Cambridge Assessment International Education

Cambridge IGCSE™

PHYSICS **0625/12**

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.

© UCLES 2025

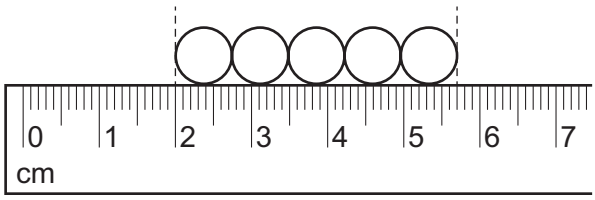
1 An athlete runs around a circular track.

Readings on the stop-watch used to time the athlete are shown.

How long did it take the athlete to run the third lap?

A 1 min 19 s **B** 1 min 22 s **C** 1 min 37 s **D** 1 min 59 s

2 The diagram shows a ruler being used to measure the length of a line of ball-bearings.



Which expression gives the average diameter of a ball-bearing?

A $\frac{(5.7 + 2.0)}{5}$

B $\frac{(5.7 - 2.0)}{5}$

C $(5.7 + 2.0) \times 5$

D $(5.7 - 2.0) \times 5$

3 Which statement about acceleration is correct?

A It is related to the changing speed of an object.

B It is the distance an object travels in one second.

C It is the force acting on an object divided by the distance it travels in one second.

D It is the force acting on an object when it is near to the Earth.

© UCLES 2025

4 An object with a mass of 6.0 kg rests on the surface of a planet.

On this planet, g = 20 N / kg.

What is the weight of the object on this planet?

A 0.30 N **B** 0.60 N **C** 60 N **D** 120 N

5 Which quantity is represented by the symbol ρ?

A density

B momentum

C pressure

D resistance

6 A person is standing in a lift. The lift is moving downwards at constant speed.

Which statement about the force exerted by the lift floor on the person's feet is correct?

A It is zero.

B It is less than the person's weight.

C It is equal to the person's weight.

D It is greater than the person's weight.

7 What is the unit of the moment of a force?

A N **B** N / kg **C** N / m **D** N m

8 A stone has a gravitational energy store equal to 46 J.

When the stone falls in air, it does 21 J of work against air resistance.

What is the gain in kinetic energy stored in the stone during this fall?

A 21 J **B** 25 J **C** 46 J **D** 67 J

9 Which physical quantity is transferred when work is done?

A distance

B energy

C force

D temperature

© UCLES 2025

10 Which unit is a unit of pressure?

A kg/m^2 **B** kg/m^3 **C** Nm **D** N/m^2

11 A kettle of boiling water converts water to steam at 100 °C.

How does the mass and volume of the steam produced compare with the mass and volume of the water that is lost through boiling?

	mass of steam	volume of steam
A	same as water	same as water
B	same as water	greater than water
C	less than water	same as water
D	less than water	greater than water

12 Which row lists two properties of a solid?

	property 1	property 2
A	particles vibrate in fixed positions	has a fixed volume
B	particles move around freely	has no fixed volume
C	particles vibrate and can change position	has a fixed volume
D	particles vibrate in fixed positions	has no fixed volume

13 Air is trapped in a cylinder by a piston.

The piston is pushed inwards. The volume of the air reduces.

The temperature of the air stays the same.

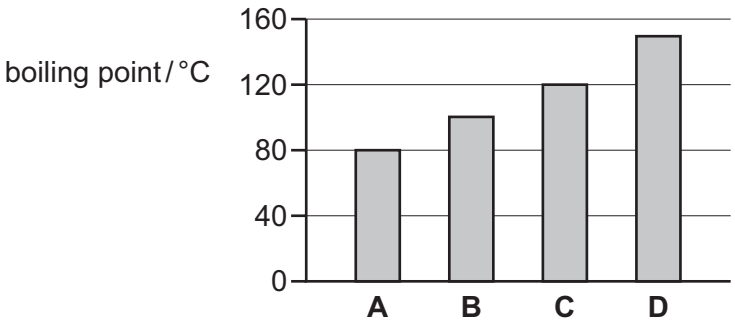
Which row describes how the average speed of the air molecules and the average distance between them changes?

	average speed of molecules	average distance between molecules
A	increases	decreases
B	increases	unchanged
C	unchanged	decreases
D	unchanged	increases

