



Cambridge IGCSE®

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CHEMISTRY

0620/01

Paper 1 Multiple Choice (Core)

For examination from 2020

SPECIMEN PAPER

45 minutes

Additional materials: Multiple choice answer sheet
 Soft clean eraser
 Soft pencil (type B or HB is recommended)

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.

Do not use staples, paper clips, glue or correction fluid.

Write your name, centre number and candidate number on the answer sheet in the spaces provided unless this has been done for you.

DO **NOT** WRITE IN ANY BARCODES.

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 separate answer sheet.

Read the instructions on the answer sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.

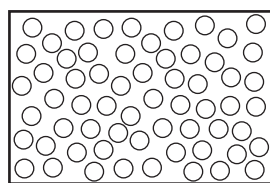
Any rough working should be done in this booklet.

A copy of the Periodic Table is printed on page 18.

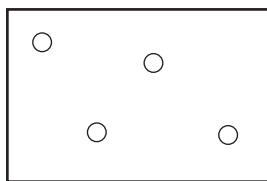
Electronic calculators may be used.

This document consists of **18** printed pages.

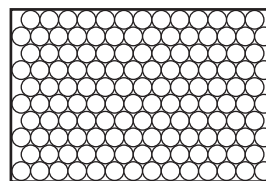
- 1 The diagrams show the arrangement of particles in three different physical states of substance X.



state 1



state 2



state 3

Which statement about the physical states of substance X is correct?

- A** Particles in state 1 vibrate about fixed positions.
B State 1 changes to state 2 by diffusion.
C State 2 changes directly to state 3 by condensation.
D The substance in state 3 has a fixed volume.

- 2 What is always true for a pure substance?

- A** It always boils at 100 °C.
B It contains only one type of atom.
C It has a sharp melting point.
D It is solid at room temperature.

- 3 Element Y has a nucleon number of 19 and a proton number of 9.

Which group in the Periodic Table does it belong to?

- A** I **B** III **C** VII **D** VIII

- 4 The nucleon number and proton number of the lithium atom are shown by the symbol ${}^7_3\text{Li}$.

What is the correct symbol for the lithium ion in lithium chloride?

- A** ${}^6_2\text{Li}^-$ **B** ${}^6_3\text{Li}^+$ **C** ${}^7_3\text{Li}^+$ **D** ${}^7_3\text{Li}^-$

- 5 What is the relative molecular mass, M_r , of HNO_3 ?

- A** 5 **B** 31 **C** 32 **D** 63

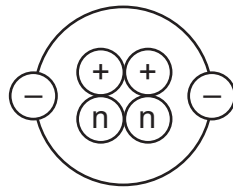
6 The table shows the structure of different atoms and ions.

particle	proton number	nucleon number	number of protons	number of neutrons	number of electrons
Mg	12	24	12	W	12
Mg ²⁺	X	24	12	12	10
F	9	19	9	Y	9
F ⁻	9	19	9	10	Z

What are the values of W, X, Y and Z?

	W	X	Y	Z
A	10	10	9	9
B	10	12	10	9
C	12	10	9	10
D	12	12	10	10

7 The diagram shows the structure of an atom.



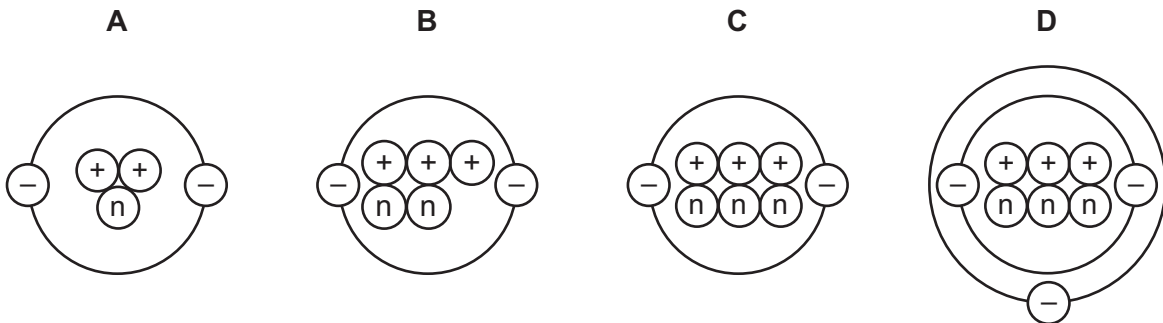
key

(+) = proton

(n) = neutron

(-) = electron

Which diagram shows the structure of an isotope of this atom?



