Neap

Trial Examination 2021

VCE Chemistry Unit 2

Written Examination

Question and Answer Booklet

Reading time: 15 minutes
Writing time: 1 hour 30 minutes

Student's Name: _____

Teacher's Name: _____

Structure of booklet

Section	*Number of questions*	*Number of questions to be answered*	*Number of marks*
A	20	20	20
B	6	6	55
			Total 75

Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners, rulers and one scientific calculator.

Students are NOT permitted to bring into the examination room: blank sheets of paper and/or correction fluid/tape.

Materials supplied

Question and answer booklet of 18 pages

Data booklet

Answer sheet for multiple-choice questions

Instructions

Write your **name** and your **teacher's name** in the space provided above on this page, and on the answer sheet for multiple-choice questions.

Unless otherwise indicated, the diagrams in this booklet are **not** drawn to scale.

All written responses must be in English.

At the end of the examination

Place the answer sheet for multiple-choice questions inside the front cover of this booklet.

You may keep the data booklet.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – MULTIPLE-CHOICE QUESTIONS

Instructions for Section A

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1; an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Unless otherwise indicated, the diagrams in this booklet are **not** drawn to scale.

Question 1

A gas is produced in the reaction of an acid with

A. either a metal or a metal carbonate.

B. either a metal hydroxide or a metal carbonate.

C. either a metal or a metal hydroxide.

D. any one of a metal, a metal carbonate or a metal hydroxide.

Question 2

What types of bonding are present in a solution of sodium chloride dissolved in water?

A. dispersion forces, hydrogen bonding and ion–dipole attraction only

B. hydrogen bonding, ion–dipole attraction and covalent bonds only

C. ion–dipole attraction, covalent bonds and dispersion forces only

D. covalent bonds, dispersion forces, hydrogen bonding and ion–dipole attraction

Question 3

Which one of the following properties or uses of water is **most** influenced by the value for the specific heat capacity of water?

A. Water dissolves many polar and ionic substances.

B. Water is used in car radiators as an engine coolant.

C. Water expands on freezing.

D. Water is sprayed onto skin in hot weather as a cooling mechanism.

Question 4

2.00 g of solid KNO_3 was dissolved in 350 mL of pure water.

What is the molarity of the solution?

A. 0.0198 M

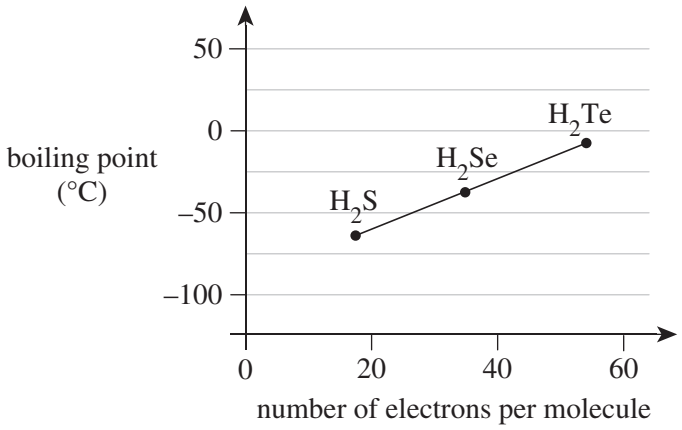
B. 0.0565 M

C. 1.32 M

D. 5.78 M

Use the following information to answer Questions 5–7.

A graph of the boiling points of the hydrides of some group 16 elements against the number of electrons per molecule is shown below.



Question 5

Which one of the following gives the correct shape and polarity of the hydride molecules shown in the graph?

A. linear and polar

B. V-shaped and polar

C. linear and non-polar

D. V-shaped and non-polar

Question 6

The hydride of a group 16 element with the lowest molar mass is not shown in the graph above.

How many electrons does a molecule of this hydride have?

A. 8

B. 9

C. 10

D. 12

Question 7

The boiling point of the hydride with the lowest molar mass (referred to in **Question 6**) is likely to be

A. lower than –80°C because the intermolecular forces are so weak.

B. –80°C because this hydride follows the trend of the other hydrides in the graph.

C. higher than –80°C due to the strength of the bonding between the molecules.

D. higher than –80°C due to the strong covalent bonding within the molecules.

Question 8

Which one of the following species is amphiprotic?

A. HCO_3^-

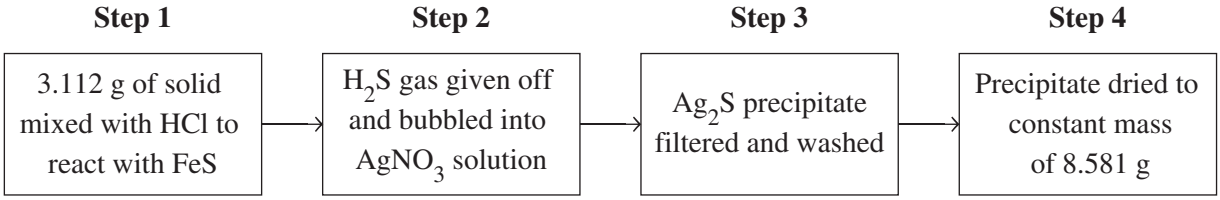
B. S^{2-}

C. H_3O^+

D. H_2SO_4

Use the following information to answer Questions 9–12.

