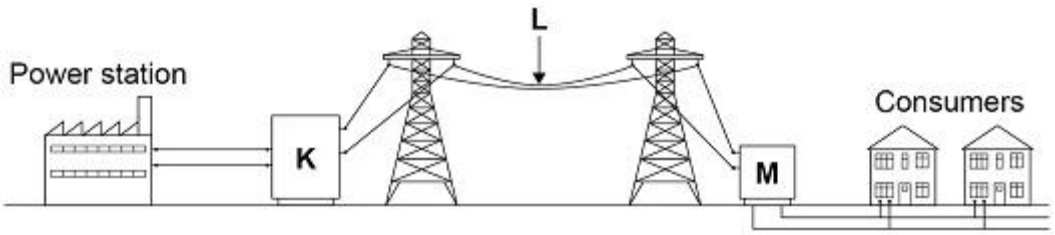
Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Q1.

The diagram below shows how the National Grid connects power stations to consumers.



(a) Name the parts of the National Grid labelled K, L and M.

K = _____

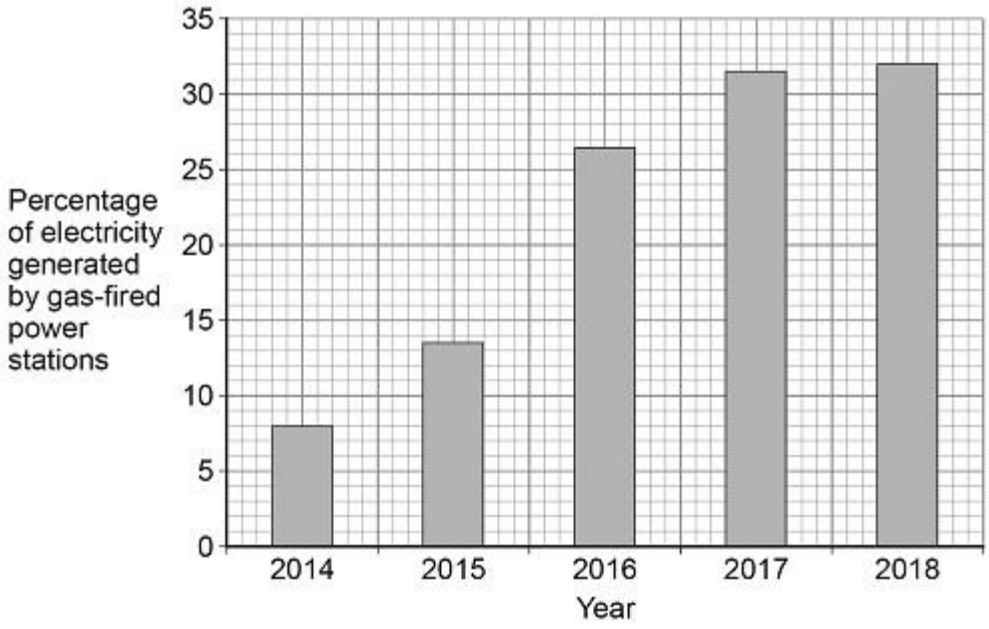
L = _____

M = _____

(3)

Figure 1 shows how the percentage of electricity generated by gas-fired power stations changed in the UK over 5 years.

Figure 1



(b) Calculate how many times greater the percentage of electricity generated by gas-fired power stations was in 2018 than in 2014.

_____

_____

_____

Number of times greater = _____

(2)

(c) Explain **one** environmental effect of generating electricity using a gas-fired power station.

_____

_____

_____

_____

(2)

(d) The UK government wants more electricity to be generated using renewable energy resources.

What is a renewable energy resource?

Tick (✓) **one** box.

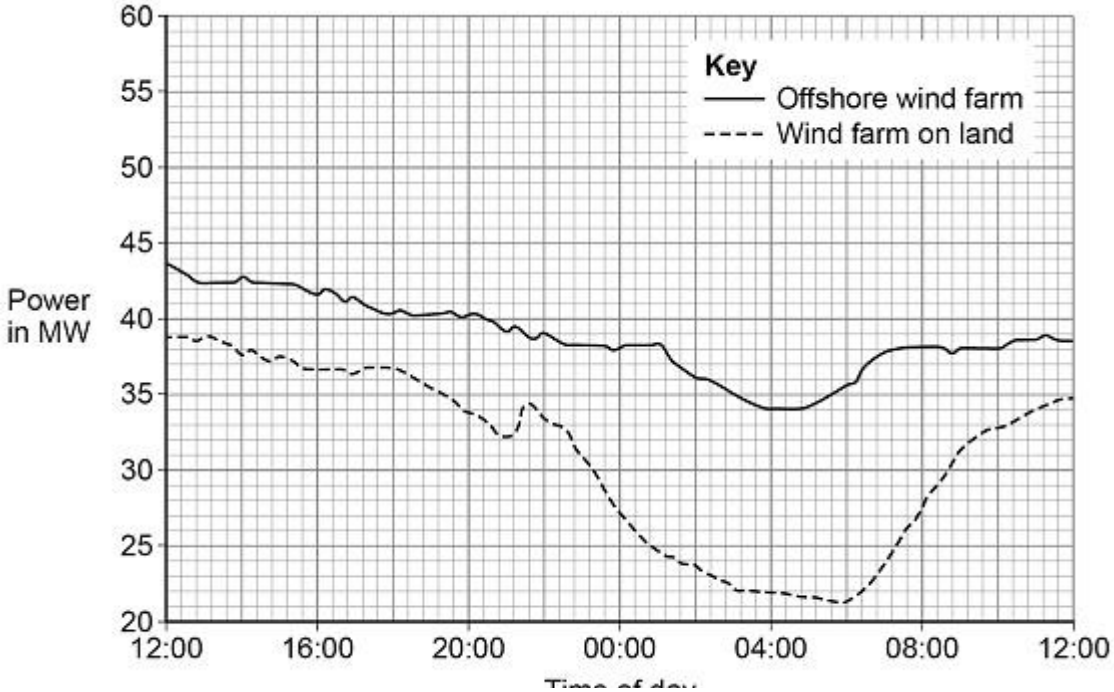
An energy resource that can be burned	☐
An energy resource that can be recycled	☐
An energy resource that can be replenished quickly	☐
An energy resource that can be reused	☐

