Cambridge Assessment International Education

Cambridge IGCSE™ (9–1)

CO-ORDINATED SCIENCES **0973/11**

Paper 1 Multiple Choice (Core) **May/June 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.
- The Periodic Table is printed in the question paper.

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

1 Which characteristic of living organisms involves a permanent increase in size?

A excretion

B growth

C respiration

D sensitivity

2 The photograph shows a caterpillar.

The length of line PQ is 90 mm.

The actual length of the caterpillar is 30 mm.

What is the magnification of the photograph?

A ×0.33 **B** ×3.0 **C** ×27 **D** ×2700

3 What is the name of the process where water passes into and out of cells through a partially permeable membrane?

A diffusion

B evaporation

C osmosis

D transpiration

4 Which molecules make up fats and oils?

A amino acids and glycerol

B fatty acids and glycerol

C glucose and amino acids

D glucose and fatty acids

5 Which type of molecules are enzymes?

A carbohydrates

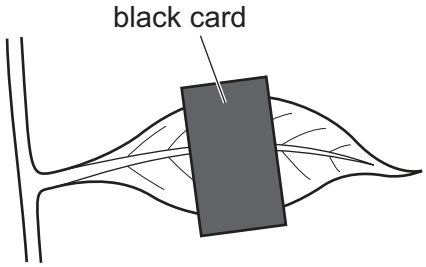
B fats

C hormones

D proteins

6 The starch in a plant is removed.

One part of a leaf of the plant is covered with black card.



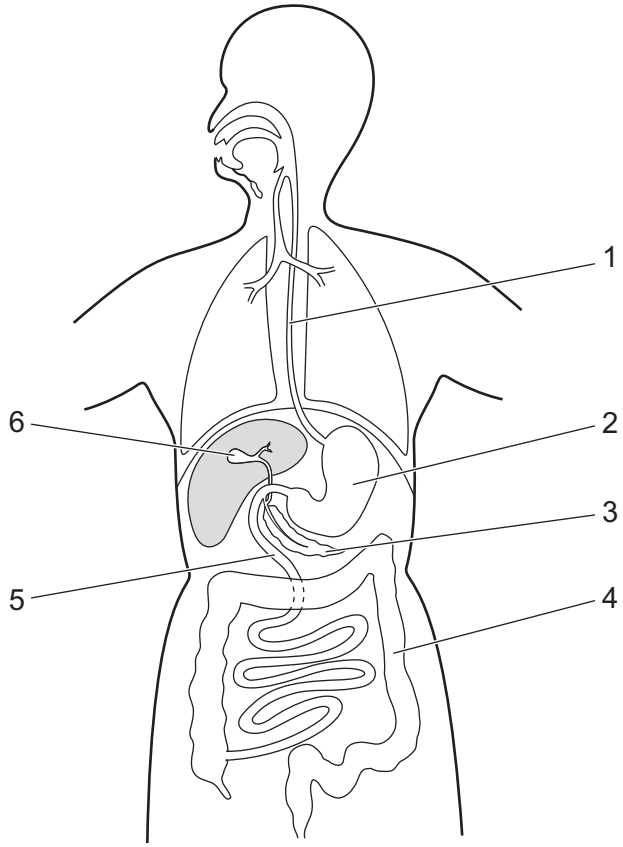
The plant is then put in the light for six hours.

The card is removed and the leaf is tested for starch using iodine solution.

Which row shows the colours of the iodine solution after it is added to different parts of the leaf?

	part of leaf	
	not covered by card	covered by card
A	blue-black	blue-black
B	blue-black	yellow
C	yellow	blue-black
D	yellow	yellow

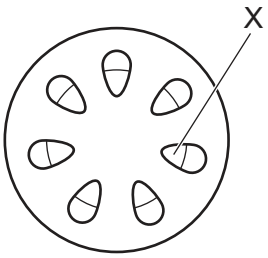
7 The diagram shows the human alimentary canal and other organs.



