



General Certificate of Secondary Education
2025–2026

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--	--

Double Award Science: Physics

Unit P1

Foundation Tier



[GDW31]

GDW31

WEDNESDAY 12 NOVEMBER 2025, MORNING

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided.

Do not write outside the boxed area on each page or on blank pages.

Complete questions in black ink and use a dark HB pencil for drawings and graphs.

Do not write with a gel pen.

Answer **all nine** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 60.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

You may use a scientific calculator.

Quality of written communication will be assessed in Question 7.

14902



16GDW3101

1 This question is about energy.

(a) Place ticks (✓) in the table below to identify **three** types of energy.

Types of energy	Tick (✓)
speed	
magnetic	
sound	
pressure	
power	
strain	

[3]



(b) Energy can be changed from one form to another.

Complete the boxes below to show the **main** energy change that is happening in each case.

A ball **rising** vertically



energy



*gravitational
potential*

energy

A light bulb



energy



light

energy

Burning wood



energy



energy

[4]

[Turn over



2 Energy resources can be renewable or non-renewable.

(i) State what is meant by a **non-renewable** energy resource.

[1]

(ii) Circle the three **non-renewable** energy resources given in the box below.

hydroelectricity	oil	nuclear
coal	tidal	wind

[3]

(iii) Some energy resources can harm the environment.

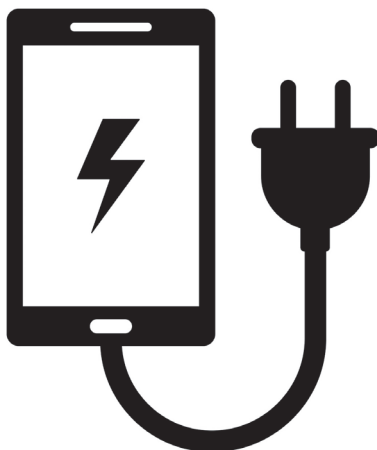
Place one tick (✓) in each row to show if the energy resource can cause acid rain, flooding of habitat or radioactive waste.

Energy resource	Acid rain	Flooding of habitat	Radioactive waste
Coal			
Nuclear			
Hydroelectricity			

[3]



3 This question is about the efficiency of a mobile phone charger.



A mobile phone charger produces 8400 J of useful energy.

The total electrical input energy is 14 000 J.

(i) Calculate the efficiency of the charger.

Show your working out.

Efficiency = _____ [3]

(ii) How much energy is **wasted** by the charger?

Energy wasted = _____ J

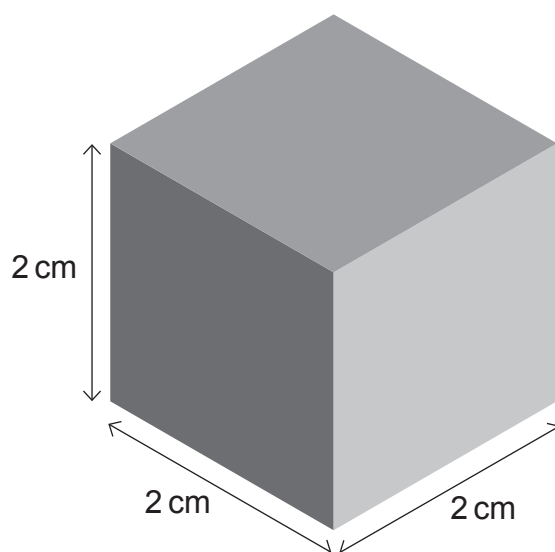
In what form is this energy wasted?

_____ [2]

[Turn over



- 4 (a) A student wants to find the density of a metal cube.



The length of each side of the cube is 2 cm.

The cube has a mass of 56 g.

By first finding the volume of the cube, calculate its density.

Include the unit in your answer.

Do not change any units.