8 Which two elements react together to form an ionic compound?

element	electronic structure
R	2,4
T	2,8
X	2,8,1
Z	2,8,7

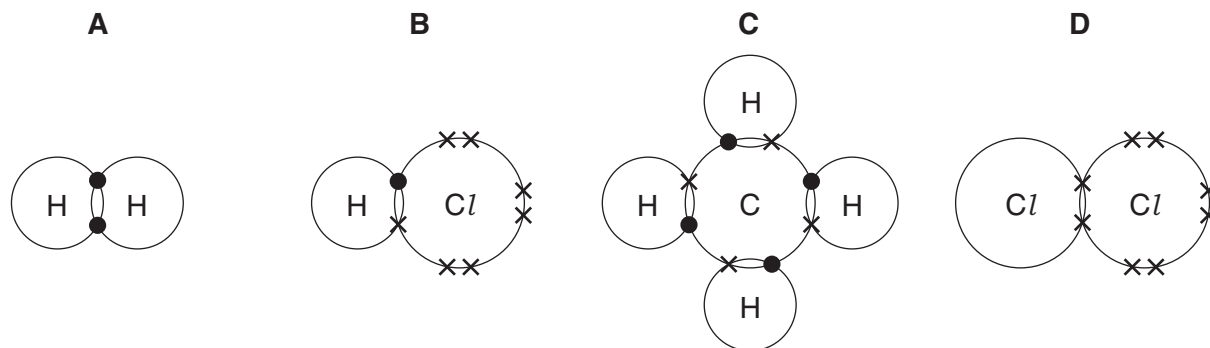
- A** R and T **B** T and X **C** X and Z **D** Z and R

9 Element X forms an acidic, covalent oxide.

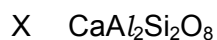
Which row shows how many electrons there could be in the outer shell of an atom of X?

	1	2	6	7
A	✓	✓	✗	✗
B	✓	✗	✓	✗
C	✗	✗	✓	✓
D	✗	✓	✗	✓

10 Which diagram does **not** show the outer shell electrons in the molecule correctly?



11 The chemical formulae of two substances, W and X, are given.

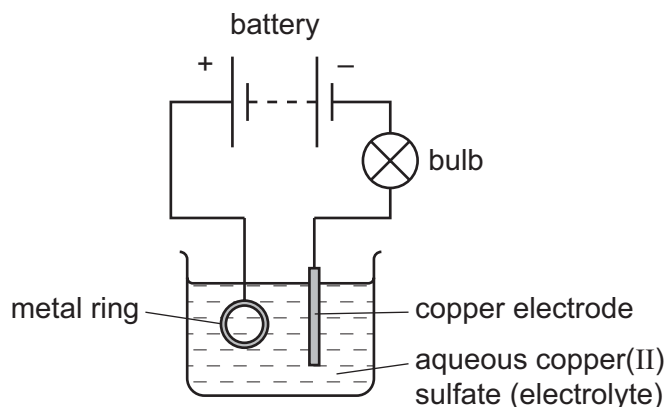


Which statements are correct?

- 1 W and X contain the same amount of oxygen.
- 2 W contains three times as much silicon as X.
- 3 X contains twice as much aluminium as W.

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

12 The diagram shows apparatus used in an attempt to electroplate a metal ring with copper.



The experiment did not work.

Which change is needed in the experiment to make it work?

- A Add solid copper(II) sulfate to the electrolyte.
- B Increase the temperature of the electrolyte.
- C Replace the copper electrode with a carbon electrode.
- D Reverse the connections to the battery.

13 Three electrolysis cells are set up. Each cell has inert electrodes.

The electrolytes are listed below.

cell 1 aqueous sodium chloride

cell 2 dilute sulfuric acid

cell 3 molten lead(II) bromide

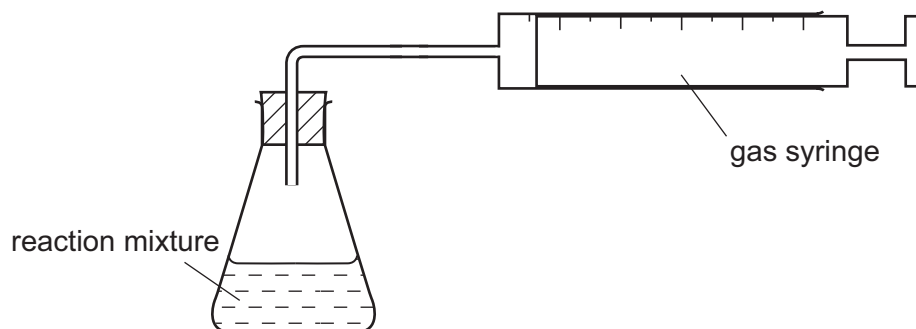
In which of these cells is a gas formed at **both** electrodes?

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

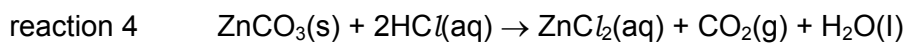
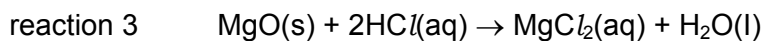
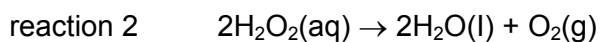
14 Which process is **not** exothermic?