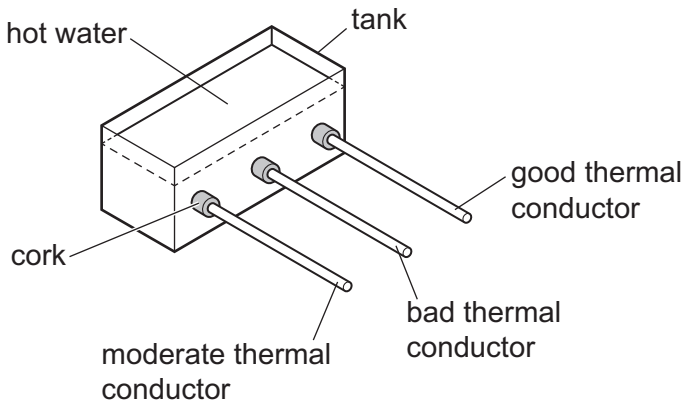
© UCLES 2025

14 The chart shows the boiling points for four different liquids at standard atmospheric pressure.

Which liquid is water?



15 Rods of the same shape and size are inserted through corks into an empty tank. Each rod is covered with a layer of solid wax that has a low melting point. Hot water is added to the tank, as shown. After a period of time, some wax melts.



On which of the rods will the wax melt first?

A all at the same time

B good thermal conductor

C bad thermal conductor

D moderate thermal conductor

16 Which method of thermal transfer occurs when the density of some of a liquid decreases and the liquid moves upwards?

A conduction

B convection

C evaporation

D radiation

© UCLES 2025

17 Which surface is the best reflector of infrared radiation?

A dull and black

B dull and white

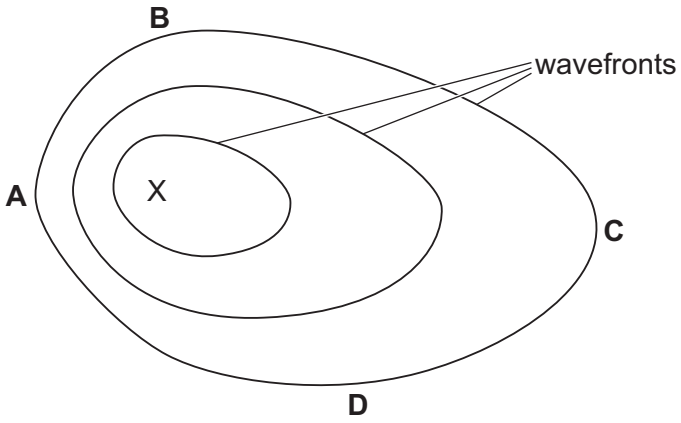
C shiny and black

D shiny and white

18 Waves travel more quickly on the surface of water when the water is deep.

A stone is dropped at point X into a pool of varying depth. The diagram shows the first three wavefronts on the surface of the pool.

The region between X and which labelled point is likely to be the deepest?



19 The table gives information about seismic waves.

Which row is correct?

	seismic S-waves (secondary)	seismic P-waves (primary)
A	longitudinal	longitudinal
B	longitudinal	transverse
C	transverse	longitudinal
D	transverse	transverse

20 Light reflects from a plane mirror.

The angle between the incident ray and the reflected ray is 68°.

What is the angle of incidence?

