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

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Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Q1.

(a) The picture shows a new washing machine.

Complete the following sentence using **one** of the words in the box.

kinetic	**light**	**sound**

A washing machine is designed to transform electrical energy into heat and

_____ energy

(1)

(b) The instruction booklet for the washing machine contains the following information.

Wash cycle	Average power during cycle	Time taken to run cycle
HOT	1.5 kW	2 hours
COOL	1.1 kW	1½ hours
FAST	1.0 kW	¾ hour

(i) Use the following equation to calculate the energy transferred, in kilowatt-hours, to the washing machine during the HOT wash cycle. Show how you work out your answer.

energy transferred = power × time

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_____

_____

Energy transferred = _____ kWh

(2)

(ii) Why does it cost more to use the washing machine on the HOT cycle than on the COOL or FAST cycle?

_____

_____

(1)

(iii) Before buying a washing machine, a householder researched several makes to find out which washing machine was the most energy efficient.

Write down **one** way that he could have done this research.

_____

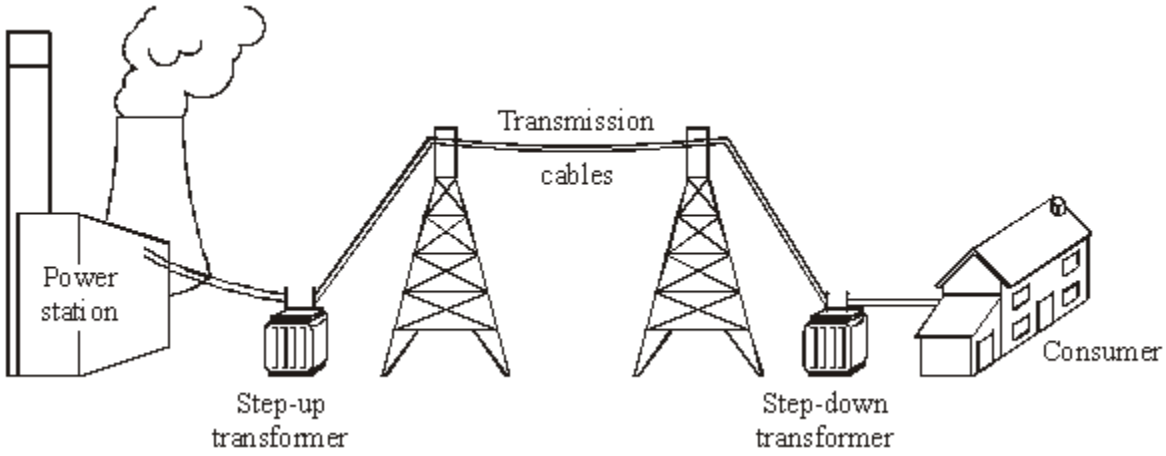
_____

(1)

(Total 5 marks)

Q2.

The diagram shows how electricity gets from power stations to consumers.



(a) Complete the following sentences by drawing a ring around the correct line in each box.

(i) The network of cables and transformers linking power stations to consumers

is called the national

grid
line
network

(1)

(ii)

A step-up transformer

decreases voltage

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increases current
increases voltage

(1)

(iii)

Electricity is supplied to consumers' homes at

230 V
25 000 V
400 000 V

(1)

(iv)

Making the current in the cables smaller will

increase
make no difference to
reduce

the energy lost in the cables.

(1)

(b) Transformers always waste some energy.

(i) What effect does the waste energy from a transformer have on the air around the transformer?

_____

(1)

(ii) Which **one** of the following describes the efficiency of a transformer?

Draw a ring around your answer.

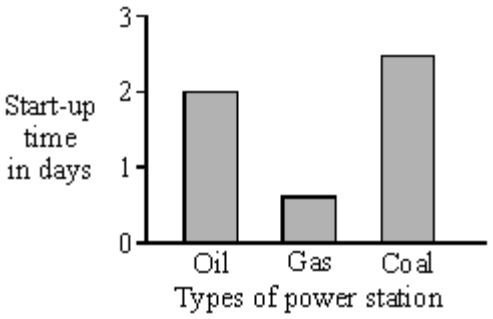
always 100 % **less than 100 %** **more than 100%**

(1)

(Total 6 marks)

Q3.

(a) The bar chart shows the start-up time for different types of fuel-burning power stations.



Which type of power station would be the quickest to start producing electricity?

_____

(1)

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(b) A fuel-burning power station is more reliable than a wind generator at producing electricity. Explain why.

