Cambridge Assessment International Education

Cambridge IGCSE™

COMBINED SCIENCE **0653/11**

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)

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

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

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1 One characteristic of living organisms is to detect and respond to changes in the environment.

What is this characteristic?

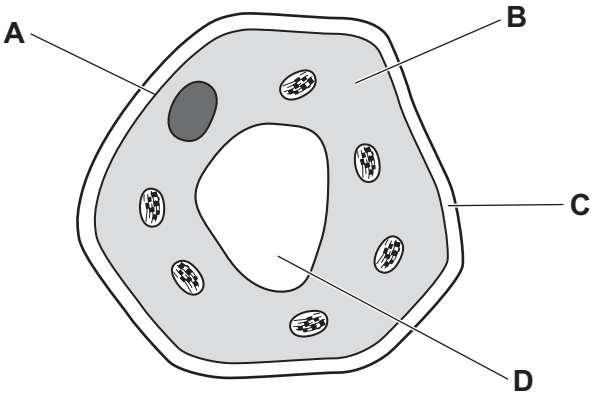
A growth

B movement

C reproduction

D sensitivity

2 Which structure stops the cell from bursting when the cell is placed in distilled water?



3 A sample of food turns Benedict's solution brick-red.

Which row shows the molecule the food contains and all the chemical elements in the molecule?

	molecule	chemical elements
A	protein	carbon, nitrogen and oxygen
B	glucose	hydrogen, carbon and nitrogen
C	glucose	hydrogen, carbon and oxygen
D	protein	hydrogen, nitrogen and oxygen

4 Which statement about biological catalysts is correct?

A They are proteins that increase the rate of a reaction.

B They are **not** affected by changes in pH.

C They can only function outside animal cells.

D They work fastest at very high temperatures.

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5 Which process do plants use to manufacture carbohydrates using light energy?

A absorption

B photosynthesis

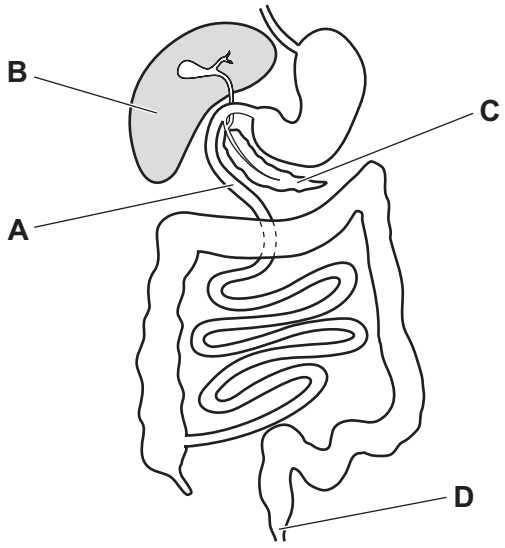
C respiration

D transpiration

6 Which row matches the type of nutrient with its food source and use in the body?

	nutrient	food source	use
A	calcium	butter	for energy
B	iron	red meat	to make red blood cells
C	vitamin C	milk	to make bones and teeth
D	vitamin D	citrus fruit	for healthy gums

7 Which part of the digestive system carries out both digestion **and** absorption?



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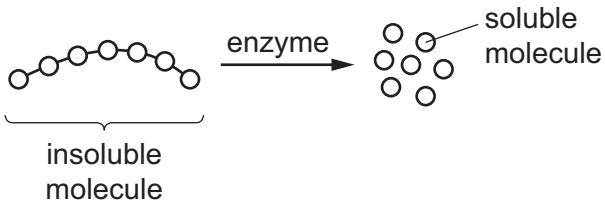
8 Which diagram shows the correctly labelled molecules in chemical digestion?

A



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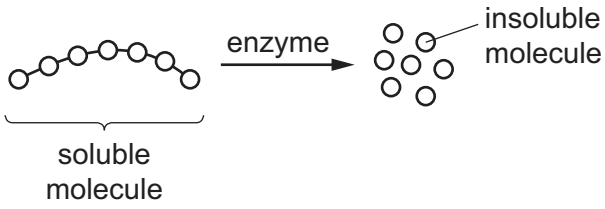

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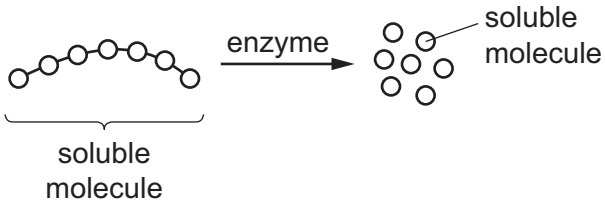

