MARK SCHEME for the May/June 2007 question paper

5070 CHEMISTRY

5070/03

Paper 3 (Practical Test), maximum raw mark 40

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

• CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2007 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



UNIVERSITY of CAMBRIDGE International Examinations

	Page 2		Mark Scheme	Syllabus	Paper	
				GCE O LEVEL – May/June 2007	5070	03
1	16	marks				
	(a)	titration				
		<u>Accura</u>	сy			[8]
			4 marks 2 marks	vo best titres give: for a value within 0.2 cm ³ of supervisor for a value within 0.3 cm ³ of supervisor for a value within 0.4 cm ³ of supervisor		
		<u>Concor</u>	<u>dance</u>			[3]
			2 marks	if all the ticked values are within 0.2 cm^3 if all the ticked values are within 0.3 cm^3 if all the ticked values are within 0.4 cm^3		
		Average	<u>e</u>			[1]

Give 1 mark if the candidate calculates a correct average (error not greater than 0.05) of all his ticked values.

Page 3	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – May/June 2007	5070	03

Assuming a 25 cm³ pipette and a titre of 24.0 cm³

(b) concentration of iron(II) sulphate in mol/dm³

conc =
$$\frac{24.0 \times 0.020 \times 5}{25.0}$$
 [1]
= 0.0960 (correct to 0.0001) [1]

Allow 0.1 for 0.100 etc., answers should be correct to ± 1 in the third significant figure.

Candidates who work out, and write down, the answer to the correct number of significant figures, but in the answer line use fewer figures are not penalised at this stage.

(c) mass of iron

(d) % of iron

% = (5.38/6.00) × 100 = 89.6 %

[1]

Mark consequentially throughout. All answers are required to three significant figures but penalise over approximation only once

Page 4	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – May/June 2007	5070	03

2 24 marks

 ${\bf R}$ is calcium chloride, ${\bf S}$ is zinc sulphate, ${\bf T}$ is lead(II) nitrate

Tests on R		
Test 1	2 marks	
	white ppt.	
	insoluble in excess	[1]
Test 2	2 marks	
	no reaction initially	[1]
	white ppt. on standing	[1]
Test 3	3 marks	
	white ppt.	[1]
	soluble in excess	[1]
	colourless solution	[1]
Test 4	1 mark	
	white ppt	[1]

Tests on S		
Test 1	3 marks white ppt. soluble in excess colourless solution	[1] [1] [1]
Test 2	1 mark no reaction	[1]
Test 3	1 mark no reaction	[1]
Test 5	1 mark white ppt.	[1]

Tests on T			
Test 1	3 marks		
	white ppt.	[1]	
	soluble in excess	[1]	
	colourless solution	[1]	
Test 2	1 mark		
	white ppt.	[1]	
Test 3	3 marks		
	white ppt.	[1]	
	soluble in excess	[1]	
	colourless solution	[1]	

Page 5	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – May/June 2007	5070	03
Conclusions 4	marks		
The anion in R is Cl^- The anion in S is SO_4^2 Any two of:	(white ppt. required in Test 4 with (white ppt. required in Test 5 with	,	[1 [1
The cation in R is Ca^{2+} The cation in S is Zn^{2+} or A The cation in T is Pb^{2+}	 ³⁺ (white ppt. insoluble in excess Na (white ppt. soluble in excess NaO (white ppt. soluble in excess NaO ppt. in Test 2) 	H required in Test ?	1 with S) [1

Any 24 marks to score.