Cambridge Assessment International Education

Cambridge IGCSE™

PHYSICS **0625/13**

Paper 1 Multiple Choice (Core) **October/November 2025**

45 minutes

You must answer on the multiple choice answer sheet.

You will need: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

INSTRUCTIONS

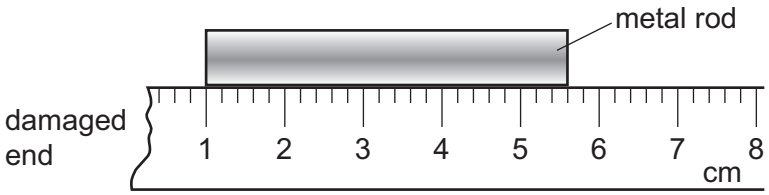
- There are **forty** questions on this paper. Answer **all** questions.
- For each question there are four possible answers **A**, **B**, **C** and **D**. Choose the **one** you consider correct and record your choice in soft pencil on the multiple choice answer sheet.
- Follow the instructions on the multiple choice answer sheet.
- Write in soft pencil.
- Write your name, centre number and candidate number on the multiple choice answer sheet in the spaces provided unless this has been done for you.
- Do **not** use correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- Take the weight of 1.0 kg to be 9.8 N (acceleration of free fall = 9.8 m / s^2).

INFORMATION

- The total mark for this paper is 40.
- Each correct answer will score one mark.
- Any rough working should be done on this question paper.

This document has **16** pages. Any blank pages are indicated.

1 A girl uses a ruler to measure the length of a metal rod. The end of the ruler is damaged, so she places one end of the rod at the 1 cm mark, as shown.



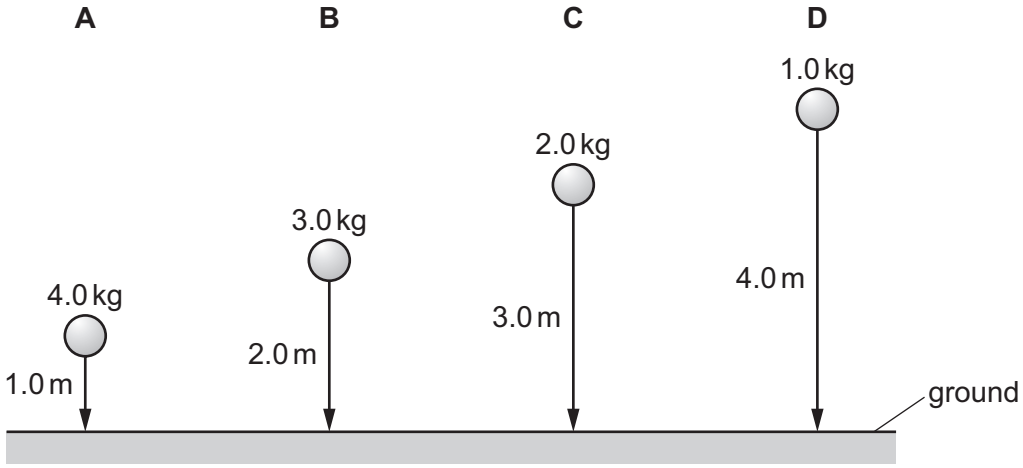
How long is the metal rod?

