

Additional Applied Science

General Certificate of Secondary Education

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

Mark Scheme for June 2013

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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

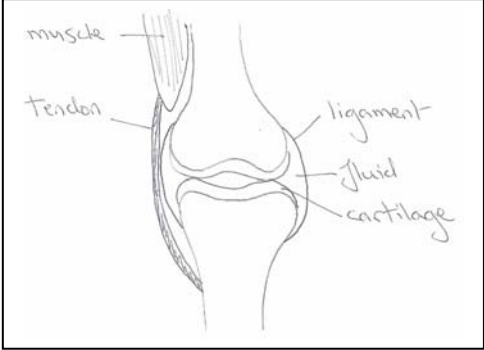
Used in the detailed Mark Scheme:

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

Available in scoris to annotate scripts:

	indicate uncertainty or ambiguity
	benefit of doubt
	contradiction
	incorrect response
	error carried forward
	draw attention to particular part of candidate's response
	draw attention to particular part of candidate's response
	draw attention to particular part of candidate's response
	no benefit of doubt
	reject
	correct response
	draw attention to particular part of candidate's response
	information omitted

Question		Answer	Marks	Guidance
1	(a) (i)	<p>any 2 examples eg sports / leisure centre; swimming pool; tennis courts; gym; football club; school; youth club; muga (multi use games area) bowling;</p> <p>any named examples or description of job linked to facility eg swimming instructor / teaching swimming; personal trainer / improving people's fitness; coach; instructor; (PE) teacher;</p>	4	<p>accept any 2 correct examples</p> <p>no, or incorrect facility, scores zero for that line</p> <p>accept any 2 correct examples linked to a facility</p> <p>Two different facilities with same practitioner = 4 marks eg Gym physio Football club physio</p>
	(ii)	<p>any 2 from: idea of qualifications / training; health / safety / hygiene; disability / accessibility; CRB checks; data protection / confidentiality;</p>	2	accept any other correct example
	(b)	Idea of test / measurement / level of fitness; before fitness programme starts; to monitor improvement	3	
Total			9	

Question	Answer	Marks	Guidance
2	<p>Level 3 (5–6 marks) Part on drawing correct AND correct label AND correct explanation</p> <p>Quality of written communication does not impede communication of the science at this level.</p> <p>Level 2 (3–4 marks) Part on drawing correct AND correct label OR part of drawing correct AND correct explanation OR correct label AND correct explanation</p> <p>Quality of written communication partly impedes communication of the science at this level.</p> <p>Level 1 (1–2 marks) Part on drawing correct OR correct label OR correct explanation.</p> <p>Quality of written communication impedes communication of the science at this level.</p> <p>Level 0 (0 marks) Insufficient or irrelevant science. Answer not worthy of credit. No explanation given is level 0.</p>	6	<p>This question is targeted at grades up to E</p> <p>Relevant points include:</p> <p>Explanation</p> <ul style="list-style-type: none"> • ligaments – hold bone to bone • tendons – hold muscle to bone • muscles – move joint / bones • cartilage – provides smooth surface. • fluid – lubricates <p>Names and labels</p> <ul style="list-style-type: none"> • ligaments • tendons • muscles • cartilage • fluid <p>Drawing</p> <ul style="list-style-type: none"> • parts in correct place 
	Total	6	

Question			Answer	Marks	Guidance										
3	(a)	(i)	250/30; 8.3	2	8.33 or 8 1/3 = max 1 mark										
		(ii)	to see where he is slowest/weakest; to improve his performance	2	ORA										
	(b)		any 2 examples eg steroid; stimulant/amphetamine; diuretics; creatine; testosterone;	2											
	(c)		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">skill</th> <th style="width: 50%; text-align: center;">example of use of skill</th> </tr> </thead> <tbody> <tr> <td>Have a detached but personal relationship with the client.</td> <td>Consults with other professionals such as nurses and doctors.</td> </tr> <tr> <td>Make a judgement when the client's statement conflicts with the evidence.</td> <td>Asks questions about the symptoms, the work Jenson does, and his family.</td> </tr> <tr> <td>Recognise the importance of teamwork.</td> <td>Does not get involved with any patient outside of office hours.</td> </tr> <tr> <td>Collect information about the whole person.</td> <td>Notices that Jenson's fingers are stained with tobacco even though he said he does not smoke.</td> </tr> </tbody> </table>	skill	example of use of skill	Have a detached but personal relationship with the client.	Consults with other professionals such as nurses and doctors.	Make a judgement when the client's statement conflicts with the evidence.	Asks questions about the symptoms, the work Jenson does, and his family.	Recognise the importance of teamwork.	Does not get involved with any patient outside of office hours.	Collect information about the whole person.	Notices that Jenson's fingers are stained with tobacco even though he said he does not smoke.	3	4 correct = 3 marks 3 or 2 correct = 2 marks 1 correct = 1 mark
skill	example of use of skill														
Have a detached but personal relationship with the client.	Consults with other professionals such as nurses and doctors.														
Make a judgement when the client's statement conflicts with the evidence.	Asks questions about the symptoms, the work Jenson does, and his family.														
Recognise the importance of teamwork.	Does not get involved with any patient outside of office hours.														
Collect information about the whole person.	Notices that Jenson's fingers are stained with tobacco even though he said he does not smoke.														
Total				9											

