Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Energy (Standard Demand)

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Name of the Student:_____
Max. Marks : 16 Marks **Time : 16 Minutes**

Q1.

Wind power and solar power are both renewable energy resources used to generate electricity for the National Grid.

(a) Which of the following is also a renewable energy resource?

Tick (✓) **one** box.

Geothermal ☐

Natural gas ☐

Nuclear fuel ☐

(1)

(b) The energy transferred by the National Grid in one second was 36 gigajoules (GJ).

Which of the following is the same as 36 gigajoules?

Tick (✓) **one** box.

36×10^3 J ☐

36×10^6 J ☐

36×10^9 J ☐

36×10^{12} J ☐

(1)

(c) **Figure 1** shows how the mean power output from solar and wind energy resources in the UK varied between 2014 and 2019.

Figure 1

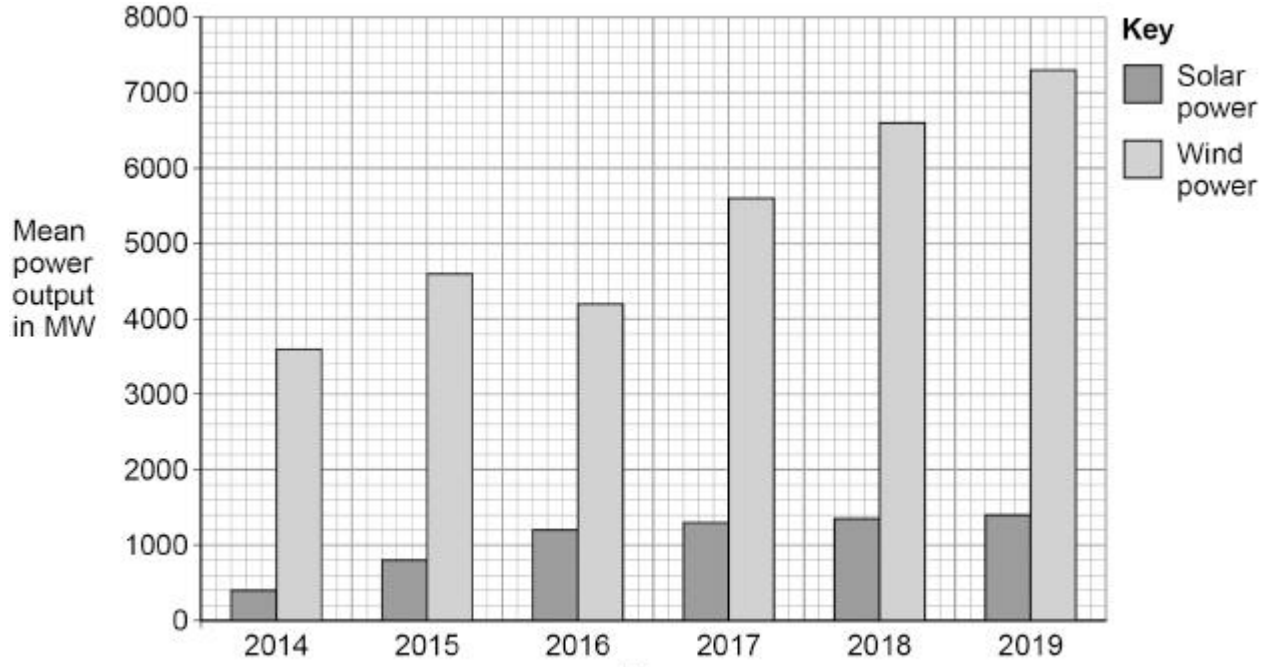
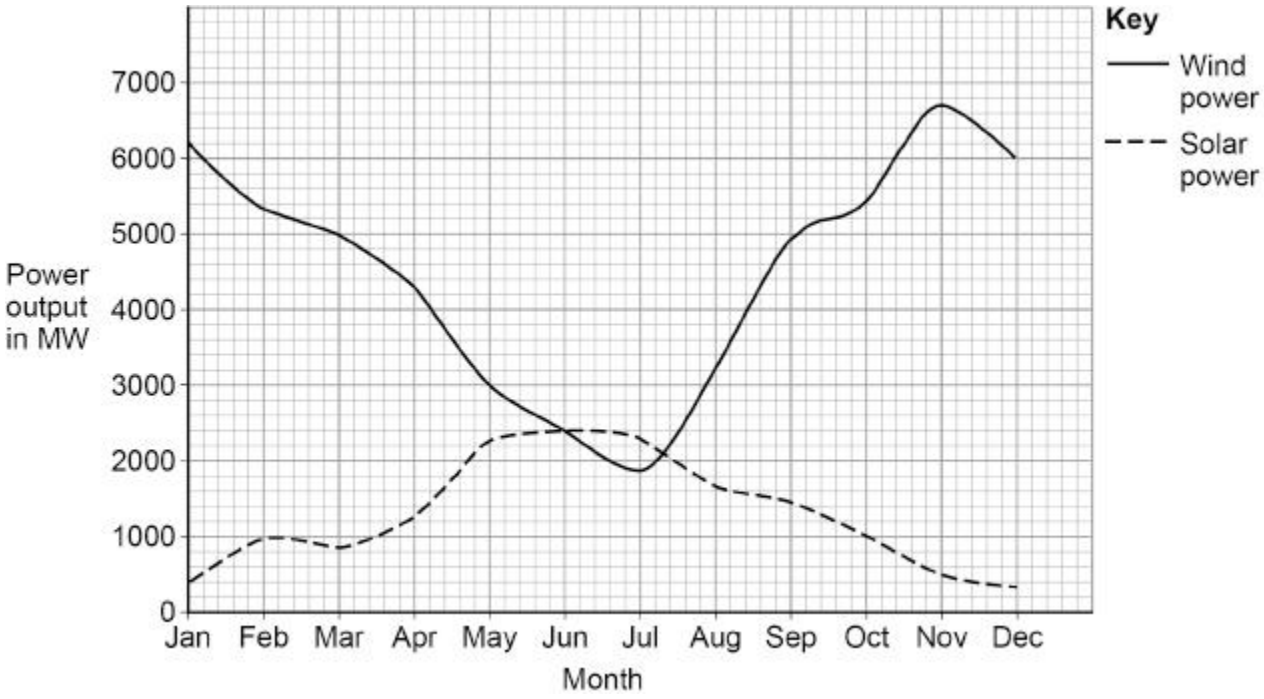


Figure 2 shows how the power output from solar and wind energy resources varies in a typical year.

