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Examiners' Report
November 2011

GCSE Biology/Science 5BI1F/01

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November 2011

Publications Code UG029796

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Introduction

This was the first live paper for this new specification and some candidates have performed extremely well. The range of questions have enabled all candidates to access all parts of the paper.

The ramping of questions through the paper allows all candidates to access Q1-6 and not just solely the beginning of the examination paper. This is a very important component to the foundation tier paper.

The six-mark questions were relatively well answered and structured reasonably. The questions ensured that they were accessible for all grade boundaries.

Question 1 (a) (i)

Question 1ai was answered well by many candidates.

Candidates were clearly able to determine that the population of the world had increased with the general trend of the population line increasing.

A clear answer from the candidate scoring one mark.

(i) State the general trend shown in the graph between 1980 and 2000. (1)

The world population increased.



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Examiner Comments

The candidate has stated that the general trend for the graph is an increase in world population.



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Examiner Tip

Be clear of the command word "state". Merely say what is occurring in the diagram/graph. If it is clear that graphically that there is a rise on a variable, then state this. Use the keywords "increase" or "decrease" - "going up"/"going down" may not be acceptable in the years to come.

This candidate has clearly misunderstood the command word for this question and so does not score any marks.

(i) State the general trend shown in the graph between 1980 and 2000. (1)

4.5 and 6



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Examiner Comments

There were a small number of candidates who felt the answer should have been a quantitative calculation. The requirement for this in question 1(a)(ii) should have directed them back to (a)(i) - however, this was not seen by some of the candidates.

Question 1 (a) (ii)

A quantitative question and many candidates scored extremely well.

One mark was for reading off from the graph the population for 1980 and 2000. A range has also been allowed.

Two marks were awarded for the answer 1.5 billion regardless of working out shown.

Some examples are shown below.

A great example of a candidate who has clearly understood the scope of the question and scores two marks.

(ii) Calculate the difference in world population between 1980 and 2000. (2)

$$6 - 4.5$$
$$= 1.5$$

1.5 billion

answer = 1.5 billion



ResultsPlus Examiner Comments

A calculation has been shown to highlight the method of how the answer 1.5 billion was achieved.



ResultsPlus Examiner Tip

Candidates should always be advised to show their working in the space provided. They may still be able to gain one of the two marks, if their answer is incorrect but correct working is shown.

A candidate who has accessed the correct data to use. However the calculation is incorrect.

Score = 1/2

(ii) Calculate the difference in world population between 1980 and 2000.

(2)

1980 = 4.5 billion

2000 = 6.0 billion

answer = 10.5 billion



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Examiner Comments

This highlights the need for working to be shown in a candidate's answer.



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Examiner Tip

Always ensure working is shown in the blank space provided, so if the final answer is incorrect, marks may still be awarded for the method.

Question 1 (b) (i)

This question was answered relatively well. However, it required the candidates to calculate the mean of 3 values. Some candidates did not know how to calculate this mean value.

Some examples of i) a good answer and ii) a common misconception are shown.

This candidate has clearly understood the need for the addition of the three values in area B and dividing this number (0.099) by 3.

One mark has been awarded for the calculation of the three areas (0.099) and one mark is awarded for the mean value of 0.033.

Score = 2/2

area	carbon dioxide concentration (%)			
	1	2	3	Mean
area A	0.025	0.028	0.022	0.025
area B	0.036	0.031	0.032	0.033

(i) Calculate the mean carbon dioxide concentration in area B.

$$0.036 + 0.031 + 0.032 = 0.099 \div 3 = 0.033$$

mean carbon dioxide concentration = 0.033 %



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Once again, two marks would have been awarded for the value of 0.033% in the answer space. However, the candidate has advisably shown their working in case the answer is incorrect.



ResultsPlus Examiner Tip

Ensure that the answer you provide is placed in the assigned area and not in any blank space in the table.