Which row shows the route of food through the alimentary canal?

	first → last			
A	1	2	3	4
B	1	2	5	4
C	2	4	3	5
D	2	4	5	6

8 The diagram shows a cross-section of a plant stem.



Which tissue is X?

A cortex

B mesophyll

C phloem

D xylem

9 Veins contain valves along their length.

What is the function of these valves?

A to allow gas exchange

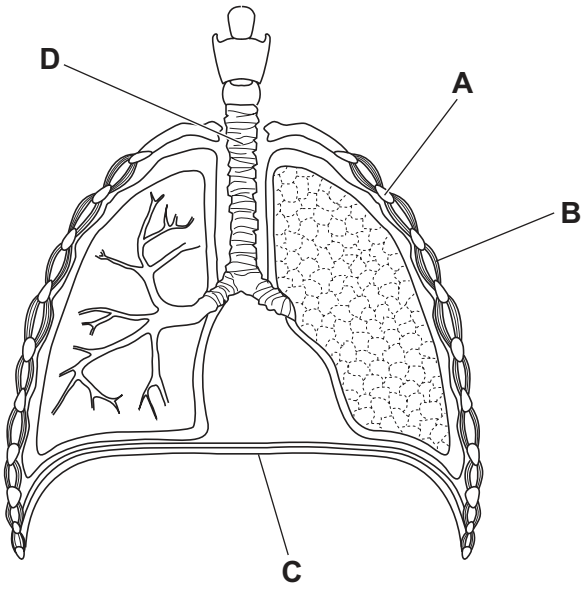
B to carry blood under high pressure

C to ensure one-way flow of blood

D to transport blood to capillaries

10 The diagram shows the human gas exchange system.

Which label shows the diaphragm?

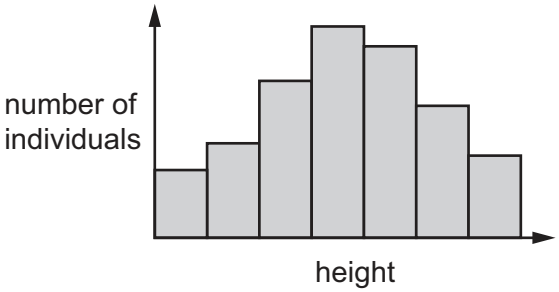


11 Which row shows effects of adrenaline?

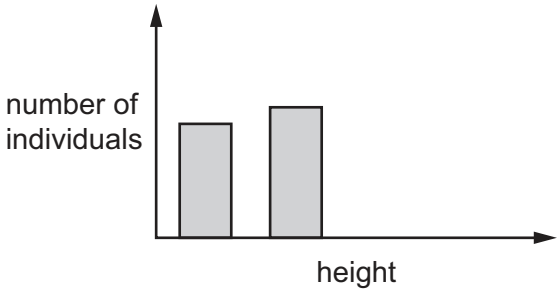
	heart rate	pupil diameter
A	increases	increases
B	increases	no effect
C	decreases	increases
D	no effect	increases

12 Which graph represents variation in the height of humans?

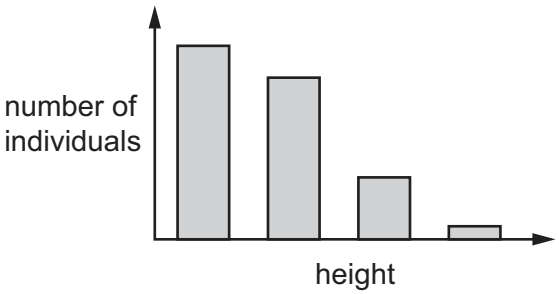
A



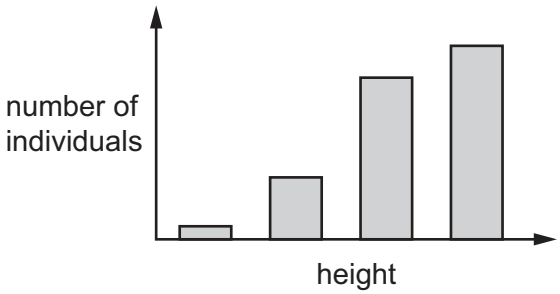
B



C



D



13 A food chain is shown.

tree → insect → mouse → owl

Which statement about this food chain is correct?

