... volts **[1]**

(ii) How long does it take for one complete cycle of alternating current (AC)?

answer ..... second **[1]**

[Total: 4]

Question: 3

(a) Photocells produce direct current (DC).

Write down one other device that **produces** DC.

[1]

(b) Power stations use fuel to produce electricity.

Only some of the energy in the fuel is transferred to electricity. The rest of the energy is wasted.

Describe what happens to the energy that is wasted.

[2]

[Total: 3]

Question: 4

This question is about renewable energy sources.

Photocells provide energy.

The picture shows some photocells.

(a) Look at the statements about photocells.

Put a tick (✓) next to the **three** correct statements.

- Photocells transfer light energy to electricity.
- Photocells run on batteries.
- Photocells need to be connected to the mains.
- Photocells will not produce electricity in the dark.
- Photocells can operate in remote locations. **[2]**

(b) Photocells produce direct current (dc).

What is direct current (dc)?

[1]

(c) Convection currents make air move (wind).

This causes wind turbines to turn and produce electricity.
What is the source of the energy that makes these convection currents? **[1]**

[Total: 4]

Question: 5

This question is about generating and using electricity.

One type of power station uses **fossil fuel**.

(a) (i) Write down the name of **one** fossil fuel. **[1]**

……

(ii) Biomass can be fermented to produce a fuel.

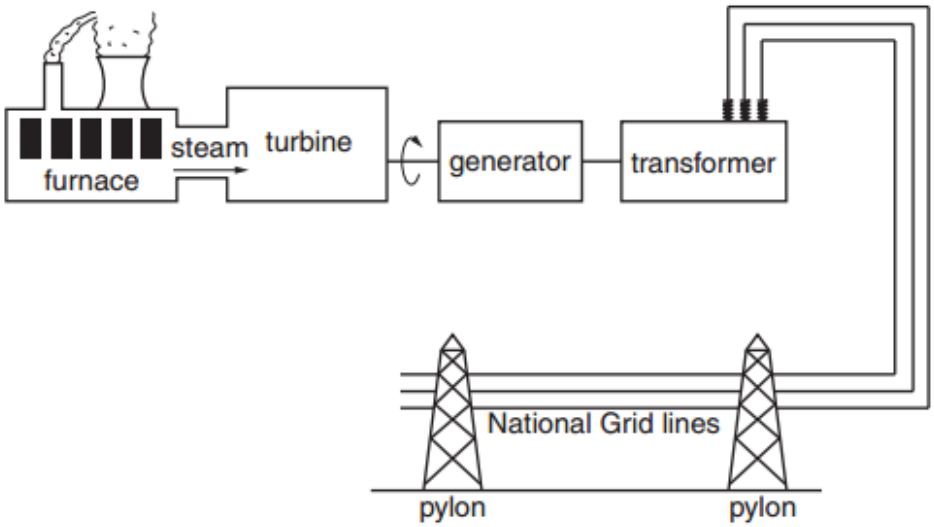
What gas is made when biomass is fermented?

Choose from

carbon monoxide **hydrogen** **methane** **propane**

answer .....
[1]

(b) Look at the diagram showing different parts of a power station.



The generators in a power station produce alternating current (ac).

The output is connected to a transformer.

(i) What is the job of a transformer?

[1]

(ii) The transformer is connected to the National Grid.

What is the job of the National Grid?

[1]

(c) It costs money to use electrical appliances.

The cost depends on the power rating of the appliance in watts (W). An 'old type' light bulb uses a current of 0.26 A when connected to a 230 V supply.

Calculate the power rating of this light bulb.

answer ..... W... **[2]** **[total: 6]**

Question: 6

There is increasing demand for electricity from consumers.

Large scale production of electricity uses non-renewable energy sources.

Describe the production and distribution of electricity from a **non-renewable** source.

In your answer write about

- **where** the energy is produced
- the energy source at the **start** of the production process • who the **consumers** are
- how the electricity **reaches** the consumers.

[3]

[Total: 3]

Question: 7

Power stations generate electricity.

Most power stations burn a **fuel** to produce heat.

(a) Write down the name of a **non-renewable** fuel that is used in power stations. **[1]**

……

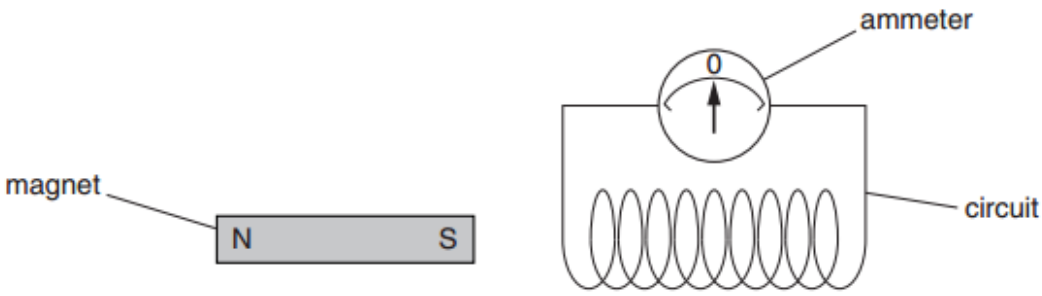
(b) Write down the name of a **renewable** fuel that is used in power stations.

…… **[1]**

Question: 8

Emily is investigating the **dynamo effect**.

She sets up the experiment shown in the diagram.



(a) How can Emily make a current flow in the circuit?

[1]

(b) A dynamo produces **alternating** current (AC).

What type of current does a **battery** produce in a circuit?

[1]

[Total: 2]