



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

**CHEMISTRY**

**0620/12**

Paper 1 Multiple Choice (Core)

**February/March 2016**

**45 Minutes**

Additional Materials:      Multiple Choice Answer Sheet  
   Soft clean eraser  
   Soft pencil (type B or HB is recommended)

\* 0 4 0 3 0 9 3 8 0 3 \*

**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.

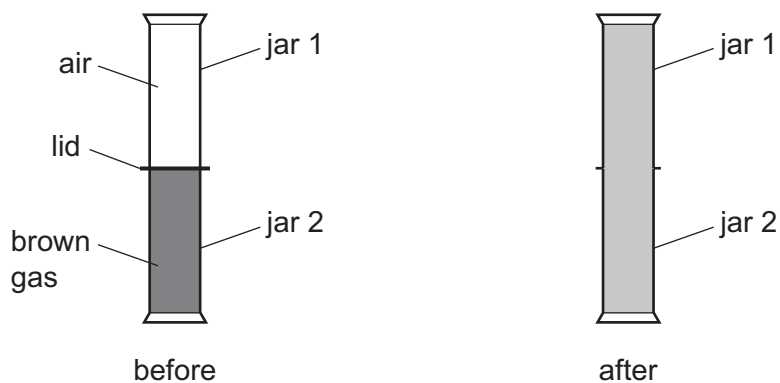
**Read the instructions on the Answer Sheet very carefully.**

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 16.  
Electronic calculators may be used.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **14** printed pages and **2** blank pages.

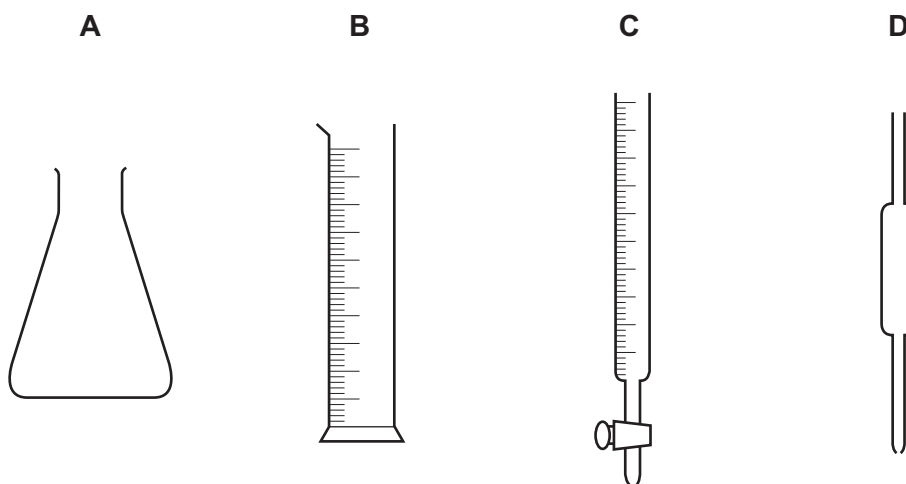
- 1 Two gas jars are set up as shown.



The lid is removed and the gas jars are left to stand. After some time the contents of both gas jars are brown.

Which process causes this to happen?

- A condensation
  - B diffusion
  - C evaporation
  - D filtration
- 2 Which piece of apparatus is used to measure variable quantities of liquid in a titration?



- 3 Which method separates a mixture of sugar and glass?

- A dissolve, filter and evaporate
- B distil and filter
- C fractionally distil
- D use chromatography

4 In which row are the substances correctly classified?

	element	compound	mixture
<b>A</b>	brass	sulfur	water
<b>B</b>	sulfur	brass	water
<b>C</b>	sulfur	water	brass
<b>D</b>	water	sulfur	brass

5 Element Q has 4 electrons in its outer shell and has 69 neutrons. Q conducts electricity.

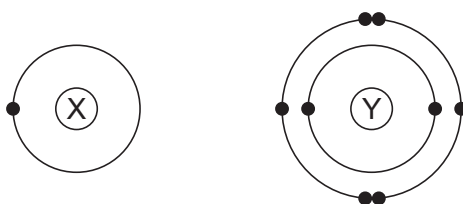
What is Q?

- A** carbon (C)
- B** lead (Pb)
- C** thulium (Tm)
- D** tin (Sn)

6 Which statement describes positive ions?

- A** Positive ions have more electrons than neutrons.
- B** Positive ions have more protons than neutrons.
- C** Positive ions have more electrons than protons.
- D** Positive ions have more protons than electrons.

7 The electronic structures of atoms X and Y are shown.



X and Y form a covalent compound.

What is its formula?

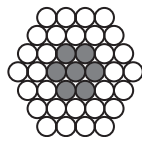
- A**  $X_2Y$
- B**  $XY$
- C**  $XY_2$
- D**  $XY_6$

8 The compound magnesium nitrate has the formula  $Mg(NO_3)_2$ .

What is the relative formula mass of magnesium nitrate?

