

Cambridge IGCSE™

CHEMISTRY

Paper 1 Multiple Choice (Core)

0620/11**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.

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 At temperature T1, particles of substance X are close together and slide over each other.

At temperature T2, substance X is made up of particles that are close together and vibrate in fixed positions.

What is the name of the change of state substance X undergoes when its temperature changes from T1 to T2?

- A melting
- B boiling
- C freezing
- D condensing

- 2 Nitrogen is heated in a balloon which expands slightly.

Which statements about the molecules of nitrogen are correct?

- 1 They move further apart.
- 2 They move more quickly.
- 3 They remain the same distance apart.
- 4 Their speed remains unchanged.

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

- 3 Which row about elements, mixtures and compounds is correct?

	metallic element	non-metallic element	mixture	compound
A	copper	methane	brass	sulfur
B	brass	sulfur	copper	methane
C	copper	sulfur	brass	methane
D	brass	methane	copper	sulfur

- 4 The table gives information about some atoms and ions.

Which row describes the **ion** with the largest mass?

	atomic number	number of neutrons	number of electrons
A	52	80	54
B	53	78	54
C	54	80	54
D	55	78	54

- 5 Which statement defines atomic number?

- A** It is the total number of protons in the nucleus of an atom.
B It is the total number of protons and neutrons in the nucleus of an atom.
C It is the number of different atoms in one molecule.
D It is the simplest whole number ratio of atoms in a compound.

- 6 Which symbol represents an isotope of the main element present in stainless steel?

- A** ${}^{12}_6\text{W}$ **B** ${}^{24}_{12}\text{X}$ **C** ${}^{50}_{24}\text{Y}$ **D** ${}^{57}_{26}\text{Z}$

- 7 Which statement describes the bonding in potassium chloride?

- A** Two electrons are shared between two atoms.
B Two electrons are shared between two oppositely charged ions.
C There is a strong electrostatic attraction between electrons in two different atoms.
D There is a strong electrostatic attraction between two oppositely charged ions.

- 8 Which row describes the hardness and a use of graphite?

	hardness	use
A	hard	cutting tools
B	hard	lubricant
C	soft	cutting tools
D	soft	lubricant

9 What is the formula of potassium oxide?

- A P_2O B PO_2 C KO D K_2O

10 Which compound contains the greatest number of atoms in its formula?

- A copper(II) sulfate
B ethane
C ethanol
D sulfuric acid

11 Which formula gives the M_r of lead(II) bromide?

- A $A_r \text{ lead} + A_r \text{ bromine}$
B $A_r \text{ lead} + 2 \times A_r \text{ bromine}$
C $2 \times A_r \text{ lead} + A_r \text{ bromine}$
D $2 \times A_r \text{ lead} + 2 \times A_r \text{ bromine}$

12 Which statements about the electrolysis of dilute sulfuric acid using inert electrodes are correct?

- 1 Oxygen and sulfur are formed at the positive electrode.
- 2 Hydrogen is formed at the negative electrode.
- 3 Oxygen is formed at the anode.
- 4 Sulfuric acid can be electrolysed because it is a covalent compound.

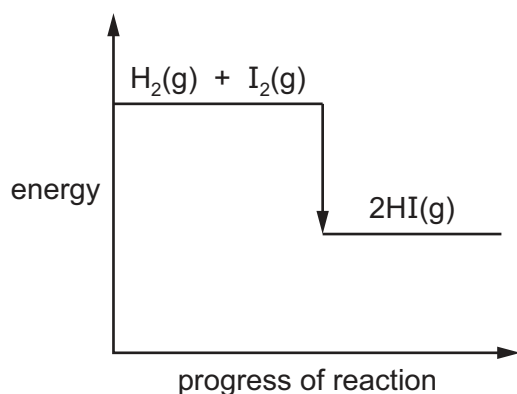
- A 1 and 2 B 1 and 4 C 2 and 3 D 3 and 4

13 Fuel cells are used as energy sources in cars.

Which row gives a fuel used in a fuel cell and the products formed?

	fuel in a fuel cell	products formed
A	hydrogen	carbon dioxide and water
B	hydrogen	water only
C	petrol	carbon dioxide and water
D	petrol	water only

- 14 The reaction pathway diagram for the reaction between hydrogen and iodine to form hydrogen iodide is shown.