Gravimetric analysis was used to check the percentage purity of a sample of iron(II) sulfide (FeS) using the method shown in the flow chart below.



The reaction in step 1 is shown by the following ionic equation.

$$FeS(s) + 2H_3O^+(aq) \rightarrow Fe^{2+}(aq) + H_2S(g) + 2H_2O(l)$$

Question 9

H_2S is an acidic gas.

The simplest way to demonstrate this is to

A. perform an acid–base titration.

B. use a moist strip of litmus paper.

C. bubble the gas into water and measure the conductivity of the solution.

D. conduct a colorimetry test.

Question 10

Why is it important that $AgNO_3$ is used in excess in step 2?

A. to ensure that none of the gas remains unreacted

B. to ensure that some unreacted $AgNO_3$ can be removed in step 3

C. to lower the mass of the precipitate so that filtration is quicker

D. to prevent some precipitate being lost in filtration

Question 11

The washing in step 3 removes any

A. excess precipitate.

B. unreacted acid from step 1.

C. soluble ions trapped on the surface of the precipitate.

D. insoluble material remaining from step 1.

Question 12

What percentage of the 3.112 g of solid in step 1 was impurities?

A. 2.2%

B. 4.4%

C. 8.8%

D. greater than 8.8%

Use the following information to answer Questions 13 and 14.

The solubility (in g per 100 g of water) of two substances at different temperatures is shown in the table below.

	0°C	**20°C**	**60°C**
Substance X	90	53	17
Substance Y	77	82	110

Question 13

Substance X is most likely to be a

A. group 18 gas.

B. compound composed of positive and negative ions.

C. non-polar covalent compound.

D. gas composed of polar molecules.

Question 14

Substance Y is most likely to be a

A. group 18 gas.

B. compound composed of positive and negative ions.

C. non-polar covalent compound.

D. gas composed of polar molecules.

Use the following information to answer Questions 15 and 16.

In a 0.50 M solution of a particular acid, six molecules in every thousand react with water molecules to produce hydrogen ions.

Question 15

This solution is best described as a

A. concentrated strong acid.

B. dilute strong acid.

C. concentrated weak acid.

D. dilute weak acid.

Question 16

What is the pH of this acidic solution?

A. 0.30

B. 0.78

C. 2.5

D. 6.0

Use the following information to answer Questions 17–19.

An accidental spill at a food manufacturing industry released vinegar into stormwater drains. Volumetric analysis was used to determine the concentration of the monoprotic ethanoic acid present in the vinegar so that it could be neutralised. A 20.0 mL sample of the vinegar reacted with 23.45 mL of 0.945 M sodium hydroxide solution using a phenolphthalein indicator. The chemical equation for the analysis is as follows.

$$H^+(aq) + OH^-(aq) \rightarrow H_2O(l)$$

Question 17

During the titration experiment the following glassware was used.

I 20.0 mL pipette

II 50.0 mL burette

III 150 mL conical flask

Which glassware may be given a final rinse with water prior to use without affecting the outcome of the titration?

A. I and II only

B. I, II and III

C. III only

D. none of I, II or III as all glassware must be dry before use

Question 18

Phenolphthalein was chosen as the indicator in this analysis because it gives a sharp endpoint when a

A. strong base reacts with a strong acid.

B. weak base reacts with a weak acid.

C. weak base reacts a strong acid.

D. strong base reacts with a weak acid.

Question 19

What is the concentration of ethanoic acid in the vinegar?

A. 0.0222 M

B. 0.443 M

C. 0.903 M

D. 1.11 M

Question 20

Which one of the following solutions would be expected to show the highest electrical conductivity at 25°C?

A. 0.20 M $Ca(NO_3)_2$

B. 0.25 M NaCl

C. 0.30 M NH_3

D. 0.40 M CH_3OH

END OF SECTION A

SECTION B

Instructions for Section B

Answer **all** questions in the spaces provided.

Give simplified answers to all numerical questions, with an appropriate number of significant figures; unsimplified answers will not be given full marks.

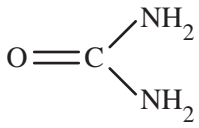
Show all working in your answers to numerical questions; no marks will be given for an incorrect answer unless it is accompanied by details of the working.

Ensure chemical equations are balanced and that the formulas for individual substances include an indication of state, for example, $H_2(g)$, NaCl(s).