Figure 2



Explain the changes in power output from solar and wind energy resources between 2014 and 2019.

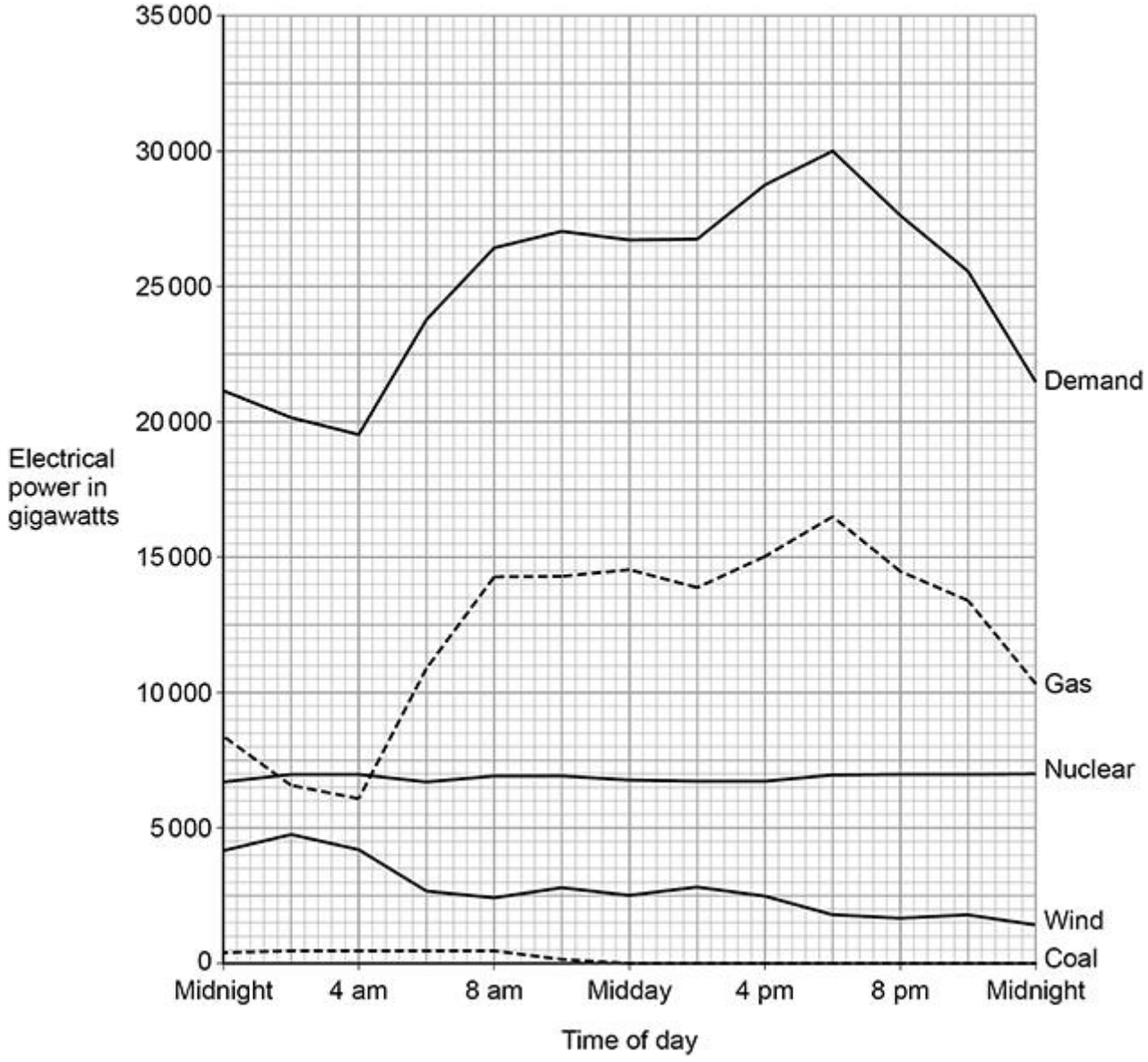
You should include an explanation of the change in power output during a typical year.

(6)

(Total 8 marks)

Q2.

The figure below shows some of the energy resources used to meet the demand for electrical power in the UK on one day in 2020.



(a) The maximum demand for electrical power on that day was at 6 pm.

Determine the percentage of the maximum demand for electrical power that was generated using gas.

_____

_____

_____

_____

_____

_____

Percentage = _____ %

(3)

(b) The UK government wants to reduce carbon emissions as much as possible.

Which energy resources need to be used less to achieve this?

Tick (✓) **one** box.

Coal and gas	☐
Gas and nuclear	☐
Wind and coal	☐
Wind and nuclear	☐

(1)

A network of transformers and transmission cables transfers electrical power from power stations to consumers.

(c) What is this network called?

_____

_____

(1)

(d) Explain how using step-up transformers makes the network efficient.

_____

_____

_____

_____

_____

_____

(3)

(Total 8 marks)