CAMBRIDGE
International Education

Cambridge IGCSE™

CO-ORDINATED SCIENCES **0654/12**

Paper 1 Multiple Choice (Core) **May/June 2026**

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 or tape.
- 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.
- The Periodic Table is printed in the question paper.

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

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[Turn over

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1 A plant cell is viewed using a microscope.

The cell image is measured at 4 mm. The magnification is ×100.

What is the actual size of the cell?

A 0.004 mm **B** 0.04 mm **C** 2.5 mm **D** 25 mm

2 Which processes require energy from respiration?

A diffusion and osmosis

B osmosis only

C active transport and diffusion

D active transport only

3 Which type of biological molecule contains carbon, hydrogen, oxygen and nitrogen?

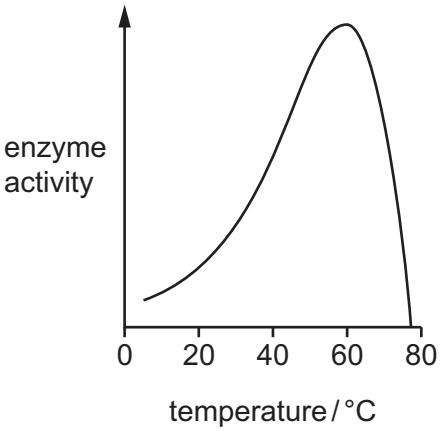
A fat

B protein

C reducing sugar

D starch

4 The graph shows the activity of an enzyme at different temperatures.



Which temperature has the maximum activity for this enzyme?

A 20 °C **B** 40 °C **C** 60 °C **D** 80 °C

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5 Which process requires chlorophyll?

A excretion

B photosynthesis

C respiration

D transpiration

6 Citrus fruits such as oranges and lemons are a principal dietary source of which nutrient?

A carbohydrate

B protein

C vitamin C

D vitamin D

7 What is the pathway taken by water as it travels from the soil to a leaf?

A root cortex cells → mesophyll cells → root hair cells → xylem

B root cortex cells → root hair cells → mesophyll cells → xylem

C root hair cells → root cortex cells → xylem → mesophyll cells

D root hair cells → xylem → mesophyll cells → root cortex cells

8 Which component of blood transports urea?

A plasma

B platelets

C red blood cells

D white blood cells

9 Which row shows a characteristic of an insect-pollinated flower and of a wind-pollinated flower?

	insect-pollinated	**wind-pollinated**
A	anthers inside flower	anthers outside flower
B	petals small	petals large
C	smooth pollen	sticky pollen
D	stigma outside flower	stigma inside flower

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10 A monohybrid cross between tall (TT) and short (tt) pea plants produces 100% tall (Tt) offspring.

What do the letters T and t represent?

A alleles

B chromosomes

C genes

D genotypes

11 A farmer wants sheep with a high yield of fleece that will give fine-quality wool.

The table shows six of the sheep available for breeding.

sheep number	sex of sheep	fleece yield	wool quality
1	female	medium	fine
2	female	medium	coarse
3	female	high	fine
4	male	low	fine
5	male	low	coarse
6	male	medium	fine

Which sheep should the farmer select to breed together?

A 1 and 3 **B** 1 and 4 **C** 3 and 4 **D** 3 and 6

12 The diagram shows a food chain.

phytoplankton → char → capelin → harbour seal → orca

Which statement about the food chain is correct?

A The capelin is a carnivore.

B The harbour seal is a herbivore.

C The orca is a tertiary consumer.

D The phytoplankton is a primary consumer.

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13 Little egrets are a type of bird originally found in Southern Europe, Africa, Asia and Australia.

Since the 1990s, little egrets have spread to Northern Europe.

The statements give possible reasons for this spread north.

1 Monitoring of the population of little egrets in Southern Europe has increased.

2 The food source for little egrets has decreased in Southern Europe.

3 Climate change has made the northern climate warmer.

Which statements could explain the spread of little egrets?

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

14 Which statement about ions is correct?

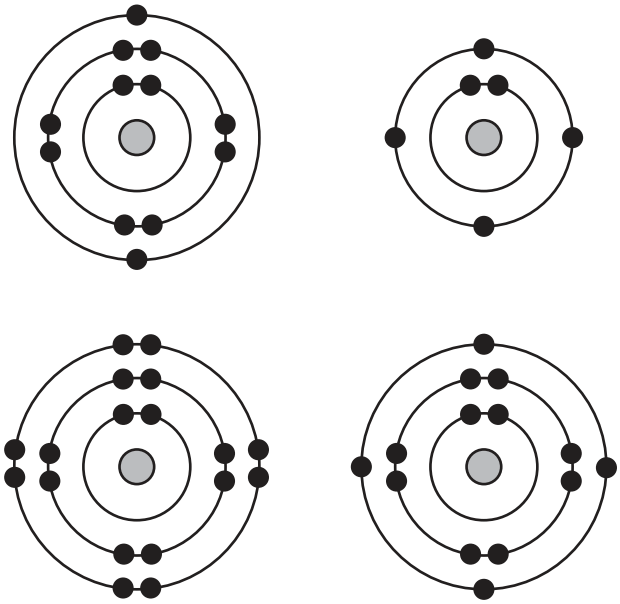
A Ions are charged atoms.