Unless otherwise indicated, the diagrams in this booklet are **not** drawn to scale.

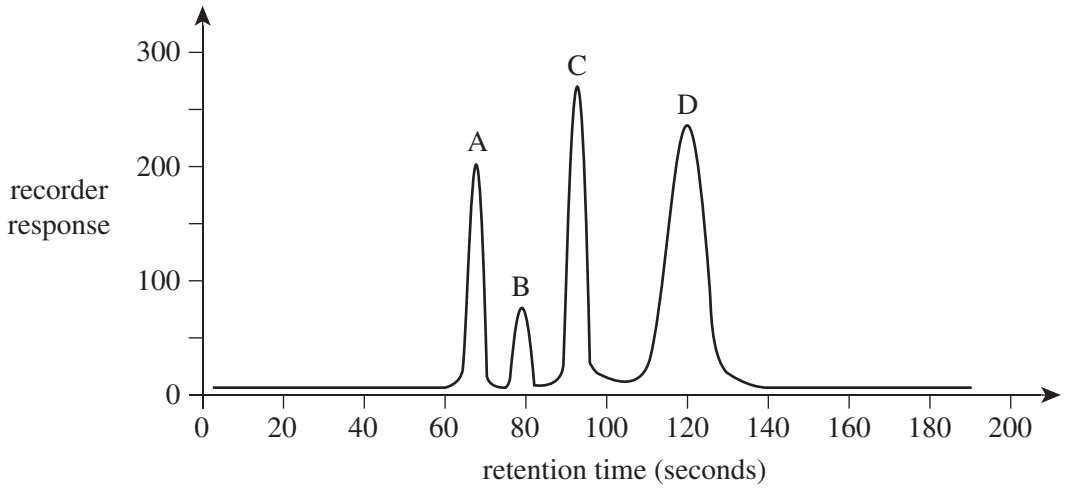
Question 1 (9 marks)

Urea is an important compound used in industry to manufacture other chemicals, and is also used by farmers as a fertiliser because it contains a high proportion of nitrogen. Urea has a very high solubility of over 1000 g per litre of water. The structure of urea is shown below.



a. With reference to structure and bonding, explain why urea is highly soluble in water. In your answer, include a diagram of water molecules interacting with a urea molecule and label this interaction. 3 marks

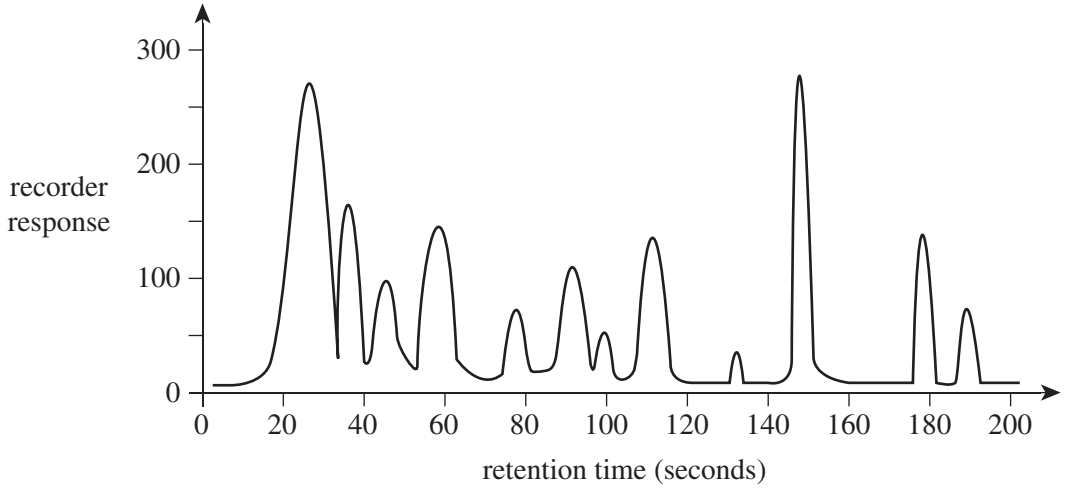
b. Urea is used to manufacture pesticides for use by farmers to control unwanted insects. High-performance liquid chromatography (HPLC) was used to analyse a mixture of four such pesticides, labelled A, B, C and D. The output of the analysis is shown below.



i. Which pesticide has the strongest attraction to the stationary phase in the HPLC column? Explain your choice. 2 marks

ii. Assuming the column has the same sensitivity to each of the pesticides, which pesticide has the highest concentration? Explain your choice. 2 marks

