UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2011 question paper

for the guidance of teachers

5070 CHEMISTRY

5070/32 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, which would have considered the acceptability of alternative answers.

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International Examinations

1 (a) Titration [12]

Accuracy 8 marks

For the two best titres give:
4 marks for a value within 0.2 cm^3 of Supervisor
2 marks for a value within 0.3 cm^3 of Supervisor
1 mark for a value within 0.4 cm^3 of Supervisor

Concordance 3 marks

Give:
3 marks if all the ticked values are within 0.2 cm^3
2 marks if all the ticked values are within 0.3 cm^3
1 mark if all the ticked values are within 0.4 cm^3

Average 1 mark

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

Assuming a 25 cm^3 pipette and a titre of 24.8 cm^3:

(b) concentration of iodine in **P** [2]

$= \frac{24.8 \times 0.1}{2 \times 25}$ (1)

= 0.0496 mol/dm^3 (1)

Answers should be correct to + or – 1 in the third significant figure.

(c) mass of iodine in 1 dm^3 of **P** [1]

= 0.0496 × 254

= 12.6 g

(d) amount of iodine present in seaweed [1]

= 12.6 × 1000000 / 15000

= 840 ppm

[Total: 16]

2 **R** is hydrochloric acid **S** is sodium hydroxide

Test	Notes
General points For ppt Allow solid, suspension, powder For gases Name of gas requires test to be at least partially correct. Effervesces = bubbles = gas vigorously evolved but not gas evolved Solutions Colourless not equivalent to clear, clear not equivalent to colourless	
Solution **R**	
Test 1 effervescence (1) gas turns limewater milky (1) carbon dioxide (1) solid disappears (1)	
Test 2 **(a)** white ppt (1) **(b)** soluble in excess (1) colourless solution (1)	.
Test 3 **(a)** effervescence (1) gas pops with a lighted splint (1) hydrogen (1) liquid gets hot (1) solid disappears (1) **(b)** white ppt (1) insoluble in excess (1)	
Test 4 white ppt (1) soluble in excess (1) colourless solution (1)	
Test 5 **(a)** green ppt (1) soluble in excess (1) green solution (1) **(b)** green ppt (1) soluble in excess (1) green solution (1)	

Test 6	
gas turns damp litmus blue (1) ammonia (1)	

Conclusions

Cation in **R** is hydrogen (indication of gas in test **1** or **3(a)**) (1)
Anion in **R** is chloride (white ppt in test **2(a)**) (1)
Anion in **S** is hydroxide (ammonia in test **6** or ppt in test **3(b)**, **4** or **5**) (1) [3]

Note: 28 marking points, maximum 24.

[Total: 24]