Four statements about this reaction are listed.

- 1 The reaction is exothermic.
- 2 The reaction is endothermic.
- 3 The temperature of the mixture increases during the reaction.
- 4 The temperature of the mixture decreases during the reaction.

Which statements are correct?

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

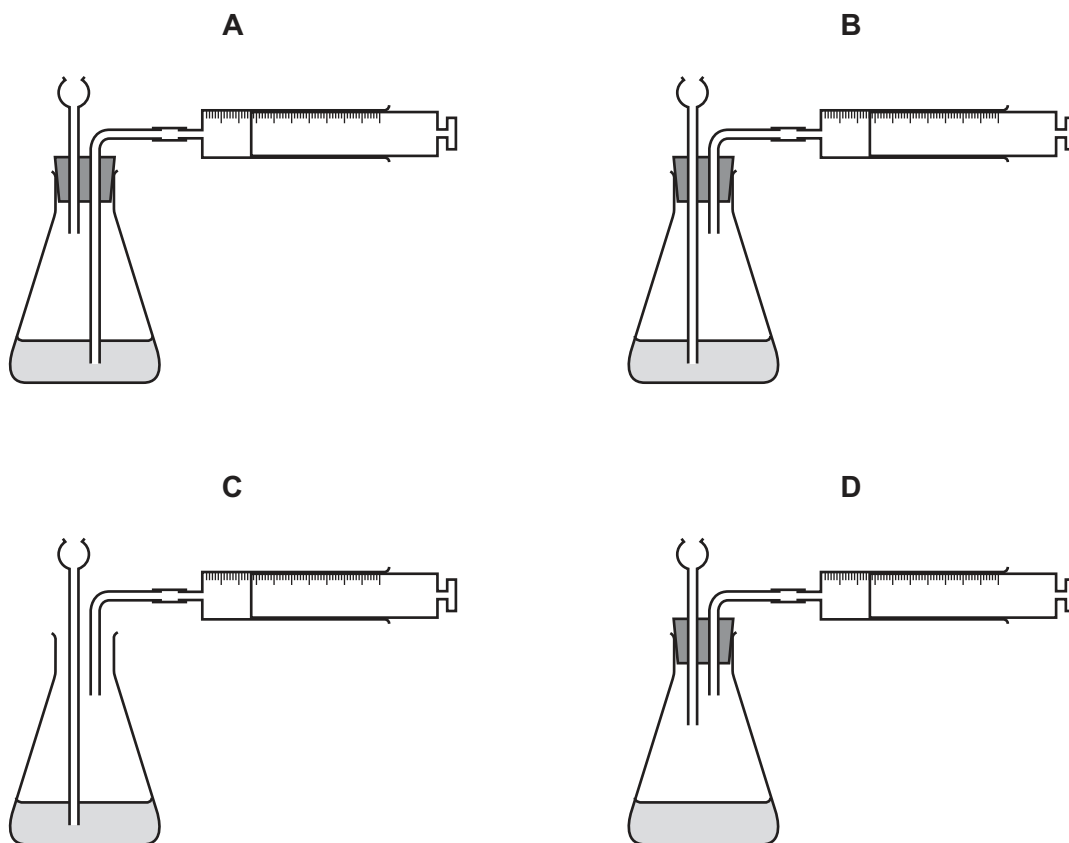
- 15 Which row describes a chemical change?

	new substances are made	there is a change of state
A	always	always
B	always	sometimes
C	never	always
D	never	sometimes

16 Zinc is reacted with dilute sulfuric acid to produce hydrogen gas.

The acid is poured through a funnel into a conical flask containing zinc.