A 43 mm **B** 46 mm **C** 53 mm **D** 56 mm

2 Four balls with different masses are dropped from the heights shown.

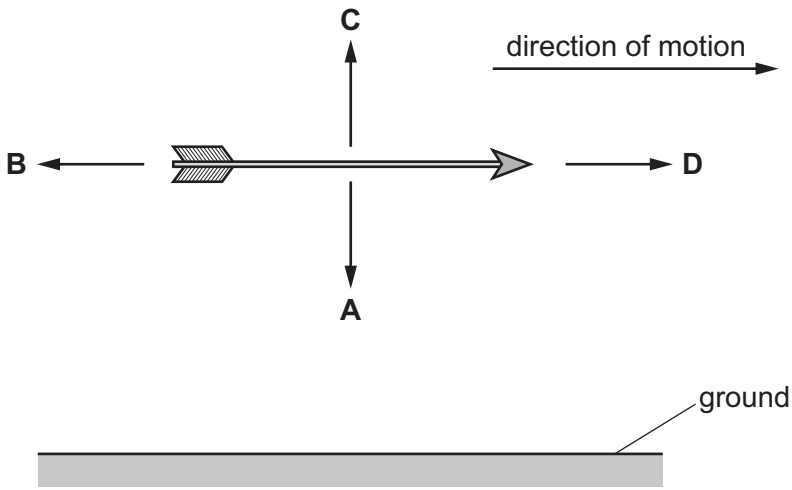
Air resistance can be ignored.

Which ball has the greatest average speed?



3 An arrow travels horizontally in a straight line at constant speed.

In which direction does the weight of the arrow act?



4 Which piece of equipment is useful in determining the density of an irregularly-shaped stone?

A stop-watch

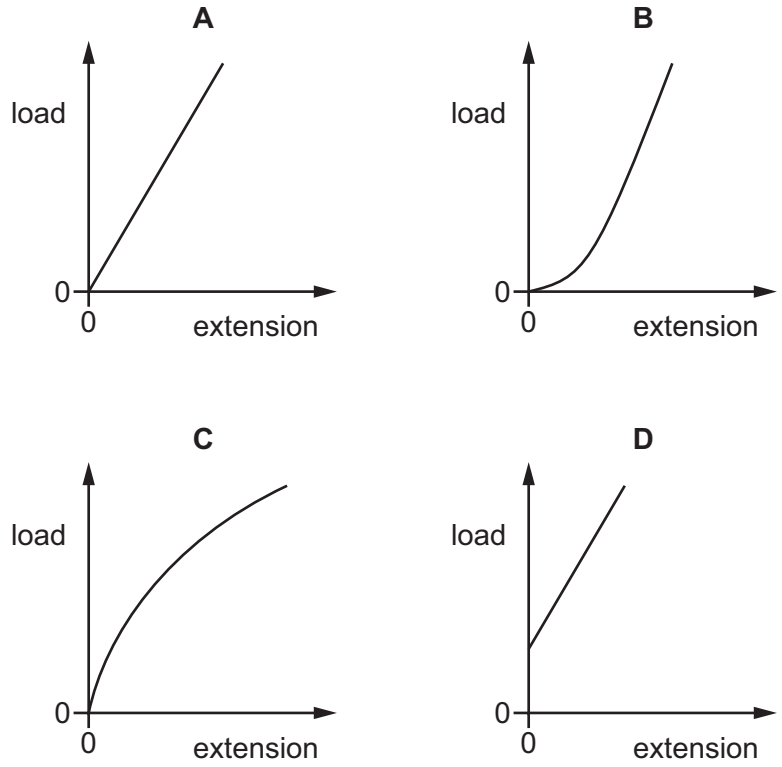
B metre ruler

C measuring cylinder

D voltmeter

5 Four load–extension graphs are shown for a spring.

Which graph shows that the load is proportional to the extension?

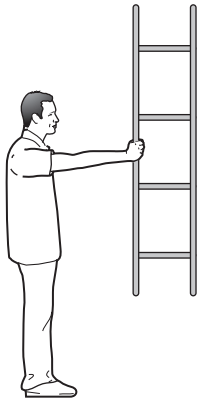


6 A man holds a ladder in four different positions, pivoting around his shoulder.

The weight of the ladder causes a moment about the man's shoulder.

In which position is the moment greatest?

