



KENT RIDGE SECONDARY SCHOOL END-OF-YEAR EXAMINATION 2019

SCIENCE (CHEMISTRY)**5076****SEC 3 EXPRESS****Monday 7 October 2019****1 hour 15 minutes**

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Name: _____ ()

Class: Sec _____

READ THESE INSTRUCTIONS FIRST

Write your name, class and index number clearly in the spaces at the top of this page provided.

Do not open this question paper until you are told to do so.**Section A**There are **ten** questions. 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 the table on page 5.**Section B**Answer **all** questions.

Write your answers in the spaces provided in the question paper.

Section CAnswer any **two** questions.

Write your answers in the spaces provided in the question paper.

FOR EXAMINER'S USE	
Section A	10
Section B	20
Section C	20
Q:.....	
Q:.....	
Total	50

Enter the numbers of the **Section C** questions you have answered in the grid above.

The number of marks is given in brackets [] at the end of each question or part of question.

A copy of the Periodic Table is printed on page 17.

This Question Paper consists of 17 printed pages, including this page.

Setter: Mrs Elaine Su

[Turn over

Section A

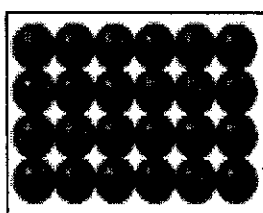
The total mark for this section is 10.

- 1 A student wishes to add 15.7 cm³ of acid to exactly 25.0 cm³ of alkali as part of an experiment.

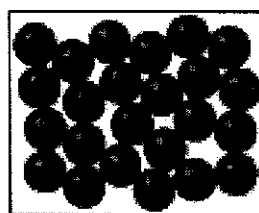
Which apparatus should the student use to measure these volumes?

	acid	alkali
A	burette	measuring cylinder
B	burette	pipette
C	pipette	burette
D	measuring cylinder	pipette

- 2 The diagrams below show the arrangement of particles in substance Z at two different temperatures.



-100°C



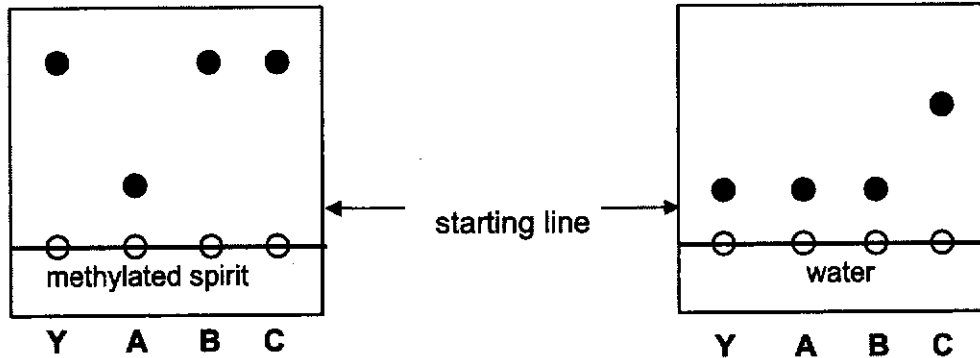
-50°C

Which of the following could be the melting and boiling point of substance Z?

	melting point /°C	boiling point /°C
A	-84	-53
B	-96	-48
C	-110	-45
D	-112	-88

- 3 It was suspected that an illegal drug Y contained one or more of three poisonous compounds, A, B, or C.

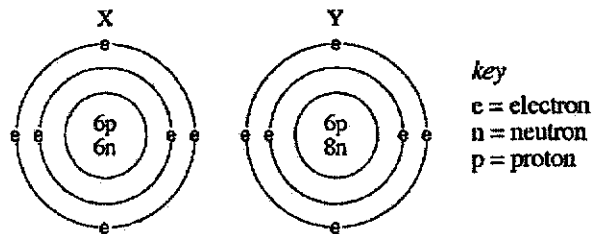
Spots of each poisonous compound were put on the starting line of two separate chromatograms. The chromatograms were developed with two solvents, methylated spirit and water respectively. The results are shown below.



From these chromatograms, we can deduce that drug Y contains

- A compound A only
 B compound B only
 C compound C only
 D compounds B and C only
- 4 The atoms $^{31}_{15}\text{P}$ and $^{32}_{16}\text{S}$ have the same
- A nucleon number
 B number of protons
 C number of electrons
 D number of neutrons

- 5 Two atoms, X and Y have the structures shown below.



Which term describes X and Y?