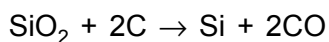
Which apparatus could be used to measure the total volume of gas produced?



17 Which statement about cobalt(II) chloride and copper(II) sulfate is correct?

- A** The blue form of cobalt(II) chloride is hydrated.
- B** The pink form of cobalt(II) chloride is chemically combined with water.
- C** The white form of copper(II) sulfate contains water.
- D** The blue form of copper(II) sulfate is anhydrous.

- 18 When heated strongly, silicon(IV) oxide reacts with carbon.



Which term describes what happens to silicon(IV) oxide?

- A thermal decomposition
 - B neutralisation
 - C oxidation
 - D reduction
- 19 Potassium manganate(VII), KMnO_4 , is a compound with a range of different uses.

What does (VII) indicate about this compound?

- A The oxidation number of potassium in this compound is -7 .
 - B The oxidation number of potassium in this compound is $+7$.
 - C The oxidation number of manganese in this compound is -7 .
 - D The oxidation number of manganese in this compound is $+7$.
- 20 Thymolphthalein and methyl orange are separately added to test-tubes containing aqueous potassium hydroxide.

What is the final colour of the solution in each test-tube?

	thymolphthalein	methyl orange
A	blue	yellow
B	blue	red
C	colourless	yellow
D	colourless	red

- 21 Copper(II) chloride is made when copper(II) carbonate reacts with dilute hydrochloric acid.

What are the other products in this reaction?

- A water and carbon dioxide
- B carbon dioxide only
- C water and hydrogen
- D hydrogen only

- 22** Dilute acid HA has a pH of 2 and dilute acid HX has a pH of 4. Both acids have the same concentration.

Which statement is correct?

- A** HA is more acidic than HX and the hydrogen ion concentration of HA is greater than that of HX.
- B** HA is less acidic than HX and the hydrogen ion concentration of HA is greater than that of HX.
- C** HA is less acidic than HX and the hydrogen ion concentration of HA is less than that of HX.
- D** HA is more acidic than HX and the hydrogen ion concentration of HA is less than that of HX.

- 23** Which oxide forms a basic solution in water?

- A** carbon dioxide
- B** nitrogen dioxide
- C** sodium oxide
- D** sulfur dioxide

- 24** Copper(II) sulfate is prepared by adding copper(II) oxide to dilute sulfuric acid.

The steps used to obtain copper(II) sulfate crystals are listed.

- 1 Warm the filtrate until concentrated.
- 2 Filter the mixture.
- 3 Heat the mixture and stir.
- 4 Leave to cool.

What is the correct order of these steps?

- A** 2 → 1 → 3 → 4
- B** 1 → 2 → 4 → 3
- C** 3 → 2 → 1 → 4
- D** 3 → 2 → 4 → 1

25 The elements in a group of the Periodic Table show the following trends.

- 1 The element with the lowest proton number has the lowest reactivity.
- 2 All the elements in the group form basic oxides.
- 3 The density of the elements increases down the group.
- 4 The melting point of the elements decreases down the group.

In which group are the elements found?

- A** I **B** IV **C** VI **D** VII

26 Which statements about noble gases are correct?

- 1 Their atoms have complete outer shells of electrons.
- 2 They exist as diatomic molecules.
- 3 They are in Group VIII of the Periodic Table.
- 4 They react with oxygen to give an acidic oxide.

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

27 Which substances have a high melting point and conduct electricity when solid?

- 1 zinc
- 2 diamond
- 3 sulfur
- 4 graphite

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

28 Which metal is used in aircraft manufacture because it has a low density?

- A** aluminium
B copper
C iron
D potassium

29 Which statements explain why stainless steel is used to make cutlery?

- 1 It is a good conductor of thermal energy.
- 2 It is ductile.
- 3 It is corrosion resistant.
- 4 It is hard.

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

30 Nickel reacts with dilute hydrochloric acid. The reaction is slower than the reaction of iron with dilute hydrochloric acid.

