MARK SCHEME for the May/June 2012 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.

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

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| 1 (a) Titration 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 0.4 cm ³ of Supervisor 2 marks 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 1 mark 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 his ticked values. Assuming a 25 cm ³ pipette and a titre of 24.8 cm ³ . (b) concentration of ethanedioic acid in P $= \frac{25.0 \times 0.15}{24.8 \times 2}$ (1) $= 0.0756$ (1) Answers should be correct to + or - 1 in the third significant figure. (c) concentration of ethanedioic acid in P in g/dm ³ $= 0.0756 \times 90$ (1) $= 6.80$ (d) mass of water in g $= 9.45 - 6.80$ (1) | ge 2 | Mark Scheme: Teachers' versi | | Paper |
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| = 9.45 - 6.80 (1) | = 6.80 | | | |
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| - 2.65 | = 2.65 | | | |
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(e) the value of x

mole H₂O =
$$\frac{2.65}{18}$$

= 0.147
 $\mathbf{x} = \frac{0.147}{0.0756}$

= 1.94 or 2

Shows the working to obtain value of **x** (1)

The value of **x**

i.e. the correct arithmetical answer or the nearest whole number (1)

[Total: 18]

[2]

| Page 4 | Mark Scheme: Teachers' version | Syllabus | Paper |
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2 R is potassium iodide

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S is hydrogen peroxide
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| Test | | Notes | | | | |
|----------------------|---|--------------------|--|--|--|--|
| For ppt | General points For ppt Allow solid, suspension, powder | | | | | |
| | es f gas requires test to be at least partially co cces = bubbles = gas vigorously evolved bu | | | | | |
| Solution Colourle | ess not equivalent to clear, clear not equiva | ent to colourless | | | | |
| Solution | R | | | | | |
| Test 1 | | | | | | |
| (a) | yellow ppt (1) | accept pale yellow | | | | |
| (b) | insoluble in acid (1) | | | | | |
| Test 2 | | | | | | |
| red/brow | vn solution (1) | | | | | |
| Test 3 | | | | | | |
| (a) | turns brown (1) | accept black | | | | |
| | solid formed (1) | | | | | |
| (b) | turns green (1) | | | | | |
| | solid disappears (1) | | | | | |

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| | | GCE O LEVEL - | - May/Jun | e 2012 | 5070 | 32 |
| Test 4 | | | | | | |
| (a) y | /ellow/r | ed/brown solution | (1) | | | |
| (b) b | black so | blid | (1) | allow dark br | own solid | |
| Test 5 | | | | | | |
| (a) y | ellow s | olution | (1) | allow brown | | |
| (b) r | ed-brov | wn ppt | (1) | | | |
| ir | nsolubl | e in excess | (1) | | | |
| b | oubbles | | (1) | | | |
| g | gas relię | ghts a glowing splint | (1) | | | |
| O | oxygen | | (1) | | | |
| Test 6 | | | | | | |
| purple col | lour los | t | (1) | turns colourle | ess/decolourised | |
| bubbles | | | (1) | | | |
| oxygen | | | (1) | | | |
| Test 7 | | | | | | |
| (a) n | no react | lion | (1) | | | |
| (b) b | oubbles | | (1) | | | |
| 0 | oxygen | | (1) | | | |
| li | iquid tu | rns blue | (1) | | | |

Conclusions

The anion in **R** is iodide or I⁻ (in Test 1 yellow ppt remains in acid) (1) **S** is acting as an oxidising agent (in Test 5 yellow solution or red-brown ppt) (1)

S is acting as a reducing agent (in Test 6 indication purple colour lost) (1)

Note: 25 marking points, maximum 22.

[Total: 22]