(1)

(e) An offshore wind farm is a group of wind turbines that are placed out at sea.

Figure 2 shows the power output of an offshore wind farm compared with a wind farm on land for a 24-hour period.

Figure 2



Give **two** advantages of the offshore wind farm compared with the wind farm on land.

Use information from **Figure 2**.

1 _____

_____

2 _____

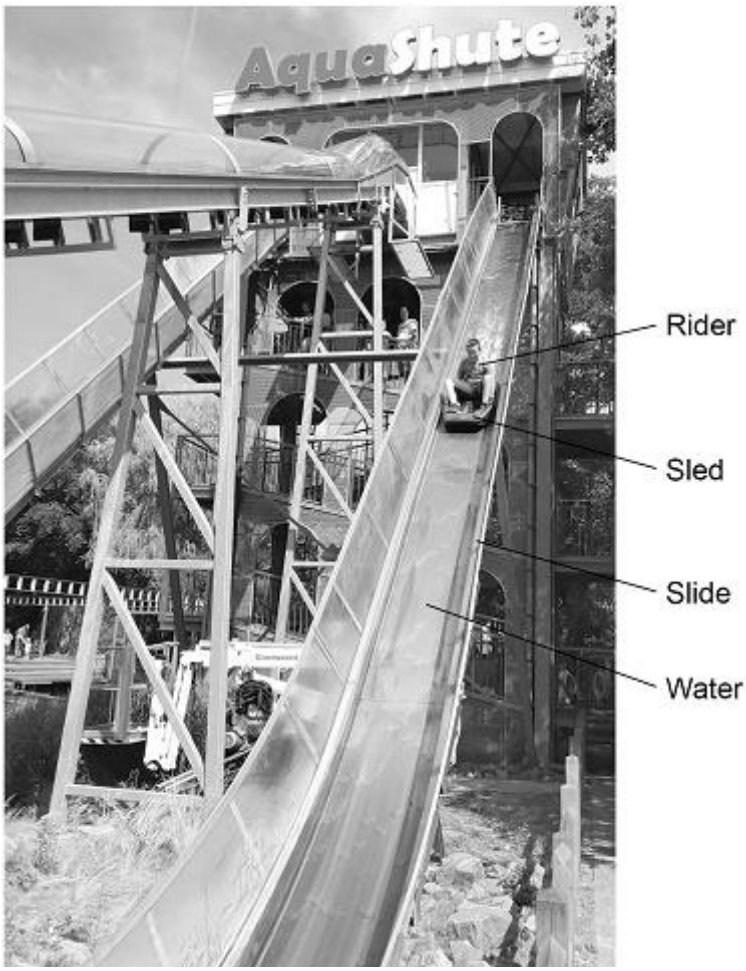
_____

(2)

(Total 10 marks)

Q2.

The photograph below shows a theme park ride called AquaShute.



(a) Riders of the AquaShute sit on a sled and move down a slide.

There is a layer of water between the sled and the slide.

How does the layer of water affect the friction between the sled and the slide?

Tick (✓) **one** box.

The friction is decreased.	☐
The friction is increased.	☐
The friction is not affected.	☐

(1)

(b) The mass of one rider is 62.5 kg.

The height of the slide is 16.0 m.

gravitational field strength = 9.8 N/kg

Calculate the gravitational potential energy of the rider at the top of the slide.

Use the equation:

gravitational potential energy = mass × gravitational field strength × height

Gravitational potential energy = _____ J

(2)

(c) At the bottom of the slide the speed of the rider is 12 m/s.

The mass of the rider is 62.5 kg.

Calculate the kinetic energy of the rider at the bottom of the slide.

Use the equation:

$$\text{kinetic energy} = 0.5 \times \text{mass} \times (\text{speed})^2$$

Kinetic energy = _____ J

(2)

(d) When a rider reaches the bottom of the slide, the sled decelerates and stops.

Give **two** factors that will affect how far the sled will move before it stops.

1 _____

2 _____

(2)

(Total 7 marks)