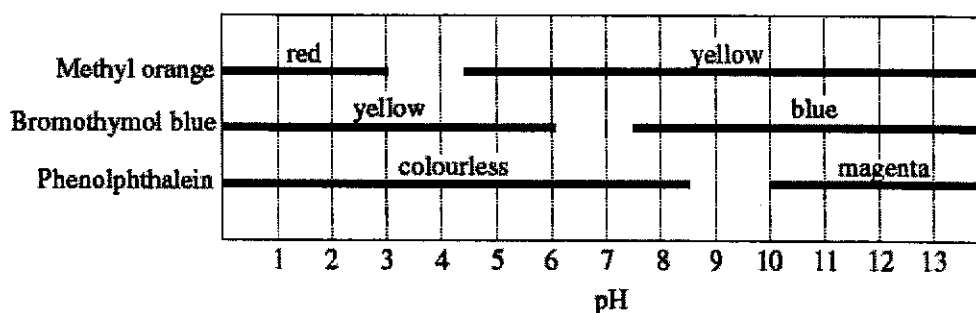
- A atoms
 B ions
 C isotopes
 D molecule

- 6 Astatine is below iodine in Group VII of the Periodic Table. Which of the following statements about astatine is/are correct?

- 1 It is a solid at room temperature and pressure.
- 2 It reacts with sodium to form an ionic compound.
- 3 It is able to displace bromine out of its halide solution.

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

- 7 The graph shows the colour ranges of the acid–base indicators methyl orange, bromothymol blue and phenolphthalein.



A solution is yellow in methyl orange, blue in bromothymol blue and colourless in phenolphthalein. What is the pH range of the solution?

- A 4.5 to 6.0
 B 6.0 to 7.5
 C 7.5 to 8.5
 D 8.5 to 10.0
- 8 Which is the best reagent, when added to excess, can neutralise acid spilled in the laboratory, without leaving an alkaline solution?
- A calcium carbonate
 B potassium oxide
 C sodium hydroxide
 D water

9 Which trend(s) will be observed for the oxides of the elements across Period 3 of the Periodic Table?

- 1 It changes from liquid to solid at room temperature.
- 2 It becomes less basic and more acidic.
- 3 It changes from ionic compound to covalent compound.

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

10 The thermometer shows the temperature at the start of the reaction in each beaker. In which beaker will the reaction be the fastest?

A **B** **C** **D**

30°C 30°C 20°C 20°C

1 g of marble powder in 200 cm³ of 3 mol/dm³ HCl
 1 g of marble chips in 200 cm³ of 2 mol/dm³ HCl
 1 g of marble chips in 200 cm³ of 2 mol/dm³ HCl
 1 g of marble powder in 200 cm³ of 1 mol/dm³ HCl

Answers for Section A MCQ:

Qn	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Ans										

Section B

The total mark for this section is 20.

- 11 The table shows part of the Periodic Table of elements.

Use the elements listed in the Periodic Table above to answer the following questions.
You may use each element once, more than once, or not at all.

Identify an element that

- (a) forms a neutral oxide, _____
- (b) forms diatomic molecules, _____
- (c) forms ions with a charge of +2, _____
- (d) has the highest proton number, _____
- (e) has only one electron shell. _____

[5]

- 12 Fig. 12.1 shows a mixture of water and alcohol being separated by distillation. The boiling point of alcohol is $78\text{ }^{\circ}\text{C}$.

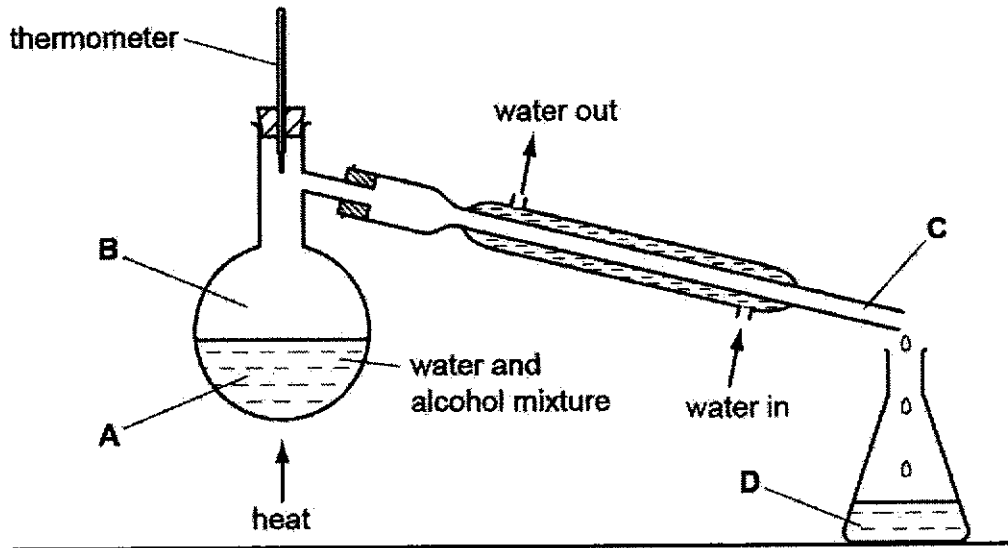
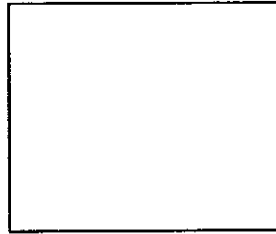


Fig. 12.1

- (a) Draw in the box below to show the arrangement of particles at C. [1]



