

Additional Applied Science

General Certificate of Secondary Education

Unit **A191/01**: Science in Society (Foundation Tier)

Mark Scheme for June 2012

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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Marking Instructions

For answers marked by levels of response:

- a. **Read through the whole answer from start to finish**
- b. **Decide the level that best fits** the answer – match the quality of the answer to the closest level descriptor
- c. **To determine the mark within the level**, consider the following:

Descriptor	Award mark
A good match to the level descriptor	The higher mark in the level
Just matches the level descriptor	The lower mark in the level

- d. Use the **L1, L2, L3** annotations in Scoris to show your decision; do not use ticks.

Quality of Written Communication skills assessed in 6-mark extended writing questions include:

- appropriate use of correct scientific terms
- spelling, punctuation and grammar
- developing a structured, persuasive argument
- selecting and using evidence to support an argument
- considering different sides of a debate in a balanced way
- logical sequencing.

Annotations

Annotation	Meaning
/	alternative and acceptable answers for the same marking point
(1)	separates marking points
not	answers which are not worthy of credit
reject	answers which are not worthy of credit
ignore	statements which are irrelevant
allow	answers that can be accepted
()	words which are not essential to gain credit
—	underlined words must be present in answer to score a mark
ecf	error carried forward
AW	alternative wording
ora	or reverse argument

Annotation	Meaning
✓	correct response
✗	incorrect response
bod	benefit of the doubt
nbod	benefit of the doubt <u>not</u> given
ECF	error carried forward
^	information omitted
I	ignore
R	reject

Question		Answer	Marks	Guidance
1	(a)	A;	1	
	(b)	C;	1	
	(c)	B;	1	
	(d)	8 ÷ 20 (= 0.4); 0.4 /granite green;	2	accept 0.4 without working for 2 marks accept granite green alone for 2 marks
	(e)	<p>[Level 3] Covers most points of both 'how' preferably with some points of 'why'. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks)</p> <p>[Level 2] Some explanation of either 'how' OR 'why' Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks)</p> <p>[Level 1] Brief vague account, ie not enough information to carry out the procedure. Quality of written communication impedes communication of the science at this level. (1 – 2 marks)</p> <p>[Level 0] Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)</p>	6	<p>This question is targeted at grades up to E</p> <p>Indicative scientific points include:</p> <p>how</p> <ul style="list-style-type: none"> • draw a line on paper • put blobs on the line • put bottom in solvent • blobs above level of solvent • stop when solvent gets to top <p>why</p> <ul style="list-style-type: none"> • solvent moves up paper • dragging dyes up with it • some dyes move further/faster. <p>do not expect ideas about retention factors</p>
Total			11	

Question		Answer	Marks	Guidance	
2	(a)	any two relevant roles described eg sports psychologist; swimming coach; personal trainer; fitness instructor; physiotherapist; dietician; masseur	2	two distinct roles described / named ignore first aider / life guard	
	(b)	(i)	(30000 ÷) 458; 65 / 65.5;	2	65.5 without working = 2 marks 65 without working = 1 mark 66 without working = 0 marks
		(ii)	any 2 from; (Mike's fitness number is) average; Because (66) is between 65–79; only just in range / at lower end of range	2	ignore yes or no
			Total	6	

