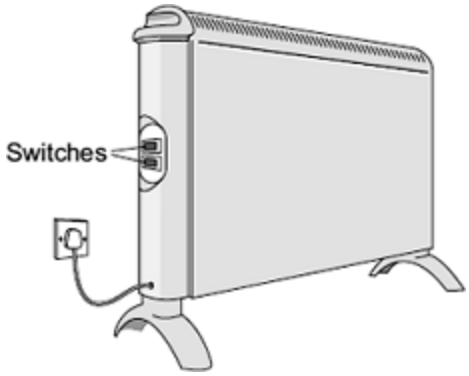
Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Energy (Standard Demand)

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Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Q1.

(a) The diagram shows two switches on a room heater. The heater has three power settings. The power produced by two of the settings is given in the table.



Setting	Power in watts
Low	700
Medium	1400
High	

(i) When both switches are on, the heater works at the high power setting.

What is the power of the heater, in kilowatts, when it is switched to the **high** power setting?

_____

Power = _____ kilowatts

(1)

(ii) The heater is used on the **high** power setting. It is switched on for 1½ hours.

Calculate the energy transferred from the mains to the heater in 1½ hours.

Show clearly how you work out your answer and give the unit.

_____

_____

_____

Energy transferred = _____

(3)

(iii) This type of heater is a very efficient device.

What is meant by a device being very efficient?

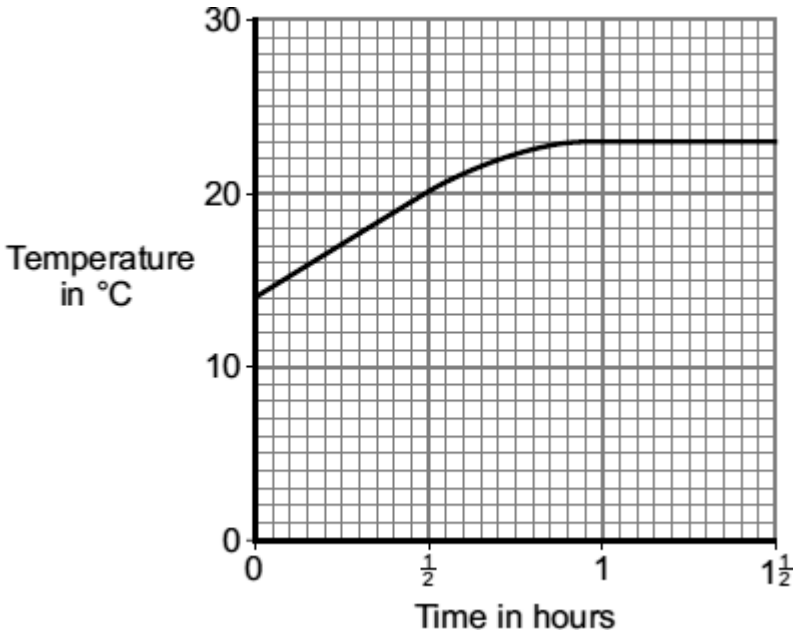
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_____

_____

(1)

(b) The graph shows how the temperature of a room changes during the 1½ hours that the heater is used.



After 1 hour, the temperature of the room has become constant, even though the heater is still switched on.

Explain why.