- A burning a fossil fuel
- B obtaining lime from limestone
- C radioactive decay of ^{235}U
- D reacting hydrogen with oxygen

15 The apparatus shown can be used to measure the rate of some chemical reactions.



For which two reactions would this apparatus be suitable?

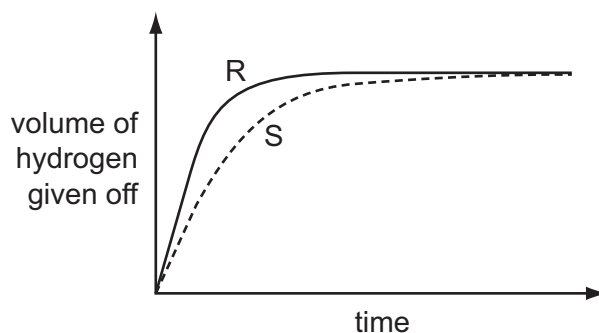


- A** 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

16 A student investigates the rate of reaction between magnesium and excess sulfuric acid.

The volume of hydrogen given off in the reaction is measured over time.

The graph shows the results of two experiments, R and S.



Which change in conditions would cause the difference between R and S?

- A A catalyst is added in S.
- B The acid is more concentrated in R than in S.
- C The magnesium is less finely powdered in R than in S.
- D The temperature in R is lower than in S.

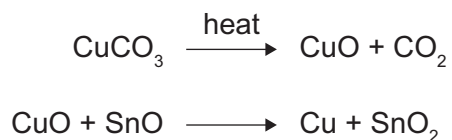
17 When pink cobalt(II) chloride crystals are heated they form steam and a blue solid.

When water is added to the blue solid, it turns pink and becomes hot.

Which terms describe the pink cobalt(II) chloride crystals and the reactions?

	pink cobalt(II) chloride	reactions
A	aqueous	irreversible
B	anhydrous	reversible
C	hydrated	irreversible
D	hydrated	reversible

- 18 The red colour in some pottery glazes may be formed as a result of the reactions shown.



These equations show that1..... is oxidised and2..... is reduced.

Which substances correctly complete gaps 1 and 2 in the above sentence?

	1	2
A	CO ₂	SnO ₂
B	CuCO ₃	CuO
C	CuO	SnO
D	SnO	CuO

- 19 Carbon dioxide gas reacts with aqueous sodium hydroxide.

Which type of reaction takes place?

- A** decomposition
- B** fermentation
- C** neutralisation
- D** oxidation

- 20 An aqueous solution of the organic compound methylamine has a pH greater than 7.

Which statement about methylamine is correct?

- A** It neutralises an aqueous solution of sodium hydroxide.
- B** It reacts with copper(II) carbonate to give carbon dioxide.
- C** It reacts with hydrochloric acid to form a salt.
- D** It turns blue litmus red.

- 21 A solution contains barium ions and silver ions and one type of anion.

What could the anion be?

- A** chloride only
- B** nitrate only
- C** sulfate only
- D** chloride or nitrate or sulfate

22 A mixture containing two anions was tested and the results are shown below.

test	result
dilute nitric acid added	effervescence of a gas which turned limewater milky
dilute nitric acid added, followed by aqueous silver nitrate	yellow precipitate formed

Which anions were present?

- A carbonate and chloride
- B carbonate and iodide
- C sulfate and chloride
- D sulfate and iodide

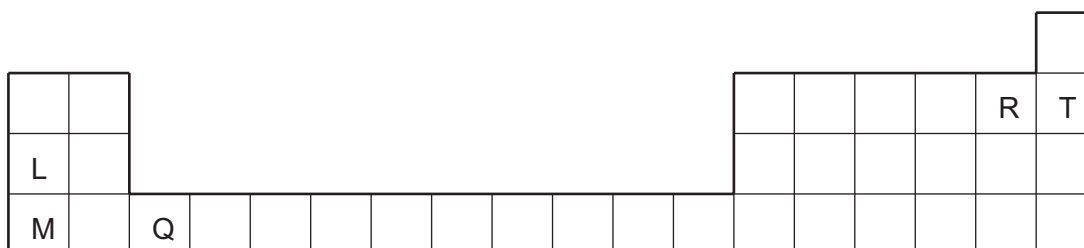
23 Astatine is an element in Group VII of the Periodic Table. It has only ever been produced in very small amounts.

What are the likely properties of astatine?

	colour	state	reaction with aqueous potassium iodide
A	black	solid	no reaction
B	dark brown	gas	brown colour
C	green	solid	no reaction
D	yellow	liquid	brown colour

24 The diagram shows the positions of elements L, M, Q, R and T in the Periodic Table.

These letters are not the chemical symbols of the elements.