Question		Answer	Marks	Guidance								
3	(a)	<table border="1"> <thead> <tr> <th>term</th> <th>example</th> </tr> </thead> <tbody> <tr> <td>lifestyle</td> <td>runs three miles twice a week</td> </tr> <tr> <td>health</td> <td>does not smoke and drinks in moderation</td> </tr> <tr> <td>fitness</td> <td>had a cold that has lasted for three days</td> </tr> </tbody> </table>	term	example	lifestyle	runs three miles twice a week	health	does not smoke and drinks in moderation	fitness	had a cold that has lasted for three days	2	3 lines correct = 2 marks 1 or 2 lines correct = 1 mark
term	example											
lifestyle	runs three miles twice a week											
health	does not smoke and drinks in moderation											
fitness	had a cold that has lasted for three days											
	(b)	<p>[Level 3] Describes most equipment / sequence points / consequences. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks)</p> <p>[Level 2] Describes some equipment / sequence points / consequences. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks)</p> <p>[Level 1] Describes a few equipment / sequence points / consequences. Quality of written communication impedes communication of the science at this level. (1 – 2 marks)</p> <p>[Level 0] Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)</p>	6	<p>This question is targeted at grades up to C</p> <p>Indicative scientific points include:</p> <p>equipment / sequence</p> <ul style="list-style-type: none"> • stethoscope / listens to blood flow OR electronic BP tester • pressure cuff / stops blood flow • apply pressure collar to upper arm • inflate collar (to high pressure) • put stethoscope on inner arm • listen to blood flow with stethoscope • release air slowly • records pressure when beats are heard • records pressure when beats no longer heard. <p>consequence</p> <ul style="list-style-type: none"> • high blood pressure increases risk of heart attack • low blood pressure increases risk of fainting • take medication to control BP <p>pump it up points = L1 pump it up and interpret = L2 release and listen points = L3</p>								
Total			8									

Question		Answer	Marks	Guidance
4	(a)	F before A; A before E; E before B	2	3 correct = 2 2 correct = 1
	(b)	uterus; (fallopian) tube / oviduct; cervix	2	3 correct = 2 marks 2 correct = 1 mark accept vagina for cervix accept womb for uterus
	(c)	anywhere in uterus	1	allow X on uterus label
	(d) (i)	pre eclampsia	1	give credit for pre eclampsia even if other disorders listed
	(ii)	any one from scans – looking for abnormalities/position; blood tests – eg white blood cell count/PKU/group/rubella; foetal heart beat – heart is beating correctly; monitor weight – within correct weight range; urine tests – eg diabetes or protein caused by damaged kidneys; genetic test – named or described	2	accept any 2 tests or 1 test and correct explanation ignore reference to genetic tests
		Total	8	

Question	Answer	Marks	Guidance
5	<p>[Level 3] All factors listed. Good explanation of scoring described. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks)</p> <p>[Level 2] All factors listed, i.e. more descriptive but not full explanation. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks)</p> <p>[Level 1] Brief vague account, i.e. not enough information to carry out the procedure. Quality of written communication impedes communication of the science at this level. (1 – 2 marks)</p> <p>[Level 0] insufficient or irrelevant science. Answer not worthy of credit. (0 marks)</p>	6	<p>This question is targeted at grades up to C</p> <p>Indicative scientific points include:</p> <p>Indicative of L3 Explanation of how it is tested.</p> <ul style="list-style-type: none"> • score is totalled • score out of 10 • score indicates health • low number indicates poor health <p>Indicative of L2 Explanation of what is tested.</p> <ul style="list-style-type: none"> • lists some factors and scores 0,1 or 2 indicating health; Appearance Pulse Grimace Activity Respiration <p>Indicative of L1 Explanation of why it is done.</p> <ul style="list-style-type: none"> • applies to new born babies • health check
	Total	6	

Question		Answer	Marks	Guidance
6	(a)	understand that unknown side is 9; calculation of area e.g. $7 \times 9 = 63$; m^2	3	ecf for use of incorrect unknown side e.g. $7 \times 2 = 14$ 63 alone scores 2 marks 14 on its own scores 1 mark
	(b)	any two of the following, [1] each <ul style="list-style-type: none"> idea of measurements error; idea of instrument error; difficulty of using the scale; 	2	allow bumpy unlevel ground / area not rectangular
Total			5	

Question		Answer	Marks	Guidance
7	(a)	image in focus/sharp/clear; idea that image has light and dark areas; image magnified 9000 times/high magnification/shows detail;	3	allow can see the detail
	(b)	(i) (older than) 195m years; mention of conifer tree;	2	
		(ii) any 1 from written account; video; computer / digital; dictaphone / tape recorder plaster cast; scan; table / chart / graph	1	
Total			6	
Total			50	

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