B Cations are negative ions.

C Metal ions are negatively charged.

D Non-metal ions are positively charged.

15 How many of the electronic configurations shown represent elements in Group IV of the Periodic Table?



A 0 **B** 1 **C** 2 **D** 3

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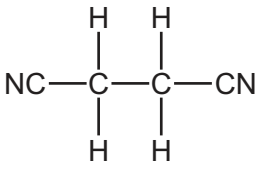
16 A diagram of one molecule of an organic compound is shown.



What is the molecular formula of this organic compound?

A C_2H_2N **B** $C_2H_4N_2$ **C** C_4H_6 **D** $C_4H_4N_2$

17 Aqueous potassium iodide contains ions.

What happens to aqueous potassium iodide during electrolysis?

A combustion

B decomposition

C neutralisation

D no reaction

18 Which row describes changes that occur during an endothermic reaction?

	temperature of surroundings	**thermal energy**
A	decreases	absorbed from the surroundings
B	decreases	released to the surroundings
C	increases	absorbed from the surroundings
D	increases	released to the surroundings

19 Which change is a physical change?

A combustion of ethanol

B rusting of iron

C dissolving sodium chloride in water

D polymerisation of ethene to poly(ethene)

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20 Which row describes the colour observed when sodium hydroxide is added separately to litmus and to methyl orange indicators?

	litmus	methyl orange
A	red	yellow
B	blue	yellow
C	red	red
D	blue	red

21 Pure copper(II) chloride crystals are made from aqueous copper(II) chloride using the processes listed.

1 cool

2 dry

3 filter

4 heat to reduce volume of water

What is the order of the processes?

A $1 \rightarrow 4 \rightarrow 2 \rightarrow 3$

B $1 \rightarrow 2 \rightarrow 4 \rightarrow 3$

C $4 \rightarrow 2 \rightarrow 1 \rightarrow 3$

D $4 \rightarrow 1 \rightarrow 3 \rightarrow 2$

22 Which statements about the noble gases are correct?

1 They are in Group VIII of the Periodic Table.

2 Their outer-electron shells are full.

3 They exist as diatomic molecules.

4 They are reactive.

A 1 and 2 **B** 1 and 4 **C** 2 and 3 **D** 3 and 4

23 A metal reacts with hot water and is extracted from its oxide using carbon.

What is the metal?

A aluminium

B copper

C sodium

D zinc

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24 A student measures the melting points and boiling points of samples of water.

The results are shown.

sample	temperature / °C
1	100
2	102
3	–6
4	0

Which samples of water are impure?

A 1 and 4 **B** 2 and 3 **C** 2 only **D** 3 only

25 What is the approximate composition of clean, dry air?

	78%	21%	1%
A	oxygen	nitrogen	noble gases and carbon dioxide
B	nitrogen	oxygen	methane
C	nitrogen	oxygen	noble gases and carbon dioxide
D	oxygen	nitrogen	methane

26 Which molecules are hydrocarbons?

1 CH_4

2 CH_2O_2

3 C_2H_2

4 H_2CO_3

A 1, 2, 3 and 4 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 4 only

27 Which process is used to separate petroleum into useful substances?

A chromatography

B crystallisation

C filtration

D fractional distillation

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28 A stop-watch is used to measure a time interval.

When the stop-watch is started, it reads 0 minutes 45 seconds.

When the stop-watch is stopped, it reads 3 minutes 25 seconds.

How much time elapses between the two readings?

A 2 minutes 40 seconds

B 3 minutes 20 seconds

C 3 minutes 40 seconds

D 4 minutes 10 seconds

29 Which quantities are affected by gravitational field strength?

A mass and weight

B mass only

C volume and weight

D weight only

30 Which row shows the unit of work done and the unit of power?

	work done	**power**
A	joule	joule
B	joule	watt
C	watt	joule
D	watt	watt

31 When a beam of light shines into a room, dust is seen in the air.

Each dust particle has a rapid and random motion.

What does this random motion provide evidence for?

