

CAMBRIDGE INTERNATIONAL EXAMINATIONS**Cambridge International General Certificate of Secondary Education****MARK SCHEME for the October/November 2015 series****0653 COMBINED SCIENCE****0653/51**

Paper 5 (Practical Test), maximum raw mark 30

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- 1 (a) (i) (any) blue / no change ; [1]
- (ii) colourless / like water / clear ; [1]
(ignore: stayed the same)
- (b) turns white / pink **AND** indicates water is produced / present ; [1]
- (i) turns milky / cloudy / white ppt. ; [1]
- (ii) (indicates) carbon dioxide / CO₂ ; [1]
- (d) heat produced / temperature increase ; [2]
light produced / glows / fire / flame / smoke ;
- (e) a control / show that water not already present / show that carbon dioxide not already present ; [1]
- (f) respiration ; [1]
- (g) goggles / hair tied back / Bunsen at safe distance / keep maximum distance from burning food / accept other sensible suggestions ; [1]
(ignore: test-tube holders as in diagram)
- [Total: 10]**
- 2 (a) (i) value of time greater than or equal to 10 s ; [1]
(allow: answers in minutes and seconds)
- (ii) value within 10% of first value ; [2]
both values to nearest second ;
- (b) (i) Fe²⁺ value less than both values in (a) ; [1]
- (ii) Fe³⁺ value less than both values in (a) **AND** to nearest second ; [1]
- (c) they are catalysts ; [1]
time decreased (with addition of metal ion) / rate increased ;
- (d) reliable as within 10% (or other suitable percentage or comment) **OR**
not reliable as greater than 10% difference (or other suitable percentage or comment) ; [1]
(answer must demonstrate an understanding of reliability)
(ignore: references to accuracy)

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- (e) add 1 cm³ water / add 5 drops + 1 cm³ starch ;
 (do NOT allow: 0.5 cm³ more of **A** and 0.5 cm³ more of **B**)
 total volume should be same as in (b) / equivalent volume to metal ion / to keep concentrations the same ; [2]
 (mark independently)

[Total: 10]

- 3 (a) ***h*** AND ***D*** AND ***d*** recorded ;
 $h > D > d$;
 all values to the nearest 0.1 cm ;
 d_A calculation correct ;
 V calculation correct ;
 V given as whole number ; [6]
- (b) (i) V_w correctly calculated with working shown, e.g. subtraction of two values ;
 V_w is supervisor's value $\pm 20 \text{ cm}^3$ (can get this accuracy mark without calculation) ; [2]
- (ii) cup not completely full / measuring cylinder not read at eye level / measuring cylinder not read perpendicularly / measuring cylinder not read from bottom of meniscus / water spilled on transfer / R_2 off scale of measuring cylinder ; [1]
- (iii) V_w since difficult to measure h / V_w since d (or D) not inside diameters / V_w since it is a direct measurement / V_w since V is an approximation / V_w is actual measurement whereas V uses a formula ; [1]

[Total: 10]