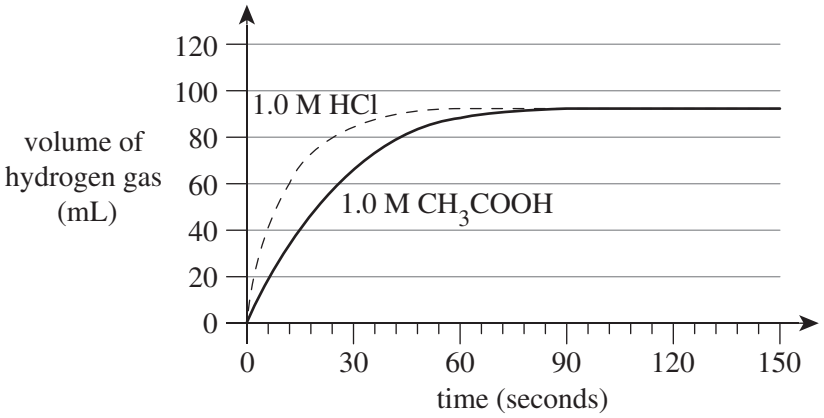
iii. A certain farmer uses urea-based pesticides. After dead fish were found in a dam on the farmer's property, water samples were taken and analysed by HPLC using the same column under identical conditions. The output of the analysis is shown below.



Based on the HPLC results, explain which of the pesticides could **not** be implicated in the deaths of the fish. 2 marks

Question 2 (11 marks)

An experiment was set up by placing 20.0 mL of 1.0 M hydrochloric acid and 20.0 mL of 1.0 M ethanoic acid separately in two test tubes. Under the same conditions, identical pieces of pure magnesium ribbon were added to each test tube, and the volume of hydrogen gas produced was collected and recorded at regular intervals. The results of the experiment are shown in the graph below.



At the end of the experiment, no magnesium ribbon remained in the test tubes.

a. **i.** Explain the difference in the graphs during the initial 30 seconds of the experiment. 2 marks

ii. Explain why both graphs reached the same constant value for volume of hydrogen gas towards the end of the experiment. 2 marks

b. The 1.0 M hydrochloric acid used in the experiment was taken from a 500.0 mL stock solution. The stock solution was made using concentrated 5.75 M acid.

Explain how the stock solution of 1.0 M acid was prepared. Include the relevant calculation in your explanation. 3 marks

c. The ethanoic acid molecule contains four hydrogen atoms per molecule but is classified as a monoprotic acid.

Explain why. 2 marks

d. Write the balanced formula equation for the reaction that occurred between ethanoic acid and magnesium. 2 marks

Question 3 (10 marks)
Chromium is a metal in the first transition series of the d-block of the periodic table.

a. Chromium may be extracted from chromium oxide (Cr_2O_3). After the oxide is dissolved in hydrochloric acid to produce an aqueous solution, aluminium metal is added, and chromium metal is formed.

i. Write the balanced formula equation for the reaction of Cr_2O_3 with hydrochloric acid. 2 marks

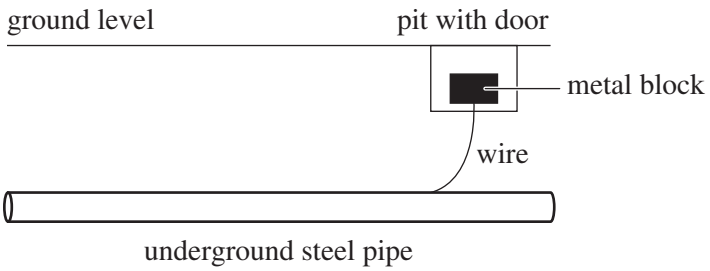
ii. Write the balanced ionic equation for the production of chromium using the addition of aluminium. 1 mark

iii. Explain what conclusion about the relative reactivity of chromium and aluminium can be made from this information. 1 mark

b. One important use of the hard, shiny metal chromium is protecting another transition metal, iron, from corrosion. Iron is the main component of steel, which corrodes extensively when water and oxygen are present, forming rust.

i. How does coating steel with chromium prevent rusting? 1 mark

ii. When steel pipes are placed underground, it is impractical and too expensive to coat them with chromium to prevent rusting. A method to stop steel pipes from rusting is shown in the diagram below.



The metal block in the diagram is commonly magnesium, zinc or aluminium.
Explain why these metals are used. 2 marks

c. The two half-equations for a chemical reaction involved in the rusting of steel are as follows.