- A** 86
- B** 134
- C** 148
- D** 172

- 9 The diagram shows, in cross-section, the arrangement of aluminium and steel wires in an electric power cable.



key

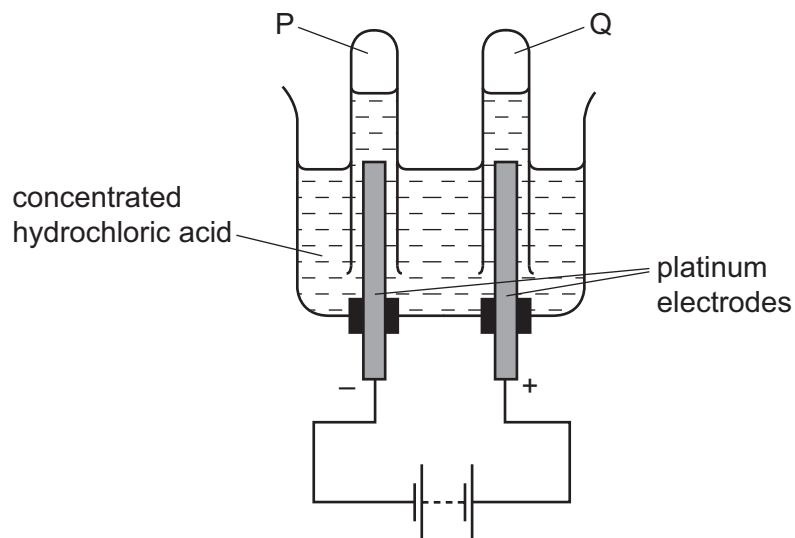
○ = aluminium

● = steel

Which metal wire is the better conductor and which metal wire has the greater mechanical strength?

	better conductor	greater mechanical strength
<b>A</b>	aluminium	aluminium
<b>B</b>	aluminium	steel
<b>C</b>	steel	aluminium
<b>D</b>	steel	steel

- 10 When concentrated hydrochloric acid is electrolysed, gases P and Q are formed.



What are P and Q?

	P	Q
<b>A</b>	chlorine	hydrogen
<b>B</b>	chlorine	oxygen
<b>C</b>	hydrogen	chlorine
<b>D</b>	hydrogen	oxygen

11 Which substance could **not** be used as a fuel to heat water in a boiler?

- A ethanol
- B hydrogen
- C methane
- D oxygen

12 Which statement about reactions that produce heat is **not** correct?

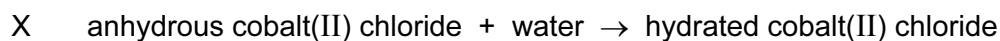
- A Burning magnesium produces heat energy.
- B The overall reaction is exothermic.
- C The products have more energy than the reactants.
- D The temperature of the surroundings increases.

13 Which changes increase the rate of reaction?

- 1 increasing the concentration of the reactants
- 2 increasing the particle size of a solid reactant
- 3 increasing the temperature

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

14 Two reactions involving water are shown.



Which reactions are reversible by heating?

	X	Y
<b>A</b>	✓	✓
<b>B</b>	✓	x
<b>C</b>	x	✓
<b>D</b>	x	x

- 15 Iron is extracted from iron oxide using carbon monoxide as shown.



Which statement is correct?

- A Carbon monoxide is oxidised to carbon dioxide.
  - B Carbon monoxide is reduced to carbon dioxide.
  - C Iron is oxidised to iron oxide.
  - D Iron oxide is oxidised to iron.
- 16 Four different solutions, W, X, Y and Z, are tested with Universal Indicator.

solution	W	X	Y	Z
colour with Universal Indicator	green	red	purple	orange

Which solutions are acidic?

- A W and Z
  - B X and Z
  - C X only
  - D Y only
- 17 Methyl orange turns red in the solution formed when substance R reacts with water.
- What is R?
- A calcium oxide
  - B potassium oxide
  - C sodium oxide
  - D sulfur dioxide
- 18 A salt is made by adding an excess of an insoluble metal oxide to an acid.

How is the excess metal oxide removed from the mixture?

- A chromatography
- B crystallisation
- C distillation
- D filtration

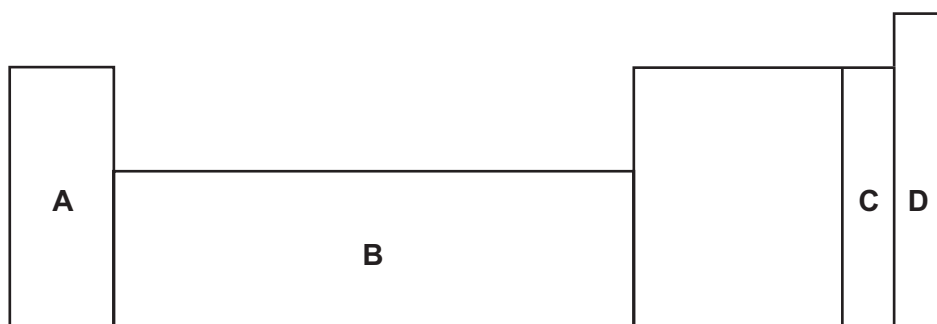
- 19 A substance is heated with aluminium foil in aqueous sodium hydroxide. A gas is produced which turns damp, red litmus paper blue.

