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CAMBRIDGE
International Education

Cambridge IGCSE™

COMBINED SCIENCE **0653/11**

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

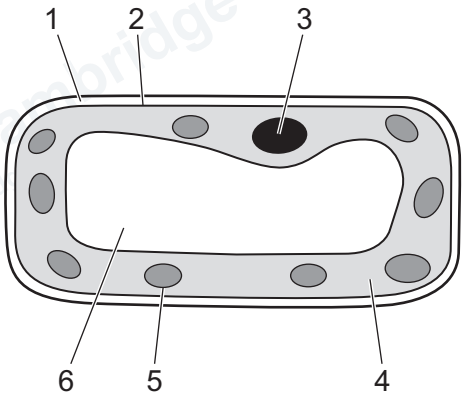
- The total mark for this paper is 40.
- Each correct answer will score one mark.
- Any rough working should be done on this question paper.
- The Periodic Table is printed in the question paper.

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

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[Turn over

1 The diagram shows a palisade cell from a leaf.



Which labelled structures are found only in plant cells and **not** in animal cells?

A 1, 2 and 6 **B** 1, 5 and 6 **C** 2, 3 and 5 **D** 2, 3 and 6

2 The cytoplasm of four plant cells is a 15% sugar solution.

Each plant cell is placed in a sugar solution of a different concentration.

Which solution causes a net diffusion of water out of the cell?

A 5% sugar solution

B 10% sugar solution

C 15% sugar solution

D 20% sugar solution

3 The table shows the results of some food tests carried out on one food sample.

food test reagent	colour at start of test	colour at end of test
Benedict's solution	blue	blue
biuret reagent	blue	purple
iodine solution	brown	blue-black

Which nutrients does the food sample contain?

A protein and starch

B protein and reducing sugar

C starch only

D starch and reducing sugar

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4 What is the correct sequence of layers in a leaf, starting from the upper surface of the leaf?

A palisade mesophyll → epidermis → spongy mesophyll → epidermis

B spongy mesophyll → epidermis → palisade mesophyll → epidermis

C epidermis → palisade mesophyll → spongy mesophyll → epidermis

D epidermis → spongy mesophyll → palisade mesophyll → epidermis

5 Which component of the diet is broken down to release energy?

A carbohydrates

B fibre

C mineral ions

D water

6 A substance is lost from plants during transpiration.

Which row identifies the substance lost and the part of the plant from which the substance is lost?

	substance	part of plant
A	carbon dioxide	leaves
B	carbon dioxide	roots
C	water vapour	leaves
D	water vapour	roots

7 Which row describes the features of a capillary?

	thick wall	valves present	diameter of lumen
A	no	no	narrow
B	no	yes	wide
C	yes	no	narrow
D	yes	yes	wide

8 What is a pathogen?

A an organism that is affected by disease

B an organism that is a host for a disease

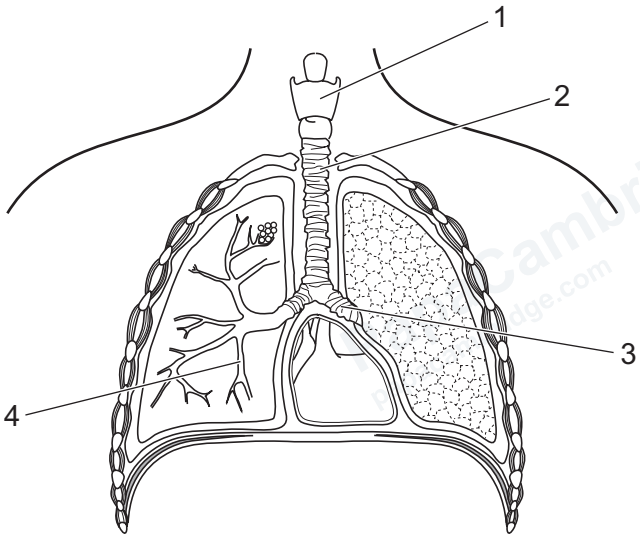
C an organism that destroys disease

D an organism that causes disease

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9 The diagram shows the human breathing system.



Which row identifies structures 1–4?