_____

_____

_____

_____

(2)

(c) Fuel-burning power stations may produce air pollution. Why does a wind generator not produce any air pollution?

_____

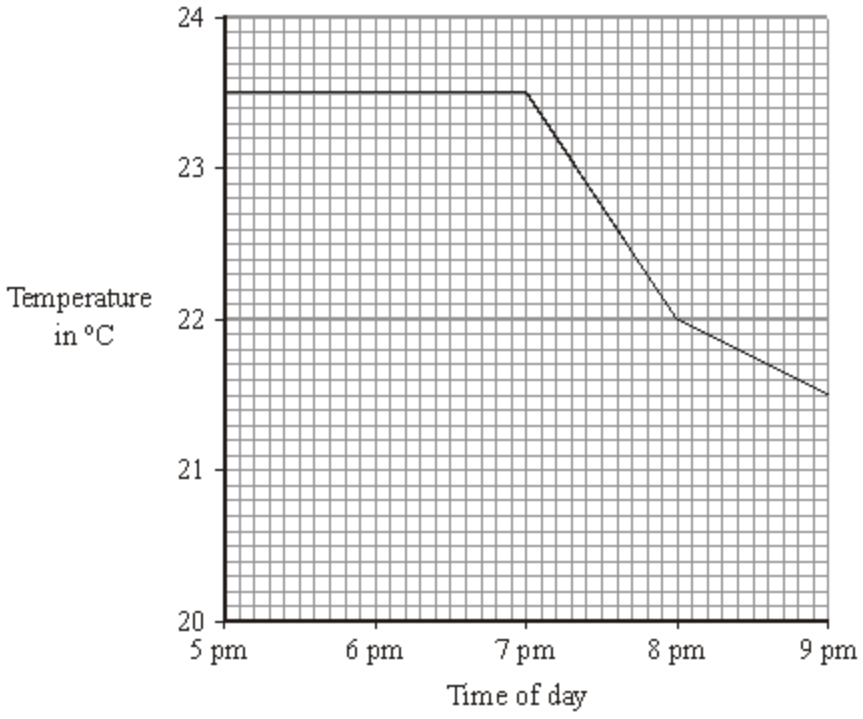
_____

(1)

(Total 4 marks)

Q4.

(a) The graph shows the temperature inside a flat between 5 pm and 9 pm. The central heating was on at 5 pm.



(i) What time did the central heating switch off?

_____

(1)

(ii) Closing the curtains reduces heat loss from the flat.

What time do you think the curtains were closed?

_____

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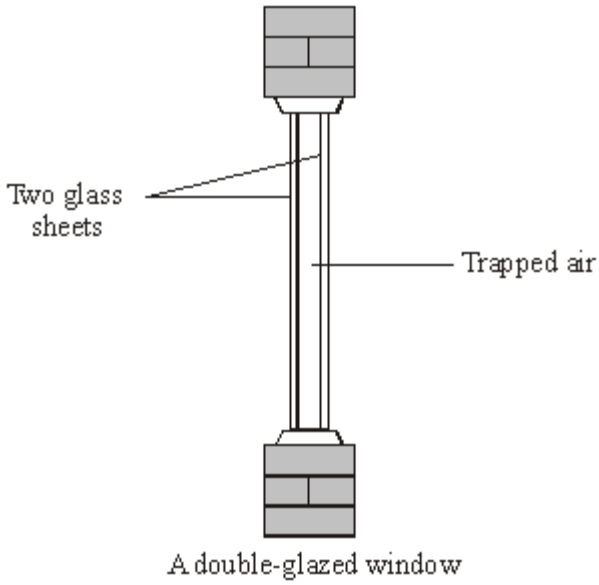
Give a reason for your answer.

_____

(2)

(b) Less heat is lost through double-glazed windows than through single-glazed windows.



A double-glazed window

Complete the following sentences by choosing the correct words from the box. Each word may be used once or not at all.

conduction	**conductor**	**convection**	**evaporation**	**insulator**	**radiation**

Air is a good _____ . When trapped between two sheets of

glass it reduces heat loss by _____ and _____

(3)

(c) The table gives information about three types of house insulation.

Type of insulation	Cost to install	Money save each year on heating bills	Payback time
Double glazing	£4000	£200	20 years
Loft insulation	£300	£100	3 years
Cavity wallinsulation	£600	£150	

(i) Use the information in the table to calculate the payback time for cavity wall insulation.

_____

(1)

(ii) Explain why people often install loft insulation before installing double glazing or cavity wall insulation.

_____

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_____

_____

_____

(2)

(Total 9 marks)

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