Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

COMBINED SCIENCE **0653/52**

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

MARK SCHEME

Maximum Mark: 30

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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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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: **ignore** colour with Benedict's

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

[2]

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

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

[2]

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

(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)**

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

cation:
copper / copper(II) / 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 / CO_3^{2-} (independent of limewater observation) ;

(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 ; (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 ;
T values decreasing ; ALLOW two consecutive times to be the same once [2]

(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]

(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