Some candidates misunderstood the requirement for the mean concentration and used the mode value instead.

This was a rare but seen misconception.

area	carbon dioxide concentration (%)			Mean
	1	2	3	
area A	0.025	0.028	0.022	0.025
area B	0.036	0.031	0.032	

(i) Calculate the mean carbon dioxide concentration in area B. (2)

~~0.031~~, 0.032, ~~0.036~~

mean carbon dioxide concentration = 0.032 %



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Examiner Comments

Be aware that within the specification content the mathematical requirements are clearly laid out and explained.

Candidates must be aware that they can be assessed on any of these requirements throughout the examination period.

Question 1 (b) (ii)

Question 1(b)(ii) was not answered as successfully as had been hoped.

Most candidates were able to determine that area B had less trees but were stipulating that most had been removed - a statement from the stem of the question.

A large number of candidates failed to link the idea of fewer trees taking in **less** carbon dioxide. Many did not mention photosynthesis rates being low due to fewer trees.

As can be seen by this response, many candidates were highlighting the idea of oxygen. The question clearly states the need for carbon dioxide comments.

Many candidates also stated that area B had no trees. This is not the case as the stem of the question states most of the trees had been removed. The removal of most trees was poorly commented upon.

(ii) Explain why all the carbon dioxide concentration readings for area B are higher than for area A.

(2)

Because The population of trees use carbon dioxide to release oxygen into the atmosphere but without the trees there will be less oxygen and more CO₂.



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Examiner Comments

The answer to this question required the candidate to make the link between the removal of trees and the inability of that area (B) to perform a high degree of photosynthesis and therefore remove less carbon dioxide from the atmosphere.

This seemed challenging to many.



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Examiner Tip

The clues are in the stem of the question itself. Removing trees in area B should have allowed candidates to recall that trees use carbon dioxide in photosynthesis so if there are fewer in area B then less carbon dioxide will have been removed.

Do not simply repeat the question that has been asked or any part of the question information (for example "area B had most trees removed" was not a marking point as this had already been stated).

This response is worthy of two marks as in the last sentence the candidate has recognised that area B has fewer trees (1) and therefore less carbon dioxide will have been removed/taken in (1).

(ii) Explain why all the carbon dioxide concentration readings for area B are higher than for area A.

(2)

in area A there is more trees
to take in the dioxide carbon dioxide
so it let more oxygen out where
in Area B there is less trees so less carbon
dioxide been taking in

(Total for Question 1 = 8 marks)



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Examiner Comments

"In area A there is more trees" would have also been worthy of a marking point as a reverse argument for "less trees in area B".

Question 2 (c)

This item was answered particularly well and many candidates recognised that the Cave Bear has a backbone or spine.

The response of "spinal cord" was ignored as the mark scheme expresses the skeletal structure of the vertebrae as the answer and not any body part associated within.

Alternative answers to back bone included "spine" / "supporting rod" / "vertebrae".

Of the few incorrect answers seen, this response shows the most common incorrect response.

(c) All organisms from the family Ursidae are vertebrates.

Using the information in the photograph, explain why scientists classified the Cave Bear as a vertebrate. (2)

because the cave bear was an omnivore so there for it ate animals, grass and berries so the scientists would have named it that.



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Examiner Comments

Being an omnivore does not automatically suggest that the Cave Bear was a vertebrate.

The first element to classification of vertebrates is to appreciate that they have acquired a "backbone" through their evolution. Any alternative answers to backbone were accepted.

Unfortunately, the idea of an omnivorous animal was ignored.

This response gained full marks and also highlights where the reverse argument could also have scored a marking point.

(c) All organisms from the family Ursidae are vertebrates.

Using the information in the photograph, explain why scientists classified the Cave Bear as a vertebrate.

(2)

The cave bear had a backbone. "Vertebrate" applies to an animal which has a backbone. "Invertebrate" applies to those animals without a backbone.