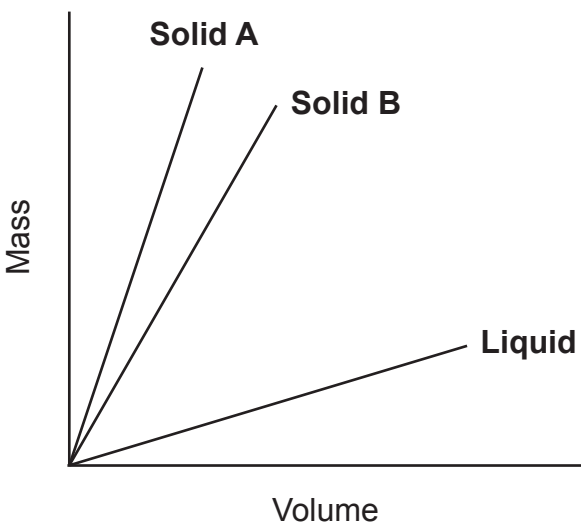
Show your working out.

Density = _____ [5]



(b) A graph of mass against volume is drawn for three materials.

There are two solids, A and B, and a liquid.



Place one tick (✓) per row in the table below to indicate which material best fits each description.

	Solid A	Solid B	Liquid
Largest distance between particles			
Largest density			

[2]

[Turn over



5 A lizard climbs a wall.



- (i) The lizard has a mass of 0.05 kg.

At a certain height on the wall the lizard has 2 J of gravitational potential energy.

Calculate the height of the lizard above the ground.

Show your working out.

Height = _____ m [3]

- (ii) How much gravitational potential energy does the lizard have when on the ground?

Gravitational potential energy = _____ J [1]



BLANK PAGE

DO NOT WRITE ON THIS PAGE

(Questions continue overleaf)

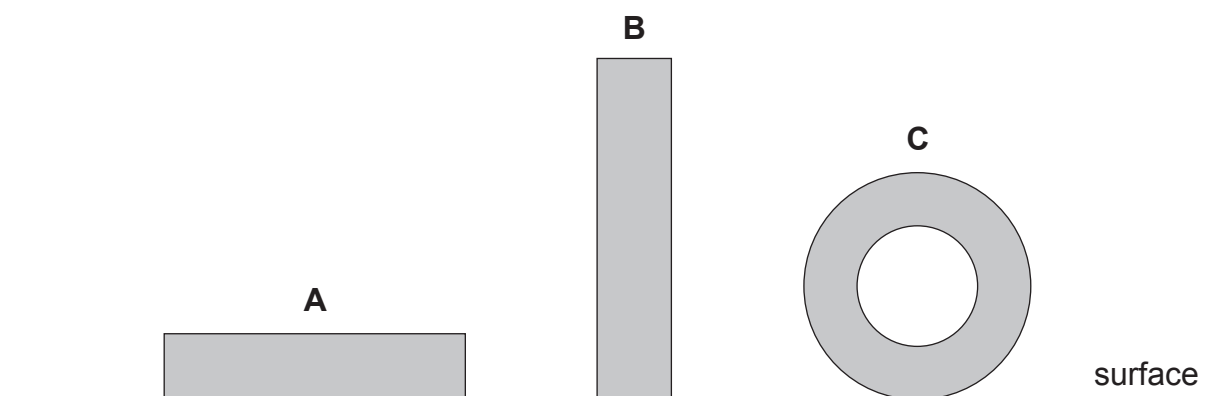
14902

[Turn over



16GDW3109

6 Two boxes **A** and **B** and a ring **C**, are placed on a level surface as shown below.



(a) Which object is the **most** stable?