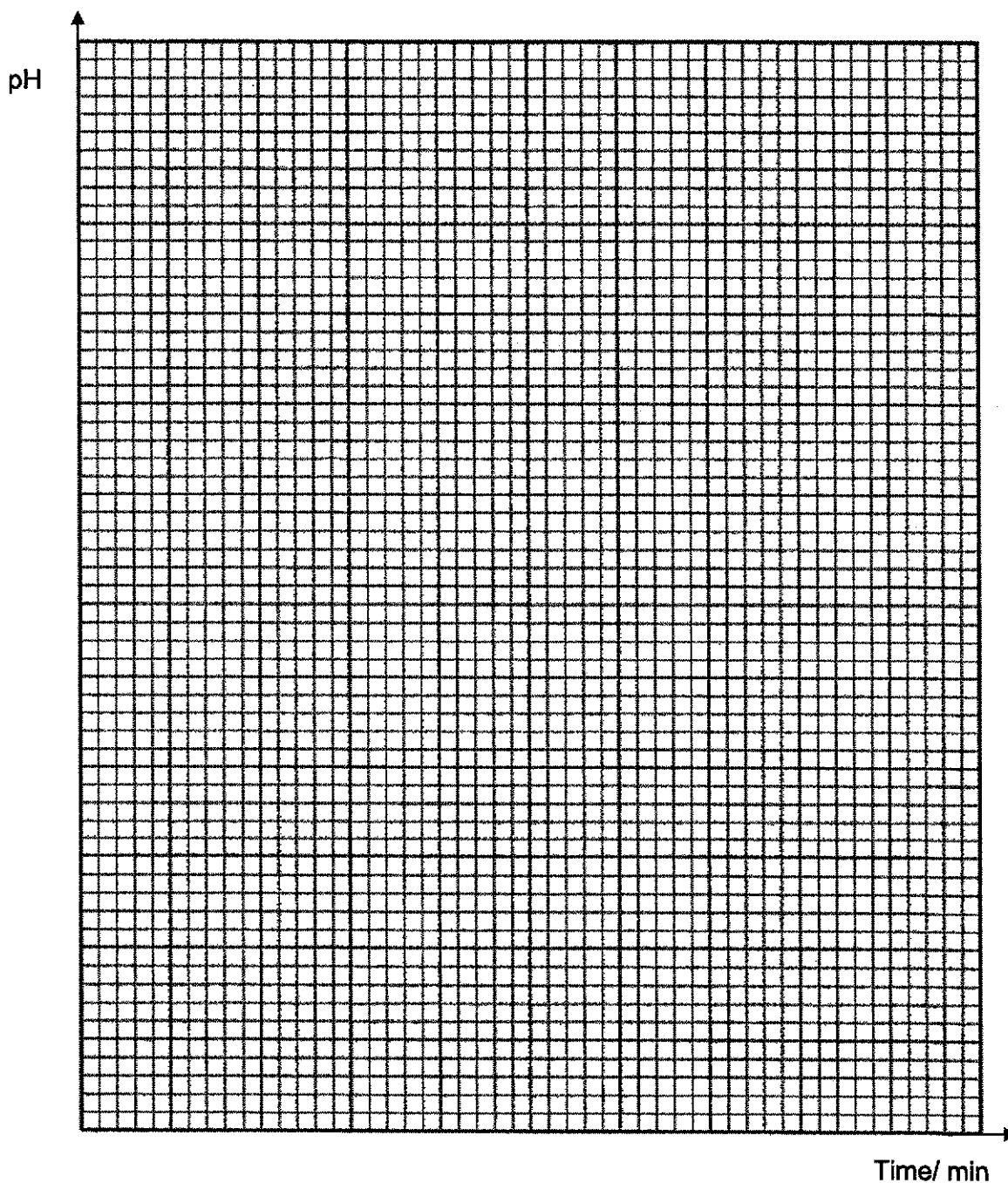
- (b) Explain using the kinetic particle theory, what happens to the particles in A when it is heated from room temperature to $100\text{ }^{\circ}\text{C}$. [2]

- 13 The pH value of the saliva in a student's mouth was measured and found to be 6.9. The measurement was repeated at five-minute intervals after the student ate an apple.

The results are shown in the table below.

Time/ min.	0	5	10	15	20	25	30	35	40
pH	6.9	5.5	4.7	4.2	4.5	5.4	6.3	6.6	6.9

- (a) Plot this information on the graph below and draw a smooth curve through the points. [3]



- (b) Use the graph to estimate the time taken for the saliva to return to the original pH value. [1]
 mins

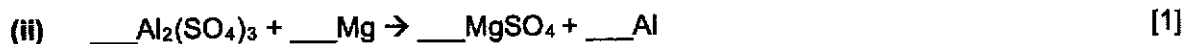
- (c) The table below shows information about solutions of an acid and an alkali. Complete the table by filling in the empty boxes. [3]

solution	chemical formula of acid or alkali	colour change when mixed with Universal Indicator	name of ion that causes this colour change
dilute nitric acid	HNO ₃		hydrogen
dilute sodium hydroxide		from green to violet	

- 14 (a) Complete the table below. [3]

chemical name of compound	formula of compound
zinc hydroxide	
	Na ₂ SO ₄
	FeCl ₃

- (b) Balance the following chemical equations.