Which anion is present in the substance?

- A carbonate
- B iodide
- C nitrate
- D sulfate

- 20 An element does not conduct electricity and exists as diatomic molecules.

Where in the Periodic Table is the element found?



- 21 In the Periodic Table, how does the metallic character of the elements vary from left to right across a period?

- A It decreases.
- B It increases.
- C It increases then decreases.
- D It stays the same.

- 22 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

23 Which element is a transition metal?

	melting point in °C	density in g/cm <sup>3</sup>	colour of oxide
<b>A</b>	98	1.0	white
<b>B</b>	328	11.3	yellow
<b>C</b>	651	1.7	white
<b>D</b>	1240	7.4	black

24 Uranium is a radioactive element but it is also a typical metal.

What is **not** a property of uranium?

- A** It can be hammered into shape.
- B** It conducts heat.
- C** It is used as a source of energy.
- D** It forms covalent compounds.

25 Which metal reacts with steam but **not** with cold water?

- A** calcium
- B** copper
- C** sodium
- D** zinc

26 Iron is extracted from hematite in the blast furnace.

The hematite contains silicon(IV) oxide (sand) as an impurity.

What reacts with this impurity to remove it?

- A** calcium oxide
- B** carbon
- C** carbon dioxide
- D** slag

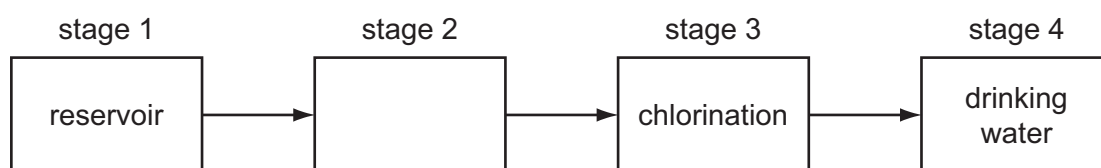


27 The bodies of aircraft are often made using aluminium.

Which two properties of aluminium make it suitable for this use?

	property 1	property 2
<b>A</b>	good conductor of electricity	good conductor of heat
<b>B</b>	good conductor of electricity	strong
<b>C</b>	good conductor of heat	low density
<b>D</b>	strong	low density

28 The diagram shows how water is treated to make it suitable for drinking.



What happens in stage 2?

- A** condensation
- B** distillation
- C** evaporation
- D** filtration

29 Pure air contains nitrogen, oxygen and small amounts of other gases. The noble gases have been left out of the table.

Which row shows the composition of dry, unpolluted air?

	nitrogen / %	oxygen / %	other gases
<b>A</b>	21	78	small amount of carbon dioxide
<b>B</b>	21	78	small amount of carbon monoxide
<b>C</b>	78	21	small amount of carbon dioxide
<b>D</b>	78	21	small amount of carbon monoxide

30 Which pollutant gas can be produced as a result of incomplete combustion of octane,  $C_8H_{18}$ ?

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

31 Fertilisers are used to provide three elements needed to increase the yield of crops.

Which two compounds would provide all three of these elements?

- A ammonium nitrate and calcium phosphate
- B ammonium nitrate and potassium sulfate
- C potassium nitrate and calcium phosphate
- D potassium nitrate and potassium sulfate

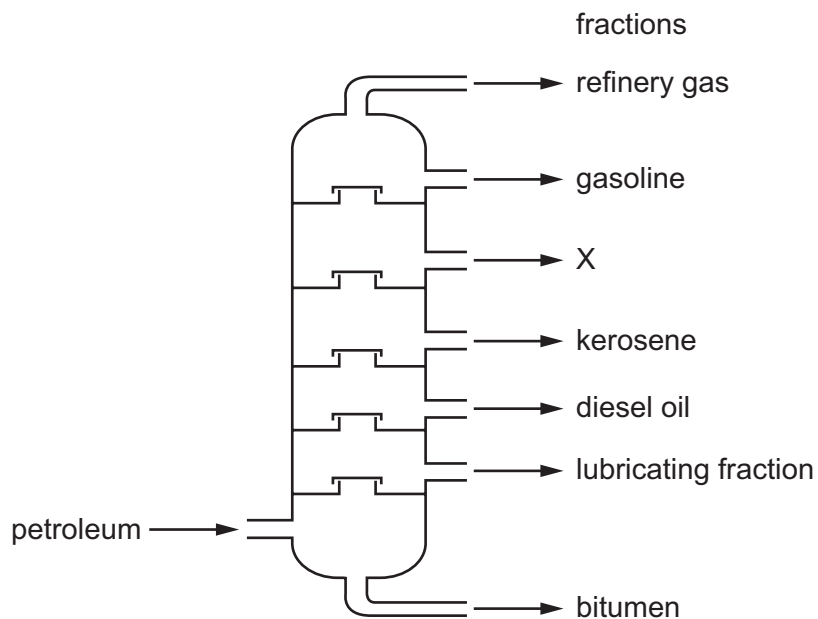
32 Which statement describes a disadvantage of sulfur dioxide?