A



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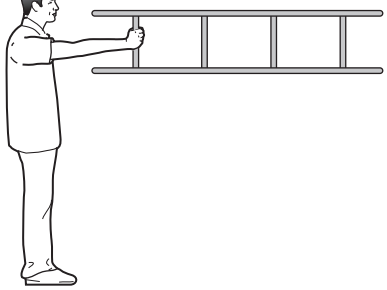
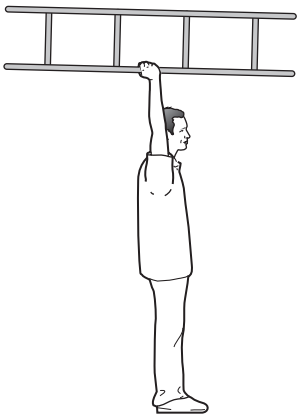


C

D



7 A child has four blocks of wood in the shapes of the letters A, M, T and X.

The blocks have equal heights and thicknesses. At their widest parts, their widths are equal.

The child stands the four blocks the right way up on a flat table.

Which block is most likely to fall over when the block is slightly knocked?

A letter A

B letter M

C letter T

D letter X

8 When an object falls freely due to gravity, energy that was stored as gravitational potential energy is transferred to the kinetic energy store.

How is the energy transferred in this process?

A by electrical work

B by electromagnetic waves

C by heating

D by mechanical work

9 A woman pushes a mower across a lawn.

Which quantities does the woman use to calculate the work she does?

A distance, force and time

B distance and force only

C distance and time only

D force and time only

10 A steel knife needs a cutting edge with a small surface area.

What is the reason for this?

A A small surface area increases the pressure.

B A small surface area increases the density of the steel.

C A small surface area prevents the cutting edge from rusting.

D A small surface area prevents the knife from becoming magnetised.

11 When a hot gas cools, its internal energy decreases.

What causes this?

A a decrease in the average kinetic energy of the gas particles

B a decrease in the gravitational potential energy of the gas particles

C an increase in the average speed of the gas particles

D an increase in the average distance of separation of the gas particles

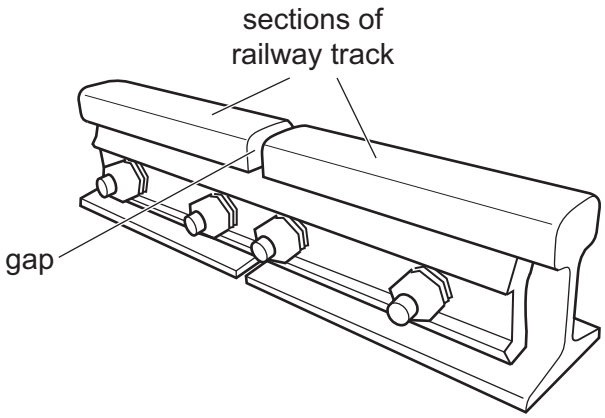
12 The temperature of an object is 37 °C.

What is the temperature of the object in kelvin?

A –236 K **B** 7.4 K **C** 236 K **D** 310 K

13 The diagram shows part of a railway track.

Each section of the railway track is separated by a gap.



Why are these gaps necessary?

A The tracks contract on cold days.

B The tracks contract on warm days.

C The tracks expand on cold days.

D The tracks expand on warm days.

14 A test-tube contains a volume of 1.0 cm^3 of liquid water at a temperature of 100 °C. The liquid water boils to form a volume of 1600 cm^3 of steam.

What is the reason for the large increase in volume?

A Steam particles are bigger than water particles.

B The average distance between the particles is much greater in the steam.

C The particles do **not** move until the water turns into a gas.

D There are more steam particles than there were water particles.

15 When a liquid is exposed to the air, the more-energetic particles escape from the surface of the liquid.

What is the name of this process?