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Examiner Comments

This candidate has clearly identified that the Cave Bear from the diagram had a backbone and this is why it is classified as a vertebrate.

The candidate has also suggested that this characteristic is seen in all vertebrates. This second mark was seen less often than the above point.



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Examiner Tip

If you see that a response requires two marking points ensure that what you have written has two separate areas to be marked.

Question 2 (d)

This item was answered less well than most of the others, with many candidates scoring only one mark out of a possible three.

The direction of many answers was regarding the human impact of hunting a Cave Bear rather than extinction through competition and an inability to adapt to a changing environment. The stem of the question has given the candidates the opportunity to suggest humans are the main reason as to why species can become extinct.

An impressive response that is well structured and concise. The answer is sequential in its explanation of how a species can become extinct.

This style of answer, however, was not often seen.

(d) It is thought that the Cave Bear may have become extinct due to human activities.

Suggest how natural selection can result in the extinction of a species. (3)

A food source could have died out which meant that there was less food and more competition so some of the species could have died due to starvation. Also humans could have hunted the Cave bear as food so they would have died because of another predator. Also climate conditions could have changed and the species might have ~~not adapted fast~~ enough and died off.

(Total for Question 2 = 8 marks)



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Examiner Comments

As can be seen by this response, the candidate has made a good attempt at making three separate points for the three marks available.

Each statement that the candidate has made has a consequence which directly relates back to the question that has been asked.

This candidate has gained no marks. The answer appears very vague and unspecific to the various causes of extinction.

It has to be stated that a lack of food will not contribute to extinction unless the lack of food is specifically affecting **all** members of that species. This has not been mentioned here.

(d) It is thought that the Cave Bear may have become extinct due to human activities.

Suggest how natural selection can result in the extinction of a species.

(3)

Natural selection can result in the extinction of a species by ^{processes} ~~methods~~ like disease, or lack of food for the creature leaving it to starve



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Examiner Comments

The candidate could have scored marking point 1 (competition for resources) if they had stated the reason for the lack of food. This would have implied that competition would involve all members of that species and lead to a possible extinction.

This candidate has not appreciated that another species can contribute to the extinction of another, as the question has asked.

Question 3 (a) (ii)

This question was found challenging by many candidates and thus many did not score highly. Few used the information in the question regarding the way that the seedlings were originally planted and subsequently rearranged.

The growth of all of the seedlings was very different and a simple comment linking these differences was sufficient to score both marking points. However, the majority of candidates did not achieve this.

The diagram clearly showed the change in direction of both seedling A and seedling B and this change enabled them both to grow downwards.

Seedling C can be seen to "just"/"continue"/"carry on" growing downwards.

This response was typical of a candidate who did not read the question or understand the command word "compare".

It is true that all roots were attempting to grow downwards, but this by no means constitutes a comparison.

(ii) Compare the direction of growth of the roots in the seedlings.

(2)

~~Where~~ What ever position the seed was placed in the root would try and grow down away from the seed.



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Examiner Comments

A comparison requires a candidate to look at all data provided and correctly highlight the differences between them all.

Seedling A can be seen to grow downwards after the horizontal position. Same too can be said for seedling B after being rearranged vertically upwards. However, seedling C did not change direction as it was already planted facing downwards.

This was the key element to the question.



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Examiner Tip

Always look at the data/diagrams provided. They will give you vital clues to how to answer the question.

This response was awarded both marking points here.

The answer conveys a comparative statement and also mentions all three seedlings in question.

(ii) Compare the direction of growth of the roots in the seedlings.

(2)

Seedling a was placed horizontally, so the roots will grow downwards towards gravity as it is positively gravitropism. Seedling B's roots grew out and then bent towards gravity while seedling C's roots grew straight down.



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Examiner Comments

All growth directions have been commented upon here and compared. The first marking point regarding the change of direction of seedlings A and B is very well structured and explained (even as far as stating the tropism used).