Object _____

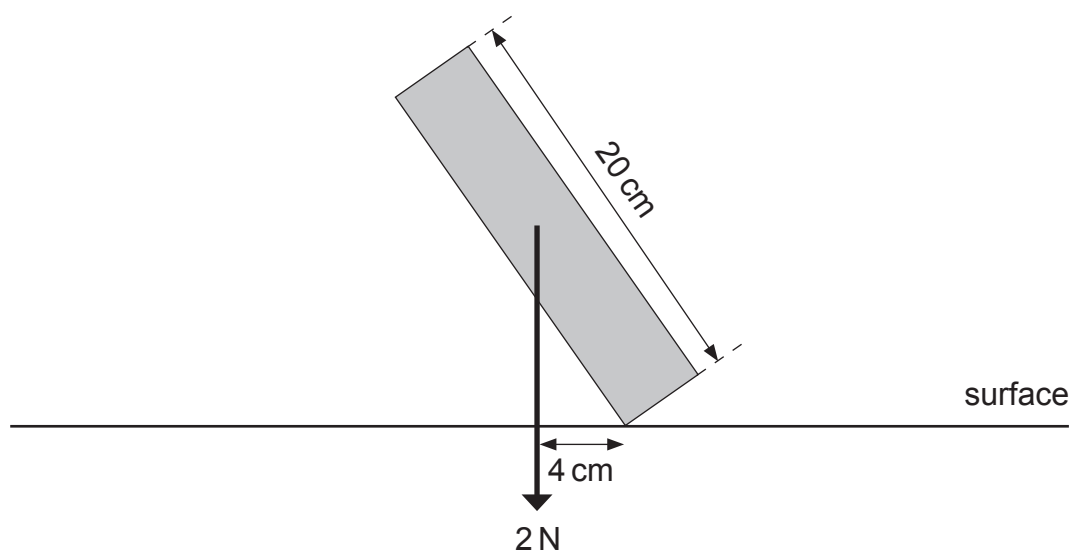
Give two reasons for your answer.

1. _____

2. _____ [3]



(b) Another object is tilted as shown below.



Calculate the moment created by the 2 N force.

Include the unit in your answer.

Do not change any units.

Show your working out.

Moment = _____ [5]

[Turn over]



- 7 You are asked to write an account of how a student could find their personal power as they climb a flight of stairs.

The student already knows their weight.

Your answer should include:

- the **two** measuring instruments required;
- the **two** measurements taken;
- the formulae needed to find the work done and power.

In this question you will be assessed on the quality of your written communication skills, including the use of specialist scientific terms.

Measuring instruments

Measurements

Formula, **in words**, to find work done

Formula, **in words**, to find power

[6]



8 This question is about atoms and isotopes.

(a) Define an isotope in terms of **particles**.

[2]

(b) The nucleus of an atom can be described by using the following notation.



What does the letter A represent in the above notation?

What does the letter Z represent in the above notation?

Which letter, A or Z, would have the same value for two isotopes of the same element?

[3]

(c) Give the **names** of the two isotopes of hydrogen that could be used to produce power in a nuclear fusion reactor.

1. _____

2. _____ [2]

[Turn over



- 9 (a) Define the term half-life.

_____ [2]

- (b) A radioactive source has an activity of 1800 Bq.

The activity of the source was 225 Bq when measured again six hours later.

Calculate the half-life of the source.

Show your working out.

Half-life = _____ hours [3]

- (c) State the type of radioactive source (**alpha, beta or gamma**) for the uses below.
State the length of half-life (**short or long**) best suited for each use.

Use: smoke alarms

Type: _____

Length of half-life: _____

Use: finding the route of water pipes buried deep underground

Type: _____

Length of half-life: _____ [4]





THIS IS THE END OF THE QUESTION PAPER

BLANK PAGE

DO NOT WRITE ON THIS PAGE

14902



16GDW3115

Sources:

Q1(b) . . © Getty Images × 2/Principal Examiner

Q3. © Getty Images

Q4(a) . . Principal Examiner

Q5. © Getty Images

Q6. Principal Examiner

Q6(b) . . Principal Examiner

DO NOT WRITE ON THIS PAGE

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	

Total Marks	
--------------------	--

Examiner Number

Permission to reproduce all copyright material has been applied for.

In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.

