

**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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- 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	<b>reducing sugar / glucose (present) ;</b>
biuret solution	blue	<b>protein absent ;</b>
iodine solution	orange	<b>starch absent ;</b>

[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  $\pm 1/2$  small square ; [2]  
 best fit straight line through origin  $\pm 1/2$  small square ;

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

- (iv)  $39.5 / \text{gradient from (b)(iii)} = 25$  ; [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	<b>68</b>
jogging	35	<b>140</b>

[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]**

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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]**