- A It can be used as a bleach in making wood pulp.
- B It can be used to kill bacteria in food.
- C It can be used to manufacture sulfuric acid.
- D It can dissolve the limestone in statues.

33 Why does a farmer put lime (calcium oxide) on the soil?

- A to act as a fertiliser
- B to kill pests
- C to make the soil less acidic
- D to make the soil less alkaline

34 What is the name of fraction X?



- A alcohol
- B fuel oil
- C naphtha
- D paraffin

35 Which pair of molecules are hydrocarbons?

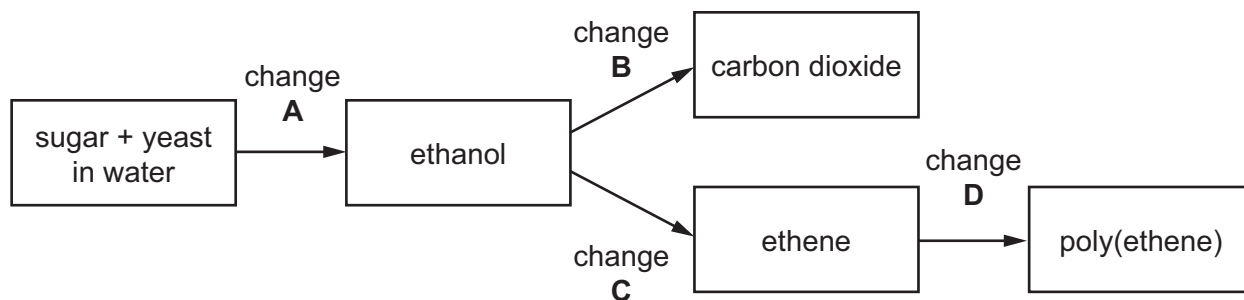
- A ethane and ethanol
- B ethane and ethene
- C ethanoic acid and ethene
- D ethanol and ethanoic acid

36 Which bond is **not** present in the structure of ethanol,  $\text{CH}_3\text{CH}_2\text{OH}$ ?

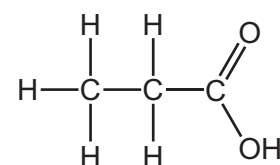
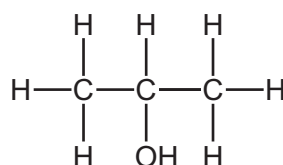
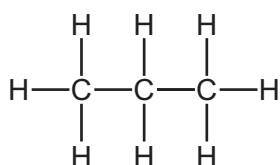
- A C–C
- B H–H
- C H–O
- D O–C

37 Which change on the diagram involves combustion?

Some of the reaction products are not shown on the diagram.



38 The structures of three molecules are shown.



Which homologous series is **not** represented?

- A alcohols
- B alkanes
- C alkenes
- D carboxylic acids

39 Information about four hydrocarbons is shown.

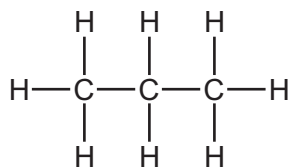
hydrocarbon	number of carbon atoms in the molecule	reaction with bromine water
W	1	no reaction
X	2	no reaction
Y	3	decolourises it
Z	4	decolourises it

Which statement is correct?

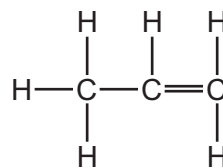
- A Hydrocarbon W has the formula  $\text{CH}_4$  and can be polymerised.
- B Hydrocarbon X has the formula  $\text{C}_2\text{H}_4$  and can be polymerised.
- C Hydrocarbon Y has the formula  $\text{C}_3\text{H}_6$  and can be polymerised.
- D Hydrocarbon Z has the formula  $\text{C}_4\text{H}_{10}$  and can be polymerised.

40 Which structure represents a compound that dissolves in water to form an acidic solution?

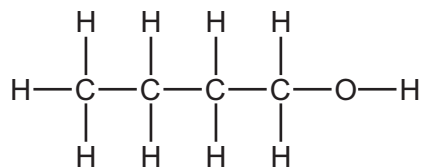
**A**



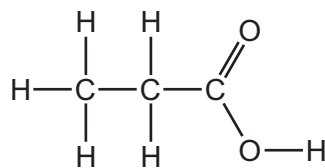
**B**



**C**



**D**





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The Periodic Table of Elements