The comparative statement "while" was sufficient to suggest that seedling C did not change direction and "grew straight down".

A very impressive answer.

Question 3 (a) (iii)

This question was answered relatively poorly. Candidates clearly appreciate the learning of phototropism rather than gravitropism and highlighted this as a reason for the growth direction of seedling A.

Some candidates mentioned the existence of a growth hormone called auxin. This was rewarded if simply mentioned. The context behind how auxin changes growth direction was rarely seen.

This response is an example where a candidate has mentioned the phototropism response.

This response scored no marks.

(iii) Explain what happened to the cells in the root of seedling A to cause the change in direction of growth. (3)

it is changed in a different direction because of the sun light and where the seedlings are planted.



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Examiner Comments

This response has not mentioned the use of gravitropism in order for the change of direction.

If a question is asking about the direction of growth in a root, you can expect to have to mention the effect of gravity and not just rely upon the effect of sunlight.

The reasoning behind the change in direction is going to be required for a question with three marking points.

The question also states that some mention of "cellular changes" is required. This response does not state this.

This response scored maximum of marks.

(iii) Explain what happened to the cells in the root of seedling A to cause the change in direction of growth.

(3)

In the root of a seedling there is a hormone called auxin, auxin is destroyed wherever the light is therefore the auxin accumulates on one side of the root which then means the root grows downwards which is caused by gravity



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Examiner Comments

The mentioning of the hormone "auxin" was rewarded. The marking point that was seen most often is seen here, "the root grew downwards by gravity".

The consequence of auxin on "one side of the root" has also been rewarded here within the context of the root growing downwards.

This was one of the best answers provided.

The marking points involving "positive gravitropism" and "elongating cells" were rarely seen.

Question 3 (b) (i)

Many candidates struggled on this question and it seemed a positive step to reward answers in a triangular pyramid shape as well as a blocked typical pyramid of biomass.

The area available for the candidates to work provided enough space for the candidates to fill 9 blocks, 1 block and then a simple line for the snake biomass. This was very rarely seen.

Many candidates did score the first marking point for drawing a pyramid of some sort (either triangular or blocked) - however, many then placed the snake population at the bottom which, unfortunately, negated that mark.

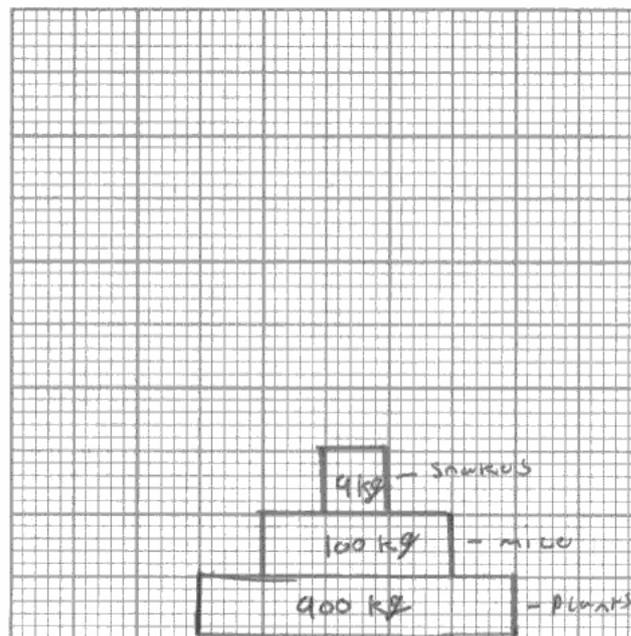
This candidate scored one mark for drawing a pyramid of biomass. However, the blocks used are not accurately proportional to the values used in the food chain.

(b) The plants developing from these seedlings are part of a food chain.
The diagram shows the biomass of the organisms in this food chain.



(i) Using the data in the food chain, draw a pyramid of biomass for this food chain.

