

**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>	<b>reducing sugar ;</b>
<i>biuret</i>	<b>protein ;</b>
<i>iodine</i>	<b>starch ;</b>

[3]

(b) tests on *milk*:

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

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>	<b>blue / no change</b>
<i>biuret</i>	<b>purple</b>
<i>iodine</i>	<b>blue-black / black</b>

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  $\text{CO}_3^{2-}$  ;  
acidic gas ; [4]
- (c) no visible reaction/no ppt. ;  
not a sulfate / not  $\text{SO}_4^{2-}$  ; [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/ $\text{CaCO}_3$ /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]