Group																																																																																																																																																																																																																																																																																																																																																																																																											
I	II	III						IV	V	VI	VII	VIII																																																																																																																																																																																																																																																																																																																																																																																															
3 <b>Li</b> lithium 7	4 <b>Be</b> beryllium 9	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>Key</b>                      atomic number                      name                      atomic symbol                      relative atomic mass                 </div>						5 <b>B</b> boron 11	6 <b>C</b> carbon 12	7 <b>N</b> nitrogen 14	8 <b>O</b> oxygen 16	9 <b>F</b> fluorine 19	10 <b>Ne</b> neon 20																																																																																																																																																																																																																																																																																																																																																																																														
11 <b>Na</b> sodium 23	12 <b>Mg</b> magnesium 24							13 <b>Al</b> aluminium 27	14 <b>Si</b> silicon 28	15 <b>P</b> phosphorus 31	16 <b>S</b> sulfur 32	17 <b>Cl</b> chlorine 35.5	18 <b>Ar</b> argon 40	19 <b>K</b> potassium 39	20 <b>Ca</b> calcium 40	21 <b>Sc</b> scandium 45	22 <b>Ti</b> titanium 48	23 <b>V</b> vanadium 51	24 <b>Cr</b> chromium 52	25 <b>Mn</b> manganese 55	26 <b>Fe</b> iron 56	27 <b>Co</b> cobalt 59	28 <b>Ni</b> nickel 59	29 <b>Cu</b> copper 64	30 <b>Zn</b> zinc 65	31 <b>Ga</b> gallium 70	32 <b>Ge</b> germanium 73	33 <b>As</b> arsenic 75	34 <b>Se</b> selenium 79	35 <b>Br</b> bromine 80	36 <b>Kr</b> krypton 84																																																																																																																																																																																																																																																																																																																																																																												
37 <b>Rb</b> rubidium 85	38 <b>Sr</b> strontium 88	39 <b>Y</b> yttrium 89	40 <b>Zr</b> zirconium 91	41 <b>Nb</b> niobium 93	42 <b>Mo</b> molybdenum 96	43 <b>Tc</b> technetium —	44 <b>Ru</b> ruthenium 101	45 <b>Rh</b> rhodium 103	46 <b>Pd</b> palladium 106	47 <b>Ag</b> silver 108	48 <b>Cd</b> cadmium 112	49 <b>In</b> indium 115	50 <b>Sn</b> tin 119	51 <b>Sb</b> antimony 122	52 <b>Te</b> tellurium 128	53 <b>I</b> iodine 127	54 <b>Xe</b> xenon 131	55 <b>Cs</b> caesium 133	56 <b>Ba</b> barium 137	57–71 lanthanoids	72 <b>Hf</b> hafnium 178	73 <b>Ta</b> tantalum 181	74 <b>W</b> tungsten 184	75 <b>Re</b> rhenium 186	76 <b>Os</b> osmium 190	77 <b>Ir</b> iridium 192	78 <b>Pt</b> platinum 195	79 <b>Au</b> gold 197	80 <b>Hg</b> mercury 201	81 <b>Tl</b> thallium 204	82 <b>Pb</b> lead 207	83 <b>Bi</b> bismuth 209	84 <b>Po</b> polonium —	85 <b>At</b> astatine —	86 <b>Rn</b> radon —																																																																																																																																																																																																																																																																																																																																																																								
