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CHEMISTRY **0620/11**

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.

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

View solution

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.

View solution

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?

View solution

	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

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4 The table gives information about some atoms and ions.

View solution

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?

View solution

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?

View solution

A $^{12}_{6}W$ **B** $^{24}_{12}X$ **C** $^{50}_{24}Y$ **D** $^{57}_{26}Z$

7 Which statement describes the bonding in potassium chloride?

View solution

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?

View solution

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

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9 What is the formula of potassium oxide?

View solution

A P_2O **B** PO_2 **C** KO **D** K_2O

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

View solution

A copper(II) sulfate

B ethane

C ethanol

D sulfuric acid

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

View solution

A A_r lead + A_r bromine

B A_r lead + 2 × A_r bromine

C 2 × A_r lead + A_r bromine

D 2 × A_r lead + 2 × A_r bromine

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

View solution

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.

View solution

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

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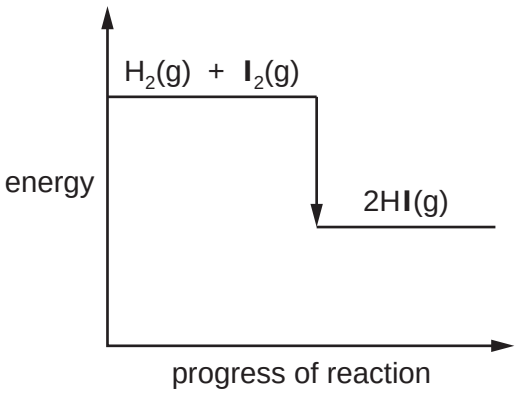
14 The reaction pathway diagram for the reaction between hydrogen and iodine to form hydrogen iodide is shown.

View solution



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?

View solution

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

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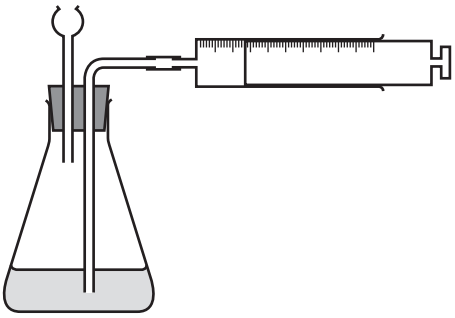
16 Zinc is reacted with dilute sulfuric acid to produce hydrogen gas.

View solution

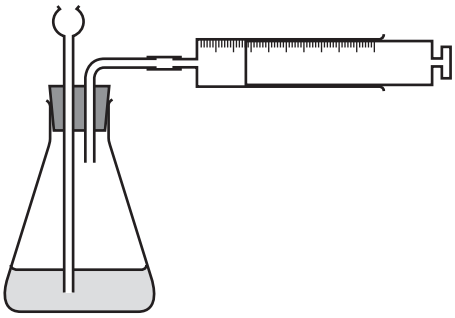
The acid is poured through a funnel into a conical flask containing zinc.

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

A



B



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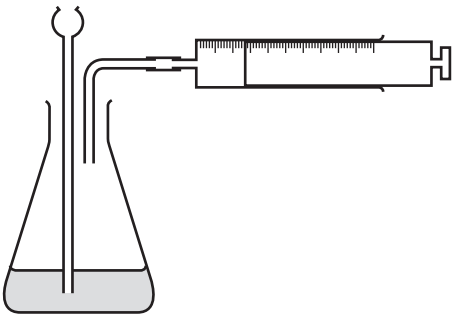
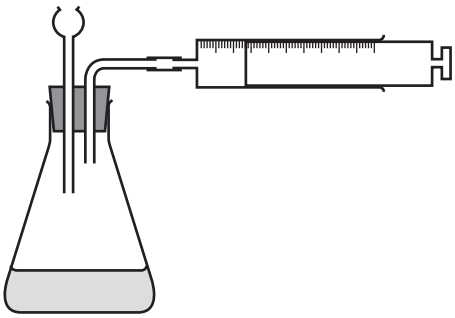


D



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

View solution

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.

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

View solution

$SiO_2 + 2C \rightarrow Si + 2CO$

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.

View solution

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.

View solution

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.

View solution

What are the other products in this reaction?

A water and carbon dioxide

B carbon dioxide only

C water and hydrogen

D hydrogen only

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

View solution

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?

View solution

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.

View solution

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

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

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

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

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

View solution

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?

View solution

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?

View solution

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?

View solution

A aluminium

B copper

C iron

D potassium

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

View solution

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.

View solution

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?

View solution

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.

View solution

One of the compounds is $Ca(H_2PO_4)_2$.

What is the other compound?

A potassium nitrate

B potassium sulfate

C sodium chloride

D ammonium nitrate

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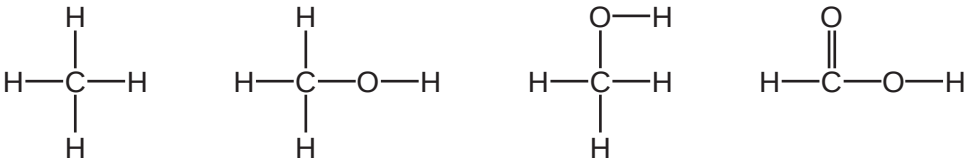
33 Which row identifies the reactants and products of photosynthesis?

View solution

	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

View solution

34 The structures of four different organic compounds are shown.

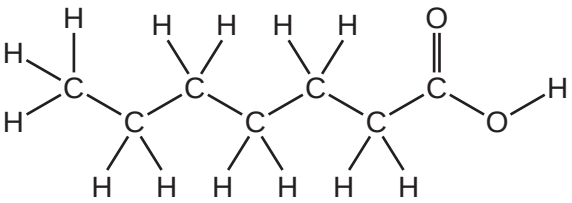


How many different homologous series are represented by these compounds?

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

View solution

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

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

View solution

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.

View solution

The formulas of three of these hydrocarbons are shown.

C_3H_6 C_2H_6 C_4H_8

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?

View solution

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?

View solution

A a balance

B a beaker

C a burette

D a conical flask

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

View solution

Aqueous X reacts with acidified aqueous $Ba(NO_3)_2$ 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											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.).