A 11° **B** 22° **C** 34° **D** 56°

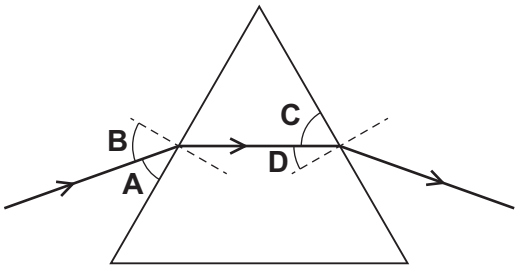
© UCLES 2025

21 The diagram shows a ray of red light travelling through a transparent prism.

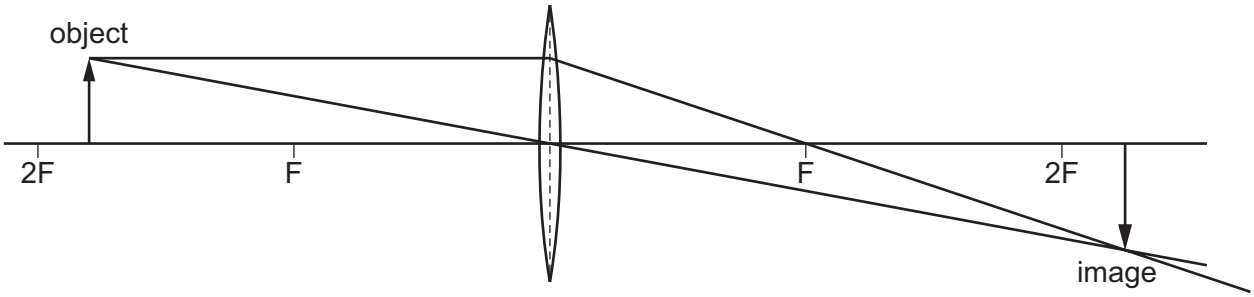
Normals to the prism surfaces are marked at the points where the ray meets the prism surfaces.

The direction of the incident ray is changed until total internal reflection just occurs at one of the surfaces.

Which angle **must** now be equal to the critical angle?



22 The diagram shows an image being formed by a converging lens.



Which description of the image formed is correct?

A enlarged and inverted

B enlarged and upright

C diminished and inverted

D diminished and upright

23 Which list shows the colours present in the visible spectrum in order of increasing wavelength?

A green → yellow → orange → red

B red → green → orange → yellow

C red → orange → yellow → green

D yellow → green → orange → red

24 Which parts of the electromagnetic spectrum complete the list of applications?

Mobile phones use .....1..... .

Security scanners use .....2..... .

Intruder alarms use .....3..... .

	1	2	3
A	radio waves	X-rays	radio waves
B	microwaves	microwaves	infrared
C	microwaves	X-rays	radio waves
D	microwaves	X-rays	infrared

25 A student places a loudspeaker inside each of four sealed jars.

From which jar will the student **not** hear a sound from the loudspeaker?

A sealed jar with air inside

B sealed jar with carbon dioxide inside

C sealed jar with a vacuum inside

D sealed jar with water inside

26 Soft iron and steel are magnetic materials.

What are permanent magnets and temporary magnets made of?

	permanent magnet	temporary magnet
A	soft iron	soft iron
B	soft iron	steel
C	steel	soft iron
D	steel	steel

© UCLES 2025

27 A negatively charged plastic rod is brought near to an isolated, uncharged metal sphere and held there.

What happens when the metal sphere is earthed?

A Electrons flow from the metal sphere to earth.

B Electrons flow from earth to the metal sphere.

C Positive charge flows from the metal sphere to earth.

D Positive charge flows from earth to the metal sphere.

28 Which statement describes a direct current in a circuit?

A Charges change their direction of flow.

B Charges flow in many directions.

C Charges flow in only one direction.

D Charges only flow away from a cell.

29 Potential difference (p.d.) is the ..... work done by a unit charge passing through a component.

Which word completes the sentence?

A electrical

B magnetic

C mechanical

D thermal

30 There is a current I in a resistor for a time t. The potential difference (p.d.) across the resistor is V.

Which equation gives the energy E transferred by the resistor?

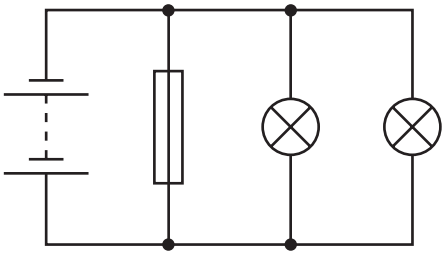
A $E = \frac{IV}{t}$ **B** $E = \frac{It}{V}$ **C** $E = \frac{Vt}{I}$ **D** $E = IVt$

31 A student constructs four circuits, each containing a fuse.

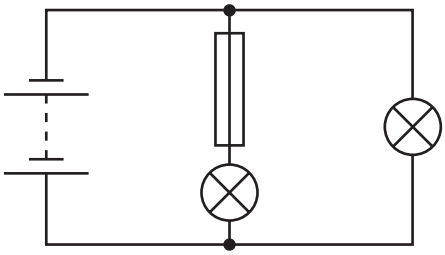
The fuse blows in one circuit and both lamps in the circuit go out.