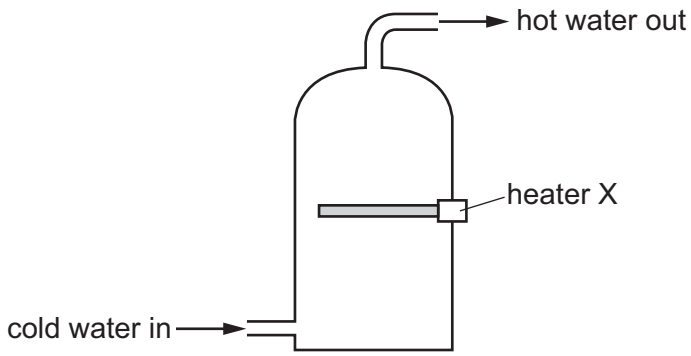
A boiling

B condensation

C convection

D evaporation

16 The diagram shows a hot-water tank. The tank has a heater, X, halfway up the tank.



Heater X is switched on.

Which row states the main processes by which thermal energy is transferred to the water above the heater and to the water below the heater?

	thermal energy transfer to the water above the heater	thermal energy transfer to the water below the heater
A	conduction	conduction
B	conduction	convection
C	convection	conduction
D	convection	convection

17 The handle of a metal cooking pan is made from wood.

What is a reason for making the handle from wood?

A to increase thermal energy transfer by conduction

B to increase thermal energy transfer by convection

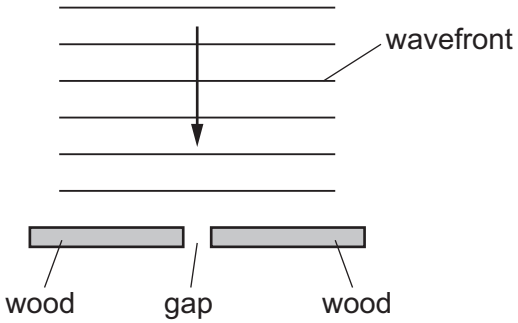
C to reduce thermal energy transfer by conduction

D to reduce thermal energy transfer by convection

[Turn over

18 A student observes waves travelling across the surface of water. The diagram shows two pieces of wood resting in shallow water of constant depth.

Straight parallel wavefronts approach the pieces of wood, as shown.



The gap between the pieces of wood is 2.0 cm wide.

The wavefronts are 3.0 cm apart.

What is the appearance of the wavefronts after they pass through the gap?

A semicircular and 2.0 cm apart

B semicircular and 3.0 cm apart

C straight and 2.0 cm apart

D straight and 3.0 cm apart

19 P-waves and S-waves are produced in the ground during an earthquake.

Which statement about these waves is correct?

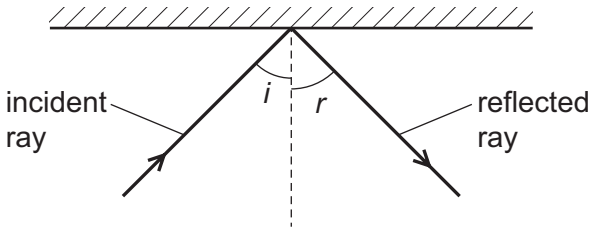
A Only P-waves are transverse waves.

B Only P-waves are longitudinal waves.

C Both P-waves and S-waves are longitudinal waves.

D Both P-waves and S-waves are transverse waves.

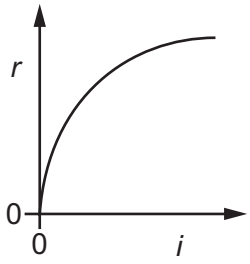
20 A ray of light is incident on a plane mirror. A student measures the angle of incidence *i* and the angle of reflection *r*.



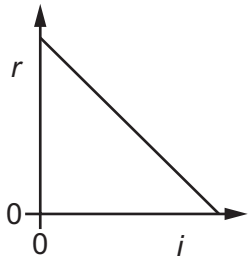
The student varies the angle of incidence and then plots a graph of *r* against *i*.

What does the graph look like?