Section C

The total mark for this section is 20.
Answer any **two** questions.

15 Atoms of non-metallic elements can combine with other atoms to form many different compounds.

(a) One of these compounds is carbon tetrachloride, CCl_4 , an organic solvent with low melting and boiling point and is a non-conductor of electricity.

(i) Name the type of chemical bonding present in carbon tetrachloride.

..... [1]

(ii) Draw a 'dot-and-cross' diagram to show the arrangement of electrons in a molecule of carbon tetrachloride in the space below. Show only the outermost electrons. [Proton numbers: C, 6 ; Cl, 17]

[2]

(b) Another of these compounds is magnesium chloride. Unlike carbon tetrachloride, this compound has a high melting and boiling point and is a conductor of electricity when molten.

(i) Name the type of chemical bonding present in magnesium chloride.

..... [1]

(ii) Draw a 'dot-and-cross' diagram to show the arrangement of electrons in magnesium chloride. Show all the electrons.
[Proton numbers: Mg, 12 ; Cl, 17]

[2]

(c) Use your knowledge of the structure and bonding in carbon tetrachloride and magnesium chloride to explain the difference in their

(i) melting and boiling points;

.....
.....
.....
.....[2]

(ii) electrical conductivity.

.....
.....
.....
.....[2]

- 16 In an experiment, indigestion tablets are used to investigate the speed of reaction. When these tablets react with acid, carbon dioxide is given off.

Ten indigestion tablets are added to an excess solution of dilute sulfuric acid at temperature G, and the total volume of gas given off is measured at regular intervals.

The procedure is repeated using the same concentration of sulfuric acid at two different temperatures, H and I. In each experiment, an excess of the same sulfuric acid solution is used.

Fig 16.1 shows the result of these investigations.

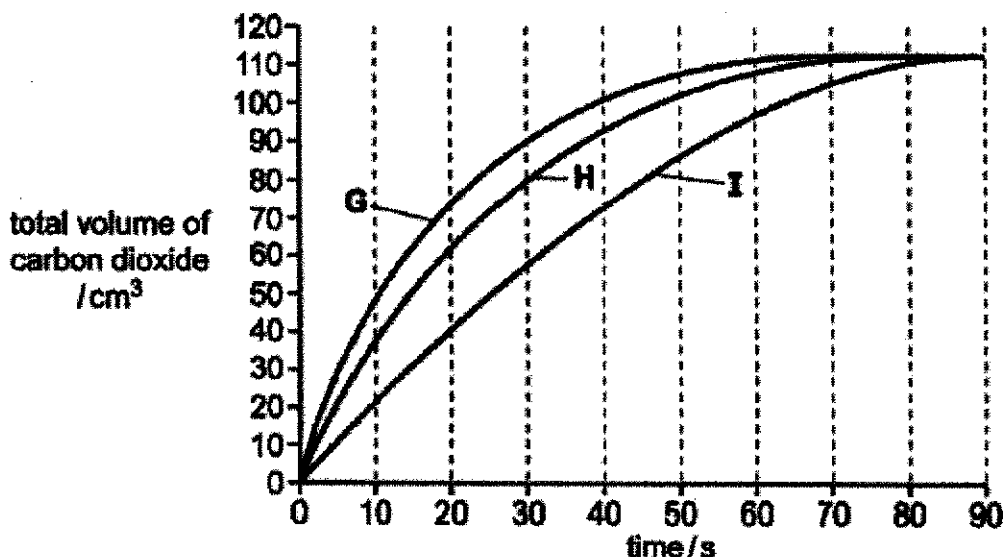


Fig. 16.1

- (a) Which of the temperatures, G, H or I is the highest? Explain your reasoning. [2]
-
-
- (b) How are the reactions at temperature G and temperature I different after about 75 seconds? [2]
-
-
- (c) Draw on Fig. 16.1, the curve you would expect if the experiment was repeated at temperature I but with 5 tablets? [2]

- (d) Explain, using ideas about particles, why speed of reaction varies with changes in concentration of sulfuric acid. [2]

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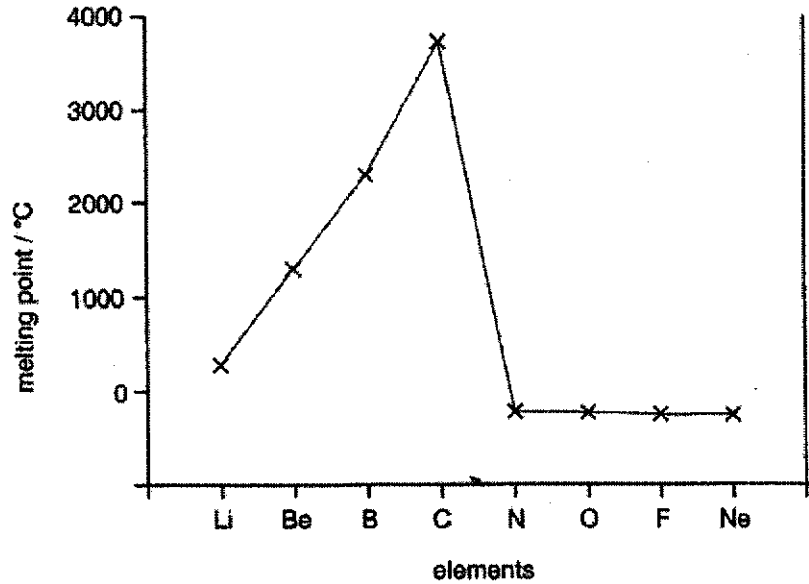
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- (e) Given that indigestion tablets contain magnesium carbonate, construct a balanced chemical equation for the reaction between magnesium carbonate and sulfuric acid. (State symbols are not required) [2]