Which statement about the properties of these elements is correct?

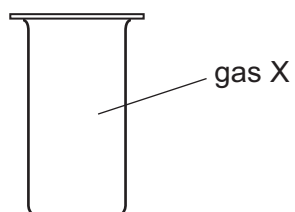
- A L reacts more vigorously with water than does M.
- B L, M and Q are all metals.
- C T exists as diatomic molecules.
- D T is more reactive than R.

25 The table compares the properties of Group I elements with those of transition elements.

Which entry in the table is correct?

	property	Group I elements	transition elements
A	catalytic activity	low	high
B	density	high	low
C	electrical conductivity	low	low
D	melting point	high	low

26 X is a monatomic gas.



Which statement about gas X is correct?

- A X burns in air.
- B X is coloured.
- C X is unreactive.
- D X will displace iodine from potassium iodide.

27 Aluminium is an important metal with many uses.

Some of its properties are listed.

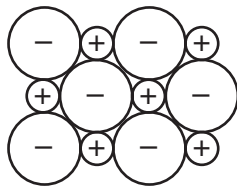
- 1 It is a good conductor of heat.
- 2 It has a low density.
- 3 It has an oxide layer that prevents corrosion.

Which set of properties help to explain the use of aluminium for cooking and storing food?

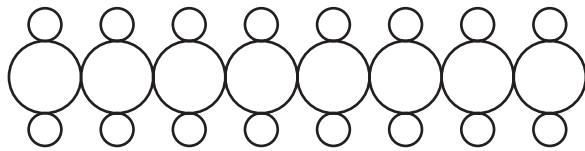
- A** 1 only **B** 1 and 2 only **C** 2 and 3 only **D** 1, 2 and 3

28 Which diagram could represent the structure of an alloy?

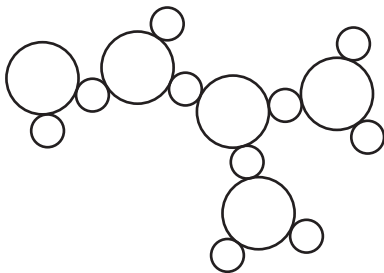
A



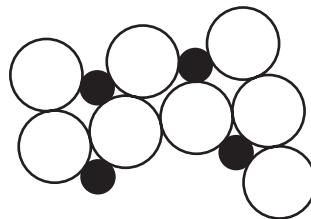
B



C



D



- 29 The table shows the results of adding three metals, P, Q and R, to dilute hydrochloric acid and to water.

metal	dilute hydrochloric acid	water
P	hydrogen produced	hydrogen produced
Q	no reaction	no reaction
R	hydrogen produced	no reaction

What is the order of reactivity of the metals?

	most reactive	→	least reactive
A	P		Q
B	P		R
C	R		P
D	R		Q

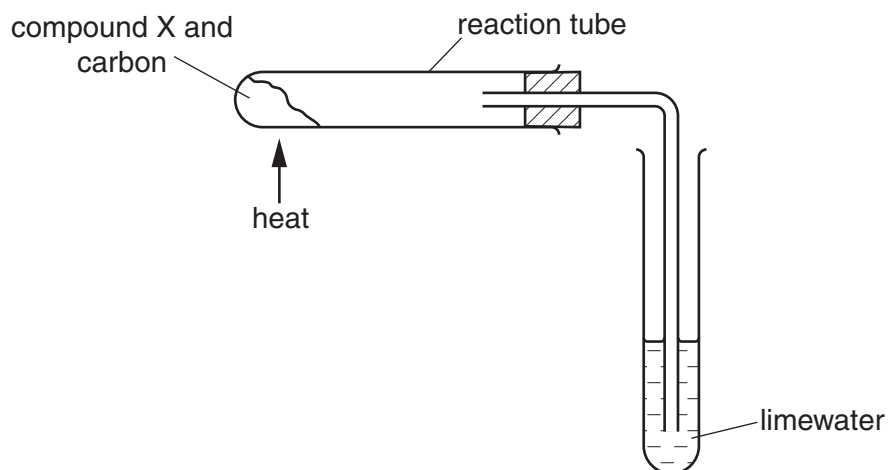
- 30 The table gives the composition of the atmosphere of four newly discovered planets.

planet	composition of atmosphere
W	argon, carbon dioxide and oxygen
X	argon, nitrogen and oxygen
Y	argon, carbon dioxide and methane
Z	methane, nitrogen and oxygen

On which planets is the greenhouse effect likely to occur?