(2)



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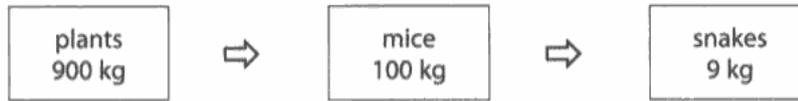
Examiner Comments

If any values are provided to use in a food chain for the drawing of a pyramid it is expected that the pyramid drawn is to scale.

This example shows five blocks drawn for 900 kg, yet three blocks drawn for 100 kg, clearly not in proportion. Likewise, the snake has been drawn with one block for 9 kg.

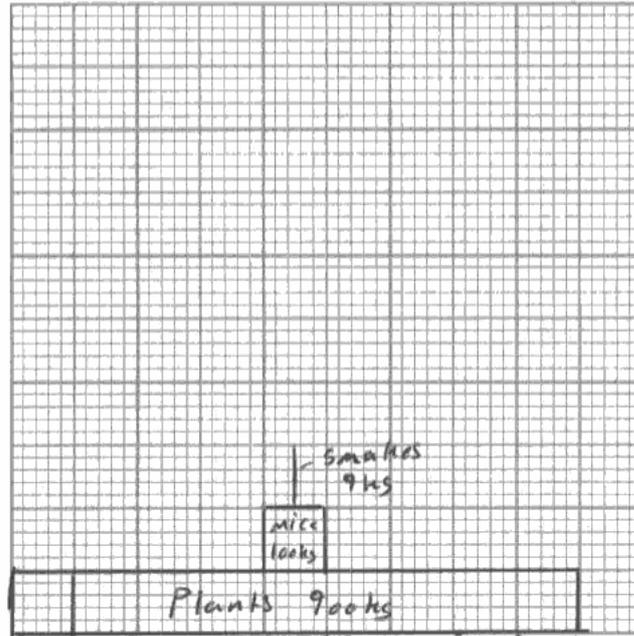
This response gained the maximum score.

(b) The plants developing from these seedlings are part of a food chain.
The diagram shows the biomass of the organisms in this food chain.



(i) Using the data in the food chain, draw a pyramid of biomass for this food chain.

(2)



ResultsPlus Examiner Comments

This candidate has used the blocks on this drawing area extremely well to highlight how the proportions of this pyramid of biomass should be drawn.

Nine blocks for 900 kg, one block for 100 kg and a simple line to highlight just how much biomass has been lost from plant to mice to snake. It has also been labelled well, although this was not a requirement.

Question 3 (b) (ii)

This question was answered well by many candidates. Many responses included how the energy/biomass was wasted by the mouse through moving or excreting. The less popular answer involved the mouse not eating all of the plant material.

This response received two marks.

(ii) Explain why all the biomass in the plants does not get passed to the snake. (2)

because the energy from the plants gets lost after the mice eating them due to heat and excretion.



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This answer was very concise and direct.

The candidate has highlighted that energy can be lost and has stated two ways that this energy can be lost. Heat was rewarded as an alternative to "respiration" or "movement".

Excretion was clearly marking point 3.

This was a very well-rounded answer.

(ii) Explain why all the biomass in the plants does not get passed to the snake. (2)

because nothing eats the snake in the food chain.



ResultsPlus Examiner Comments

The idea that the snake is at the top of the food chain is not incorrect. However, this does not answer the question in terms of energy levels and biomass passed on.

This response gained no marks.

Question 4 (c) (i)

This question was answered well. Candidates clearly grasped how to draw and label Punnett squares.

If the father gametes were in the reverse order (bB) this was still rewarded. However, an error carried forward was not rewarded if the candidate incorrectly stated the father gametes.

This response gained one mark for the correct father gametes. Unfortunately one of the offspring genotypes is incorrect.

(c) (i) Complete the Punnett square to show how cystic fibrosis is inherited if both parents are carriers (Bb). (2)

		Mother	
		B	b
Father	B	B	Bb
	b	Bb	bb



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Examiner Comments

As can be seen here a simple error has proved costly. It is always advisable to check through your work.