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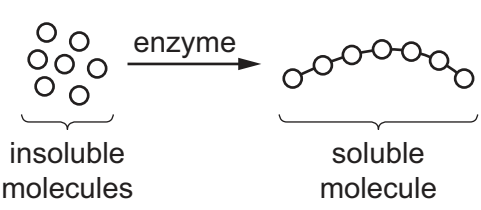
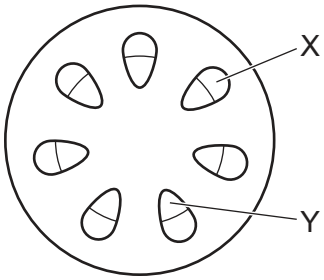


9 The diagram shows a section through part of a plant.



Which row shows where the section is taken from and which substances are transported by the labelled areas?

	section	X	Y
A	root	sucrose	water
B	root	water	sucrose
C	stem	sucrose	water
D	stem	water	sucrose

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10 The equation represents aerobic respiration.

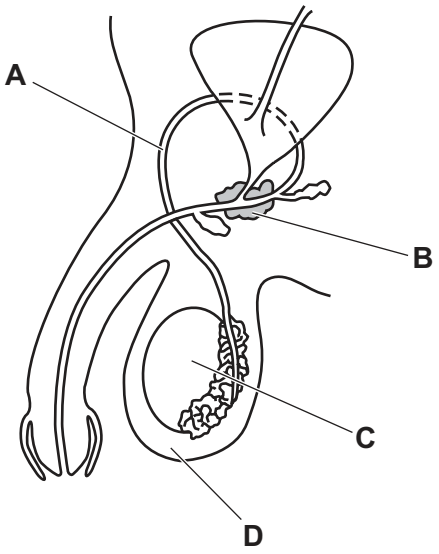
$$1 + 2 \rightarrow 3 + 4$$

Which row shows the correct equation?

	1	2	3	4
A	carbon dioxide	glucose	oxygen	water
B	glucose	oxygen	water	carbon dioxide
C	oxygen	water	carbon dioxide	glucose
D	water	carbon dioxide	glucose	oxygen

11 The diagram shows the male reproductive system.

Which structure is the scrotum?



12 In which part of the human female reproductive system does fertilisation normally take place?

A ovary

B oviduct

C uterus

D vagina

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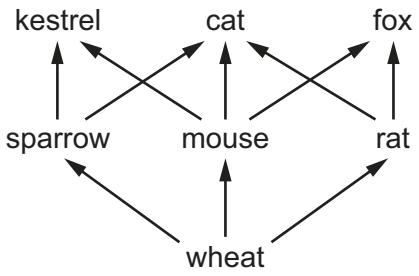
13 The diagram shows a food web.



Which statement describes an organism in the food web?

A The cat is a herbivore and a consumer.

B The sparrow is a carnivore and a consumer.

C The mouse is a herbivore and a producer.

D The kestrel is a carnivore and a consumer.

14 What is the nucleon number of an atom?

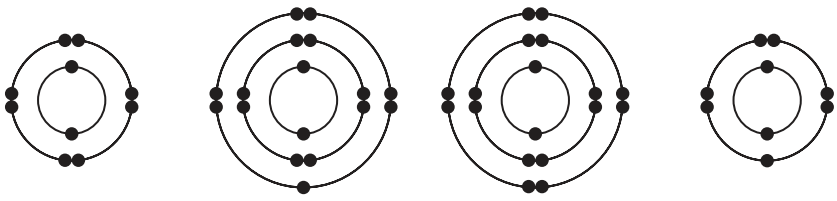
A the total number of protons, neutrons and electrons

B the total number of protons and neutrons

C the number of protons only

D the number of neutrons only

15 Which electronic configurations represent noble gases?



A W and Y **B** W and Z **C** X and Y **D** X and Z

16 Which process involves a chemical change?

A condensation

B evaporation

C melting

D oxidation

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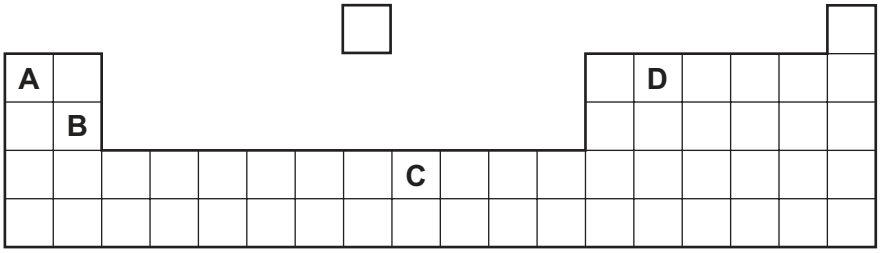
17 The diagram shows part of the Periodic Table.

