

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2015 series

0654 CO-ORDINATED SCIENCES

0654/52

Paper 5 (Practical), maximum raw mark 45

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1 (a)

<i>test</i>	<i>food group identified</i>
<i>Benedict's</i>	reducing sugar ;
<i>biuret</i>	protein ;
<i>iodine</i>	starch ;

[3]

(b) tests on *milk*:

<i>test</i>	<i>observations</i>
<i>Benedict's</i>	yellow / red / orange
<i>biuret</i>	purple
<i>iodine</i>	orange / no change

all three correct = 2, two correct = 1, one correct = 0 ;;

[2]

(c) tests on *rice*:

<i>test</i>	<i>observations</i>
<i>Benedict's</i>	blue / no change
<i>biuret</i>	purple
<i>iodine</i>	blue-black / black

all three correct = 2, two correct = 1, one correct = 0 ;;

[2]

(d) (mark independently to observations)

milk contains:

reducing sugar ;

protein ;

rice contains:

protein ;

starch ;

(allow: ecf from (a) if groups muddled)

(allow: ecf 'sugar' from (a))

[max 4]

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- (e) (i) dissolve in / mix with ethanol ;
add water ; [2]
- (ii) cloudy / milky / emulsion (*this mark linked to (e)(i) being at least partly correct*) ; [1]
- (iii) milk is cloudy / milky / cannot see the result / AW (*independent mark*) ; [1]

[Total: 15]

- 2 (a) vapour burns / blue flame / flammable gas / splint remained lit ;
solid goes grey / black / darkens / condensation ; [2]
- (b) no effervescence / no fizzing / no bubbles ;
pungent smell / blue litmus turns red ;
(do **NOT** allow this mark if has **red litmus to blue**)
not a carbonate / not CO_3^{2-} ;
acidic gas ; [4]
- (c) no visible reaction / no ppt. ;
not a sulfate / not SO_4^{2-} ; [2]
- (d) (i) blue litmus turns red ; [1]
- (ii) effervescence / fizzing / bubbles ; [1]
- (iii) (HCl) faster effervescence / more fizzing / more bubbles (than Q) ; [1]
- (iv) (weakly) acidic ; [1]
- (e) (i) effervescence / fizzing / bubbles ;
(limewater becomes) milky / white ppt. ; [2]
- (ii) calcium carbonate / CaCO_3 / calcium hydrogen carbonate / $\text{Ca}(\text{HCO}_3)_2$; [1]

[Total: 15]

- 3 (a) (i) realistic *I* value recorded for 15.0 cm ;
realistic *V* value recorded for 15.0 cm ; [2]
- (ii) units both correct (symbols **or** names) ; [1]
- (iii) all *I* values < 1.5 A **and** to at least 2 d.p. ;
all *V* values < 2.5 V **and** to at least 1 d.p. ;
I values decreasing and *V* values increasing ; [3]
(allow: one pair of identical values)

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- (b) axes labelled with units ;
suitable choice of scales (\geq half the grid used) ;
at least 5 plots correct to half a small square ;
good best-fit line judgement ; [4]
- (c) indication **on graph** of how data obtained **and** at least half of line used ;
correct calculation for triangle method using data from graph ; [2]
- (d) answer equals (c) recorded to 2 or 3 significant figures ; [1]
(ecf from (c))
- (e) reading meter scales ;
observe perpendicularly (owtte) ;
OR
measuring the length of wire ;
observe perpendicularly / repeat for increasing lengths of wire / pull wire straight ; [max 2]
(allow: 1 mark for not switching off between readings / battery might run down)
(ignore: crocodile clips)

[Total: 15]