- A** W only
- B** W, X and Z
- C** W and Y only
- D** W, Y and Z

31 Compound X is heated with carbon using the apparatus shown.

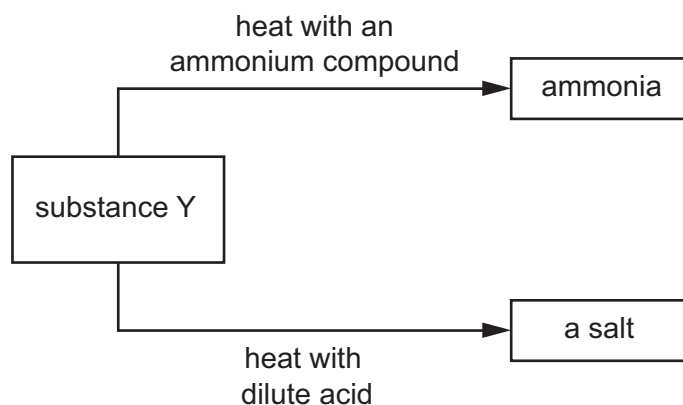


A brown solid is formed in the reaction tube and the limewater turns cloudy.

What is compound X?

- A calcium oxide
- B copper(II) oxide
- C magnesium oxide
- D sodium oxide

32 The diagram shows some reactions of substance Y.

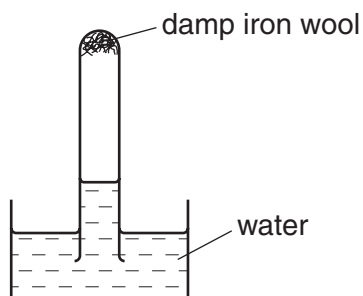


Which type of substance is Y?

- A an alcohol
- B a base
- C a catalyst
- D a metal

33 A test-tube containing damp iron wool is inverted in water.

After three days, the water level inside the test-tube has risen.



Which statement explains this rise?

- A Iron oxide has been formed.
- B Iron wool has been reduced.
- C Oxygen has been formed.
- D The temperature of the water has risen.

34 Greenhouse gases may contribute to climate change.

Two of these gases are emitted into the atmosphere as a result of processes within animals.

Gas1..... is produced by process3..... .

Gas2..... is produced by process4..... .

Which row correctly complete gaps 1, 2, 3 and 4?

	1	2	3	4
A	CO	C ₂ H ₆	digestion	respiration
B	CO	C ₂ H ₆	respiration	digestion
C	CO ₂	CH ₄	digestion	respiration
D	CO ₂	CH ₄	respiration	digestion

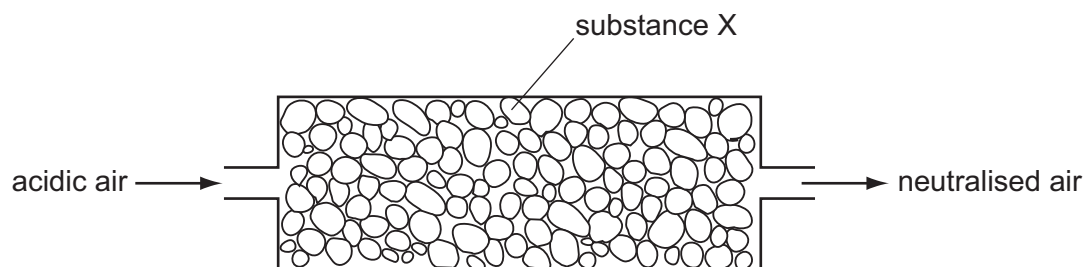
35 To grow rose plants, a fertiliser containing nitrogen, phosphorus and potassium is often used.

For the best rose flowers, the fertiliser should contain a high proportion of potassium.

Which fertiliser is best for producing rose flowers?

fertiliser	proportion by mass		
	N	P	K
A	9	0	25
B	13	13	20
C	29	5	0
D	29	15	5

36 Air containing an acidic impurity was neutralised by passing it through a column containing substance X.

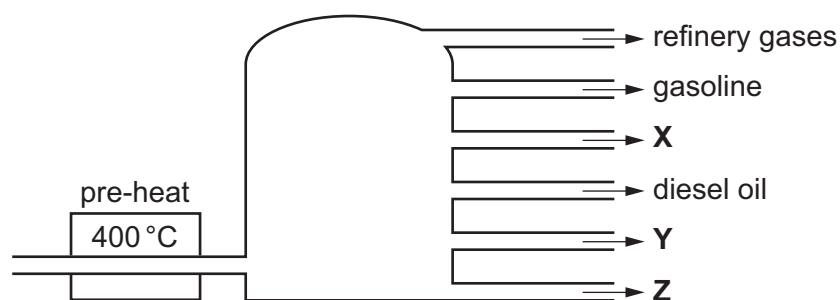


What is substance X?

- A** calcium oxide
- B** sand
- C** sodium chloride
- D** concentrated sulfuric acid

37 In an oil refinery, petroleum is separated into useful fractions.

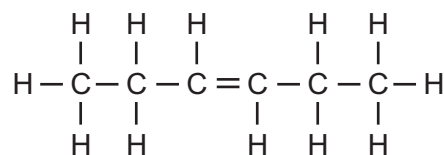
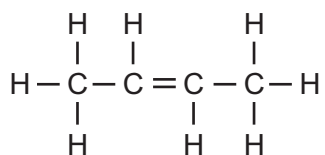
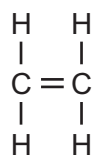
The diagram shows some of these fractions.



