PEARSON EDEXCEL GCSE PHYSICS (HIGHER) · 1PH0

PHYSICS



EXAM QUESTION PACK

TOPIC 1: KEY CONCEPTS OF PHYSICS (PAPER 2)

SCORE	PERCENTAGE
/23	%

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Q1.

A steel ball has a volume of 3.6 cm^3 and a mass of 28 g.

(i) Calculate the density of steel in kg/m^3.

(3)

density = ... kg/m^3

(ii) The steel ball is at a room temperature of 20 °C.

It is then put in a pan of boiling water maintained at 100 °C.

Calculate how much thermal energy the ball gains as its temperature increases from 20 °C to 100 °C.

Specific heat capacity of steel = 510 J/ kg °C

Use an equation selected from the list of equations at the end of this paper.

(2)

thermal energy gained = ... J

(iii) The steel ball is put into a furnace where it melts.

Compare the motion of particles in the steel when they are in the solid state with their motion when in the molten (liquid) state.

(3)

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(Total for question = 8 marks)

Q2.

A steel ball has a volume of 3.6 cm^3 and a mass of 28 g.

(i) Calculate the density of steel in kg/m3.

(3)

density = ... kg/m^3

(ii) The steel ball is at a room temperature of 20 °C.

It is then put in a pan of boiling water maintained at 100 °C.

Calculate how much thermal energy the ball gains as its temperature increases from 20 °C to 100 °C.

Specific heat capacity of steel = 510 J/kg °C

Use an equation selected from the list of equations at the end of this paper.

(2)

thermal energy gained = ... J

(iii) The steel ball is put into a furnace where it melts.

Compare the motion of particles in the steel when they are in the solid state with their motion when in the molten (liquid) state.

(3)

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(Total for question = 8 marks)

Q3.

Figure 3 is a speed limit sign from a European motorway.

The speeds shown are in km/h (kilometres per hour).

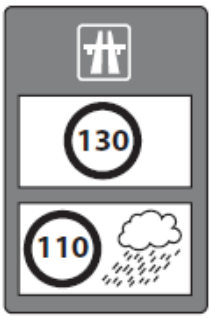


Figure 3

(i) The sign tells drivers to drive at a slower speed in wet weather.

Explain why it is safer for drivers to drive at a slower speed in wet weather.

(2)

.....

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.....

.....

(ii) Show that a speed of 31 m/s is less than a speed of 130 km/h.

(2)

(iii)

> The driver's reaction time is the time between the driver seeing an emergency and starting to brake.

A car is travelling at a speed of 31 m/s.

The car travels 46 m between the driver seeing an emergency and starting to brake.

Calculate the driver's reaction time.

Give your answer to 2 significant figures.

(3)

driver's reaction time ..... s

(Total for question = 7 marks)