Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 8_Energy Forces Doing Work

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Q1.

(a) Which of these situations can increase the reaction time of a driver?

Put a cross (☒) in the box next to your answer.

(1)

- ☐ **A** an icy road
- ☐ **B** worn tyres on his car
- ☐ **C** stopping for a cup of coffee
- ☐ **D** driving for a long time without taking a break

(b) (i) A car engine produces an average driving force of 1200 N.

The car travels 8.0 m.
Calculate the work done by the force over this distance.

(2)

work done = ... J

(ii) The car has a mass of 1400 kg and travels at a velocity of 25 m/s.
Calculate the kinetic energy of the car.

(3)

kinetic energy = ... J

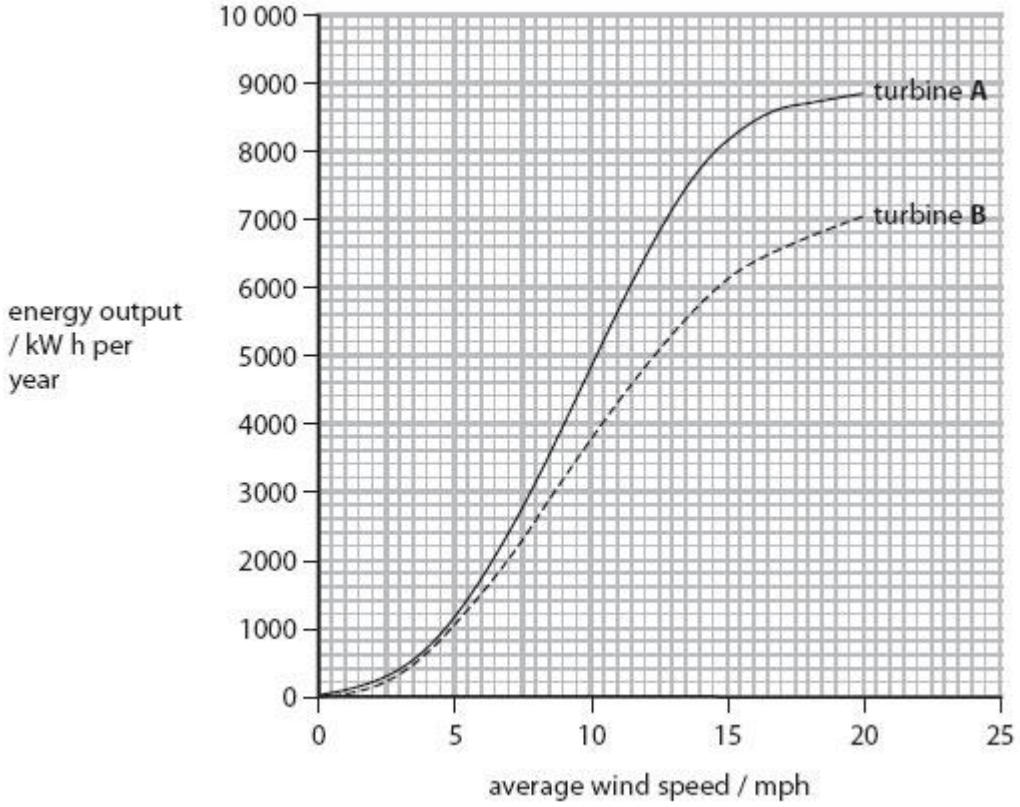
Q2.

(a) Eric owns a small farm where chicks are hatched from eggs.

He is considering generating his own electricity to heat and light a barn rather than using electricity from the National Grid.

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This graph shows how the energy output varies with wind speed for two different wind turbines, **A** and **B**.



The average wind speed at Eric's farm is 13 mph.
The total heating and lighting in the barn requires 6000 kW h of electrical energy each year.

(i) Use the data in the graph to recommend the best turbine for Eric's barn.

(1)

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(ii) Eric pays 14p per kW h for electrical energy supplied by the National Grid.
Calculate how much he could expect to save each year by using the energy from this wind turbine to heat and
light the barn.

(2)

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(iii) Eric looks at the cost of installing the turbine.

State how he should work out the payback time.

(1)

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(iv) The chicks need to be kept warm at all times.
Eric uses halogen lamps to provide heat and light for most of the day.
Eric thinks about changing his halogen lamps for energy saving lamps.
Suggest why this might not actually be a benefit.

(2)

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*(b) There are several large-scale energy resources which are suitable alternatives to fossil fuels in some situations.

Two of these alternatives are hydro-electric power and solar power.

Compare hydro-electric power with solar power as energy resources for the large-scale generation of electricity.

(6)

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(Total for Question is 12 marks)

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