	1	2	3	4
A	larynx	trachea	bronchiole	bronchus
B	larynx	trachea	bronchus	bronchiole
C	trachea	larynx	bronchiole	bronchus
D	trachea	larynx	bronchus	bronchiole

10 What is the equation for aerobic respiration?

A carbon dioxide + water → glucose + oxygen

B oxygen + water → carbon dioxide + glucose

C glucose + water → carbon dioxide + oxygen

D glucose + oxygen → carbon dioxide + water

11 A patient with a bacterial infection is given antibiotics.

The antibiotics are **not** effective.

Which statement explains why the antibiotics are **not** effective?

A The antibiotics only kill viruses.

B The bacteria are antibiotic resistant.

C The bacteria are antibody resistant.

D The bacteria are **not** transmissible.

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12 What is a characteristic of an insect-pollinated flower?

A anthers hanging outside the flower

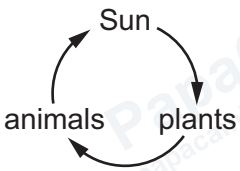
B sticky stigma

C small green petals

D no carpels

13 Which diagram shows the transfer of energy through an ecosystem?

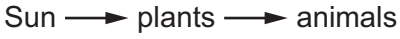
A



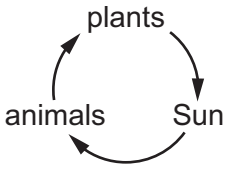
B



C



D



14 Atoms, ions and molecules contain protons and electrons.

The overall charge on these particles is determined by the relative number of protons and electrons in each particle.

Which row describes the overall charge on atoms, ions and molecules?

	atom	ion	molecule
A	charged	neutral	neutral
B	charged	neutral	charged
C	neutral	charged	charged
D	neutral	charged	neutral

15 Which statement about hydrogen, oxygen and water is correct?

A Hydrogen is a compound because it can be separated by chemical means.

B Hydrogen, oxygen and water are compounds because they are all molecules.

C Oxygen is an element because it only contains one type of atom.

D Water is a mixture because it contains both hydrogen and oxygen.

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16 Which statement describes the bonding in ammonia?

A One hydrogen atom shares three pairs of electrons with three nitrogen atoms.

B One hydrogen atom donates electrons to three nitrogen atoms.

C One nitrogen atom accepts electrons from three hydrogen atoms.

D One nitrogen atom shares three pairs of electrons with three hydrogen atoms.

17 Aluminium is extracted from aluminium oxide, Al_2O_3, by electrolysis.

The equation for this process is shown.

$$2Al_2O_3 \rightarrow \text{.....X.....} + \text{.....Y.....}$$

Which row completes gaps X and Y to balance the equation?

	X	Y
A	$4Al$	$3O_2$
B	$4Al$	$6O$
C	$2Al_2$	$3O_2$
D	$2Al_2$	$6O$

18 Which row shows the products of the electrolysis of concentrated aqueous sodium chloride using inert electrodes?

	anode (positive electrode)	cathode (negative electrode)
A	chlorine	hydrogen
B	chlorine	sodium
C	oxygen	hydrogen
D	oxygen	sodium

19 Which gas forms when calcium reacts with dilute hydrochloric acid?

A carbon dioxide

B chlorine

C hydrogen

D oxygen

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20 A solution of pH 1 reacts with a solution of pH 12.

A solution of pH 7 is formed and the temperature rises.

Which statement describes the type of reaction?

A neutralisation and an endothermic reaction

B neutralisation and an exothermic reaction

C oxidation and an endothermic reaction

D oxidation and an exothermic reaction

21 Which statement about the elements in Period 3 of the Periodic Table is correct?

A The elements become less metallic across the period.

B The most metallic elements are at both ends of the period.

C The most metallic elements are in the middle of the period.

D There is no pattern in metallic character across the period.

22 What is a chemical test for the presence of water?

A It boils at 100 °C.

B It turns anhydrous copper(II) sulfate blue.

C It turns copper(II) sulfate crystals white.

D It turns anhydrous cobalt(II) chloride blue.