.....

- 17 (a) This information is about the elements in Period 2 of the Periodic Table.



Element	Electrical conductivity (at room temperature and pressure)
Li	good
Be	good
B	poor
C	good
N	does not conduct
O	does not conduct
F	does not conduct
Ne	does not conduct

- (i) Use the information to describe the trends in melting point and electrical conductivity across Period 2.

.....

.....

.....

.....

- (ii) How does the data show that the first four elements in Period 2 are solids at room temperature and pressure? [3]

.....

.....

[1]

- (b) The table shows some information about the oxides of element A to E. The letters are not the symbols of the elements.

element	state of oxide at room temperature and pressure	type of oxide	bonding in oxide
A	solid	basic	ionic
B	solid	acidic	covalent
C	gas	acidic	covalent
D	liquid	neutral	covalent
E	gas	neutral	covalent

- (i) Which one of the elements A to E could be:

Hydrogen _____

Sodium _____

[2]

- (ii) State the name of the reaction when the oxide of element C is added to sodium hydroxide.

_____ [1]

- (c) Element F is an amphoteric oxide.

- (i) Explain the meaning of the term amphoteric oxide.

_____ [1]

- (ii) Suggest the name of an amphoteric oxide.

_____ [1]

- (d) Chemicals are important in industry and in our everyday life. Give the reason for use of the following chemical.

Chemical: calcium hydroxide

Use: spread on farmers' field

Reason for use: _____

_____ [1]

END OF PAPER

DATA SHEET**Colours of Some Common Metal Hydroxides**

calcium hydroxide	white
copper(II) hydroxide	light blue
iron(II) hydroxide	green
iron(III) hydroxide	red-brown
lead(II) hydroxide	white
zinc hydroxide	white

