



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**COMBINED SCIENCE**

**0653/52**

Paper 5 Practical Test

**May/June 2016**

MARK SCHEME

Maximum Mark: 30

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**Published**

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1 (a) (i)

reagent	Benedict's Tube A	Biuret Tube B	iodine solution Tube C
food group tested for	<b>reducing sugar</b>	<b>protein</b>	<b>starch</b>

one correct ;  
three correct ;

[2]

(ii) peas: **ignore** colour with Benedict's

<i>reagent</i>	<i>Benedict's Tube A</i>	<i>biuret Tube B</i>	<i>iodine solution Tube C</i>
<i>peas</i>	(blue)	<b>blue ;</b>	<b>blue-black ;</b>

[2]

(iii) sweetcorn: **ignore** colour with biuret

<i>reagent</i>	<i>Benedict's Tube A</i>	<i>biuret Tube B</i>	<i>iodine solution Tube C</i>
<i>sweetcorn</i>	<b>yellow/green/orange/red ;</b>	(blue)	<b>blue-black ;</b>

[2]

(iv) to release the foods/break open cells ;  
IGNORE reference to speed

[1]

(b) starch for both peas and sweetcorn (accuracy mark) ;

[3]

correct conclusion from candidate's results for peas ;

correct conclusion from candidate's results for sweetcorn ;

ECF wording of reducing sugar from (a)(i)

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- 2 (a) *observations:* [3]  
 (pale) blue ppt (with ammonia) ;  
 dark blue solution (with excess ammonia) ;

*cation:*  
 copper / copper(II) /  $\text{Cu}^{2+}$  ;

- (b) (i) **X** and limewater correctly labelled / delivery tube and test-tubes labelled ; [2]  
 glassware correct including delivery tube in to limewater;

- (ii) (limewater) milky / white ppt **AND** (solid green to) black ; [2]  
 carbonate /  $\text{CO}_3^{2-}$  (independent of limewater observation) ;

(c)

	<i>solution of Y</i>	<i>solution of Z</i>
<i>barium chloride solution</i>	white ppt <b>and</b> ...	...no reaction ;
<i>silver nitrate solution</i>	no reaction / slight white ppt <b>and</b> ...	...white ppt ;
<i>anion is...</i>	sulfate <b>and</b> ...	...chloride ; (dependant on observations)

[3]

**note:** mark horizontally but if no marks are scored then mark vertically – 1 mark for a correct column

- 3 (a) (i) initial temperature present, in range 40–99 °C ; [1]

- (ii) all values of *T* present ; [2]  
*T* values decreasing ; ALLOW two consecutive times to be the same once

- (b)  $T_P$  correct – ignore units ; [1]

- (c) all values of *T* present ; [2]  
 smaller change of temperature in 180 s in beaker **Q** ;  
**IF response is a larger change, credit if SV change is also larger**

- (d)  $T_Q$  correct ; [1]

- (e) using a lid (Q) because  $T_Q < T_P$  in 180 s / using a lid (Q) because smaller fall in temperature in same time ; [1]  
 ECF (b)(d)

- (f) thicker insulation / better insulation / insulate the bottom of the beaker ; [1]

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- (g) same size (thickness) of beakers / same initial temperature of hot water / same room temperature / same material for beaker ; [1]  
IGNORE same volume of water / same mass of water