What are fractions X, Y and Z?

	X	Y	Z
A	fuel oil	bitumen	paraffin (kerosene)
B	fuel oil	paraffin (kerosene)	bitumen
C	paraffin (kerosene)	bitumen	fuel oil
D	paraffin (kerosene)	fuel oil	bitumen

38 The structures of three compounds are shown.



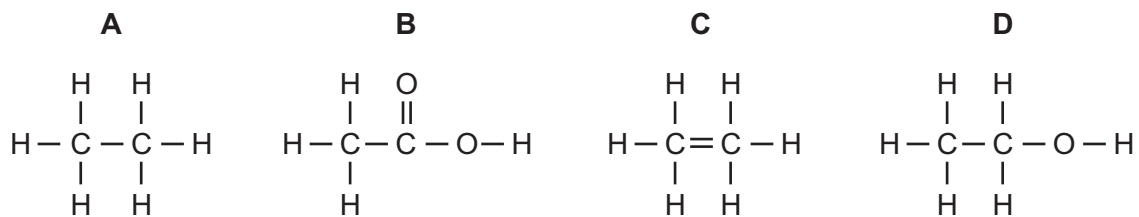
Why do these substances all belong to the same homologous series?

- A** They all contain an even number of carbon atoms.
- B** They all contain the same functional group.
- C** They are all hydrocarbons.
- D** They are all saturated.