_____

_____

_____

_____

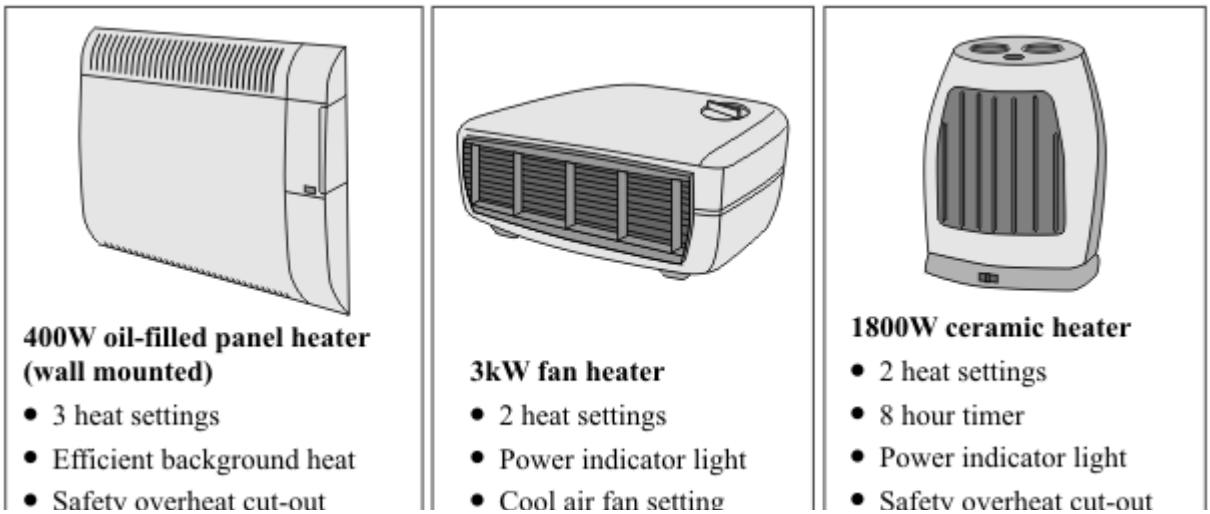
(2)

(Total 7 marks)

Q2.

The pictures show three different types of electric heater.

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400W oil-filled panel heater (wall mounted)

- 3 heat settings
- Efficient background heat
- Safety overheat cut-out

3kW fan heater

- 2 heat settings
- Power indicator light
- Cool air fan setting

1800W ceramic heater

- 2 heat settings
- 8 hour timer
- Power indicator light
- Safety overheat cut-out

(a) The ceramic heater is run on full power for 5 hours.

Use the following equation to calculate, in joules, the amount of energy transferred from the mains to the heater.

energy transferred = power × time

Show clearly how you work out your answer.

_____

_____

Energy transferred = _____ joules

(2)

(b) Which heater will be the most expensive to run on its highest heat setting?

_____

(1)

(c) A heater is needed for a small office.

Comparing each type of heater with the other two, give **one** advantage of using each type of heater in the office.

oil-filled panel heater _____

_____

fan heater _____

_____

ceramic heater _____

_____

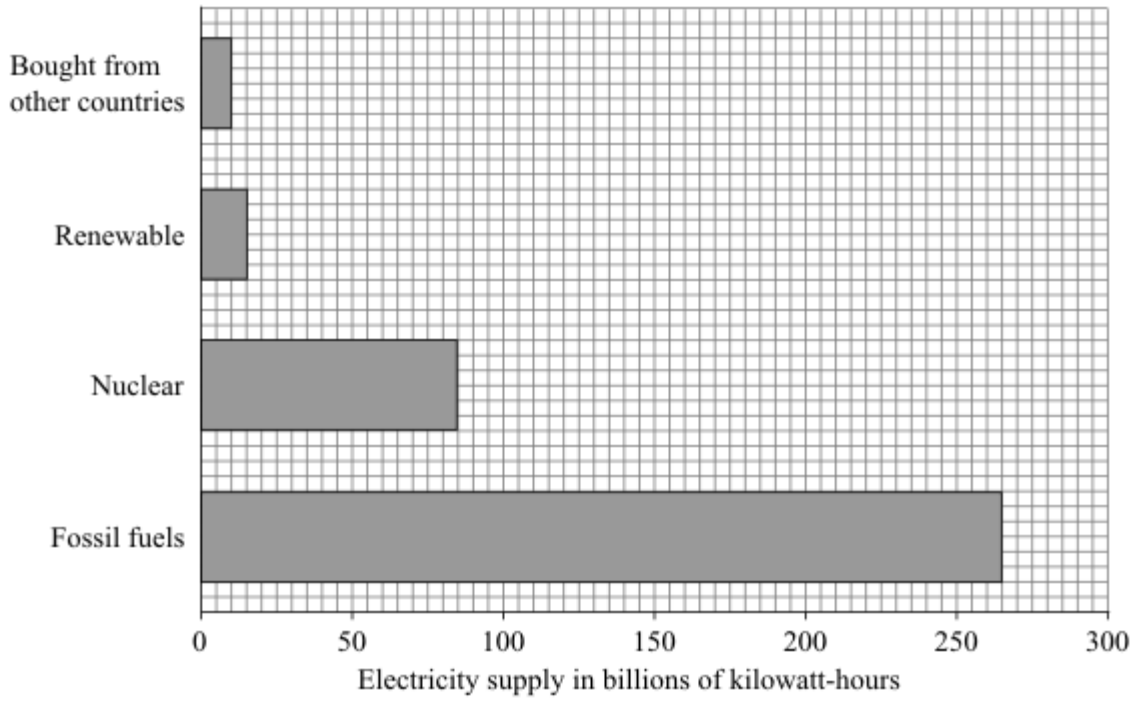
(3)

