



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2017

Centre Number

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Candidate Number

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Chemistry

Assessment Unit AS 3

assessing

Module 3: Practical Examination

Practical Booklet A

MV18

[AC133]

MONDAY 8 MAY, MORNING

Time

1 hour 15 minutes, plus your additional time allowance.

Instructions to Candidates

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided.

Complete in black ink only.

Answer **both** questions.

Information for Candidates

The total mark for this paper is 24.

Question 1 is a practical exercise worth 10 marks.

Question 2 is a practical exercise worth 14 marks.

Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

A Periodic Table of Elements (including some data) is provided.

You may not have access to notes, textbooks and other material to assist you.

Safety glasses should be worn at all times and care should be taken during this practical examination.

1 Titration

(a) You are required to carry out an acid-base titration.

You are provided with:

a solution of an alkali

0.1 mol dm⁻³ hydrochloric acid

phenolphthalein indicator

- Rinse out a burette with the 0.1 mol dm⁻³ hydrochloric acid.
- Fill the burette with the 0.1 mol dm⁻³ hydrochloric acid.
- Rinse out a pipette with the alkali.
- Transfer 25.0 cm³ of the alkali into a conical flask.
- Add three drops of phenolphthalein to the conical flask and titrate until the end point is reached.

Present your results in a suitable table and calculate the average titre. [8 marks]

(b) Give the colour change at the end point. [2 marks]

From _____ to _____

2 Observation

You are provided with solid **A**, solution **B** and liquid **C**. Carry out the tests and record your observations in the table below.

(a) Tests on solid **A**.

Test	Observations
1 Describe the appearance of A .	[1 mark]
2 Add a spatula measure of A to a test tube quarter filled with deionised water. Stopper and shake the test tube.	[1 mark]
Add 3 drops of silver nitrate solution to the test tube.	[1 mark]
Add 4 cm ³ of dilute ammonia solution to the test tube.	[2 marks]
3 Dip a clean nichrome wire into deionised water, touch sample A with the wire, then hold it in a blue Bunsen flame.	[1 mark]

(b) Tests on solution B.

Test	Observations
1 Describe the appearance of solution B.	[1 mark]
2 Quarter fill a test tube with solution B. Add 5 drops of dilute ammonia solution. Shake the test tube gently.	[2 marks]
Add 2 cm ³ of dilute ammonia solution. Stopper and shake the test tube.	[2 marks]

(c) Tests on liquid C.

Test	Observations
Add 1 cm ³ of C to 1 cm ³ of deionised water in a test tube.	[1 mark]
Add 2 cm ³ of potassium dichromate solution to the test tube followed by 2 cm ³ of dilute sulfuric acid. Warm the mixture in the hot water bath provided.	[2 marks]

THIS IS THE END OF THE QUESTION PAPER

Question Number	Marks	
	Examiner Mark	Remark
1		
2		
Total Marks		

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Periodic Table of the Elements

For the use of candidates taking
Advanced Subsidiary and Advanced Level
Chemistry Examinations

Copies must be free from notes or additions of any kind. No other type of data booklet or information sheet is authorised for use in the examinations.

gce A/AS examinations
chemistry
(advanced)



I	II	THE PERIODIC TABLE OF ELEMENTS												III	IV	V	VI	VII	0
1 H Hydrogen		One mole of any gas at 20°C and a pressure of 1 atmosphere (10 ⁵ Pa) occupies a volume of 24 dm ³ . Planck Constant = 6.63 × 10 ⁻³⁴ Js Gas Constant = 8.31 J mol ⁻¹ K ⁻¹ Avogadro Constant = 6.02 × 10 ²³ mol ⁻¹												4 He Helium					
7 Li Lithium	9 Be Beryllium													2 He Neon					
23 Na Sodium	24 Mg Magnesium													11 B Boron	12 C Carbon	14 N Nitrogen	16 O Oxygen	19 F Fluorine	20 Ne Neon
39 K Potassium	40 Ca Calcium	45 Sc Scandium	48 Ti Titanium	51 V Vanadium	52 Cr Chromium	55 Mn Manganese	56 Fe Iron	59 Co Cobalt	59 Ni Nickel	64 Cu Copper	65 Zn Zinc	70 Ga Gallium	73 Ge Germanium	75 As Arsenic	79 Se Selenium	80 Br Bromine	84 Kr Krypton		
19 Rb Rubidium	20 Sr Strontium	21 Y Yttrium	22 Zr Zirconium	23 Nb Niobium	24 Mo Molybdenum	25 Tc Technetium	26 Ru Ruthenium	27 Rh Rhodium	28 Pd Palladium	29 Ag Silver	30 Cd Cadmium	31 In Indium	32 Sn Tin	33 Sb Antimony	34 Te Tellurium	35 I Iodine	36 Xe Xenon		
133 Cs Caesium	137 Ba Barium	139 La [*] Lanthanum	178 Hf Hafnium	181 Ta Tantalum	184 W Tungsten	186 Re Rhenium	190 Os Osmium	192 Ir Iridium	195 Pt Platinum	197 Au Gold	201 Hg Mercury	204 Tl Thallium	207 Pb Lead	209 Bi Bismuth	210 Po Polonium	210 At Astatine	222 Rn Radon		
55 Fr Francium	56 Ra Radium	57 Ac [†] Actinium																	

* 58–71 Lanthanum series
† 90–103 Actinium series

a = relative atomic mass (approx.)
x = atomic symbol
b = atomic number

140 Ce Cerium	141 Pr Praseodymium	144 Nd Neodymium	147 Pm Promethium	150 Sm Samarium	152 Eu Europium	157 Gd Gadolinium	159 Tb Terbium	162 Dy Dysprosium	165 Ho Holmium	167 Er Erbium	169 Tm Thulium	173 Yb Ytterbium	175 Lu Lutetium
58 Th Thorium	59 Pa Protactinium	60 U Uranium	61 Np Neptunium	62 Pu Plutonium	63 Am Americium	64 Cm Curium	65 Bk Berkelium	66 Cf Californium	67 Es Einsteinium	68 Fm Fermium	69 Md Mendelevium	70 No Nobelium	71 Lr Lawrencium