Which element is a non-metal?



18 Which statement describes properties of a transition element?

A It has a high melting point, a high density and forms a blue-green chloride.

B It has a high melting point, a low density and forms a white chloride.

C It has a low melting point, a low density and forms a green chloride.

D It has a low melting point, a high density and forms a white chloride.

19 Sodium is added to a container of water and a reaction occurs.

What remains in the container after this reaction has finished?

A solid sodium hydroxide

B solid sodium oxide

C aqueous sodium hydroxide

D aqueous sodium oxide

20 Which statements about alloys are correct?

1 Alloys are mixtures of non-metals only.

2 Alloys are mixtures of a metal with other elements.

3 Brass is an alloy.

4 Bauxite is an alloy.

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

21 Which element is less reactive than hydrogen?

A copper

B iron

C magnesium

D zinc

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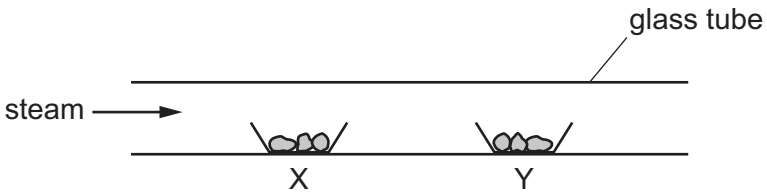
22 The diagram shows two open containers, X and Y, inside a glass tube.

Steam passes over the solids in X and Y.



X contains anhydrous copper(II) sulfate.

Y contains anhydrous cobalt(II) chloride.

What is observed?

A The solid in X remains blue.

B The solid in X turns from white to blue.

C The solid in Y turns from pink to blue.

D The solid in Y turns from pink to white.

23 Which volume of air contains about 20 cm^3 of oxygen?

A 20 cm^3 **B** 50 cm^3 **C** 80 cm^3 **D** 100 cm^3

24 What is the main constituent of natural gas?

A ethane

B nitrogen

C methane

D oxygen

25 Pentane is a hydrocarbon.

The word equation for the complete combustion of pentane is shown.

pentane + oxygen → carbon dioxide + substance W

What is substance W?

A carbon monoxide

B ethane

C hydrogen

D water

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26 Which statement about alkenes is correct?

A They are less reactive than alkanes.

B They are unsaturated compounds.

C They are polymers.

D They turn aqueous bromine orange-brown.

27 Which method is used to obtain a sample of pure, solid salt from an aqueous solution of the salt?

A chromatography

B crystallisation

C filtration

D fractional distillation

28 A student does an experiment to determine the density of an irregularly shaped solid.

Which apparatus is used in the experiment?

A balance, beaker of water, measuring cylinder

B balance, beaker of water, thermometer

C balance, measuring cylinder, thermometer

D beaker of water, measuring cylinder, stop-watch

29 The gravitational field strength g on the Moon is 1.6 N / kg.

A rock has a mass of 2.0 kg.

What is the weight of the rock on the Moon?

A 0 N **B** 0.80 N **C** 1.6 N **D** 3.2 N

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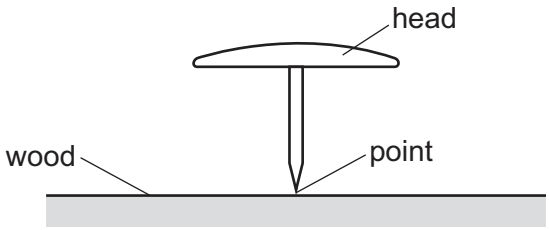
30 The diagram shows a drawing pin (thumb tack) with the head and the point labelled.



The point is placed against a piece of wood. A thumb presses down on the head.

The point goes into the wood. The head does **not** go into the thumb.

Which statement is correct?

A The force on the wood is greater than the force on the thumb.

B The force on the wood is smaller than the force on the thumb.

C The pressure on the wood is greater than the pressure on the thumb.

D The pressure on the wood is smaller than the pressure on the thumb.

31 What is a property of a liquid?

A It always fills the container it is in.

B It is always more dense than a solid.

C It has a fixed volume.

D It has a fixed shape.