23 Which gases contribute to climate change when their concentrations in the air increase?

1 carbon dioxide

2 methane

3 nitrogen

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

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24 The percentage composition of gases in a sample of natural gas is shown.

gas	percentage composition
methane, CH_4	93.9
ethane, C_2H_6	4.2
propane, C_3H_8	0.3
nitrogen, N_2	1.0
carbon dioxide, CO_2	0.5
other hydrocarbons	0.1

What is the total percentage of hydrocarbons in the sample?

A 94.0 **B** 98.4 **C** 98.5 **D** 99.0

25 Which two fractions of petroleum are used as fuels?

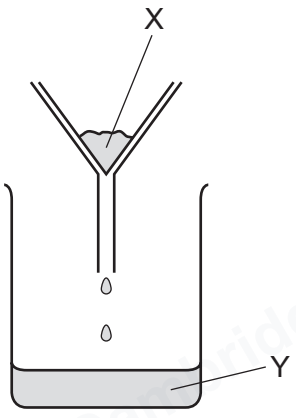
A refinery gas and naphtha

B refinery gas and diesel oil

C diesel oil and bitumen

D naphtha and bitumen

26 The apparatus used to separate an insoluble solid from a liquid is shown.



Which row describes X and Y?

	X	Y
A	residue	filtrate
B	residue	solvent
C	solute	filtrate
D	solute	solvent

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27 Which row describes a test and the result of the test for calcium ions?

	test	result
A	add aqueous ammonia	light blue precipitate
B	add aqueous ammonia	green precipitate
C	add aqueous sodium hydroxide	red-brown precipitate
D	add aqueous sodium hydroxide	white precipitate

28 A student makes measurements to determine the density of an irregularly shaped stone. The student has a measuring cylinder, water, a balance and a thermometer.

The measurements are listed.

1 initial volume of water in measuring cylinder

2 mass of measuring cylinder

3 mass of stone

4 mass of water in measuring cylinder

5 reading on measuring cylinder with stone fully immersed in the water

6 temperature of water

Which three measurements are needed to determine the density of the stone?

A 1, 3 and 5 **B** 1, 5 and 6 **C** 2, 3 and 4 **D** 2, 4 and 6

29 A train travels in a straight line from station P to station Q.

Which statement describes when the train decelerates?

A after it has stopped at station Q

B as it slows down on the approach to station Q

C as it speeds up from station P towards station Q

D as it travels at a steady speed towards station Q

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30 A cup contains hot liquid.

Some of the liquid evaporates.

Which row shows what happens to the mass and the weight of the liquid in the cup?

	mass	**weight**
A	decreases	decreases
B	decreases	stays the same
C	stays the same	decreases
D	stays the same	stays the same

31 Diagram 1 shows a load hanging on a spring.

Diagram 2 shows the load pulled down.

diagram 1

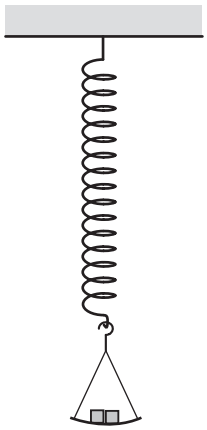
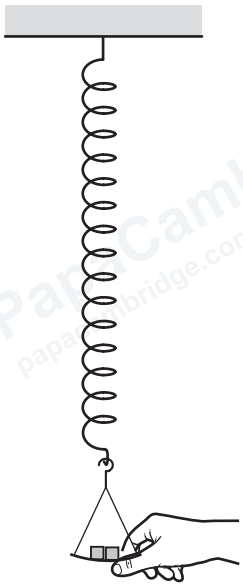


diagram 2



The energy stored as gravitational potential energy in the load is E_P.

The energy stored as elastic (strain) energy in the spring is E_S.

Which row shows what happens to E_P and E_S when the load is pulled down?

	E_P	E_S
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

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32 The Moon has no atmosphere.

During its daytime, the surface of the Moon is very hot. At night, the surface transfers energy thermally into space and becomes much colder.

How is energy transferred thermally from the surface of the Moon into space?

A by conduction, convection and radiation

B by convection and radiation only

C by convection only

D by radiation only

33 Thermal insulators are used to reduce the transfer of thermal energy to the environment.

What is an example of this?