A the dust particles are atoms

B the dust particles are molecules

C the kinetic particle model of matter

D the transfer of energy by light

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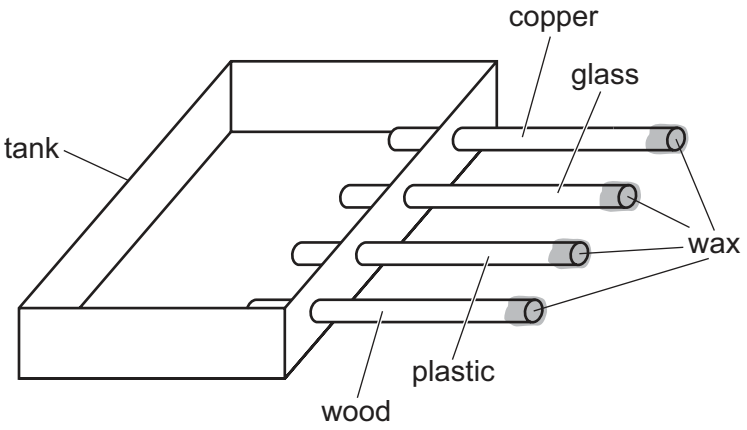
32 The diagram shows four rods with identical dimensions. The rods are made of copper, glass, plastic and wood.

One end of each rod is inside an empty tank.

The other end of each rod is outside the tank. These ends are covered with an equal amount of wax.



The tank is filled with boiling water.

After a short time, the wax on one of the rods melts.

On which rod does the wax melt?

A copper

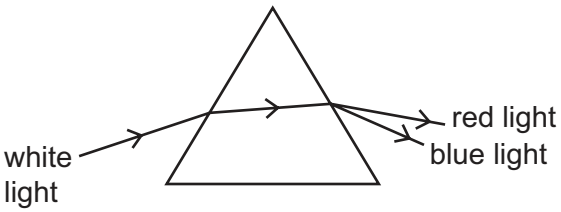
B glass

C plastic

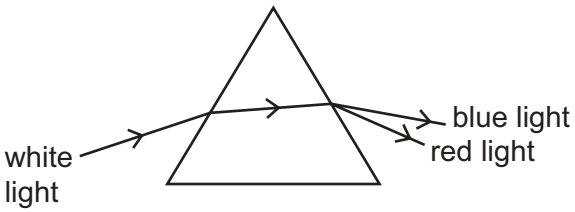
D wood

33 Which diagram shows the dispersion of white light through a glass prism?

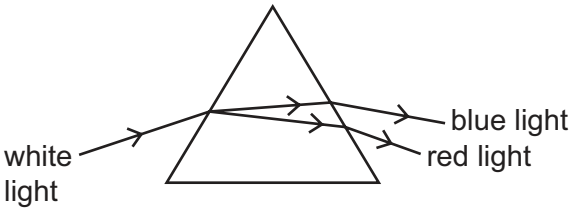
A



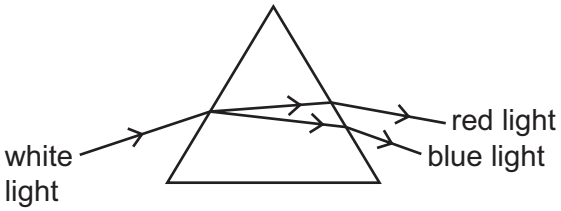
B



C



D



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34 Two regions of the electromagnetic spectrum are radio waves and X-rays.

Which row shows the region with the smaller wavelength and the region that is ionising radiation?

	smaller wavelength	**ionising radiation**
A	radio waves	radio waves
B	radio waves	X-rays
C	X-rays	radio waves
D	X-rays	X-rays

35 Massive explosions in the Sun release energy.

On Earth, humans see the light from the Sun. The humans do **not** hear the sound from the explosions.

Which statement explains this?

A Sound waves **cannot** travel through a vacuum.

B Sound waves travel slower than light waves.

C The amplitudes of the sound waves are too small.

D The frequencies of sound waves are lower than the frequencies of light waves.

36 A magnetic material is held close to the north pole of a magnet and then close to the south pole of the same magnet.

Which statement about the magnetic material is correct?

A It is attracted to both poles.

B It is attracted to the north pole but **not** to the south pole.

C It is attracted to the south pole but **not** to the north pole.

D It is **not** attracted to either pole.

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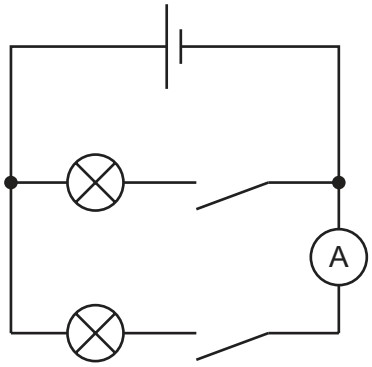
37 Two lamps are connected in the circuit shown.