A



B



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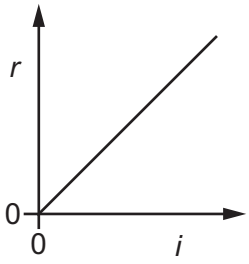

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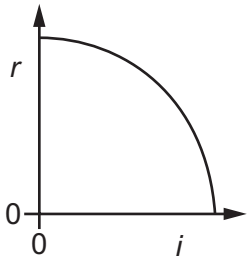


21 A ray of light passes from air into a block of glass. The critical angle is 42°.

Which statement is correct?

A The angle of incidence is the angle between the ray of light and the surface of the glass block.

B The angle of incidence is always bigger than 42°.

C The angle of refraction **cannot** be less than 42°.

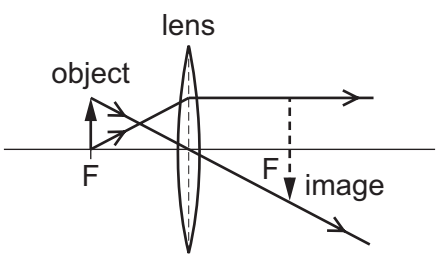
D The angle of refraction is smaller than the angle of incidence.

[Turn over

22 A converging lens is used to produce a real image of a 2 cm high object. The image is 4 cm high.

Which ray diagram shows how the lens forms the image?

A



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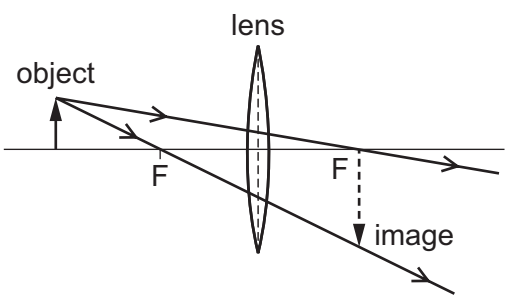

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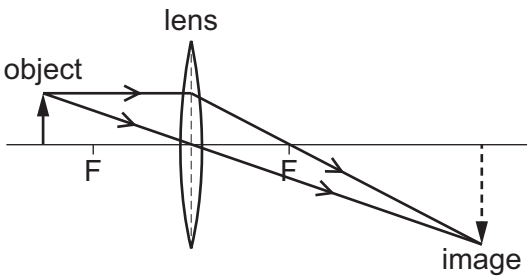

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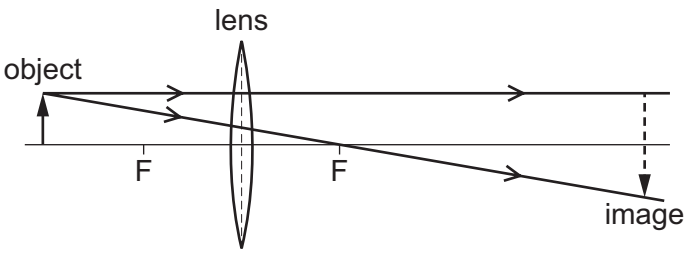


23 White light can be split into different colours by passing it through a prism.

What is the name of this process?

A diffraction

B dispersion

C reflection

D total internal reflection

24 A sound wave with a frequency of 25 000 Hz travels through air with a speed of 340 m / s.

Why can a human **not** hear the sound?

A The frequency is too low.

B The frequency is too high.

C The speed is too low.

D The speed is too high.

25 A drummer hits a drum harder to make a louder sound without changing the pitch of the sound.

Which statement describes the change in properties of the sound as the drummer hits the drum harder?

A Only the amplitude of the sound increases.

B Only the frequency of the sound decreases.

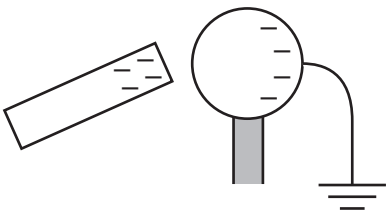
C Both the amplitude and the frequency of the sound increase.