Question	Answer	Marks	Guidance
4	<p>Level 3 (5–6 marks) Explanation of procedure AND what test blood could be tested for AND why. Quality of written communication does not impede communication of the science at this level.</p> <p>Level 2 (3–4 marks) Description of procedure AND what test blood could be tested for OR why. Quality of written communication partly impedes communication of the science at this level.</p> <p>Level 1 (1–2 marks) Description of procedure only OR what test Quality of written communication impedes communication of the science at this level.</p> <p>Level 0 (0 marks) Insufficient or irrelevant science. Answer not worthy of credit.</p>	6	<p>This question is targeted at grades up to D</p> <p>Relevant points include:</p> <p>Tests (what – why)</p> <ul style="list-style-type: none"> • example given eg sugar level - for diabetes • iron/rbc count – for anaemia • white blood cells – infections / cancer / disease • blood group – ensure compatibility • HCG/hormone – pregnancy • drugs – cheating / breaking law • ignore test for blood pressure <p>Explanation</p> <ul style="list-style-type: none"> • find vein – near surface of skin / low pressure • pressure collar – to trap blood in the arm • sterilise – reduce infection • take blood – small sample • remove needle and cover wound – stop bleeding and infection • label container – to avoid mix up of samples <p>Description</p> <ul style="list-style-type: none"> • find vein • pressure collar • sterilise • insert needle • draw blood into syringe • remove needle and cover wound • label container
	Total	6	

Question		Answer	Marks	Guidance
5	(a)	102 / 1.78 ² OR 1.78 x 1.78 = 3.1684; 102 / 3.1684; 32	3	Max 2 marks if not whole number. accept 32 (3) accept 32.19 for 2 marks ignore units
	(b)	29;	1	accept 29 only
	(c)	(changes from obese to) overweight / lower category	1	ECF from above
	(d)	(to continue the) diet; exercise	2	allow 1 mark for “keep doing what you are doing” ignore smoking accept reduce alcohol
Total			7	

Question		Answer	Marks	Guidance
6	(a)	1250; m ²	2	
	(b)	Width; trees; fence; (down)hill; boggy ground; river / water; east / direction (map faces);	3	2 correct for each mark
	(c)	3 pronged tail; gills OWTTE	2	
Total			7	

Question	Answer	Marks	Guidance
7	<p>Level 3 (5–6 marks) Some description and explanation of method including a comparison. Quality of written communication does not impede communication of the science at this level.</p> <p>Level 2 (3–4 marks) Description of chromatography but may lack detail. Quality of written communication partly impedes communication of the science at this level.</p> <p>Level 1 (1–2 marks) Description of a method with no explanation. Quality of written communication impedes communication of the science at this level.</p> <p>Level 0 (0 marks) Insufficient or irrelevant science. Answer not worthy of credit.</p>	6	<p>This question is targeted at grades C and D</p> <p>Relevant points include:</p> <p>Explanation</p> <ul style="list-style-type: none"> • idea of reference sample from school wall – for comparison • idea of unknown sample from paint can – for comparison • different dyes move at different speeds / same dyes travel at same speed/distance • compare dyes that have separated with R_f value and colour. <p>Description</p> <ul style="list-style-type: none"> • paint spotted onto chromatogram on start line. • placed in solvent so paint above solvent surface • enclosed • leave to develop until solvent front is near top of paper <p>Indicative of lower L1</p> <ul style="list-style-type: none"> • take a sample of both paints, and do something with them. <p>Indicative of higher L1</p> <ul style="list-style-type: none"> • take a sample of both paints, and do something with them and compare them. <p>assume water soluble unless otherwise stated</p> <p>Level 3 does not require ideas such as movement between phases.</p>
	Total	6	
	Paper Total	50	

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