UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper

for the guidance of teachers

0608 TWENTY FIRST CENTURY SCIENCE

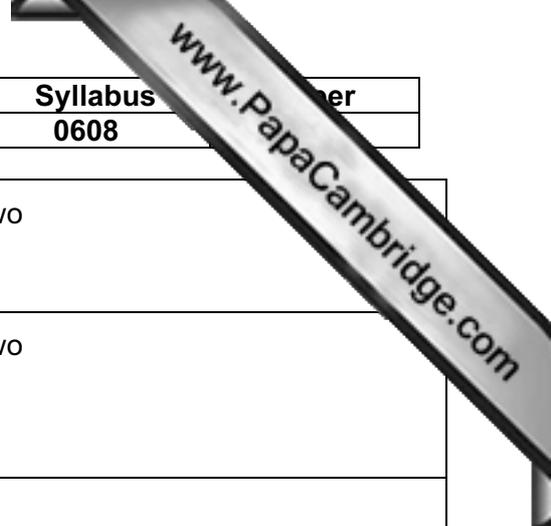**0608/05** Paper 5 (Analysis and Interpretation), maximum raw mark 60

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.

Cambridge is publishing the mark schemes for the October/November 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

1	(a)		poor diet; stress; cigarette smoking; excessive alcohol consumption; lack of exercise; high salt in diet	[3]	any three can be an example e.g. junk f... this one mark reject high blood pressure
	(b)		fat(ty deposits)/cholesterol; block; artery supplying heart/coronary arteries; no/reduced blood flow; no/reduced oxygen reaches the heart (muscle); high blood pressure damages arteries; heart cells/tissue die	[3]	any three accept 'blood vessels' but reject 'veins'
	(c)	(i)	article is read by other scientists	[1]	
		(ii)	other scientists can evaluate/discuss findings/opinions/conclusions; may suggest improvements;	[1]	e.g. 'check it looks OK'
		(iii)	checks <u>results</u> are correct; gives confidence in findings;	[2]	e.g. results may be wrong e.g. findings are more reliable;
	(d)	(i)	24/100 × 1568; = 376.32 so should be 376 (or 377);	[2]	correct answer = 2 marks accept 376.32
		(ii)	dark chocolate contains more flavanols (than milk chocolate); flavanols lower blood pressure; high blood pressure damages arteries/blood vessels;	[3]	accept reasonable alternative for 1st & 3rd points
	(e)	(i)	increases decreases	[1]	or reverse order accept alternative wording
		(ii)	diagonal line from top left to bottom right	[1]	any downward trend, even 2 points. allow ecf from (e)(i)
	(f)		free from CVD at start of trial; not taking any drugs for blood pressure; daily diet; exercise routine; smoker/non-smoker; alcohol intake; gender; age;	[1]	any one

(g)	**(i)**	more people; longer time; more data;	[2]	any two
	(ii)	enables conditions to be controlled more easily; Can monitor more closely; Get results quicker;	[2]	any two
(h)		two groups; groups are matched/similar; one given flavanols and the other the placebo; (double) blind; monitor effects on blood pressure (or another factor);	[3]	any 3
(i)		tastes nice; don't consider the risk to be very high; makes you feel good/are addicted to it/combat stress; to get energy (quickly); reduces risk of/prevents CVD;	[2]	any 2 benefit outweighs risk lowers blood pressure
(j)		protein; vitamins; minerals; water; fibre/roughage	[3]	allow a named vitamin or a named mineral but not more than one of each
		Total	**[30]**	
2 **(a)**		1 kg mass	[1]	
(b)		(uncontrolled factors) may make results variable/inconsistent/invalid/not reliable; so that only the factor being investigated can affect the outcome;	[2]	may mention a relevant factor in either part
(c)		3.0 mm; 1.5 mm	[2]	allow tolerance of ± 0.2 mm on each
(d)	**(i)**	polymer B is harder than polymer A	[1]	allow stronger/stiffer/tougher/more durable
	(ii)	there is a real difference between diameter data for polymer A & polymer B; because the mean of the one does not lie within the range of the other / because the ranges do not overlap	[2]	must be explicit about real difference **not** 'means are different'
	(iii)	A; plasticizer makes PVC softer	[2]	
		Total	**[10]**	

3	(a)		use thermometer (1); time/set oven timer for time needed(1); repeat for different times (1); start with water at same temperature each time(1)	[2]	any two points last 2 marking points could be stop oven at regular intervals (1); *T* rapidly to avoid cooling (1)
	(b)	(i)	stir it/mix it up	[1]	
		(ii)	20 °C and 24°C	[1]	
	(c)	(i)	points correct (2); best fit line (1)	[3]	3 correct = 2 marks; 1 or 2 correct = 1 mark Good straight line with points each side.
		(ii)	15±1 °C (1); starting temperature of the water (1)	[2]	ecf own line ±1 °C
		(iii)	6±0.5 °C/minute	[1]	ecf own line accept use of 2 data points. accept 6±0.5 °C/minute if no working is shown
			Total	**[10]**	
4	(a)		touch arm in same place; touch arm with same pressure; same positions with respect to the apparatus and each other; same time of day; same diet/drinks before; same clock/buttons	[1]	any one
	(b)	(i)	more reliable; allows outliers to be identified; /mean to be taken	[2]	any two
		(ii)	0.44 + 0.38 + 0.36 + 0.30/4 ; = 0.37;	[2]	correct answer = 2 marks 0.62 = 1 mark
	(c)		overlapping/large ranges; poor accuracy/best estimate is far from true value/certainty of true value is poor/no real difference between sets of results	[2]	
	(d)	(i)	bell/buzzer	[1]	accept anything reasonable that makes a noise
		(ii)	carry out experiment in same way as described; but make a noise when button **A** is pressed (rather than touch arm)	[2]	
			Total	**[10]**	