D Both the amplitude and the frequency of the sound decrease.

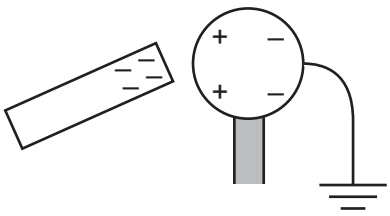
26 A metal sphere is attached to the top of an insulated rod. A negatively charged rod is held close to one side of the metal sphere. The other side of the metal sphere is earthed.

Which diagram shows the distribution of charge on the metal sphere?

A



B



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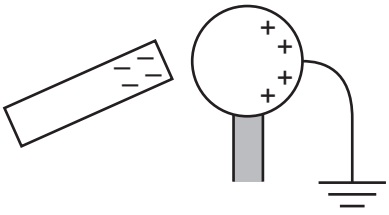

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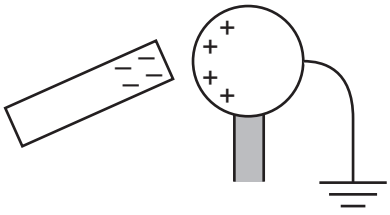


27 A student writes three statements about electric current.

1 Electric current is a flow of charge.

2 Electric current in a circuit is measured using a voltmeter.

3 The direction of an alternating current (a.c.) continually changes.

Which statements are correct?

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

28 Electromotive force (e.m.f.) is defined in terms of the energy supplied in driving which physical quantity around a complete circuit?

A charge

B resistance

C potential difference (p.d.)

D power

29 A student measures the resistance of a wire.

Which two measurements must the student make?

A length and current

B potential difference (p.d.) and current

C cross-sectional area and power

D potential difference (p.d.) and diameter

30 There is a current of 2.0 A in a resistor of resistance 8.0 Ω.

What is the potential difference (p.d.) across the resistor?

A 0.25 V **B** 4.0 V **C** 8.0 V **D** 16 V

31 There is a current of 2.0 A in a resistor for a time of 30 s. The potential difference (p.d.) across the resistor is 12 V.

How much energy is transferred in the resistor?

A 1.25 J **B** 5.0 J **C** 180 J **D** 720 J

32 The circuit symbol for an ammeter is a circle with a letter A in it. The symbol for a fuse is a rectangle with a central line.

Which pair of circuit symbols is also one involving a circle followed by one involving a rectangle?

A a lamp and a cell

B a motor and a thermistor

C a switch and a heater

D a voltmeter and a battery

33 Which component is **not** needed when using an appliance that is double-insulated?

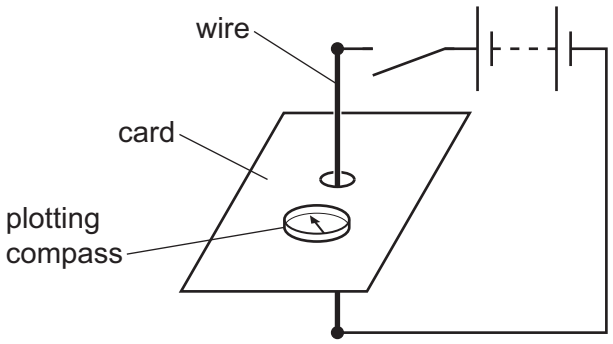
A earth wire

B fuse

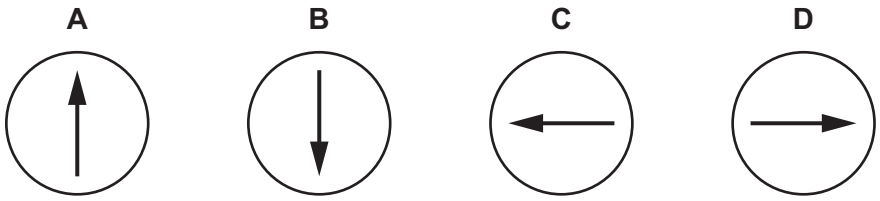
C live wire

D neutral wire

34 A vertical wire passes through a hole in a piece of card. A plotting compass is placed on the card. There is **no** current in the circuit.



