

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

0608 21ST 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.

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
Page 2	Mark Scheme: Teachers' version	Syllabus
	IGCSE – October/November 2009	0608

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]

Page 3	Mark Scheme: Teachers' version	Syllabus
	IGCSE – October/November 2009	0608

- 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]

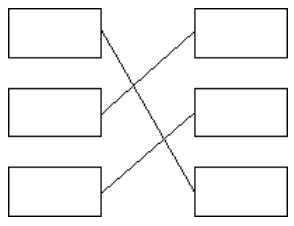
[Total: 6]

- 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]

Page 4	Mark Scheme: Teachers' version	Syllabus
	IGCSE – October/November 2009	0608

- 5 (a) (i) A
(ii) C
- (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]

Page 5	Mark Scheme: Teachers' version	Syllabus
	IGCSE – October/November 2009	0608

- 7 (a) nucleus
- (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]

Page 6	Mark Scheme: Teachers' version	Syllabus
	IGCSE – October/November 2009	0608

- 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]