Which statements about the circuit are correct?

1 There is a separate switch to control each lamp.

2 The ammeter measures the current in both lamps when both switches are closed.

3 The circuit is a series circuit.

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

38 What is the purpose of a 3 A fuse in an electrical circuit?

A It keeps the current at a constant value of 3 A.

B It prevents the current increasing above 3 A.

C It reduces the resistance of the circuit.

D It varies the voltage of the supply.

39 Which statement explains why scientists use long tongs to move radioactive sources?

A It decreases the half-life of the source.

B It increases the distance between the source and the scientists.

C It decreases the exposure time for the scientists.

D It prevents the source from being damaged.

40 The nearest star to the Earth after the Sun is Proxima Centauri.

Proxima Centauri is 4.2 light-years from the Earth.

Which statement about Proxima Centauri is correct?

A It takes 4.2 years for light from Proxima Centauri to reach the Earth.

B It takes 4.2 years for Proxima Centauri to orbit the Sun.

C It would take 4.2 years for humans to travel to Proxima Centauri from the Earth.

D It takes 4.2 years for the Earth to orbit Proxima Centauri.

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The Periodic Table of Elements

Key

atomic number
atomic symbol
name
relative atomic mass

Group

I	II											III	IV	V	VI	VII	VIII
							1 H hydrogen 1										2 He helium 4
3 Li lithium 7	4 Be beryllium 9											5 B boron 11	6 C carbon 12	7 N nitrogen 14	8 O oxygen 16	9 F fluorine 19	10 Ne neon 20
11 Na sodium 23	12 Mg magnesium 24											13 Al aluminium 27	14 Si silicon 28	15 P phosphorus 31	16 S sulfur 32	17 Cl chlorine 35.5	18 Ar argon 40
19 K potassium 39	20 Ca calcium 40	21 Sc scandium 45	22 Ti titanium 48	23 V vanadium 51	24 Cr chromium 52	25 Mn manganese 55	26 Fe iron 56	27 Co cobalt 59	28 Ni nickel 59	29 Cu copper 64	30 Zn zinc 65	31 Ga gallium 70	32 Ge germanium 73	33 As arsenic 75	34 Se selenium 79	35 Br bromine 80	36 Kr krypton 84
37 Rb rubidium 85	38 Sr strontium 88	39 Y yttrium 89	40 Zr zirconium 91	41 Nb niobium 93	42 Mo molybdenum 96	43 Tc technetium –	44 Ru ruthenium 101	45 Rh rhodium 103	46 Pd palladium 106	47 Ag silver 108	48 Cd cadmium 112	49 In indium 115	50 Sn tin 119	51 Sb antimony 122	52 Te tellurium 128	53 I iodine 127	54 Xe xenon 131
55 Cs caesium 133	56 Ba barium 137	57–71 lanthanoids	72 Hf hafnium 178	73 Ta tantalum 181	74 W tungsten 184	75 Re rhenium 186	76 Os osmium 190	77 Ir iridium 192	78 Pt platinum 195	79 Au gold 197	80 Hg mercury 201	81 Tl thallium 204	82 Pb lead 207	83 Bi bismuth 209	84 Po polonium –	85 At astatine –	86 Rn radon –
87 Fr francium –	88 Ra radium –	89–103 actinoids	104 Rf rutherfordium –	105 Db dubnium –	106 Sg seaborgium –	107 Bh bohrium –	108 Hs hassium –	109 Mt meitnerium –	110 Ds darmstadtium –	111 Rg roentgenium –	112 Cn copernicium –	113 Nh nihonium –	114 Fl flerovium –	115 Mc moscovium –	116 Lv livermorium –	117 Ts tennessine –	118 Og oganesson –

lanthanoids	57 La lanthanum 139	58 Ce cerium 140	59 Pr praseodymium 141	60 Nd neodymium 144	61 Pm promethium –	62 Sm samarium 150	63 Eu europium 152	64 Gd gadolinium 157	65 Tb terbium 159	66 Dy dysprosium 163	67 Ho holmium 165	68 Er erbium 167	69 Tm thulium 169	70 Yb ytterbium 173	71 Lu lutetium 175
actinoids	89 Ac actinium –	90 Th thorium 232	91 Pa protactinium 231	92 U uranium 238	93 Np neptunium –	94 Pu plutonium –	95 Am americium –	96 Cm curium –	97 Bk berkelium –	98 Cf californium –	99 Es einsteinium –	100 Fm fermium –	101 Md mendelevium –	102 No nobelium –	103 Lr lawrencium –

The volume of one mole of any gas is 24 dm^3 at room temperature and pressure (r.t.p.).

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