In which circuit does the fuse blow and both lamps go out?

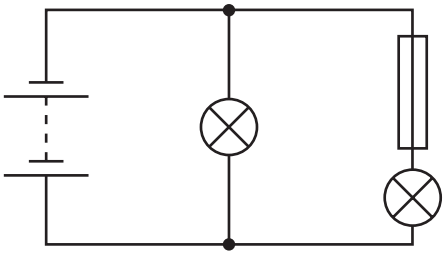
A



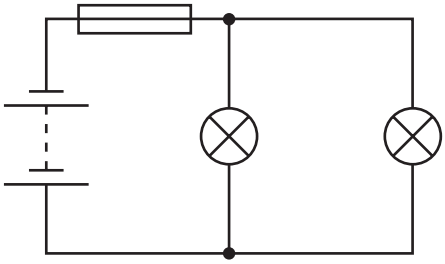
B



C



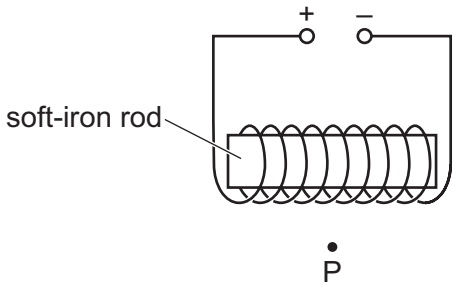
D



32 The diagram shows a coil of insulated wire wrapped around a soft-iron rod.

The wire is connected to a d.c. power supply as indicated.

The apparatus is in a region which is totally shielded from the Earth's magnetic field.



A small compass needle is placed at point P.

In which direction does the N pole of the compass needle point?

A towards the bottom of the page

B towards the left of the page

C towards the right of the page

D towards the top of the page

33 Which components are used to construct an efficient simple transformer?

A two insulated copper wire coils wound on a copper core

B two insulated copper wire coils wound on an iron core

C two insulated iron wire coils wound on a copper core

D two insulated iron wire coils wound on an iron core

34 An isotope of carbon has the nuclide notation $^{14}_{6}C$.

What does the nucleus of one atom of this isotope contain?

	number of protons	number of neutrons
A	6	6
B	6	8
C	8	6
D	8	8

© UCLES 2025

35 When the count rate from a radioactive source is measured, background radiation is taken into account.

Which option shows only examples of nuclear background radiation?

A alpha-particles from radon gas and gamma radiation from space

B alpha-particles from radon gas and infrared radiation from the Sun

C gamma radiation from the Sun and microwaves from satellites

D microwaves from satellites and X-rays from hospitals

36 Strontium-89 is a radioactive beta-emitter used to treat bone cancers.

A solution of strontium chloride is injected into patients and accumulates in their bones.

Which statement about this treatment is **not** correct?

A Beta radiation is a form of electromagnetic radiation.

B Beta-particles are a form of ionising radiation.

C The strontium-89 atoms change to atoms of another element when they decay.

D Beta-particles are negatively charged.

37 An isotope of strontium decays by β emission. It takes 87 hours for its activity to fall to $\frac{1}{8}$ of its original value.

What is the half-life of the isotope?

A 11 hours

B 29 hours

C 44 hours

D 260 hours

38 What causes the phases of the Moon?

A the Earth orbiting the Sun

B the Earth turning on its axis

C the Moon orbiting the Earth

D the Moon orbiting the Sun

© UCLES 2025

39 The Sun is a star that radiates energy towards the Earth.

Which regions of the electromagnetic spectrum make up most of the Sun's radiation received on the Earth?

A gamma, X-ray and ultraviolet

B X-ray, ultraviolet and visible

C ultraviolet, visible and infrared

D visible, infrared and microwaves

40 Light received from distant galaxies is observed to have a longer wavelength than the light originally emitted. This is called redshift.

Which conclusion do astronomers form about distant galaxies from this observation?

A They are all moving around each other.

B They are all moving away from each other.

C They are all moving in circular orbits.

D They are all moving towards each other.

© UCLES 2025

BLANK PAGE

BLANK PAGE

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of Cambridge Assessment. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which is a department of the University of Cambridge.

© UCLES 2025