Energy

Physics Paper 1 | 5 questions, 6 marks each

GCSE science 6-mark questions

This topic online

Name: _____ **Date:** _____ **Score:** _____ **/ 30**

Plan before you write: jot down the 6 or more ideas you need, then put them in a sensible order. For compare questions give both sides of each point; for evaluate questions use the information and finish with a conclusion.

1 Priya lives in an old stone cottage in Cumbria. In winter the house cools down quickly once the heating switches off at night. She is thinking about fitting loft insulation, filling the cavity walls with foam and adding thick curtains.

Explain how these changes would reduce the energy Priya needs to keep her house warm. (6 marks)

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2 An energy company in Lincolnshire can either build an offshore wind farm or a gas-fired power station.

Compare these two ways of generating electricity.

(6 marks)

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3 A secondary school in Bristol wants to cut its heating and electricity costs. The governors have two options.

	Solar panels on the roof	**Biomass boiler burning wood pellets**
Cost to install	£48,000	£35,000
Yearly saving on bills	£6,000	£4,000 (after buying pellets)
Works at night	No	Yes
Output in winter	Low	Can be turned up
Deliveries needed	None	Pellet lorry every 3 weeks

Evaluate the two options. Use the information in the table and your own knowledge. Give a justified recommendation.

(6 marks)

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4 Kofi rides his bike to the top of a steep hill in the Peak District. He stops, then freewheels down the other side without pedalling. At the bottom he squeezes the brakes and comes to a stop.

Describe the changes to energy stores from when Kofi starts cycling up the hill to when he stops at the bottom.

(6 marks)

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5 Sofia drops a tennis ball of mass 0.15 kg from a height of 2.0 m. A light gate just above the floor measures its speed as 5.9 m/s.

Gravitational field strength = 9.8 N/kg.

Use the data to calculate the speed the ball would reach if no energy were wasted. Compare this with the measured speed, work out how efficiently the gravitational potential energy was transferred to kinetic energy, and explain the difference.

(6 marks)

End of questions | Total 30 marks

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