A black paint on the outside surface of a wood-burning stove

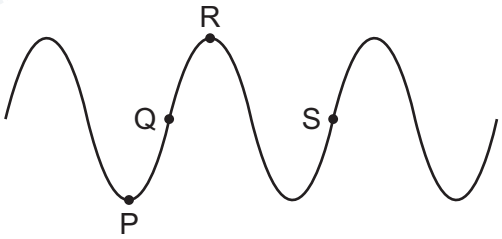
B copper pipes used to carry hot water

C electric fan used to move air inside a room

D solid plastic foam used to make cups for hot drinks

34 The diagram shows the side view of a water wave.

P, Q, R and S are points on the wave.



What is the wavelength of the wave?

A the horizontal distance between P and R

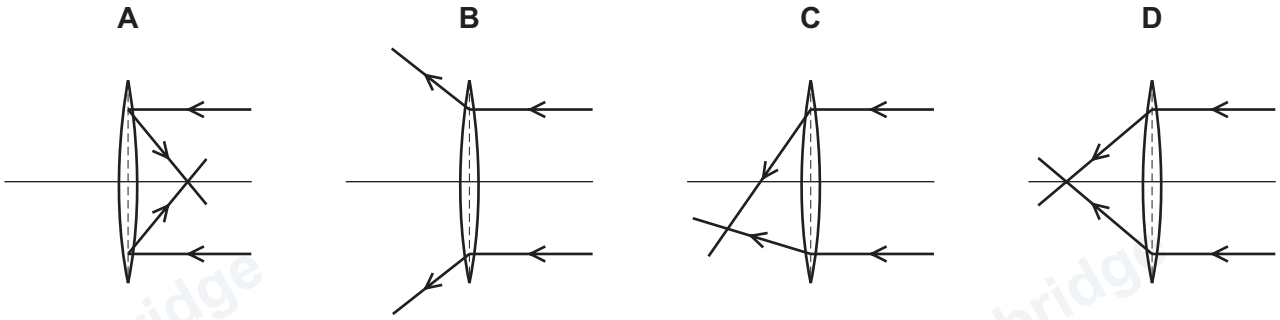
B the horizontal distance between Q and S

C the vertical distance between P and R

D the vertical distance between Q and R

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35 Which diagram shows the action of a thin converging lens on a parallel beam of light?



36 A student stands 240 m away from a cliff and blows a whistle to make a sound. The sound is reflected from the cliff as an echo. The student hears the echo 1.60 s after making the sound.

What is the speed of sound calculated from these results?

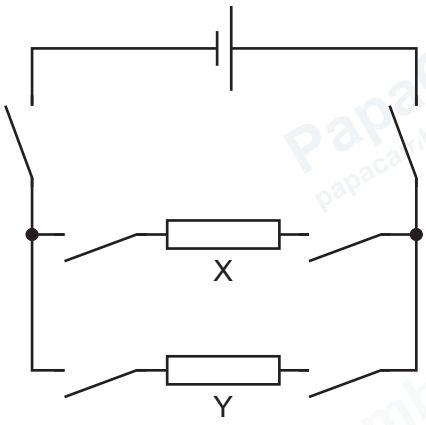
A 150 m / s **B** 192 m / s **C** 300 m / s **D** 384 m / s

37 There is a voltage of 1.5 V across a resistor of resistance 30 Ω.

What is the current in the resistor?

A 0.050 A **B** 0.075 A **C** 20 A **D** 45 A

38 The diagram shows a cell connected to two resistors, X and Y, and six switches. All of the switches are open.



A student closes some of the switches. There is now a current in resistor X. There is no current in resistor Y.

What is the smallest number of switches that must be closed?

A 2 **B** 3 **C** 4 **D** 5

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39 An electric drill operates from a supply voltage of 240 V.

The current in the drill is 3.5 A.

Fuse Z protects the drill's cable.

What is the fuse rating of Z?

A 3 A **B** 5 A **C** 200 V **D** 250 V

40 Which row gives an example of a star and a minor planet in the Solar System?

	star	**minor planet**
A	Saturn	Pluto
B	Saturn	Mercury
C	the Sun	Pluto
D	the Sun	Mercury

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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.).

0653/11 Question Paper June 2026

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