The Periodic Table of Elements

I		II										III										IV										V										VI										VII										0																																																																																																																																																																																							
3 Li lithium 7	4 Be beryllium 9	11 Na sodium 23	12 Mg magnesium 24	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	57-71 lanthanoids	56 Ba barium 137	87 Fr francium —	88 Ra radium —	89-103 actinoids	85 I iodine 127	86 Xe xenon 131	87 At astatine —	88 Rn radon —	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 —	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 tennessium —	118 Og oganessonium —	119 Uu unbinilium —	120 Uub unbinilium —	121 Uut ununilium —	122 Uuq ununnilium —	123 Uuq ununnilium —	124 Uuq ununnilium —	125 Uuq ununnilium —	126 Uuq ununnilium —	127 Uuq ununnilium —	128 Uuq ununnilium —	129 Uuq ununnilium —	130 Uuq ununnilium —	131 Uuq ununnilium —	132 Uuq ununnilium —	133 Uuq ununnilium —	134 Uuq ununnilium —	135 Uuq ununnilium —	136 Uuq ununnilium —	137 Uuq ununnilium —	138 Uuq ununnilium —	139 Uuq ununnilium —	140 Uuq ununnilium —	141 Uuq ununnilium —	142 Uuq ununnilium —	143 Uuq ununnilium —	144 Uuq ununnilium —	145 Uuq ununnilium —	146 Uuq ununnilium —	147 Uuq ununnilium —	148 Uuq ununnilium —	149 Uuq ununnilium —	150 Uuq ununnilium —	151 Uuq ununnilium —	152 Uuq ununnilium —	153 Uuq ununnilium —	154 Uuq ununnilium —	155 Uuq ununnilium —	156 Uuq ununnilium —	157 Uuq ununnilium —	158 Uuq ununnilium —	159 Uuq ununnilium —	160 Uuq ununnilium —	161 Uuq ununnilium —	162 Uuq ununnilium —	163 Uuq ununnilium —	164 Uuq ununnilium —	165 Uuq ununnilium —	166 Uuq ununnilium —	167 Uuq ununnilium —	168 Uuq ununnilium —	169 Uuq ununnilium —	170 Uuq ununnilium —	171 Uuq ununnilium —	172 Uuq ununnilium —	173 Uuq ununnilium —	174 Uuq ununnilium —	175 Uuq ununnilium —	176 Uuq ununnilium —	177 Uuq ununnilium —	178 Uuq ununnilium —	179 Uuq ununnilium —	180 Uuq ununnilium —	181 Uuq ununnilium —	182 Uuq ununnilium —	183 Uuq ununnilium —	184 Uuq ununnilium —	185 Uuq ununnilium —	186 Uuq ununnilium —	187 Uuq ununnilium —	188 Uuq ununnilium —	189 Uuq ununnilium —	190 Uuq ununnilium —	191 Uuq ununnilium —	192 Uuq ununnilium —	193 Uuq ununnilium —	194 Uuq ununnilium —	195 Uuq ununnilium —	196 Uuq ununnilium —	197 Uuq ununnilium —	198 Uuq ununnilium —	199 Uuq ununnilium —	200 Uuq ununnilium —	201 Uuq ununnilium —	202 Uuq ununnilium —	203 Uuq ununnilium —	204 Uuq ununnilium —	205 Uuq ununnilium —	206 Uuq ununnilium —	207 Uuq ununnilium —	208 Uuq ununnilium —	209 Uuq ununnilium —	210 Uuq ununnilium —	211 Uuq ununnilium —	212 Uuq ununnilium —	213 Uuq ununnilium —	214 Uuq ununnilium —	215 Uuq ununnilium —	216 Uuq ununnilium —	217 Uuq ununnilium —	218 Uuq ununnilium —	219 Uuq ununnilium —	220 Uuq ununnilium —	221 Uuq ununnilium —	222 Uuq ununnilium —	223 Uuq ununnilium —	224 Uuq ununnilium —	225 Uuq ununnilium —	226 Uuq ununnilium —	227 Uuq ununnilium —	228 Uuq ununnilium —	229 Uuq ununnilium —	230 Uuq ununnilium —	231 Uuq ununnilium —	232 Uuq ununnilium —	233 Uuq ununnilium —	234 Uuq ununnilium —	235 Uuq ununnilium —	236 Uuq ununnilium —	237 Uuq ununnilium —	238 Uuq ununnilium —	239 Uuq ununnilium —	240 Uuq ununnilium —	241 Uuq ununnilium —	242 Uuq ununnilium —	243 Uuq ununnilium —	244 Uuq ununnilium —	245 Uuq ununnilium —	246 Uuq ununnilium —	247 Uuq ununnilium —	248 Uuq ununnilium —	249 Uuq ununnilium —	250 Uuq ununnilium —	251 Uuq ununnilium —	252 Uuq ununnilium —	253 Uuq ununnilium —	254 Uuq ununnilium —	255 Uuq ununnilium —	256 Uuq ununnilium —	257 Uuq ununnilium —	258 Uuq ununnilium —	259 Uuq ununnilium —	260 Uuq ununnilium —	261 Uuq ununnilium —	262 Uuq ununnilium —	263 Uuq ununnilium —	264 Uuq ununnilium —	265 Uuq ununnilium —	266 Uuq ununnilium —	267 Uuq ununnilium —	268 Uuq ununnilium —	269 Uuq ununnilium —	270 Uuq ununnilium —	271 Uuq ununnilium —	272 Uuq ununnilium —	273 Uuq ununnilium —	274 Uuq ununnilium —	275 Uuq ununnilium —	276 Uuq ununnilium —	277 Uuq ununnilium —	278 Uuq ununnilium —	279 Uuq ununnilium —	280 Uuq ununnilium —	281 Uuq ununnilium —	282 Uuq ununnilium —	283 Uuq ununnilium —	284 Uuq ununnilium —	285 Uuq ununnilium —	286 Uuq ununnilium —	287 Uuq ununnilium —	288 Uuq ununnilium —	289 Uuq ununnilium —	290 Uuq ununnilium —	291 Uuq ununnilium —	292 Uuq ununnilium —	293 Uuq ununnilium —	294 Uuq ununnilium —	295 Uuq ununnilium —	296 Uuq ununnilium —	297 Uuq ununnilium —	298 Uuq ununnilium —	299 Uuq ununnilium —	300 Uuq ununnilium —

Key
proton (atomic) number
atomic symbol
name
relative atomic mass

1
H
hydrogen
1

lanthanoids
actinoids

The volume of one mole of any gas is 24dm³ at room temperature and pressure (r.t.p.).

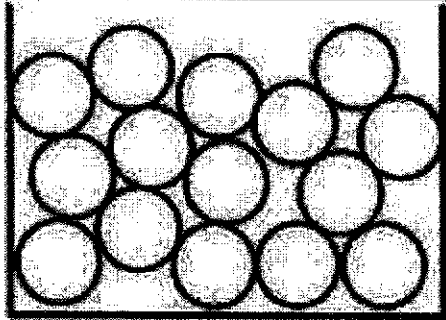
MARKING SCHEME (EYE 2019 SCIENCE (CHEMISTRY))

Kent Ridge Secondary School
 End-of-Year Examination 2019
 Sec 3 Express Science (Chemistry)