I $Fe(s) \rightarrow Fe^{2+}(aq) + 2e^-$

II $O_2(g) + 2H_2O(l) + 4e^- \rightarrow 4OH^-(aq)$

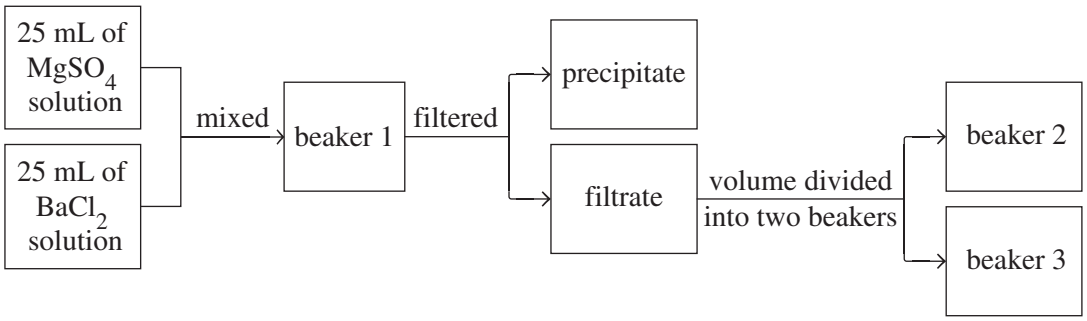
i. Which of the half-equations (I or II) is the reduction reaction? 1 mark

ii. Give the symbol of the oxidising agent in this reaction. 1 mark

iii. Write the overall redox equation for this reaction. 1 mark

Question 4 (12 marks)

a. Two solutions were used in the investigation shown in the flow chart below.



i. Write the ionic equation for the reaction in beaker 1. 1 mark

ii. 1 mL of $MgSO_4$ solution was added to the contents of beaker 2 and the clear solution went cloudy.

Explain why this cloudiness occurred. 2 marks

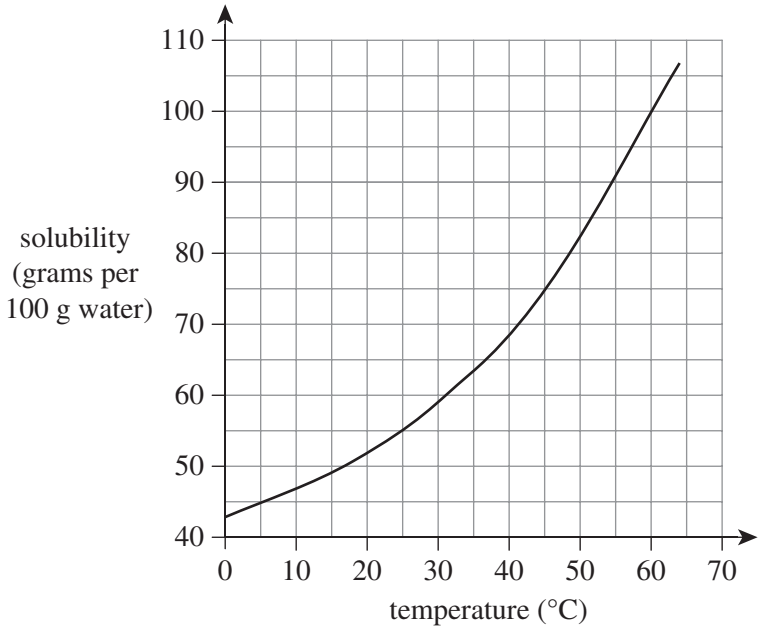
iii. A sample of the contents of beaker 3 could be analysed by atomic absorption spectroscopy (AAS).

Give **two** pieces of information about the contents of beaker 3 that the AAS analysis could provide. 2 marks

iv. The contents of beaker 3 was transferred to an evaporating basin and heated until dryness was achieved.

What is likely to remain in the basin after the heating was completed? 1 mark

b. The solubility curve of a compound is shown below.



A 120 g sample of a saturated solution of the compound at 60°C was taken.

i. Define the term 'saturated solution'. 1 mark

ii. What is the mass of solute in the 120 g sample? 1 mark

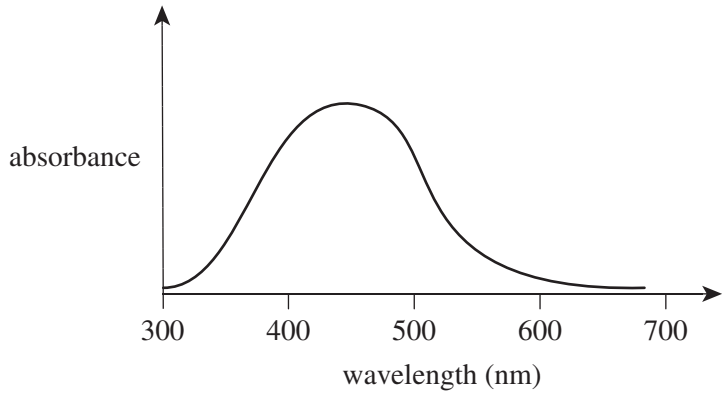
iii. What is the mass of water in the sample? 1 mark

iv. If the sample was cooled to 25°C, what mass of crystals would come out of solution at this temperature? 2 marks

v. How could the original 120 g sample be converted to an unsaturated solution without adding water to it? 1 mark

Question 5 (7 marks)

There are strict controls on industries discharging wastes into the environment. One industry uses a food colouring in the manufacture of certain foodstuffs, and so must store the wastewater that is contaminated with the colouring so that it can be treated before release. The absorption spectrum of the colouring compound is shown below.