(Total 6 marks)

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Q3.

The bar chart shows how the UK's electricity demands in 2007 were met.



(a) What proportion of electricity was generated using renewable energy sources?

Show clearly how you work out your answer.

_____

_____

_____

_____

(2)

(b) By 2020, most of the UK's nuclear reactors and one-third of coal-fired power stations are due to close, yet the demand for electricity is expected to increase.

Four students, **A**, **B**, **C** and **D**, were asked how a demand of 380 billion kilowatt-hours could be met. They made the suggestions given in the table.

Student	Fossil fuels	Nuclear	Renewable	Bought from other countries
A	200	100	40	40
B	80	240	40	20
C	160	80	100	40
D	280	0	100	0

(i) Which student has made the suggestion most likely to result in the lowest carbon dioxide

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emissions?

_____

Give a reason for your answer.

_____

_____

(2)

(ii) Suggest **one** realistic way in which a householder could help to reduce the annual electricity demand.

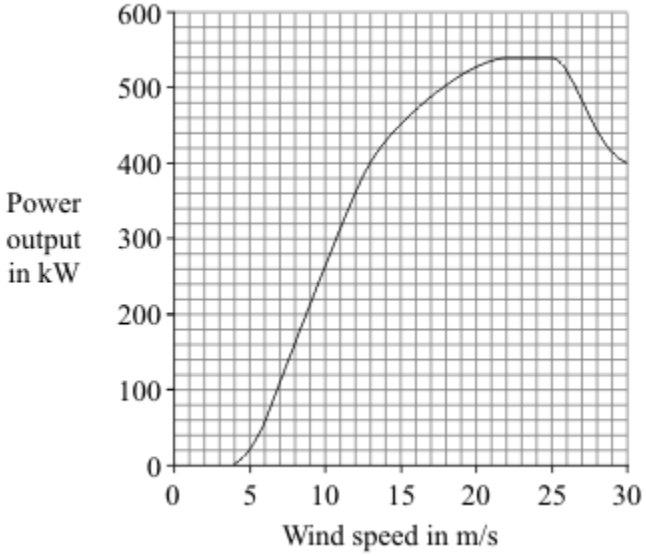
_____

_____

(1)

(c) To increase the amount of electricity generated using renewable energy resources would probably involve erecting many new wind turbines.

The graph shows the power curve of a wind turbine.



(i) Describe, in detail, how the power output of the turbine varies with the wind speed.

_____

_____

_____

_____

_____

_____

(3)

(ii) Give **one** disadvantage of using wind turbines to generate a high proportion of the electricity required in the UK.

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_____

_____

(1)

(Total 9 marks)

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