A The insect is a carnivore.

B The mouse is a herbivore.

C The owl is a secondary consumer.

D The tree is a producer.

14 Which change of state results in the greatest increase in the separation of particles?

A gas to liquid

B liquid to gas

C liquid to solid

D solid to liquid

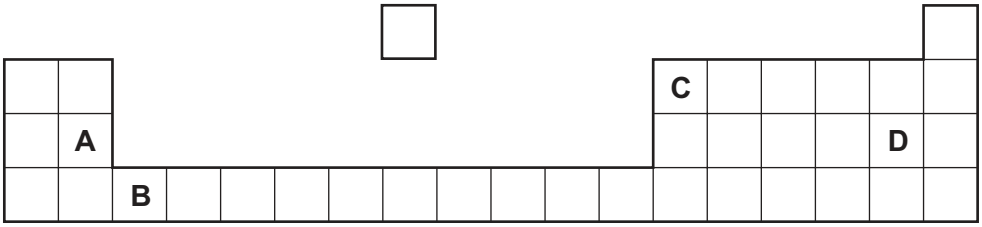
15 An atom of phosphorus has a nucleon number of 31 and a proton number of 15.

How many neutrons are there in this atom?

A 15 **B** 16 **C** 31 **D** 46

16 The diagram shows the positions of some elements in the Periodic Table.

Which element is in Group II and Period 3?



17 What happens to a tellurium atom when it forms a tellurium ion, Te^{2-}?

A It gains two electrons.

B It gains two protons.

C It loses two electrons.

D It loses two protons.

18 In which molecule are **all** the outer-shell electrons of the atoms used to form the covalent bonds?

A HCl **B** H_2O **C** NH_3 **D** CH_4

19 Molten lead(II) bromide is electrolysed using inert electrodes.

Which row describes the products of this electrolysis?

	a grey metal forms at the positive electrode	a red-brown gas forms at the negative electrode	lead and bromine are the only products
A	yes	no	no
B	yes	yes	yes
C	no	no	yes
D	no	yes	no

20 Equal masses of four substances are added separately to different samples of 10 cm^3 of dilute hydrochloric acid at 22 °C.

The final temperature of each reaction mixture is measured.

Which reaction is most endothermic?

	final temperature / °C
A	29
B	27
C	20
D	17

21 Solid zinc carbonate reacts with excess dilute hydrochloric acid.

Which changes in the conditions increase the rate of this reaction?

1 Increase the concentration of hydrochloric acid.

2 Increase the temperature of the reaction mixture.

3 Increase the volume of hydrochloric acid.

4 Use larger pieces of zinc carbonate.

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

22 Which equation shows the oxidation of a metal?

A $CuO + H_2 \rightarrow Cu + H_2O$

B $CuO + Zn \rightarrow Cu + ZnO$

C $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

D $2ZnO + C \rightarrow 2Zn + CO_2$

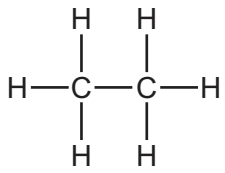
23 Four liquids are tested with universal indicator and with anhydrous copper(II) sulfate.

Which row shows the observations for pure water?