UV-visible spectroscopy is to be used to determine the concentration of the colouring in the wastewater.

a. i. Based on the spectrum shown, which wavelength should be used in the analysis? 1 mark

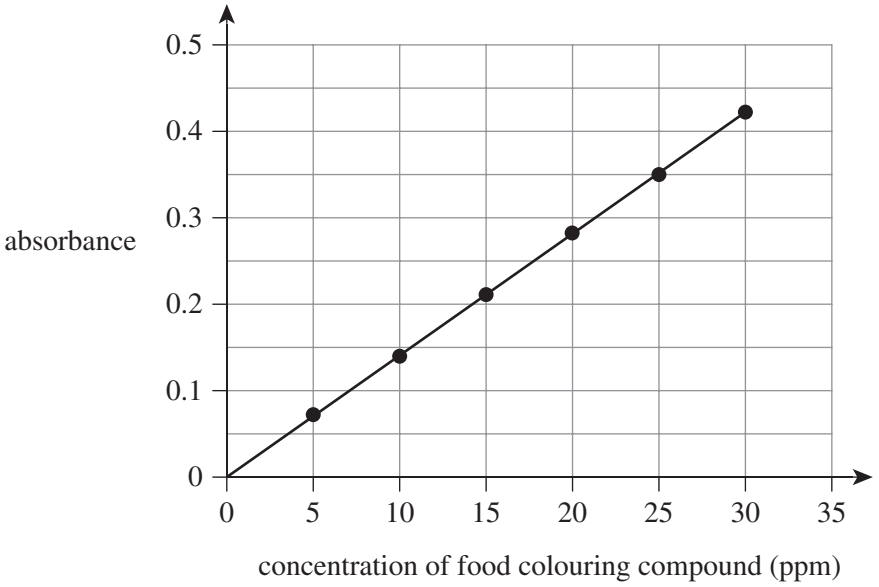
_____

ii. State **one** assumption that has been made in selecting the wavelength given in **part a.i.** 1 mark

_____

_____

b. The calibration curve shown below was constructed for the analysis.



i. Outline the steps needed to construct a calibration curve. 3 marks

ii. A 10.0 mL sample of the contaminated wastewater was made up to 1.0 L and the absorbance of this diluted solution was found to be 0.35.

Calculate the concentration of the food-colouring compound in the 10.0 mL sample of contaminated water in parts per million. 2 marks

Question 6 (6 marks)

The following list contains statements about water, its properties and its uses. There are a number of incorrect statements in the list.

1. The high specific heat capacity of water is mainly due to hydrogen bonding.
2. Pure water has a pH of 7 irrespective of the temperature of the water.
3. Compared to other liquids, water has a low latent heat of vaporisation.
4. Constantly heating ice at 0°C results in an immediate temperature increase.
5. $[H_3O^+] = [OH^-]$ for all neutral solutions, regardless of the temperature.
6. Twenty percent of the freshwater on Earth can be used for drinking, watering crops and other similar uses.

In the table below, identify three incorrect statements, and explain why each statement is incorrect.

Incorrect statement	Why the statement is incorrect

END OF QUESTION AND ANSWER BOOKLET

Neap

Trial Examination 2021

VCE Chemistry Unit 2

Written Examination

Data Booklet

Instructions

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A question and answer booklet is provided with this data booklet.

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1. Periodic table of the elements

Key: atomic number (79); symbol of element (Au); relative atomic mass (197.0); name of elecment (gold)

