Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CO-ORDINATED SCIENCES **0654/52**

Paper 5 Practical Test **May/June 2016**

MARK SCHEME

Maximum Mark: 45

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.

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1 (a) (i)

reagent	*Benedict's Tube **A***	*biuret Tube **B***	*iodine solution Tube **C***
food group tested for	**reducing sugar**	**protein**	**starch**

one correct ;
three correct ; [2]

(ii) peas

reagent	*Benedict's Tube **A***	*biuret Tube **B***	*iodine solution Tube **C***
peas	(blue)	**blue ;**	**blue-black ;**

[2]

If either of responses is incorrect, check against SV results and then credit as appropriate for matches – annotate with 'SV'

(iii) sweetcorn

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

[2]

If either of responses is incorrect, check against SV results and then credit as appropriate for matches – annotate with 'SV'

(iv) to release the foods / break open cells ; [1]

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

correct conclusion from candidate's results for peas ;

correct conclusion from candidate's results for sweetcorn ; [3]

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

(c) wore goggles / tied back hair / used tongs / gloves **AND** due to chemical tests or hot water ; [1]

(d) peel or crush peas / sweetcorn ;
(dissolve in) ethanol ;
water added ;
no naked flames ;
cloudy / emulsion / white ; max. [4]

[Total: 15]

2 **(a)** **(i)** reacts with HC*l* / bubbles / effervescence / fizzes ;
green solution / blue-green solution / blue solution ; [2]

(ii) *test*
add ammonia solution ;

observations
(pale) blue ppt. (with ammonia) ;
dark blue solution (with excess ammonia) ;

cation
copper / copper(II) / Cu^{2+} ; [4]

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

(ii) (limewater) milky / white ppt. **AND** (solid green to) black ;
carbonate / CO_3^{2-} (independent of limewater observation) ; [2]

(c)

	*solution of **Y***	*solution of **Z***
barium chloride solution	white ppt. **and**...	...no reaction ;
silver nitrate solution	no reaction / slight white ppt. **and**...	...white ppt. ;
anion is...	sulfate **and**...	...chloride ; (dependent on observations)

note: mark horizontally but if no marks are scored then mark vertically – 1 mark for a correct column [3]

(d) sodium hydroxide (solution) / NaOH ;
blue ppt. (if **(a)** incorrect allow ecf) ; [2]

[Total: 15]

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

(ii) all times (30, 60, 90, 120, 150, 180) correctly entered ;
all values of *T* present ;
T values decreasing ; [3]

(iii) both units correct, s and °C ; [1]

(b) **(i)** T_P correct ; [1]

(ii) R_P correct to 2 or more significant figures with correct rounding ; [1]

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

(d) **(i)** T_Q correct ; [1]

(ii) R_Q correct ; [1]

(e) using a lid because R_Q is less than R_P / using a lid because smaller fall in temperature in same time ;
ECF **(b)(d)** [1]

(f) thicker insulation / better insulation ;
insulate the bottom of the beaker ; [2]

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

[Total: 15]