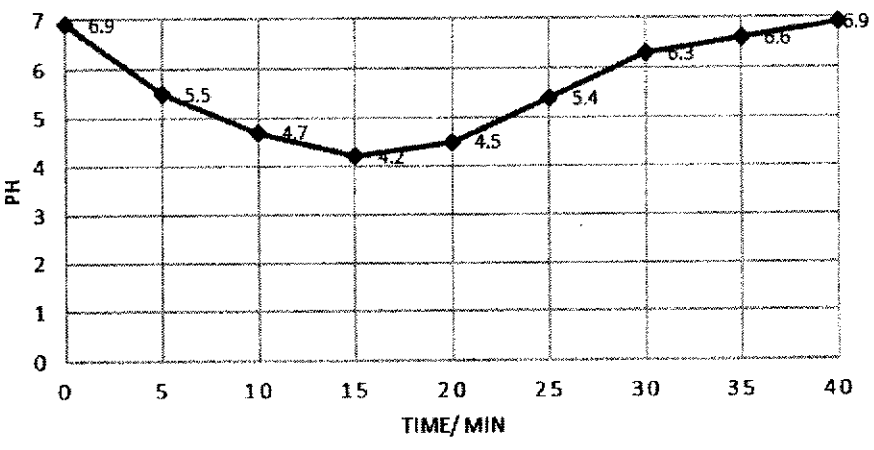
Section A

Qn.	1	2	3	4	5	6	7	8	9	10
An.	B	B	B	D	C	B	C	A	C	A

Section B

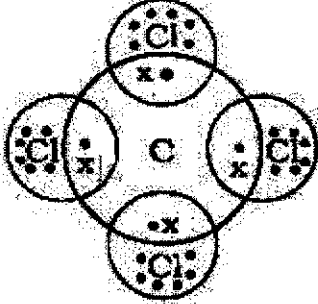
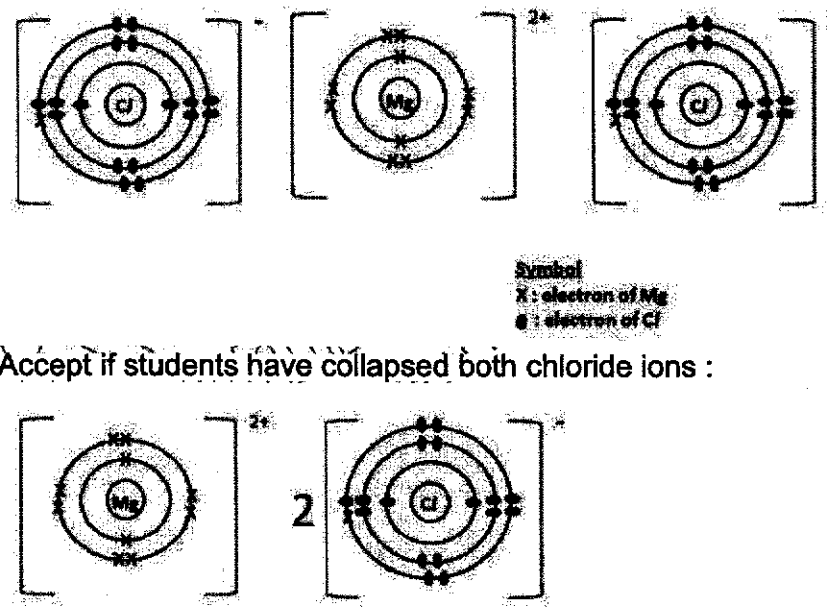
Qn	Answers	Comments	
11	(a)	Hydrogen/ H	1
	(b)	Hydrogen/ H or Bromine/Br	1
	(c)	Magnesium /Mg	1
	(d)	Bromine / Br	1
	(e)	Hydrogen/ H	1
12	(a)	 <p>- Particles to be of same size. - Gaps of particles should not be large enough for another particle to be drawn.</p>	[1]
	(c)	<p>As temperature at A increases, particles gain energy and move faster.</p> <p>When it reaches 100°C (or sufficient energy gained), it overcomes the strong forces of attraction and moves further apart in high speeds to become a gas.</p>	1 1

MARKING SCHEME (EYE 2019 SCIENCE (CHEMISTRY))