1 H 1.0 hydrogen																	2 He 4.0 helium
3 Li 6.9 lithium	4 Be 9.0 beryllium											5 B 10.8 boron	6 C 12.0 carbon	7 N 14.0 nitrogen	8 O 16.0 oxygen	9 F 19.0 fluorine	10 Ne 20.2 neon
11 Na 23.0 sodium	12 Mg 24.3 magnesium											13 Al 27.0 aluminium	14 Si 28.1 silicon	15 P 30.1 phosphorus	16 S 32.1 sulfur	17 Cl 35.5 chlorine	18 Ar 39.9 argon
19 K 39.1 potassium	20 Ca 40.1 calcium	21 Sc 45.0 scandium	22 Ti 47.9 titanium	23 V 50.9 vanadium	24 Cr 52.0 chromium	25 Mn 54.9 manganese	26 Fe 55.8 iron	27 Co 58.9 cobalt	28 Ni 58.7 nickel	29 Cu 63.5 copper	30 Zn 65.4 zinc	31 Ga 69.7 gallium	32 Ge 72.6 germanium	33 As 74.9 arsenic	34 Se 79.0 selenium	35 Br 79.9 bromine	36 Kr 83.8 krypton
37 Rb 85.5 rubidium	38 Sr 87.6 strontium	39 Y 88.9 yttrium	40 Zr 91.2 zirconium	41 Nb 92.9 niobium	42 Mo 96.0 molybdenum	43 Tc (98) technetium	44 Ru 101.1 ruthenium	45 Rh 102.9 rhodium	46 Pd 106.4 palladium	47 Ag 107.9 silver	48 Cd 112.4 cadmium	49 In 114.8 indium	50 Sn 118.7 tin	51 Sb 121.8 antimony	52 Te 127.6 tellurium	53 I 126.9 iodine	54 Xe 131.3 xenon
55 Cs 132.9 caesium	56 Ba 137.3 barium	57–71 lanthanoids	72 Hf 178.5 hafnium	73 Ta 180.9 tantalum	74 W 183.8 tungsten	75 Re 186.2 rhenium	76 Os 190.2 osmium	77 Ir 192.2 iridium	78 Pt 195.1 platinum	79 Au 197.0 gold	80 Hg 200.6 mercury	81 Tl 204.4 thallium	82 Pb 207.2 lead	83 Bi 209.0 bismuth	84 Po (210) polonium	85 At (210) astatine	86 Rn (222) radon
87 Fr (223) francium	88 Ra (226) radium	89–103 actinoids	104 Rf (261) rutherfordium	105 Db (262) dubnium	106 Sg (266) seaborgium	107 Bh (264) bohrium	108 Hs (267) hassium	109 Mt (268) meitnerium	110 Ds (271) darmstadtium	111 Rg (272) roentgenium	112 Cn (285) copernicium	113 Nh (280) nihonium	114 Fl (289) flerovium	115 Mc (289) moscovium	116 Lv (292) livermorium	117 Ts (294) tennessine	118 Og (294) oganesson

57 La 138.9 lanthanum	58 Ce 140.1 cerium	59 Pr 140.9 praseodymium	60 Nd 144.2 neodymium	61 Pm (145) promethium	62 Sm 150.4 samarium	63 Eu 152.0 europium	64 Gd 157.3 gadolinium	65 Tb 158.9 terbium	66 Dy 162.5 dysprosium	67 Ho 164.9 homium	68 Er 167.3 erbium	69 Tm 168.9 thulmium	70 Yb 173.1 ytterbium	71 Lu 175.0 lutetium
89 Ac (227) actinium	90 Th 232.0 thorium	91 Pa 231.0 protactinium	92 U 238.0 uranium	93 Np (237) neptunium	94 Pu (244) plutonium	95 Am (243) americium	96 Cm (247) curium	97 Bk (247) berkelium	98 Cf (251) californium	99 Es (252) einsteinium	100 Fm (257) fermium	101 Md (258) mendelevium	102 No (259) nobelium	103 Lr (262) lawrencium

The value in the brackets indicates the mass number of the longest-lived isotope.

2. Electrochemical series

Reaction	Standard electrode potential (E^0) in volts at 25°C
$F_2(g) + 2e^- \rightleftharpoons 2F^-(aq)$	+2.87
$H_2O_2(aq) + 2H^+(aq) + 2e^- \rightleftharpoons 2H_2O(l)$	+1.77
$Au^+(aq) + e^- \rightleftharpoons Au(s)$	+1.68
$Cl_2(g) + 2e^- \rightleftharpoons 2Cl^-(aq)$	+1.36
$O_2(g) + 4H^+(aq) + 4e^- \rightleftharpoons 2H_2O(l)$	+1.23
$Br_2(l) + 2e^- \rightleftharpoons 2Br^-(aq)$	+1.09
$Ag^+(aq) + e^- \rightleftharpoons Ag(s)$	+0.80
$Fe^{3+}(aq) + e^- \rightleftharpoons Fe^{2+}(aq)$	+0.77
$O_2(g) + 2H^+(aq) + 2e^- \rightleftharpoons H_2O_2(aq)$	+0.68
$I_2(s) + 2e^- \rightleftharpoons 2I^-(aq)$	+0.54
$O_2(g) + 2H_2O(l) + 4e^- \rightleftharpoons 4OH^-(aq)$	+0.40
$Cu^{2+}(aq) + 2e^- \rightleftharpoons Cu(s)$	+0.34
$Sn^{4+}(aq) + 2e^- \rightleftharpoons Sn^{2+}(aq)$	+0.15
$S(s) + 2H^+(aq) + 2e^- \rightleftharpoons H_2S(g)$	+0.14
$2H^+(aq) + 2e^- \rightleftharpoons H_2(g)$	0.00
$Pb^{2+}(aq) + 2e^- \rightleftharpoons Pb(s)$	– 0.13
$Sn^{2+}(aq) + 2e^- \rightleftharpoons Sn(s)$	– 0.14
$Ni^{2+}(aq) + 2e^- \rightleftharpoons Ni(s)$	– 0.25
$Co^{2+}(aq) + 2e^- \rightleftharpoons Co(s)$	– 0.28
$Cd^{2+}(aq) + 2e^- \rightleftharpoons Cd(s)$	– 0.40
$Fe^{2+}(aq) + 2e^- \rightleftharpoons Fe(s)$	– 0.44
$Zn^{2+}(aq) + 2e^- \rightleftharpoons Zn(s)$	– 0.76
$2H_2O(l) + 2e^- \rightleftharpoons H_2(g) + 2OH^-(aq)$	– 0.83
$Mn^{2+}(aq) + 2e^- \rightleftharpoons Mn(s)$	–1.18
$Al^{3+}(aq) + 3e^- \rightleftharpoons Al(s)$	–1.66
$Mg^{2+}(aq) + 2e^- \rightleftharpoons Mg(s)$	–2.37
$Na^+(aq) + e^- \rightleftharpoons Na(s)$	–2.71
$Ca^{2+}(aq) + 2e^- \rightleftharpoons Ca(s)$	–2.87
$K^+(aq) + e^- \rightleftharpoons K(s)$	–2.93
$Li^+(aq) + e^- \rightleftharpoons Li(s)$	–3.04