The gametes for the father were provided correctly. However, the offspring produced by the B gametes has been incorrectly stated as just "B" in the Punnett square.

This was rarely seen fortunately.

This was a typical answer that was provided and scored full marks.

- (c) (i) Complete the Punnett square to show how cystic fibrosis is inherited if both parents are carriers (Bb).

(2)

		Mother	
		B	b
Father	B	BB	Bb
	b	Bb	bb



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Examiner Comments

As can be clearly seen by this example the candidate has correctly identified that the father gametes are B and b. The offspring for these parents has then been correctly supplied within the Punnett square.

This is an expectation in the new specification to show cystic fibrosis and sickle cell disease.

Question 4 (d)

This question was not answered well. Some candidates used little scientific language which led to basic language within their answer, thus scoring few marks.

Many candidates did highlight that mucus was the cause of cystic fibrosis and that the mucus had become thick/sticky. However, many then went on to suggest that it blocks the throat and restricts breathing. The majority of candidates did not appreciate the effect of mucus on the pancreatic enzymes.

(d) Describe how cystic fibrosis can cause problems with the absorption of food and oxygen in a person with this disorder.

(3)

Someone with cystic fibrosis has difficulty digesting food and they produce a sticky mucus which causes chest infections allowing less oxygen to get to the lungs.



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Examiner Comments

This type of response was commonly seen and the marking point of "the production of a sticky/thick mucus" was well documented.

The idea of less oxygen being delivered to the lungs was ignored, however, if the candidate had mentioned that the mucus blocks/clogs the lungs then this was rewarded.

Scientific terminology should be used. Words such as surface area, reduction, absorption, enzymes were expected here.

(d) Describe how cystic fibrosis can cause problems with the absorption of food and oxygen in a person with this disorder.

(3)

The thick mucus blocks of the enzymes in the digestive system causing the sufferer problems with digesting food.



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Examiner Comments

This response was not often seen.

The inclusion, once again, of thick mucus was common in the answers seen. The blocking of enzymes in the digestive system gained a mark. The response scored two marks.



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Examiner Tip

Overall, this question required in depth knowledge of cystic fibrosis. It would have been suitable to list the effects in bullet point form.

A description involves an answer that highlights "what happens" when someone has this disease. There is no need to explain why the disease occurs.

Question 5 (a) (i)

This question was answered extremely well. However, the main issue that candidates seemed to have when answering this question was they assumed that an increase in the lower reaction time as seen with caffeine meant a slower reaction.

The mark scheme allowed the candidates to state that the reaction time decreased or that the speed of one's reaction increased.

(i) State the effect of caffeine on reaction time.

(1)

caffeine decreases reaction time.



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Examiner Comments

This candidate has clearly identified that the reaction time has decreased with the inclusion of caffeine into the drink.

Very concise and direct.

(i) State the effect of caffeine on reaction time.

(1)

caffeine makes reaction time
slower than usual.



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Examiner Comments

The candidate has assumed that the lower reaction time means that the reaction time has become slower.

This response scores no marks.



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Examiner Tip

Ensure that when answering these types of questions you have identified what an increase or decrease in a value actually means. This may take more time but can help avoid simple errors.

Question 5 (a) (ii)

This question was answered well with many scoring one mark. Candidates identified that caffeine is a drug that acts as a stimulant.

However, some candidates did not then go on to stipulate this effect on the body and more importantly, the nervous system.

The command word "explain" should always been linked with the word "because".

This response was typical. A candidate was able to access the first marking point in that caffeine is a stimulant/stimulating drug.

However, "quicker at doing things" was not sufficient for the second mark.

(ii) Explain the effect of caffeine on reaction time. (2)

caffeine has made this person react faster because its a stimulant, which means it wakes the body up, so your quicker at doing things



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Examiner Comments

This response has scored the stimulant marking point. However, the idea of "waking the body up" is insufficient.