39 Which bond is **not** in a molecule of ethanoic acid?

- A** C–O
- B** C=O
- C** C=C
- D** O–H

40 Which structure is **incorrect**?



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		<table border="1"> <thead> <tr> <th colspan="3">Key</th> </tr> <tr> <th>atomic number</th> <th>atomic symbol</th> <th>relative atomic mass</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>Be</td> <td>beryllium</td> </tr> <tr> <td>9</td> <td>B</td> <td>boron</td> </tr> <tr> <td>12</td> <td>Mg</td> <td>magnesium</td> </tr> <tr> <td>24</td> <td>Al</td> <td>aluminium</td> </tr> <tr> <td>27</td> <td>Si</td> <td>silicon</td> </tr> <tr> <td>28</td> <td>C</td> <td>carbon</td> </tr> <tr> <td>31</td> <td>P</td> <td>phosphorus</td> </tr> <tr> <td>32</td> <td>S</td> <td>sulphur</td> </tr> <tr> <td>34</td> <td>Se</td> <td>seelenium</td> </tr> <tr> <td>35</td> <td>Br</td> <td>bromine</td> </tr> <tr> <td>36</td> <td>Kr</td> <td>krypton</td> </tr> <tr> <td>38</td> <td>Ar</td> <td>argon</td> </tr> <tr> <td>40</td> <td>Ca</td> <td>calcium</td> </tr> <tr> <td>41</td> <td>Sc</td> <td>scandium</td> </tr> <tr> <td>42</td> <td>Ti</td> <td>titanium</td> </tr> <tr> <td>43</td> <td>V</td> <td>vanadium</td> </tr> <tr> <td>44</td> <td>Cr</td> <td>chromium</td> </tr> <tr> <td>45</td> <td>Mn</td> <td>manganese</td> </tr> <tr> <td>46</td> <td>Fe</td> <td>iron</td> </tr> <tr> <td>47</td> <td>Ni</td> <td>nickel</td> </tr> <tr> <td>48</td> <td>Cu</td> <td>copper</td> </tr> <tr> <td>49</td> <td>Zn</td> <td>zinc</td> </tr> <tr> <td>50</td> <td>Ga</td> <td>gallium</td> </tr> <tr> <td>51</td> <td>Ge</td> <td>germanium</td> </tr> <tr> <td>52</td> <td>As</td> <td>arsenic</td> </tr> <tr> <td>53</td> <td>Se</td> <td>seelenium</td> </tr> <tr> <td>54</td> <td>Br</td> <td>bromine</td> </tr> <tr> <td>55</td> <td>Kr</td> <td>krypton</td> </tr> <tr> <td>56</td> <td>Xe</td> <td>xeon</td> </tr> <tr> <td>57-71</td> <td>Lanthanoids</td> <td></td> </tr> <tr> <td>72</td> <td>Hf</td> <td>hafnium</td> </tr> <tr> <td>73</td> <td>Ta</td> <td>tantalum</td> </tr> <tr> <td>74</td> <td>W</td> <td>tungsten</td> </tr> <tr> <td>75</td> <td>Re</td> <td>rhenium</td> </tr> <tr> <td>76</td> <td>Os</td> <td>osmium</td> </tr> <tr> <td>77</td> <td>Ir</td> <td>iridium</td> </tr> <tr> <td>78</td> <td>Pt</td> <td>platinum</td> </tr> <tr> <td>79</td> <td>Au</td> <td>gold</td> </tr> <tr> <td>80</td> <td>Hg</td> <td>mercury</td> </tr> <tr> <td>81</td> <td>Tl</td> <td>thallium</td> </tr> <tr> <td>82</td> <td>Pb</td> <td>lead</td> </tr> <tr> <td>83</td> <td>Bi</td> <td>bismuth</td> </tr> <tr> <td>84</td> <td>Po</td> <td>polonium</td> </tr> <tr> <td>85</td> <td>At</td> <td>astatine</td> </tr> <tr> <td>86</td> <td>Rn</td> <td>radon</td> </tr> <tr> <td>87</td> <td>Fr</td> <td>francium</td> </tr> <tr> <td>88</td> <td>Ra</td> <td>radium</td> </tr> <tr> <td>89-103</td> <td>actinoids</td> <td></td> </tr> <tr> <td>104</td> <td>Rf</td> <td>rutherfordium</td> </tr> <tr> <td>105</td> <td>Db</td> <td>duabium</td> </tr> <tr> <td>106</td> <td>Sg</td> <td>seaborgium</td> </tr> <tr> <td>107</td> <td>Bh</td> <td>bohrium</td> </tr> <tr> <td>108</td> <td>Hs</td> <td>hassium</td> </tr> <tr> <td>109</td> <td>Mt</td> <td>meitnerium</td> </tr> 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mass	4	Be	beryllium	9	B	boron	12	Mg	magnesium	24	Al	aluminium	27	Si	silicon	28	C	carbon	31	P	phosphorus	32	S	sulphur	34	Se	seelenium	35	Br	bromine	36	Kr	krypton	38	Ar	argon	40	Ca	calcium	41	Sc	scandium	42	Ti	titanium	43	V	vanadium	44	Cr	chromium	45	Mn	manganese	46	Fe	iron	47	Ni	nickel	48	Cu	copper	49	Zn	zinc	50	Ga	gallium	51	Ge	germanium	52	As	arsenic	53	Se	seelenium	54	Br	bromine	55	Kr	krypton	56	Xe	xeon	57-71	Lanthanoids		72	Hf	hafnium	73	Ta	tantalum	74	W	tungsten	75	Re	rhenium	76	Os	osmium	77	Ir	iridium	78	Pt	platinum	79	Au	gold	80	Hg	mercury	81	Tl	thallium	82	Pb	lead	83	Bi	bismuth	84	Po	polonium	85	At	astatine	86	Rn	radon	87	Fr	francium	88	Ra	radium	89-103	actinoids		104	Rf	rutherfordium	105	Db	duabium	106	Sg	seaborgium	107	Bh	bohrium	108	Hs	hassium	109	Mt	meitnerium	110	Ds	darmstadtium	111	Rg	roentgenium	112	Cn	coppernium	113	Nh	nihonium	114	Fl	flerovium	115	Mc	moscovium	116	Lv	livermorium	117	Ts	tennessine	118	Og	oganeson	119	Uu	unununium	120	Uub	ununbium	