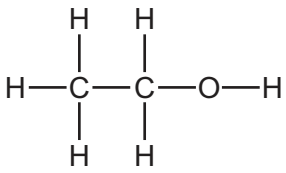
	universal indicator	anhydrous copper(II) sulfate
A	turns blue	turns blue
B	turns blue	turns white
C	turns green	turns blue
D	turns green	turns white

24 Which compound is an alkene?

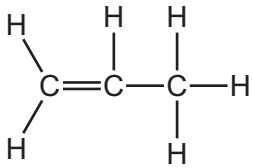
A



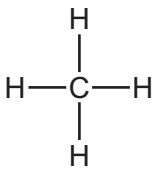
B



C



D



25 Which statement describes poly(ethene)?

A It is formed from monomer molecules which each contain two atoms.

B It is formed from a saturated hydrocarbon monomer.

C It is formed in an addition reaction.

D It is a polymer consisting of C, H and O atoms.

26 Naphtha is obtained from petroleum.

What is a use for naphtha?

A cooking

B heating

C making roads

D making chemicals

27 Aqueous ammonia is separately added dropwise and then in excess to four different aqueous cations.

Which cations give a precipitate that then dissolves?

1 Ca^{2+}

2 Cu^{2+}

3 Fe^{2+}

4 Zn^{2+}

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

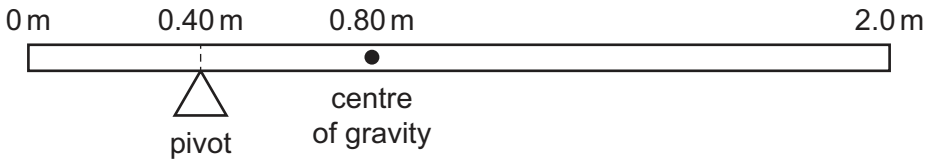
28 The total thickness of 500 sheets of paper is 4.5 cm.

What is the thickness of 1 sheet of paper in mm?

A 0.0090 mm **B** 0.090 mm **C** 0.90 mm **D** 9.0 mm

29 A metal bar has weight 50 N and length 2.0 m. The centre of gravity of the bar is 0.80 m from the left-hand end.

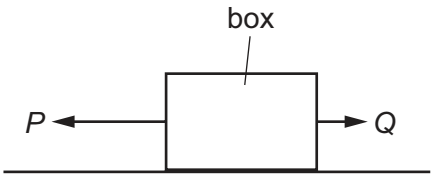
The bar is placed on a pivot at a point 0.40 m from the left-hand end.



What is the moment of the weight of the bar about the pivot?

A 20 N m **B** 40 N m **C** 60 N m **D** 80 N m

30 The diagram shows a large force of magnitude P and a small force of magnitude Q acting on a box.



Which expression gives the magnitude of the resultant force on the box?

A $\frac{P}{Q}$ **B** $P \times Q$ **C** $P - Q$ **D** $P + Q$

31 Which statement about the transfer of thermal energy is correct?

A Thermal energy transfer by radiation involves mainly ultraviolet radiation.

B Thermal energy transfer by radiation requires a medium to travel through.

C The main method of thermal energy transfer through gases is conduction.

D The main method of thermal energy transfer through liquids is convection.