The biological significance regarding the speeding up of the nervous system/neurotransmitters etc was essential to score the second mark.

This response has been awarded 2/2.

(ii) Explain the effect of caffeine on reaction time. (2)

Caffeine is a stimulant and stimulants speed up the electrical impulses through your body.



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Examiner Comments

This response is very impressive.

The candidate has clearly and concisely stated that caffeine is a stimulant and that stimulants will increase the conduction of nervous stimulation in the human body.



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Examiner Tip

Make sure you are aware of the expectation from each command word.

Question 5 (a) (iii)

There were many ways in which candidates could express their thoughts. Water acting as a control experiment was rarely seen. However derivatives of this answer including "to compare the caffeine experiments with" or "to see if there was a difference in reaction between cola and water" was acceptable.

The second marking point was seen more commonly. Many candidates recognised that water did not contain caffeine. However, many stated that water was "non-reactive" or "did not have anything in it" and therefore failed to score this marking point.

Some examples are set below to highlight these points.

This is a clear example of a candidate who has recognised that water will not have an effect on reaction times but has failed to express it in a correct manner.

(iii) Explain why water was one of the drinks used in this investigation. (2)

Because water has no additives in it
unlike cola. ~~water has no additives~~
cola has additives so adding water
would show the effects of additive in
the reaction time.



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The word "additives" could have been simply substituted for the word "caffeine" to have access to the second marking point.

This response scored full marks as both marking points are clearly highlighted.

(iii) Explain why water was one of the drinks used in this investigation.

(2)

Because water isn't a stimulant
or a depressant, so they can compare
their results



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Examiner Comments

This was a very good response as it was recognised that water is not categorised as a stimulant and therefore a comparison of the results can be applied.



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Examiner Tip

This answer is concise, using only the space provided.

This is important. A question will not provide more space or too little space for your answer. Use the amount of space provided as a guide for your answer. If you find yourself running out of space you have probably not been concise enough.

Question 5 (b) (ii)

This six marker question was well answered by many in terms of accessing the quality of written communication. The mark scheme has been devised in order for the marking to be indicative rather than highlighting marking points specifically.

Many candidates launched straight into the effects of alcohol without making any introduction; however this is not an obligation. A simple mention of alcohol being a depressant and a drug that affects how the body works would have set up the answer to good effect.

Many candidates mentioned that alcohol will have an effect on one's vision. They also stated that alcohol leads to a person "doing something that they usually would not do sober" - an alternative to "loss of inhibitions". Hangovers and feeling sick were also common comments, although slightly less rewarding than the first effects as mentioned above.

Candidates only needed to mention one effect with simple language to score two of the six marks.

Many candidates were able to access the second level on the mark scheme by also stating one/some long term effects of alcohol. The most common was some reference to the liver being damaged. Many attempted the correct spelling of "cirrhosis" and also stated that the brain would be damaged in some form.

Lesser seen answers stated the effects/ethics of liver transplants and the effects on pregnancy.

Many candidates stated that alcoholism can develop in the long term which was credit worthy.

It must be stressed that an answer does not have to be lengthy to gain full marks. However, an answer that lacks content will clearly not score the highest of marks.

A candidate will be rewarded for what they do know, rather than for what they omit. Structure, spelling, grammar, scientific terminology, are an important factor in these answers.

* (ii) Describe the short term and the long term effects of alcohol abuse.

(6)

~~The short term and long term effect of alcohol abuse is that~~ The long term effect of alcohol abuse is that you will become depressed and dependent on alcohol, which can lead to liver disease and a transplant. You will be less likely to get a liver transplant if you are an alcoholic and it can kill you.

The short term effect is that you will feel dizzy, light-headed and you will feel less pain if you were drunk. You ~~was~~ will take a lot more risks because you think that you are a lot more clever.