13	(a)		<p>1 – correct plotting of points</p> <p>1 – drawing of smooth curve through the points</p> <p>1 - scale</p>												
	(b)	Time taken for saliva to return to original pH: 40 mins	1												
	(c)	<table border="1" data-bbox="323 880 1198 1205"> <thead> <tr> <th data-bbox="323 880 523 1025">solution</th> <th data-bbox="523 880 738 1025">chemical formula of acid or alkali</th> <th data-bbox="738 880 978 1025">colour change when mixed with Universal Indicator</th> <th data-bbox="978 880 1198 1025">name of ion that causes this colour change</th> </tr> </thead> <tbody> <tr> <td data-bbox="323 1025 523 1104">dilute nitric acid</td> <td data-bbox="523 1025 738 1104">HNO_3</td> <td data-bbox="738 1025 978 1104">From green to red</td> <td data-bbox="978 1025 1198 1104"><i>hydrogen</i></td> </tr> <tr> <td data-bbox="323 1104 523 1205">dilute sodium hydroxide</td> <td data-bbox="523 1104 738 1205"><u>NaOH</u></td> <td data-bbox="738 1104 978 1205"><i>from green to violet</i></td> <td data-bbox="978 1104 1198 1205"><u>hydroxide</u></td> </tr> </tbody> </table>	solution	chemical formula of acid or alkali	colour change when mixed with Universal Indicator	name of ion that causes this colour change	dilute nitric acid	HNO_3	From green to red	<i>hydrogen</i>	dilute sodium hydroxide	<u>NaOH</u>	<i>from green to violet</i>	<u>hydroxide</u>	3
solution	chemical formula of acid or alkali	colour change when mixed with Universal Indicator	name of ion that causes this colour change												
dilute nitric acid	HNO_3	From green to red	<i>hydrogen</i>												
dilute sodium hydroxide	<u>NaOH</u>	<i>from green to violet</i>	<u>hydroxide</u>												
14	(a)	<table border="1" data-bbox="363 1261 1217 1563"> <thead> <tr> <th data-bbox="363 1261 794 1328">chemical name of compound</th> <th data-bbox="794 1261 1217 1328">formula of compound</th> </tr> </thead> <tbody> <tr> <td data-bbox="363 1328 794 1373">zinc hydroxide</td> <td data-bbox="794 1328 1217 1373">$Zn(OH)_2$</td> </tr> <tr> <td data-bbox="363 1373 794 1429"><u>Sodium sulfate</u></td> <td data-bbox="794 1373 1217 1429">Na_2SO_4</td> </tr> <tr> <td data-bbox="363 1429 794 1485"><u>Iron (III) chloride</u></td> <td data-bbox="794 1429 1217 1485">$FeCl_3$</td> </tr> <tr> <td colspan="2" data-bbox="363 1485 794 1563">*no marks awarded for Iron chloride</td> </tr> </tbody> </table>	chemical name of compound	formula of compound	zinc hydroxide	$Zn(OH)_2$	<u>Sodium sulfate</u>	Na_2SO_4	<u>Iron (III) chloride</u>	$FeCl_3$	*no marks awarded for Iron chloride		<p>1</p> <p>1</p> <p>1</p>		
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	(b)(i)	$2K + 2H_2O \rightarrow 2KOH + H_2$	1												
	(b)(ii)	$Al_2(SO_4)_3 + 3Mg \rightarrow 3MgSO_4 + 2Al$	1												

MARKING SCHEME (EYE 2019 SCIENCE (CHEMISTRY))

Section C

Qn	Answers	Marks
15	(a)(i) Covalent bonding.	1
	(a)(ii) 	1 – correct sharing of 1 electrons in each pair of C: Cl 1 – correct valence electrons for C and Cl
	(bi) Ionic bonding	1
	(bil) 	1 – correct ratio of 1 Mg ion: 2 Cl ions 1 – correct charge of Mg ²⁺ and Cl ⁻
	(c)(i) CCl ₄ has a low boiling point as it has weak intermolecular forces of attraction . MgCl ₂ has a high boiling point as it has strong electrostatic forces of attraction between its oppositely charged ions . Hence, a larger amount of energy is required to overcome the strong forces of attraction in MgCl ₂ than CCl ₄ .	1 – correctly stating the type of bonding in MgCl ₂ and CCl ₄ 1 – comparing the larger energy required in MgCl ₂ and CCl ₄

MARKING SCHEME (EYE 2019 SCIENCE (CHEMISTRY))

	(c)(ii)	CCl₄ does not conduct electricity in any state as it does not have any free mobile ions. However, MgCl₂ can conduct electricity in the molten or aqueous state as it has free mobile ions	1 –stating that CCl ₄ does not conduct electricity 1 –stating the condition where MgCl ₂ conducts
16	(a)	G. It has the steepest gradient/ it took the shortest time to complete the reaction / reaction is the fastest.	1 1
	(b)	Reaction is complete at G but at I, reaction was still on-going.	1 1
	(c)		1 – graph to end at 55cm ³ 1 – similar gradient with I
	(d)	As concentration increases, there are more reacting particles per unit volume , hence the frequency of effective collisions increases . Thus, speed of reaction increases.	1 1
	(e)	MgCO₃ + H₂SO₄ → MgSO₄ + CO₂ + H₂O 1 – correct chemical symbols for all reagents 1 – correct chemical symbols for all products	2
17	(a)(i)	Melting point: Across the Period 2, the melting point increases from Li to C . The melting point then drops to below 0°C from N to Ne, decrease from C to N to Ne. Electrical conductivity: Electrical conductivity is good from Li to C but it does not conduct from N to Ne.	[1] [1] [1]
	(a)(ii)	Their melting points are above room temperature/above 25°C.	[1]
	(b)(i)	Hydrogen: D	[2]

MARKING SCHEME (EYE 2019 SCIENCE (CHEMISTRY))

	Sodium: A	
(b)(ii)	Neutralisation	[1]
(c)(i)	An oxide that can react as both an acid and a base to form salt and water.	[1]
(c)(ii)	Zinc oxide / Aluminium oxide/ Lead oxide	[1]
(d)	To neutralise acidic soils.	[1]