32 Which materials are both bad thermal conductors?

A copper and iron

B plastic and aluminium

C rubber and gold

D wood and plastic

33 In which states of matter does convection occur?

A liquid only

B liquid and gas

C solid and gas

D solid and liquid

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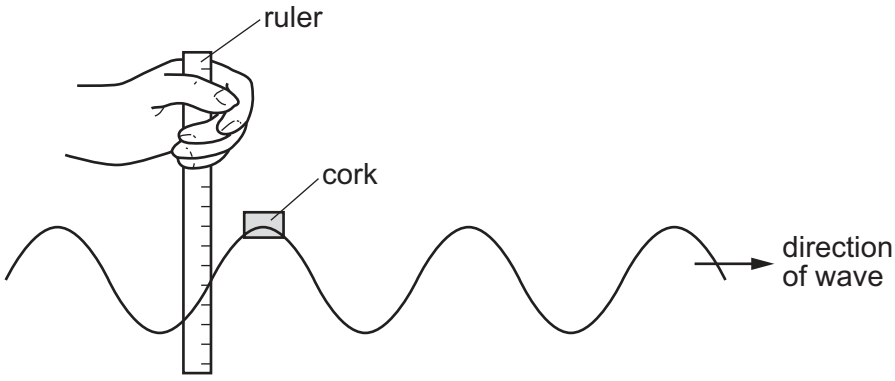
34 A cork moves up and down on a wave in a tank of water.

A student measures the distance moved up and down by the cork.



Which quantity can be determined using only this measurement?

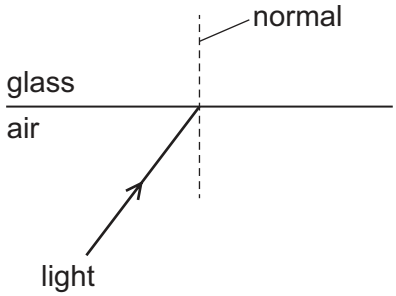
A amplitude

B frequency

C speed

D wavelength

35 Light passes from air into glass.



As it enters the glass, the light changes direction.

Which row shows the change in direction of the light and the name of this process?

	change in direction	process
A	away from the normal	dispersion
B	away from the normal	refraction
C	towards the normal	dispersion
D	towards the normal	refraction

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36 Which row shows the region of the electromagnetic spectrum with the smallest wavelength and the region with the greatest frequency?

	smallest wavelength	greatest frequency
A	radio waves	gamma rays
B	microwaves	microwaves
C	gamma rays	gamma rays
D	microwaves	radio waves

37 Which statement about the current in a resistor, the voltage across the resistor and the resistance of the resistor is correct?

A The current in a resistor decreases as the voltage across the resistor increases.

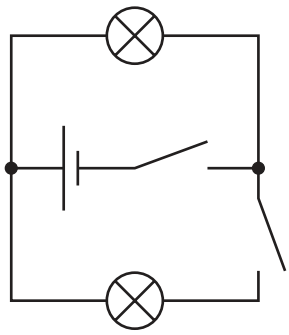
B The current in a resistor increases as the voltage across the resistor increases.

C The resistance of a resistor is given by the expression: current × voltage.

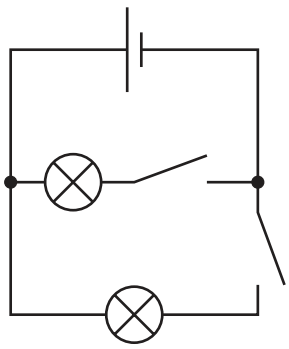
D The resistance of a resistor is given by the expression: $\frac{\text{current}}{\text{voltage}}$.

38 Which circuit allows the lamps to be switched on and off separately?

A



B



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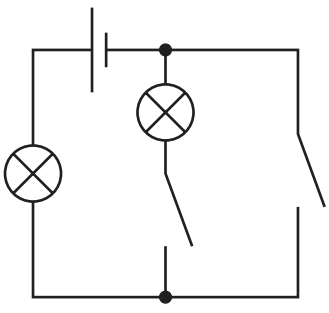
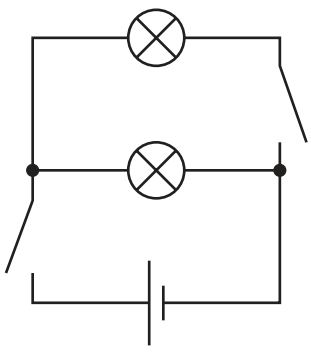


D



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39 What is **not** a possible hazard when using mains electrical equipment?

A a fuse in a circuit

B damaged electrical insulation

C damp conditions

D overheating of cables in a circuit

40 The speed of light in a vacuum is $3.0 \times 10^{8}\,\text{m/s}$.

The time taken for light to travel between two objects in space is 50 years.

What is the distance travelled by the light in this time?

A $6.0 \times 10^{6}\,\text{m}$ **B** $1.5 \times 10^{10}\,\text{m}$ **C** $5.5 \times 10^{12}\,\text{m}$ **D** $4.7 \times 10^{17}\,\text{m}$

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The Periodic Table of Elements

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 –

Key

atomic number
atomic symbol
name
relative atomic mass

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.).