32 Which pair consists of one good thermal conductor and one bad thermal conductor?

A aluminium and wood

B brass and copper

C glass and plastic

D iron and steel

33 What is the name of the distance between one wave crest and the next wave crest?

A amplitude

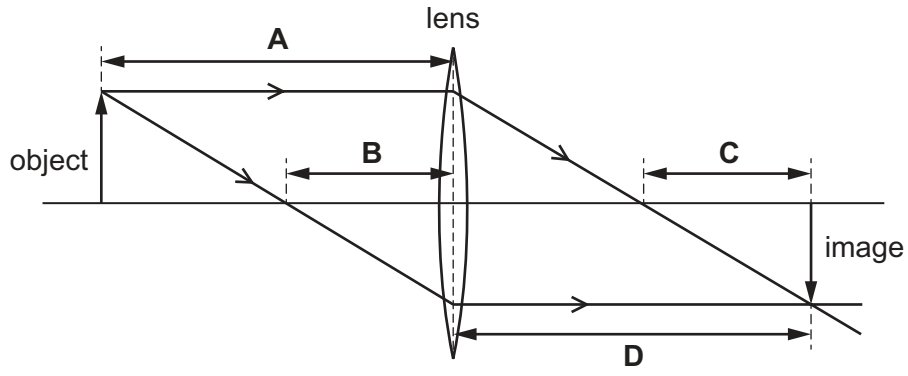
B frequency

C speed

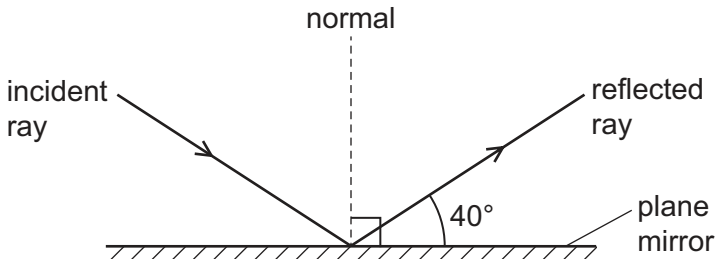
D wavelength

34 The diagram shows two rays of light passing through a thin converging lens to form an image of an object. Four distances are labelled.

Which labelled distance is the focal length of the lens?



35 The diagram shows light hitting a plane mirror.



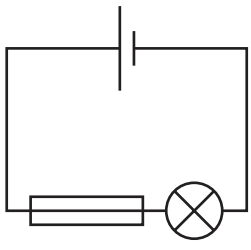
NOT TO SCALE

What is the angle of incidence?

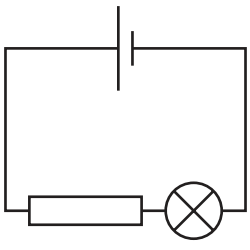
A 40° **B** 50° **C** 80° **D** 100°

36 In which circuit can the brightness of the lamp be varied continuously?

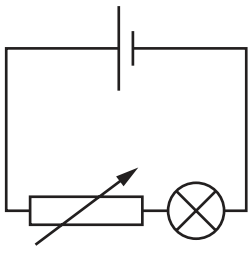
A



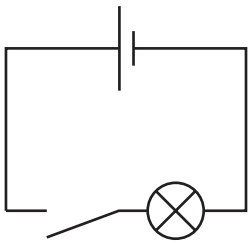
B



C



D



37 A 12 Ω resistor is connected in parallel with a 17 Ω resistor.

Which statement about the combined resistance of the two resistors is correct?

A It must be equal to 29 Ω.

B It must be greater than 12 Ω but less than 17 Ω.

C It must be greater than 17 Ω but less than 29 Ω.

D It must be less than 12 Ω.

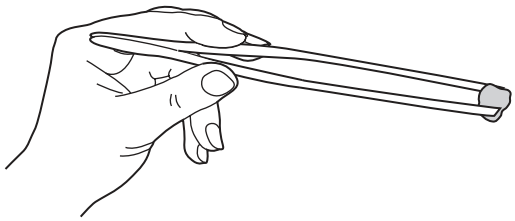
38 The voltage across an electric heater is 240 V and the current in the heater is 3.0 A.

The heater is connected in a circuit with a fuse.

Which fuse rating is the most suitable?

A 1 A **B** 2 A **C** 5 A **D** 240 A

39 A teacher handles a radioactive source with tongs that are 10 cm long.



Using the tongs protects the teacher from one type of ionising radiation.

Which type of radiation from the source is the teacher protected from?

A alpha (α)-particles

B beta (β)-particles

C gamma (γ)-rays

D X-rays

40 What is between the orbits of Mars and Jupiter?

A the asteroid belt

B the orbit of Saturn

C the orbit of the Earth

D the orbit of Venus

BLANK PAGE

BLANK PAGE

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.).