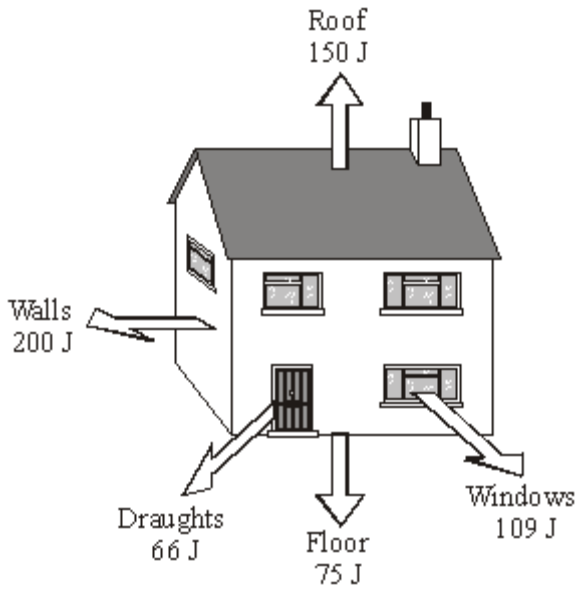
Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Energy (High Demand)

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Name of the Student:_____
Max. Marks : 25 Marks **Time : 25 Minutes**

Q1.

(a) The diagram shows how much heat is lost each second from different parts of an uninsulated house.



(i) Each year, the house costs £760 to heat.

How much money is being wasted because of heat lost through the roof?

Show clearly how you work out your answer.

_____

_____

(2)

(ii) Insulating the loft would cut the heat lost through the roof by 50 %.

The loft insulation has a payback time of $1\frac{1}{2}$ years.

How much did the loft insulation cost to buy?

_____

Cost of loft insulation = £ _____

(1)

(b) What happens to the wasted energy?

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_____

_____

(1)

(Total 4 marks)

Q2.

There is an increasing demand for electricity and the reserve of fossil fuels is decreasing. A way to meet increasing demand for electricity is to build new nuclear power stations. Some people feel that no new nuclear power stations should be built because of the risks associated with nuclear fuels.

(a) Outline the arguments that a scientist working in the nuclear power industry could use to justify the building of more nuclear power stations in the future.

_____

_____

_____

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_____

(3)

(b) Nuclear waste is a problem that must be dealt with. One possible solution would be to bury the waste deep underground.

Suggest **one** reason why some people are against burying nuclear waste.

_____

_____

(1)

(c) Electricity can also be generated using renewable energy sources.

Look at this information from a newspaper report.

- The energy from burning bio-fuels, such aswoodchip and straw, can be used to generate electricity.
- Plants for bio-fuels use up carbon dioxideas they grow.
- Farmers get grants to grow plants forbio-fuels.
- Electricity generated from bio-fuels can besold at a higher price than electricity generated from burning fossilfuels.
- Growing plants for bio-fuels offers newopportunities for rural communities.

Suggest why, apart from the declining reserves of fossil fuels, power companies should use more bio-fuels and less fossil fuels to generate electricity.

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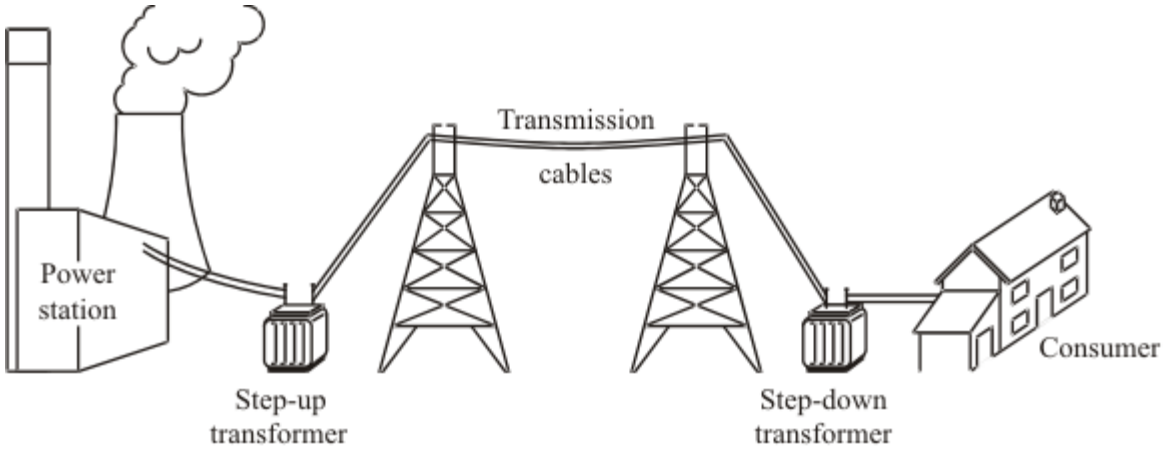
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(3)

(Total 7 marks)

Q3.

The diagram shows how electricity is distributed from power stations to consumers.



(a) (i) What name is given to the network of cables and transformers that links power stations to consumers?

_____

(1)

(ii) What does a step-up transformer do?

_____

(1)

(iii) Explain why step-up transformers are used in the electricity distribution system.

_____

_____

_____

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(2)

(b) Most of the world's electricity is generated in power stations that burn fossil fuels.

State **one** environmental problem that burning fossil fuels produces.

_____

_____

(1)

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(c) Electricity can be generated using energy from the wind. A company wants to build a new wind farm. Not everyone thinks that this is a good idea.



(i) What arguments could the company give to persuade people that a wind farm is a good idea?

_____

_____

_____

_____

(2)

(ii) What reasons may be given by the people who think that wind farms are **not** a good idea?

_____

_____

_____

_____

(2)

(Total 9 marks)

Q4.

(a) The table gives information about some ways of reducing the energy consumption in a house.

Method of reducing energy consumption	**Installation cost in £**	**Annual saving on energy bills in £**
Fit a new hot water boiler	1800	200
Fit a solar water heater	2400	100
Fit under floor heating	600	50

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Fit thermostatic radiator valves	75	20

Which way of reducing energy consumption is most cost effective over a 10-year period?

To obtain full marks you must support your answer with calculations.

_____

_____

_____

_____

_____

_____

(3)

(b) Explain why using an energy-efficient light bulb instead of an ordinary light bulb reduces the amount of carbon dioxide emitted into the atmosphere.

_____

_____

_____

_____

(2)

(Total 5 marks)

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