87 <b>Fr</b> francium —	88 <b>Ra</b> radium —	89–103 actinoids	104 <b>Rf</b> rutherfordium —	105 <b>Db</b> dubnium —	106 <b>Sg</b> seaborgium —	107 <b>Bh</b> bohrium —	108 <b>Hs</b> hassium —	109 <b>Mt</b> meitnerium —	110 <b>Ds</b> darmstadtium —	111 <b>Rg</b> roentgenium —	112 <b>Cn</b> copernicium —	113 <b>Nh</b> nihonium —	114 <b>Fl</b> flerovium —	115 <b>Mc</b> moscovium —	116 <b>Lv</b> livermorium —	117 <b>Ts</b> tennessine —	118 <b>Og</b> oganesson —	119 <b>Uu</b> ununium —	120 <b>Uub</b> ununbium —	121 <b>Uut</b> ununtrium —	122 <b>Uuq</b> ununquadium —	123 <b>Uuq</b> ununquadium —	124 <b>Uub</b> ununbium —	125 <b>Uut</b> ununtrium —	126 <b>Uuq</b> ununquadium —	127 <b>Uub</b> ununbium —	128 <b>Uut</b> ununtrium —	129 <b>Uuq</b> ununquadium —	130 <b>Uub</b> ununbium —	131 <b>Uut</b> ununtrium —	132 <b>Uuq</b> ununquadium —	133 <b>Uub</b> ununbium —	134 <b>Uut</b> ununtrium —	135 <b>Uuq</b> ununquadium —	136 <b>Uub</b> ununbium —	137 <b>Uut</b> ununtrium —	138 <b>Uuq</b> ununquadium —	139 <b>Uub</b> ununbium —	140 <b>Uut</b> ununtrium —	141 <b>Uuq</b> ununquadium —	142 <b>Uub</b> ununbium —	143 <b>Uut</b> ununtrium —	144 <b>Uuq</b> ununquadium —	145 <b>Uub</b> ununbium —	146 <b>Uut</b> ununtrium —	147 <b>Uuq</b> ununquadium —	148 <b>Uub</b> ununbium —	149 <b>Uut</b> ununtrium —	150 <b>Uuq</b> ununquadium —	151 <b>Uub</b> ununbium —	152 <b>Uut</b> ununtrium —	153 <b>Uuq</b> ununquadium —	154 <b>Uub</b> ununbium —	155 <b>Uut</b> ununtrium —	156 <b>Uuq</b> ununquadium —	157 <b>Uub</b> ununbium —	158 <b>Uut</b> ununtrium —	159 <b>Uuq</b> ununquadium —	160 <b>Uub</b> ununbium —	161 <b>Uut</b> ununtrium —	162 <b>Uuq</b> ununquadium —	163 <b>Uub</b> ununbium —	164 <b>Uut</b> ununtrium —	165 <b>Uuq</b> ununquadium —	166 <b>Uub</b> ununbium —	167 <b>Uut</b> ununtrium —	168 <b>Uuq</b> ununquadium —	169 <b>Uub</b> ununbium —	170 <b>Uut</b> ununtrium —	171 <b>Uuq</b> ununquadium —	172 <b>Uub</b> ununbium —	173 <b>Uut</b> ununtrium —	174 <b>Uuq</b> ununquadium —	175 <b>Uub</b> ununbium —	176 <b>Uut</b> ununtrium —	177 <b>Uuq</b> ununquadium —	178 <b>Uub</b> ununbium —	179 <b>Uut</b> ununtrium —	180 <b>Uuq</b> ununquadium —	181 <b>Uub</b> ununbium —	182 <b>Uut</b> ununtrium —	183 <b>Uuq</b> ununquadium —	184 <b>Uub</b> ununbium —	185 <b>Uut</b> ununtrium —	186 <b>Uuq</b> ununquadium —	187 <b>Uub</b> ununbium —	188 <b>Uut</b> ununtrium —	189 <b>Uuq</b> ununquadium —	190 <b>Uub</b> ununbium —	191 <b>Uut</b> ununtrium —	192 <b>Uuq</b> ununquadium —	193 <b>Uub</b> ununbium —	194 <b>Uut</b> ununtrium —	195 <b>Uuq</b> ununquadium —	196 <b>Uub</b> ununbium —	197 <b>Uut</b> ununtrium —	198 <b>Uuq</b> ununquadium —	199 <b>Uub</b> ununbium —	200 <b>Uut</b> ununtrium —	201 <b>Uuq</b> ununquadium —	202 <b>Uub</b> ununbium —	203 <b>Uut</b> ununtrium —	204 <b>Uuq</b> ununquadium —	205 <b>Uub</b> ununbium —	206 <b>Uut</b> ununtrium —	207 <b>Uuq</b> ununquadium —	208 <b>Uub</b> ununbium —	209 <b>Uut</b> ununtrium —	210 <b>Uuq</b> ununquadium —	211 <b>Uub</b> ununbium —	212 <b>Uut</b> ununtrium —	213 <b>Uuq</b> ununquadium —	214 <b>Uub</b> ununbium —	215 <b>Uut</b> ununtrium —	216 <b>Uuq</b> ununquadium —	217 <b>Uub</b> ununbium —	218 <b>Uut</b> ununtrium —	219 <b>Uuq</b> ununquadium —	220 <b>Uub</b> ununbium —	221 <b>Uut</b> ununtrium —	222 <b>Uuq</b> ununquadium —	223 <b>Uub</b> ununbium —	224 <b>Uut</b> ununtrium —	225 <b>Uuq</b> ununquadium —	226 <b>Uub</b> ununbium —	227 <b>Uut</b> ununtrium —	228 <b>Uuq</b> ununquadium —	