

Cambridge International Examinations

Cambridge International General Certificate of Secondary Education (9–1)

CHEMISTRY 0971/05

Paper 5 Practical Test

For Examination from 2018

Maximum Mark: 40

MARK SCHEME

Specimen

From 2018 the mark scheme design/layout has improved.
The content and marks remain the same.



mark scheme abbreviations

; separates marking points

/ alternative responses for the same marking point

not do not allow

allow accept the response

ecf error carried forward

avp any valid point

ora or reverse argument

owtte or words to that effect

<u>underline</u> actual word given must be used by candidate (grammatical variants excepted)

() the word / phrase in brackets is not required but sets the context

max indicates the maximum number of marks

Any [number] from: accept the [number] of valid responses

note: additional marking guidance

© UCLES 2018 0971/05/SM/18

1

2

| (a) | volume, at time = 0 given; volume correctly completed in ascending order; allow: maximum of 2 consecutive identical numbers | [1] [1] |
|-----|--|------------|
| (b) | volume, at time = 0 given; volume correctly completed in ascending order; allow: maximum of 2 consecutive identical numbers | [1] [1] |
| (c) | appropriate scale on <i>x</i> -axis and <i>y</i> -axis and labels and units; note: scale should cover at least half of grid | [1] |
| | points plotted to ± half a small square accuracy;; | [2] |
| | note: >12 correct = 2, 10–12 correct = 1, <10 correct = 0 two labelled smooth line graphs and must plot volume at t = 0; | [1] |
| (d) | Experiment 1 / acid X and statement that acid X is stronger or more concentrated / ora | [1] |
| (e) | value from graph to ± half a small square accuracy and indication shown on graph | [1] |
| (f) | correct calculation of rate; | [1] |
| | allow: ecf on (d) cm³/s / cm³ s ⁻¹ / cm³ per s; allow: sec | [1] |
| (g) | Any two from: | |
| | magnesium has an <u>oxide</u> coating; rubbing exposes magnesium to the acid / removes oxide coating; gives true rate / owtte; | [2] |
| (h) | advantage: convenient / easy / quick to use; disadvantage: reference to inaccurate measurement; | [1] [1] |
| (i) | graduated pipette / burette / gas syringe / mass of magnesium rather than strips / rep and take average / take more frequent readings / suitable method for reducing initial los gas and any suitable comment on improved accuracy; note: explanation must relate to reason | |
| (a) | (i) white precipitate | [1] |
| | (ii) no change / precipitate remains | [1] |
| (b) | no precipitate / slight (white) precipitate | [1] |

| (c) | Any two from: effervescence / fizz / bubbles; (damp) pH paper blue / purple; | |
|-----|--|------------|
| | ammonia smell; | [2] |
| (d) | calcium; nitrate; | [1] [1] |
| (e) | yellow / brown / orange colour when hot; colour fades / goes white when cool; | [1] [1] |
| (f) | (i) effervescence / bubbles / fizz; limewater turns milky; | [1] [1] |
| | (ii) white precipitate; precipitate dissolves in excess / colourless solution formed; | [1] [1] |
| | (iii) white precipitate; precipitate dissolves in excess / colourless solution formed; | [1] [1] |
| (g) | zinc; allow: aluminium dependent on (f)(iii) | [1] |
| | carbonate; | [1] |
| (a) | Universal indicator / pH paper; pH of 3–6 / yellow / orange; note: any suitable test with appropriate result | [1] [1] |
| (b) | Any four from: chromatography; description of applying food colouring to paper; use of solvent; | |
| | results / number of spots; compare results to known sample / reference to $R_{\rm f}$ value; note: marks can be obtained from a labelled diagram | [4] |

© UCLES 2018 0971/05/SM/18

3