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This response scored very well as it is structured well by highlighting each of the effects asked for. The ethics of liver transplants is also highlighted which was pleasing to see. Spelling was a strength here with words such as "dependent", "alcoholic" and "depressed" being used correctly.

The short term effects were also highlighted, although not as well as the long term effects.

* (ii) Describe the short term and the long term effects of alcohol abuse.

(6)

The short term effects of alcohol are blurred vision, loss of motor control, lowered inhibitions, slower reaction time, and blood poisoning.

The long term effects of alcohol are brain damage cirrhosis or liver disease.



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Examiner Comments

The answer is structured in such a way to ensure the effects both in the long term and short term are highlighted easily.

The effects in both the short and long term are numerous and correct.

Question 6 (a) (ii)

This question was very well answered and many candidates were able to gain full marks here.

The idea that sweat is produced gained the first marking point. Water was also rewarded as an alternative for the word sweat.

Many candidates stated that this production allowed the body/skin to cool down with only a handful stating that the water/sweat evaporates to cool the body down.

Some examples are shown below.

(ii) Explain the role of the part labelled **A** in regulating body temperature. (2)

if the body gets to hot it releases sweat to try and cool it down. The sweat then evaporates.



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Examiner Comments

This is an example of an answer where a candidate has used the correct biological terminology in the correct context.

The keywords "sweat" and "evaporate" have been mentioned and therefore full marks awarded.

This answer scored full marks.

(ii) Explain the role of the part labelled **A** in regulating body temperature. (2)

'A' produces sweat to your top of the skin which can evaporates and keep your body cool.



ResultsPlus

Examiner Comments

Again, another example of a candidate who has accessed both marking points. The idea of sweat being produced by label A is clearly stated and the consequence of this production on thermoregulation is mentioned also.

Question 6 (d)

This six-mark question seemed to be answered more successfully than 5(b)(ii).

Many candidates highlighted the effect of a loss of thermoregulation due to the lack of hair and insulating power. Some then went on to move up into the second level by mentioning the effect of "blocking" sweat glands by blistering. Very few candidates mentioned that blood vessels would be affected (vasodilation and vasoconstriction was not essential to gain this marking area). Many candidates also did not state that the nervous system would be damaged and therefore thermoregulation affected.

The QWC mark, again, was scored highly and examiners were keen to reward candidates who used scientific terminology well, spelt words correctly and used grammar to good effect.

** (d) If a person is badly burnt the hairs on the skin are lost and blisters can cover the surface of the skin.*

Explain how burns to the skin affect temperature regulation in the human body.

(6)

Burns to the skin will affect temperature regulation by not allowing sweat to escape on a hot day because of the blisters formed over the skin and since the hairs ^{are} lost they cannot stand up and trap a layer of air to help insulate us when it is cold. The swelling will also prevent vasodilation working properly since ^{from the blisters} the ~~heat~~ heat from the blood has more layers to go through to escape the body and help cool it down when it is ^{too} hot.

Sweat cannot escape vasodilation



ResultsPlus Examiner Comments

This response has clearly (and concisely) stressed the effects of severe burns on sweat glands and the blocking effect, the loss of hairs reducing the insulating effect and also the idea that vasodilation will be compromised.

This candidate has used scientific terminology to good effect. Spelling, grammar and punctuation are all used well in order to give structure to this answer. This scored the six marks.

Paper Summary

In summary this paper allowed all candidates to access some marks. Certain questions with more simple command words were answered with more success than the calculation or compare commands. This should be highlighted within the teaching of this new qualification.

It should be noted that both the How Science Works and the Mathematical skills will be tested within this module. These skills can come from an array of situations and students should be prepared for this.

The idea of simple recall seems fine for the majority of candidates; however, when asked to use this biology in context proved challenging; such as in question six on skin burns.

There is a range of topic areas that can be tested and the detail given in answers will be a differentiator between those achieving full marks and those getting less.

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