3. Chemical relationships

Name	Formula
number of moles of a substance	$n = \frac{m}{M}; \quad n = cV$

4. Physical constants and standard values

Name	Symbol	Value
Avogadro constant	N_A or L	6.02×10^{23} mol^{-1}
specific heat capacity of water	c	4.18 kJ kg^{-1} K^{-1} or 4.18 J g^{-1} K^{-1}
density of water at 25°C	d	997 kg m^{-3} or 0.997 g mL^{-1}
ionic product for water	K_W	1.00×10^{-14} mol^2 L^{-2} at 298 K (self-ionisation constant)

5. Unit conversions

Measured value	Conversion
1 litre (L)	1 dm^3 or 1×10^{-3} m^3 or 1×10^3 cm^3 or 1×10^3 mL

6. Metric (including SI) prefixes

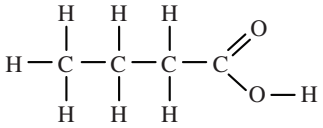
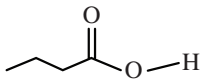
Metric (including SI) prefixes	Scientific notation	Multiplying factor
giga (G)	10^9	1 000 000 000
mega (M)	10^6	1 000 000
kilo (k)	10^3	1000
deci (d)	10^{-1}	0.1
centi (c)	10^{-2}	0.01
milli (m)	10^{-3}	0.001
micro (μ)	10^{-6}	0.000001
nano (n)	10^{-9}	0.000000001
pico (p)	10^{-12}	0.000000000001

7. Acid–base indicators

Name	pH range	Colour change from lower pH to higher pH in range
thymol blue (1st change)	1.2–2.8	red → yellow
methyl orange	3.1– 4.4	red → yellow
bromophenol blue	3.0– 4.6	yellow → blue
methyl red	4.4–6.2	red → yellow
bromothymol blue	6.0–7.6	yellow → blue
phenol red	6.8–8.4	yellow → red
thymol blue (2nd change)	8.0–9.6	yellow → blue
phenolphthalein	8.3–10.0	colourless → pink

8. Representations of organic molecules

The following table shows different representations of organic molecules, using butanoic acid as an example.

Formula	Representation
molecular formula	$C_4H_8O_2$
structural formula	
semi-structural (condensed) formula	$CH_3CH_2CH_2COOH$ or $CH_3(CH_2)_2COOH$
skeletal structure	

9. A solubility table

High solubility	Low solubility
Compounds containing the following ions are soluble in water. • Na^+, K^+, NH_4^+, NO_3^-, CH_3COO^- • Cl^-, Br^-, I^- (unless combined with Ag^+ or Pb^{2+}) • SO_4^{2-} (however $PbSO_4$ and $BaSO_4$ are not soluble, Ag_2SO_4 and $CaSO_4$ are slightly soluble)	Compounds containing the following ions are generally insoluble, unless combined with Na^+, K^+ or NH_4^+. • CO_3^{2-}, PO_4^{3-}, S^{2-} • OH^- ($Ba(OH)_2$ and $Sr(OH)_2$ are soluble, $Ca(OH)_2$ is slightly soluble)

END OF DATA BOOKLET

Neap

Trial Examination 2021

VCE Chemistry Unit 2

Written Examination

Multiple-choice Answer Sheet

Student's Name: _____

Teacher's Name: _____

Instructions

Use a **pencil** for **all** entries. If you make a mistake, **erase** the incorrect answer – **do not** cross it out. Marks will **not** be deducted for incorrect answers.
No mark will be given if more than **one** answer is completed for any question.

All answers must be completed like this example: **A** B C D

Use pencil only

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

11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D