121	Uut	ununtrium	122	Uuq	ununquadium	123	Uup	ununpentium	124	Uuq	ununhexium	125	Uuh	ununheptium	126	Uuq	ununoctium	127	Uuh	ununnonium	128	Uuq	unundecium	129	Uuh	ununduodecium	130	Uuq	ununtridecium	131	Uuh	ununquadecium	132	Uuq	ununpentdecium	133	Uuh	ununhexadecium	134	Uuq	ununheptadecium	135	Uuh	ununoctadecium	136	Uuq	ununnonadecium	137	Uuh	ununtriacontium	138	Uuq	ununtriacontium	139	Uuh	ununtriacontium	140	Uuq	ununtriacontium	141	Uuh	ununtriacontium	142	Uuq	ununtriacontium	143	Uuh	ununtriacontium	144	Uuq	ununtriacontium	145	Uuh	ununtriacontium	146	Uuq	ununtriacontium	147	Uuh	ununtriacontium	148	Uuq	ununtriacontium	149	Uuh	ununtriacontium	150	Uuq	ununtriacontium	151	Uuh	ununtriacontium	152	Uuq	ununtriacontium	153	Uuh	ununtriacontium	154	Uuq	ununtriacontium	155	Uuh	ununtriacontium	156	Uuq	ununtriacontium	157	Uuh	ununtriacontium	158	Uuq	ununtriacontium	159	Uuh	ununtriacontium	160	Uuq	ununtriacontium	161	Uuh	ununtriacontium	162	Uuq	ununtriacontium	163	Uuh	ununtriacontium	164	Uuq	ununtriacontium	165	Uuh	ununtriacontium	166	Uuq	ununtriacontium	167	Uuh	ununtriacontium	168	Uuq	ununtriacontium	169	Uuh	ununtriacontium	170	Uuq	ununtriacontium	171	Uuh	ununtriacontium	172	Uuq	ununtriacontium	173	Uuh	ununtriacontium	174	Uuq	ununtriacontium	175	Uuh	ununtriacontium	176	Uuq	ununtriacontium	177	Uuh	ununtriacontium	178	Uuq	ununtriacontium	179	Uuh	ununtriacontium	180	Uuq	ununtriacontium	181	Uuh	ununtriacontium	182	Uuq	ununtriacontium	183	Uuh	ununtriacontium	184	Uuq	ununtriacontium	185	Uuh	ununtriacontium	186	Uuq	ununtriacontium	187	Uuh	ununtriacontium	188	Uuq	ununtriacontium	189	Uuh	ununtriacontium	190	Uuq	ununtriacontium	191	Uuh	ununtriacontium	192	Uuq	ununtriacontium	193	Uuh	ununtriacontium	194	Uuq	ununtriacontium	195	Uuh	ununtriacontium	196	Uuq	ununtriacontium	197	Uuh	ununtriacontium	198	Uuq	ununtriacontium	199	Uuh	ununtriacontium	200	Uuq	ununtriacontium	201	Uuh	ununtriacontium	202	Uuq	ununtriacontium	203	Uuh	ununtriacontium	204	Uuq	ununtriacontium	205	Uuh	ununtriacontium	206	Uuq	ununtriacontium	207	Uuh	ununtriacontium	208	Uuq	ununtriacontium	209	Uuh	ununtriacontium	210	Uuq	ununtriacontium	211	Uuh	ununtriacontium	212	Uuq	ununtriacontium	213	Uuh	ununtriacontium	214	Uuq	ununtriacontium	215	Uuh	ununtriacontium	216	Uuq	ununtriacontium	217	Uuh	ununtriacontium	218	Uuq	ununtriacontium	219	Uuh	ununtriacontium	220	Uuq	ununtriacontium	221	Uuh	ununtriacontium	222	Uuq	ununtriacontium	223	Uuh	ununtriacontium	224	Uuq	ununtriacontium	225	Uuh	ununtriacontium	226	Uuq	ununtriacontium	227	Uuh	ununtriacontium	228	Uuq	ununtriacontium	229	Uuh	ununtriacontium	230	Uuq	ununtriacontium	231	Uuh	ununtriacontium	232	Uuq	ununtriacontium	233	Uuh	ununtriacontium	234	Uuq	ununtriacontium	235	Uuh	ununtriacontium	236	Uuq	ununtriacontium	237	Uuh	ununtriacontium	238	Uuq	ununtriacontium	239	Uuh	ununtriacontium	240	Uuq	ununtriacontium	241	Uuh	ununtriacontium	242	Uuq	ununtriacontium	243	Uuh	ununtriacontium	244	Uuq	ununtriacontium	245	Uuh	ununtriacontium	246	Uuq	ununtriacontium	247	Uuh	ununtriacontium	248	Uuq	ununtriacontium	249	Uuh	ununtriacontium	250	Uuq	ununtriacontium	251	Uuh	ununtriacontium	252	Uuq	ununtriacontium	253	Uuh	ununtriacontium	254	Uuq	ununtriacontium	255	Uuh	ununtriacontium	256	Uuq	ununtriacontium	257	Uuh	ununtriacontium	258	Uuq	ununtriacontium	259	Uuh	ununtriacontium	260	Uuq	ununtriacontium	261	Uuh	ununtriacontium	262	Uuq	ununtriacontium	263	Uuh	ununtriacontium	264	Uuq	ununtriacontium	265	Uuh	ununtriacontium	266	Uuq	ununtriacontium	267	Uuh	ununtriacontium	268	Uuq	ununtriacontium	269	Uuh	ununtriacontium	270	Uuq	ununtriacontium	271	Uuh	ununtriacontium	272	Uuq	ununtriacontium	273	Uuh	ununtriacontium	274	Uuq	ununtriacontium	275	Uuh	ununtriacontium	276	Uuq	ununtriacontium	277	Uuh	ununtriacontium	278	Uuq	ununtriacontium	279	Uuh	ununtriacontium	280	Uuq	ununtriacontium	281	Uuh	ununtriacontium	282	Uuq	ununtriacontium	283	Uuh	ununtriacontium	284	Uuq	ununtriacontium	285	Uuh	ununtriacontium	286	Uuq	ununtriacontium	287	Uuh	ununtriacontium	288	Uuq	ununtriacontium	289	Uuh	ununtriacontium	290	Uuq	ununtria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The volume of one mole of any gas is 24 dm³ at room temperature and pressure (r.t.p.)

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.