**Cambridge International Examinations**
Cambridge International General Certificate of Secondary Education

**CHEMISTRY** **0620/52**

Paper 5 Practical Test **May/June 2017**

MARK SCHEME

Maximum Mark: 40

**Published**

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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2017 series for most Cambridge IGCSE®, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.



This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

| Question | Answer | Marks |
|---|---|---|
| 1(a) | initial volume, final volume and difference completed correctly | **1** |
| | difference comparable to the Supervisor's result | **1** |
| 1(b) | initial volume, final volume and difference completed correctly | **1** |
| | all readings in both tables in **(a)** and **(b)** to 1 d.p. | **1** |
| 1(c)(i) | pink / purple / violet to colourless / pale green | **1** |
| 1(c)(ii) | there is a colour change at the end-point already | **1** |
| 1(d)(i) | solution **C** | **1** |
| | a greater volume of potassium manganate(VII) / solution **A** was needed | **1** |
| 1(d)(ii) | ratio of the candidate's differences from the tables in **(a)** and **(b)** | **1** |
| 1(e)(i) | 2 × value from the table in **(b)** | **1** |
| | double the volume of solution **C** was used / double the volume of solution **A** was needed | **1** |
| 1(e)(ii) | problem: volume of potassium manganate(VII) solution added would be greater than 50 $cm^3$ | **1** |
| | solution: use more than one burette / refill burette | **1** |
| 1(f) | advantage: easy (to use) / quick | **1** |
| | disadvantage: not accurate | **1** |

| Question | Answer | Marks |
|---|---|---|
| 2(a) | yellow | **1** |
| 2(b) | initial and final temperatures recorded | **1** |
| | temperature difference correctly calculated | **1** |
| 2(c) | any 3 from:<br>• (pale) yellow<br>• precipitate<br>• potassium manganate(VII) turns colourless | **3** |
| 2(d) | no reaction / no change | **1** |
| 2(e)(i) | any 2 from:<br>• brown<br>• turns blue-black<br>• white precipitate | **2** |
| 2(e)(ii) | blue-black colour disappears / turns colourless | **1** |
| | white | **1** |
| 2(f) | sodium / $Na^+$ | **1** |
| | sulfite / $SO_3^{2-}$ | **1** |
| 2(g) | red | **1** |
| 2(h) | white | **1** |
| | precipitate | **1** |
| 2(i) | no reaction / no change | **1** |

| Question | Answer | Marks |
|---|---|---|
| 2(j) | lithium / $Li^+$ | **1** |
| | chloride / $Cl^-$ | **1** |

| Question | Answer | Marks |
|---|---|---|
| 3 | | **6** |
| | **the filtration method**<br>any 6 from:<br>• weigh mixture (of calcium carbonate and kaolinite)<br>• add (dilute) hydrochloric acid<br>• in excess / continue adding until there is no more fizzing / add until no more gas is evolved<br>• filter<br>• wash residue / kaolinite<br>• dry<br>• weigh residue / kaolinite<br>• (change in mass / initial mass) × 100 (%) | |
| | **the gas collection / loss of mass method**<br>any 6 from:<br>• weigh mixture (of calcium carbonate and kaolinite)<br>• add (dilute) hydrochloric acid<br>• in excess / continue adding until there is no more fizzing / add until no more gas is evolved<br>• collect gas in a syringe / measure final total mass<br>• measure volume of gas / mass loss<br>• calculate moles of $CaCO_3$ / $CO_2$<br>• calculate mass of $CaCO_3$<br>• (mass of $CaCO_3$ / initial mass) × 100 (%) | |
| | **the calcium chloride method**<br>any 4 from:<br>• weigh mixture (of calcium carbonate and kaolinite)<br>• add (dilute) hydrochloric acid<br>• in excess / continue adding until there is no more fizzing / add until no more gas is evolved<br>• filter | |