

**MARK SCHEME for the October/November 2009 question paper  
for the guidance of teachers**

**0608 21<sup>ST</sup> CENTURY SCIENCE**

**0608/03**

Paper 3 (Written – Core), maximum raw mark 60

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.

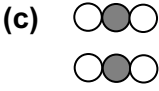
Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

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- 1 (a) 1  
78  
21  
*all correct = 2*  
*two or one correct = 1* [2]
- (b) (i)  $(8 + 12 + 9 + 10 + 6)/5 = 45/5$   
= 9 [2]
- (ii) 6 to 12  
*allow 12 to 6* [1]
- (iii) the range is smaller / they are closer [1]
- (c)   
*one mark for each molecule, circles must touch* [2]
- [Total: 8]**
- 2 (a) polythene is more flexible so less likely to break [1]  
*accept ORA*
- (b) environmental impact of making the material ✓  
environmental impact of using the product  
environmental impact of disposing of the product ✓ [2]
- (c) plasticizer [1]
- (d) (i) any suitable article (no mark) e.g. tennis racquet  
one mark each for old and new material e.g. wood and carbon fibre  
*materials must match article* [2]
- (ii) correct advantage e.g. stronger [1]
- [Total: 7]**

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3 (a) hydrocarbon  
carbohydrate  
amino acid  
*all correct = 2*  
*one or two correct = 1* [2]

(b) glucose [1]

(c) liver;  
urea;  
kidneys;  
urine  
*all correct = 3*  
*3/2 correct = 2*  
*1 correct = 1* [3]

**[Total: 6]**

4 (a) crust  
mantle core  
*One mark for each correct label.* [3]

(b) stronger buildings ✓  
taller  
different country  
emergency plans ✓  
prevent quakes  
*One mark each. Deduct a mark for each extra tick.* [2]

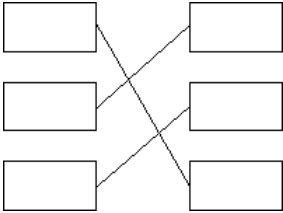
(c) (i) Any two of the following 'fits' or 'matches':  
continents;  
fossils;  
mountain chains;  
rock types  
*One mark for each correct response. If more than 2 given, mark first two only.* [2]

(ii) cannot detect continents move;  
Wegener was an outsider to the community of geologists;  
too big an idea on limited evidence;  
simpler explanations worked as well.  
*any one* [1]

**[Total: 8]**

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- 5 (a) (i) A [1]  
(ii) C [1]
- (b) (i) ionising  
communication  
particles vibrate ✓ [1]
- (ii) Microwaves in 850W have greater intensity owtte (because it heats food faster)  
Allow 'are more intense' [1]
- (c) (i) Aruna ✓  
Bilal  
Chen  
David ✓  
One mark each. Deduct a mark for each extra tick. [2]
- (ii) Aruna  
Bilal  
Chen  
David ✓ [1]
- [Total: 7]**

- 6 (a)
- 
- All 3 links correct: 2  
1 or 2 correct: 1 [2]
- (b) (i) goes down (1); change gets less and less with time (1) [2]
- (ii) 30 years  
Must have indication on graph or explanation in space [1]
- [Total: 5]**

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- 7 (a) nucleus [1]
- (b) specialised cells that can develop into any type of cell  
 unspecialised cells that can develop into any type of cell ✓  
 specialised cells that can develop into one type of cell  
 unspecialised cells that can develop into one type of cell [1]
- (c) (i) B [1]  
 (ii) A [1]
- (d) one parent is involved all the offspring produced  
 are genetically identical to each other ✓  
 does not involve the production of sex cells ✓  
 involves the production of sex cells  
 one parent is involved ✓  
 the offspring produced are genetically different to  
 each other  
 two parents are involved  
*3 correct = 2 marks*  
*2 correct = 1 mark*  
*1 correct = 0 marks* [2]

**[Total: 6]**

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- 8 (a) skin ✓  
teeth  
sweat ✓  
urine  
bone [2]
- (b) produce antibodies;  
(antibodies) present before infection [2]
- (c) (i) increased [1]
- (ii) more people are having the MMR jab  
fewer people are having the MMR jab ✓  
no-one is having the MMR jab  
the same number of people are having the MMR jab [1]
- (iii) For:  
measles can cause disability or death;  
reduces disease in population;  
Against:  
risk of autism;  
pain/trauma to child  
*need a for **and** against for mark*  
*accept any reasonable idea* [1]
- (iv) circle around 'autism' [1]
- [Total: 8]**
- 9 (a) species;  
evolved;  
fossils [3]
- (b) E  
D  
D  
D  
*all correct = 2*  
*3/2 correct = 1*  
*1 correct = 0* [2]
- [Total: 5]**