229 <b>Uub</b> ununbium —	230 <b>Uut</b> ununtrium —	231 <b>Uuq</b> ununquadium —	232 <b>Uub</b> ununbium —	233 <b>Uut</b> ununtrium —	234 <b>Uuq</b> ununquadium —	235 <b>Uub</b> ununbium —	236 <b>Uut</b> ununtrium —	237 <b>Uuq</b> ununquadium —	238 <b>Uub</b> ununbium —	239 <b>Uut</b> ununtrium —	240 <b>Uuq</b> ununquadium —	241 <b>Uub</b> ununbium —	242 <b>Uut</b> ununtrium —	243 <b>Uuq</b> ununquadium —	244 <b>Uub</b> ununbium —	245 <b>Uut</b> ununtrium —	246 <b>Uuq</b> ununquadium —	247 <b>Uub</b> ununbium —	248 <b>Uut</b> ununtrium —	249 <b>Uuq</b> ununquadium —	250 <b>Uub</b> ununbium —	251 <b>Uut</b> ununtrium —	252 <b>Uuq</b> ununquadium —	253 <b>Uub</b> ununbium —	254 <b>Uut</b> ununtrium —	255 <b>Uuq</b> ununquadium —	256 <b>Uub</b> ununbium —	257 <b>Uut</b> ununtrium —	258 <b>Uuq</b> ununquadium —	259 <b>Uub</b> ununbium —	260 <b>Uut</b> ununtrium —	261 <b>Uuq</b> ununquadium —	262 <b>Uub</b> ununbium —	263 <b>Uut</b> ununtrium —	264 <b>Uuq</b> ununquadium —	265 <b>Uub</b> ununbium —	266 <b>Uut</b> ununtrium —	267 <b>Uuq</b> ununquadium —	268 <b>Uub</b> ununbium —	269 <b>Uut</b> ununtrium —	270 <b>Uuq</b> ununquadium —	271 <b>Uub</b> ununbium —	272 <b>Uut</b> ununtrium —	273 <b>Uuq</b> ununquadium —	274 <b>Uub</b> ununbium —	275 <b>Uut</b> ununtrium —	276 <b>Uuq</b> ununquadium —	277 <b>Uub</b> ununbium —	278 <b>Uut</b> ununtrium —	279 <b>Uuq</b> ununquadium —	280 <b>Uub</b> ununbium —	281 <b>Uut</b> ununtrium —	282 <b>Uuq</b> ununquadium —	283 <b>Uub</b> ununbium —	284 <b>Uut</b> ununtrium —	285 <b>Uuq</b> ununquadium —	286 <b>Uub</b> ununbium —	287 <b>Uut</b> ununtrium —	288 <b>Uuq</b> ununquadium —	289 <b>Uub</b> ununbium —	290 <b>Uut</b> ununtrium —	291 <b>Uuq</b> ununquadium —	292 <b>Uub</b> ununbium —	293 <b>Uut</b> ununtrium —	294 <b>Uuq</b> ununquadium —	295 <b>Uub</b> ununbium —	296 <b>Uut</b> ununtrium —	297 <b>Uuq</b> ununquadium —	298 <b>Uub</b> ununbium —	299 <b>Uut</b> ununtrium —	300 <b>Uuq</b> ununquadium —	301 <b>Uub</b> ununbium —	302 <b>Uut</b> ununtrium —	303 <b>Uuq</b> ununquadium —	304 <b>Uub</b> ununbium —	305 <b>Uut</b> ununtrium —	306 <b>Uuq</b> ununquadium —	307 <b>Uub</b> ununbium —	308 <b>Uut</b> ununtrium —	309 <b>Uuq</b> ununquadium —	310 <b>Uub</b> ununbium —	311 <b>Uut</b> ununtrium —	312 <b>Uuq</b> ununquadium —	313 <b>Uub</b> ununbium —	314 <b>Uut</b> ununtrium —	315 <b>Uuq</b> ununquadium —	316 <b>Uub</b> ununbium —	317 <b>Uut</b> ununtrium —	318 <b>Uuq</b> ununquadium —	319 <b>Uub</b> ununbium —	320 <b>Uut</b> ununtrium —	321 <b>Uuq</b> ununquadium —	322 <b>Uub</b> ununbium —	323 <b>Uut</b> ununtrium —	324 <b>Uuq</b> ununquadium —	325 <b>Uub</b> ununbium —	326 <b>Uut</b> ununtrium —	327 <b>Uuq</b> ununquadium —	328 <b>Uub</b> ununbium —	329 <b>Uut</b> ununtrium —	330 <b>Uuq</b> ununquadium —	331 <b>Uub</b> ununbium —	332 <b>Uut</b> ununtrium —	333 <b>Uuq</b> ununquadium —	334 <b>Uub</b> ununbium —	335 <b>Uut</b> ununtrium —	336 <b>Uuq</b> ununquadium —	337 <b>Uub</b> ununbium —	338 <b>Uut</b> ununtrium —	339 <b>Uuq</b> ununquadium —	340 <b>Uub</b> ununbium —	341 <b>Uut</b> ununtrium —	342 <b>Uuq</b> ununquadium —	343 <b>Uub</b> ununbium —	344 <b>Uut</b> ununtrium —	345 <b>Uuq</b> ununquadium —	346 <b>Uub</b> ununbium —	347 <b>Uut</b> ununtrium —	348 <b>Uuq</b> ununquadium —	349 <b>Uub</b> ununbium —	350 <b>Uut</b> ununtrium —	351 <b>Uuq</b> ununquadium —	352 <b>Uub</b> ununbium —	353 <b>Uut</b> ununtrium —	354 <b>Uuq</b> ununquadium —	355 <b>Uub</b> ununbium —	356 <b>Uut</b> ununtrium —	357 <b>Uuq</b> ununquadium —	358 <b>Uub</b> ununbium —	359 <b>Uut</b> ununtrium —	360 <b>Uuq</b> ununquadium —	361 <b>Uub</b> ununbium —	362 <b>Uut</b> ununtrium —	363 <b>Uuq</b> ununquadium —	364 <b>Uub</b> ununbium —	365 <b>Uut</b> ununtrium —	366 <b>Uuq</b> ununquadium —	367 <b>Uub</b> ununbium —	368 <b>Uut</b> ununtrium —	369 <b>Uuq</b> ununquadium —	370 <b>Uub</b> ununbium —	371 <b>Uut</b> ununtrium —	372 <b>Uuq</b> ununquadium —	373 <b>Uub</b> ununbium —	374 <b>Uut</b> ununtrium —	375 <b>Uuq</b> ununquadium —	376 <b>Uub</b> ununbium —	377 <b>Uut</b> ununtrium —	378 <b>Uuq</b> ununquadium —	379 <b>Uub</b> ununbium —	380 <b>Uut</b> ununtrium —	381 <b>Uuq</b> ununquadium —	382 <b>Uub</b> ununbium —	383 <b>Uut</b> ununtrium —	384 <b>Uuq</b> ununquadium —	385 <b>Uub</b> ununbium —	386 <b>Uut</b> ununtrium —	387 <b>Uuq</b> ununquadium —	388 <b>Uub</b> ununbium —	389 <b>Uut</b> ununtrium —	390 <b>Uuq</b> ununquadium —	391 <b>Uub</b> ununbium —	392 <b>Uut</b> ununtrium —	393 <b>Uuq</b> ununquadium —	394 <b>Uub</b> ununbium —	395 <b>Uut</b> ununtrium —	396 <b>Uuq</b> ununquadium —	397 <b>Uub</b> ununbium —	398 <b>Uut</b> ununtrium —	399 <b>Uuq</b> ununquadium —	400 <b>Uub</b> ununbium —	401 <b>Uut</b> ununtrium —	402 <b>Uuq</b> ununquadium —	403 <b>Uub</b> ununbium —	404 <b>Uut</b> ununtrium —	405 <b>Uuq</b> ununquadium —	406 <b>Uub</b> ununbium —	407 <b>Uut</b> ununtrium —	408 <b>Uuq</b> ununquadium —	409 <b>Uub</b> ununbium —	410 <b>Uut</b> ununtrium —	411 <b>Uuq</b> ununquadium —	412 <b>Uub</b> ununbium —	413 <b>Uut</b> ununtrium —	414 <b>Uuq</b> ununquadium —	415 <b>Uub</b> ununbium —	416 <b>Uut</b> ununtrium —	417 <b>Uuq</b> ununquadium —	418 <b>Uub</b> ununbium —	419 <b>Uut</b> ununtrium —	420 <b>Uuq</b> ununquadium —	421 <b>Uub</b> ununbium —	422 <b>Uut</b> ununtrium —	423 <b>Uuq</b> ununquadium —	424 <b>Uub</b> ununbium —	425 <b>Uut</b> ununtrium —	426 <b>Uuq</b> ununquadium —	427 <b>Uub</b> ununbium —	428 <b>Uut</b> ununtrium —	429 <b>Uuq</b> ununquadium —	430 <b>Uub</b> ununbium —	431 <b>Uut</b> ununtrium —	432 <b>Uuq</b> ununquadium —	433 <b>Uub</b> ununbium —	434 <b>Uut</b> ununtrium —	435 <b>Uuq</b> ununquadium —	436 <b>Uub</b> ununbium —	437 <b>Uut</b> ununtrium —	438 <b>Uuq</b> ununquadium —	439 <b>Uub</b> ununbium —	440 <b>Uut</b> ununtrium —	441 <b>Uuq</b> ununquadium —	442 <b>Uub</b> ununbium —	443 <b>Uut</b> ununtrium —	444 <b>Uuq</b> ununquadium —	445 <b>Uub</b> ununbium —	446 <b>Uut</b> ununtrium —	447 <b>Uuq</b> ununquadium —	448 <b>Uub</b> ununbium —	449 <b>Uut</b> ununtrium —	450 <b>Uuq</b> ununquadium —	451 <b>Uub</b> ununbium —	452 <b>Uut</b> ununtrium —	453 <b>Uuq</b> ununquadium —	454 <b>Uub</b> ununbium —	455 <b>Uut</b> ununtrium —	456 <b>Uuq</b> ununquadium —	457 <b>Uub</b> ununbium —	458 <b>Uut</b> ununtrium —	459 <b>Uuq</b> ununquadium —	460 <b>Uub</b> ununbium —	461 <b>Uut</b> ununtrium —	462 <b>Uuq</b> ununquadium —	463 <b>Uub</b> ununbium —	464 <b>Uut</b> ununtrium —	465 <b>Uuq</b> ununquadium —	466 <b>Uub</b> ununbium —	467 <b>Uut</b> ununtrium —	468 <b>Uuq</b> ununquadium —	469 <b>Uub</b> ununbium —	470 <b>Uut</b> ununtrium —	471 <b>Uuq</b> ununquadium —	472 <b>Uub</b> ununbium —	473 <b>Uut</b> ununtrium —	474 <b>Uuq</b> ununquadium —	475 <b>Uub</b> ununbium —	476 <b>Uut</b> ununtrium —	477 <b>Uuq</b> ununquadium —	478 <b>Uub</b> ununbium —	479 <b>Uut</b> ununtrium —	480 <b>Uuq</b> ununquadium —	481 <b>Uub</b> ununbium —	482 <b>Uut</b> ununtrium —	483 <b>Uuq</b> ununquadium —	484 <b>Uub</b> ununbium —	485 <b>Uut</b> ununtrium —	486 <b>Uuq</b> ununquadium —	487 <b>Uub</b> ununbium —	488 <b>Uut</b> ununtrium —	489 <b>Uuq</b> ununquadium —	490 <b>Uub</b> ununbium —	491 <b>Uut</b> ununtrium —	492 <b>Uuq</b> ununquadium —	493 <b>Uub</b> ununbium —	494 <b>Uut</b> ununtrium —	495 <b>Uuq</b> ununquadium —	496 <b>U</b>