



COMBINED SCIENCE

0653/51

Paper 5 Practical Test

May/June 2017

MARK SCHEME

Maximum Mark: 30

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.

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| Question | Answer | Marks | | | | | | | | | | | | | | | | |
|------------|---|------------------|-------------------|-------------|-------------|--------|-------------------------------|------------------|------------|------------|------------------|--------|------------|-----------|------------------|--------|-------------------|---|
| 1(a) | Benedict's test ; | 1 | | | | | | | | | | | | | | | | |
| 1(b) | <table border="1" data-bbox="651 280 1588 552"> <thead> <tr> <th></th> <th>Benedict's test</th> <th>biuret test</th> <th>iodine test</th> </tr> </thead> <tbody> <tr> <td>banana</td> <td>yellow / green / orange / red</td> <td>blue / no change</td> <td>blue-black</td> </tr> <tr> <td>chick peas</td> <td>blue / no change</td> <td>purple</td> <td>blue-black</td> </tr> <tr> <td>egg white</td> <td>blue / no change</td> <td>purple</td> <td>brown / no change</td> </tr> </tbody> </table> <p>one mark per column ;</p> | | Benedict's test | biuret test | iodine test | banana | yellow / green / orange / red | blue / no change | blue-black | chick peas | blue / no change | purple | blue-black | egg white | blue / no change | purple | brown / no change | 3 |
| | Benedict's test | biuret test | iodine test | | | | | | | | | | | | | | | |
| banana | yellow / green / orange / red | blue / no change | blue-black | | | | | | | | | | | | | | | |
| chick peas | blue / no change | purple | blue-black | | | | | | | | | | | | | | | |
| egg white | blue / no change | purple | brown / no change | | | | | | | | | | | | | | | |
| 1(c)(i) | (reducing sugar) and starch ; | 1 | | | | | | | | | | | | | | | | |
| 1(c)(ii) | protein and starch ; | 1 | | | | | | | | | | | | | | | | |
| 1(c)(iii) | protein ; | 1 | | | | | | | | | | | | | | | | |
| 1(d) | (dissolve in) ethanol; (add) water; cloudy / emulsion / milky ; | 3 | | | | | | | | | | | | | | | | |

| Question | Answer | | | Marks | |
|----------|---|---|--|------------------------------------|---|
| 2(a)(i) | | | solution H | solution J | 2 |
| | | red litmus paper | red / no change and | blue and | |
| | | blue litmus paper | blue / no change ; | blue / no change ; | |
| 2(a)(ii) | (solution H could be) barium nitrate (or) silver nitrate ; (both needed for mark) (solution J could be) ammonia (or) sodium hydroxide ; (both needed for mark) | | | 2 | |
| 2(b)(i) | | | solution H | solution J | 3 |
| | | observations on slowly adding copper sulfate solution | (white) ppt. / cloudy / milky / turns white and... | dark blue (solution) / blue ppt. ; | |
| | | colour of any residue | ...white ; | blue / light blue ; | |
| 2(b)(ii) | H is barium nitrate (solution) ; J is ammonia (solution) ; | | | 2 | |
| 2(c) | (iron(III) sulfate) gives brown ppt. with both sodium hydroxide and ammonia / observations the same with both sodium hydroxide and ammonia ; | | | 1 | |

| Question | Answer | Marks |
|-----------|---|-------|
| 3(a)(i) | I and V values recorded ; | 1 |
| 3(a)(ii) | all recorded I values < 0.5 A and to at least 2 d.p. ; all recorded V values < 2.5 V and to at least 1 d.p. ; V values increasing ; | 3 |
| 3(a)(iii) | R values recorded to consistent 2 / 3 significant figures ; | 1 |
| 3(b) | suitable choice of scales (\geq half the grid used) ; 5 plots correct to half a small square ; good best-fit line judgement ; | 3 |
| 3(c)(i) | value of R correctly read from graph ; | 1 |
| 3(c)(ii) | (directly) proportional / as length increases so resistance increases ; | 1 |