Strontium reacts with cold water more slowly than sodium reacts with cold water, but faster than iron reacts with cold water.

Which statement correctly describes the order of reactivity?

- A** Nickel is the most reactive and strontium is the least reactive.
- B** Strontium is the most reactive and iron is the least reactive.
- C** Iron is the most reactive and strontium is the least reactive.
- D** Sodium is the most reactive and nickel is the least reactive.

31 Why is distilled water used in practical chemistry rather than tap water?

- A** It has a higher boiling point than tap water.
- B** It has a lower melting point than tap water.
- C** It has fewer impurities than tap water.
- D** It contains more ions than tap water.

32 An NPK fertiliser is made by mixing two compounds.

One of the compounds is $\text{Ca}(\text{H}_2\text{PO}_4)_2$.

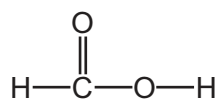
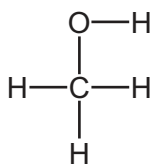
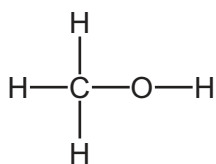
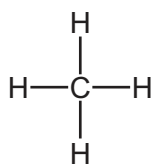
What is the other compound?

- A** potassium nitrate
- B** potassium sulfate
- C** sodium chloride
- D** ammonium nitrate

33 Which row identifies the reactants and products of photosynthesis?

	reactants	products
A	carbon dioxide and water	oxygen only
B	carbon dioxide and oxygen	glucose and water
C	glucose and oxygen	carbon dioxide and water
D	water and carbon dioxide	glucose and oxygen

34 The structures of four different organic compounds are shown.



How many different homologous series are represented by these compounds?

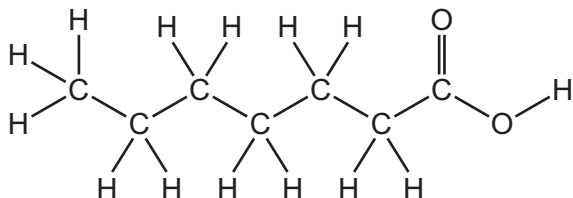
A 1

B 2

C 3

D 4

35 The names of organic compounds with seven carbon atoms in a chain start with 'hept'.



What is the name of this compound?

A heptane

B heptanol

C heptene

D heptanoic acid

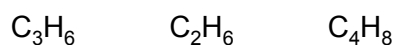
- 36** Natural gas is a combustible gas that is a mixture of simple hydrocarbon compounds.

Which substance is the main constituent of natural gas?

- A** methane
- B** butane
- C** carbon monoxide
- D** carbon dioxide

- 37** A large alkane is cracked to produce smaller hydrocarbons.

The formulas of three of these hydrocarbons are shown.



Which compounds decolourise aqueous bromine?

- A** C_3H_6 and C_2H_6
- B** C_3H_6 and C_4H_8
- C** C_2H_6 only
- D** C_4H_8 only

- 38** Which statements are correct?

- 1 The polymer of ethene is poly(ethane).
- 2 Monomers are small molecules.
- 3 Monomers join together to form polymers.

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

- 39** Which piece of apparatus is used to measure accurately the volume of a liquid in an acid–base titration?

- A** a balance
- B** a beaker
- C** a burette
- D** a conical flask

- 40** Aqueous X reacts with aqueous NaOH to produce a white precipitate that is soluble in excess aqueous NaOH.

Aqueous X reacts with acidified aqueous $\text{Ba}(\text{NO}_3)_2$ to produce a white precipitate.

What is X?

- A** MgSO_4 **B** ZnSO_4 **C** CaCl_2 **D** AlCl_3

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The Periodic Table of Elements

Group																	
I	II	Key										III	IV	V	VI	VII	VIII
		1 H hydrogen 1															
		atomic number atomic symbol name relative atomic mass															
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											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											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	lanthanoids										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 —	actinoids										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	merendelevium	—	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.).