CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0653 COMBINED SCIENCE

0653/61 Paper 6 (Alternative to Practical), maximum raw mark 60

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CAMBRIDGE
International Examinations

1 (a) (i) outline concave on one side and projections on the other ; [2]

2 circles shaded and labelled ;

(ii) xylem ; [2]

transport of water ;

(b)

test solution	observation	conclusion
Benedict's solution	orange	**reducing sugar / glucose (present) ;**
biuret solution	blue	**protein absent ;**
iodine solution	orange	**starch absent ;**

[3]

(c) Any 3 from 4 [3]

(celery in dyed water and) measure distance dye moves ;

minimum 3 different temperatures ;

time for coloured water to appear at top of (cut) stalk / set time and measure distance moved for each T;

all other conditions / named condition kept constant ;

[Total: 10]

2 (a) 14 and 16 ; [1]

(b) (i) 0.7(0) 0.8(0) ; [3]

0.49 and 0.64 ;

T^2 to 2 d.p. ;

Allow ecf

(ii) 4 plots correct ± 1 / 2 small square ; [2]
best fit straight line through origin ± 1 / 2 small square ;

(iii) gradient shown clearly on graph (triangle at least 1 / 2 of graph); [2]
1.6 ;

(iv) 39.5 / gradient from **(b)(iii)** = 25 ; [2]
quoted to 2 sig figs ;

[Total: 10]

3 (a) (i) blue / purple **AND** (pH between) 8 to 14 ; [1]

(ii) calcium hydroxide / limewater ; [2]

calcium oxide ;

(b) (i) (sodium hydroxide) (light) blue ppt ; [3]

(ammonia) (light) blue ppt ;

(ammonia) dark blue solution (in excess) ;

(ii) CuO (not name) ; [1]

(c) react with (e.g.) sulphuric acid ; [3]
add sodium hydroxide (soln) / ammonia (soln) ;
white ppt (dissolves in excess) ;

[Total: 10]

4 (a) (i) **A** white blood cell ; [4]
B red blood cell ;
C platelet ;
D plasma ;

(ii) 8 ; [1]

(iii) 0.008 ; ; [2]

ecf

(b) (i)

activity	average pulse rate for 15 seconds	average heart rate (beats per minute)
resting	17	**68**
jogging	35	**140**

[1]

(ii) heart rate increases ; [max 1]

increased or faster blood flow ;

need more oxygen / respiration / removal of carbon dioxide ;

(iii) average calculated / identify anomalies / confirms similar values / repeats ; [1]

[Total: 10]

5 **(a)** use of cell / battery / power supply and connections ; [3]

connect in circuit ;

(first two marks can be from a diagram)

lamp works if lamp lights ;

(b) ammeter symbol correct and in series with lamp; [3]

voltmeter symbol correct and in parallel with lamp ;

circuit ;

(c) [3]

(lamp)	*eg* **A**	**B**	**C**	**D**	**E**
current / A					
potential difference / V					

table with headings (allow p.d.) ;

correct units (allow name or symbol) ;
room for 5 lamps may be labelled with letters, numbers or not at all ;

(d) resistance = potential difference (voltage) / current ; [1]

[Total: 10]

6 **(a)** hydrogen ; [3]
lighted splint ;
pop (etc.) ;

(b) conical flask with delivery tube ; [2]
(connected to) syringe or measuring cylinder over water ;

(c) **(i)** rate decreases ; [2]
(then) stops ;

(ii) Mg or acid or reactant(s) used up / all Mg or acid or reactant reacted ; [1]

(d) line **T** to left of original ; [2]
line **T** reaches same height. ;

[Total: 10]