Which diagram shows the plotting compass when the switch is closed?



35 Which description of the structure of an atom is correct?

A a negatively charged nucleus with negatively charged electrons around it

B a negatively charged nucleus with positively charged electrons around it

C a positively charged nucleus with negatively charged electrons around it

D a positively charged nucleus with positively charged electrons around it

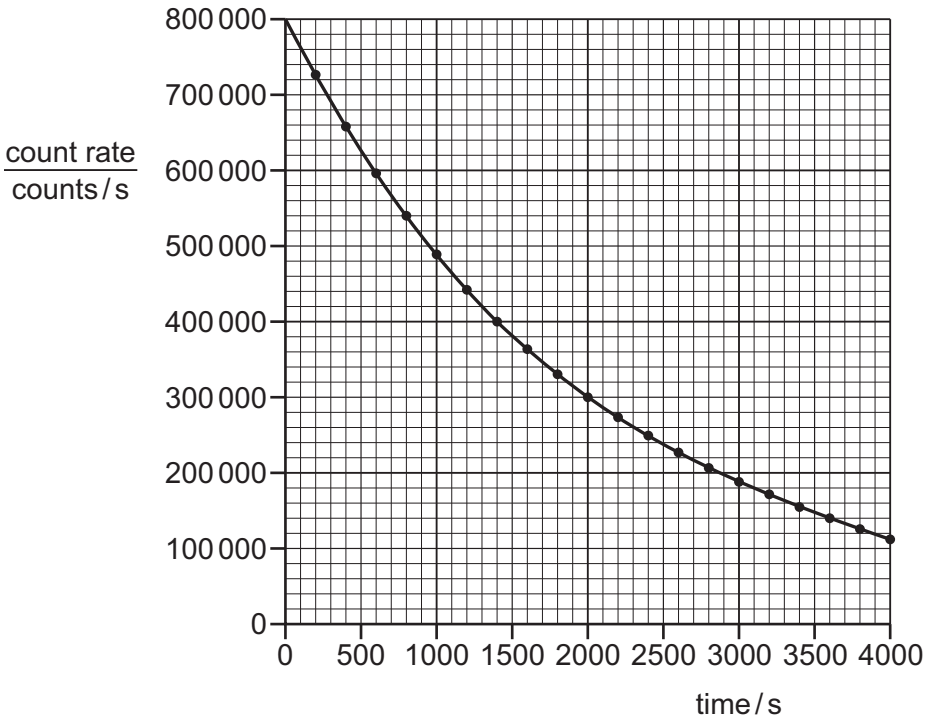
36 Alpha, beta and gamma emissions are compared.

Alpha radiation is the .....1..... ionising as it has the .....2..... electric charge.

Which words correctly complete the sentence?

	1	2
A	least	largest
B	least	smallest
C	most	largest
D	most	smallest

37 A student collects data for a new radioactive substance.



Using the graph, what is the approximate half-life of the substance?

A 1400 s **B** 2000 s **C** 100 000 s **D** 800 000 s

38 Four rocky planets orbit the Sun.

Which list shows these planets in order of increasing distance from the Sun?

A Earth → Mars → Mercury → Venus

B Venus → Earth → Mars → Mercury

C Mercury → Venus → Earth → Mars

D Mars → Mercury → Venus → Earth

39 In which given region of the electromagnetic spectrum does the Sun radiate the least of its energy?

A infrared

B microwave

C ultraviolet

D visible

40 Light from distant galaxies is redshifted when it is observed from Earth.

Which property of the light increases when light is redshifted?

A amplitude

B frequency

C speed

D wavelength

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