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# Principal Examiner's Feedback

## October 2016

## Pearson Edexcel International Advanced Level in Biology (WBI02) Paper 01

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# Admin 1 GQ October 2016

## Paper Introduction

This paper performed well in enabling candidates to access the questions and demonstrate their knowledge and understanding. There were a number of discriminating questions that spread the marks across the ability range. All of our mark points were seen and there were very few blank responses. The multiple choice questions in particular scored highly.

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## WBI02_01_Q01b

## Introduction

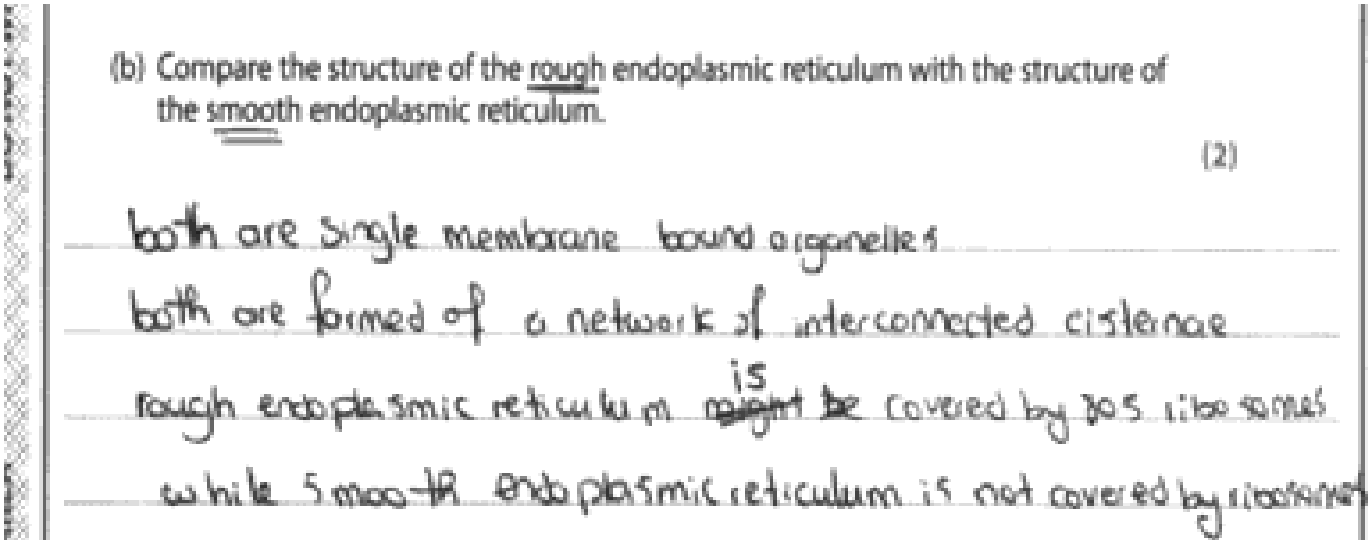
The majority of candidates scored mark point 3 for comparing the presence and absence of ribosomes but only a few of the candidates described features that both structures have in common.

## Examiner Comment

This is an example of one of the better responses that we saw.

## Examiner Tip

The command word 'compare' allows comments on both differences and similarities.



(b) Compare the structure of the rough endoplasmic reticulum with the structure of the smooth endoplasmic reticulum.

(2)

both are single membrane bound organelles

both are formed of a network of interconnected cisternae

rough endoplasmic reticulum is might be covered by lots ribosomes

while smooth endoplasmic reticulum is not covered by ribosomes

## WBI02_01_Q02a

### Introduction

Candidates made some good attempts at drawing features of prokaryotic organisms and a high proportion of candidates scored full marks for their drawings. We over-looked errors such as more than one flagellum drawn but we could not accept DNA that either looked linear or was labelled as being linear.

### Examiner Comment

Circular DNA and flagellum were probably the most common structures drawn, followed by slime capsule and small ribosomes.

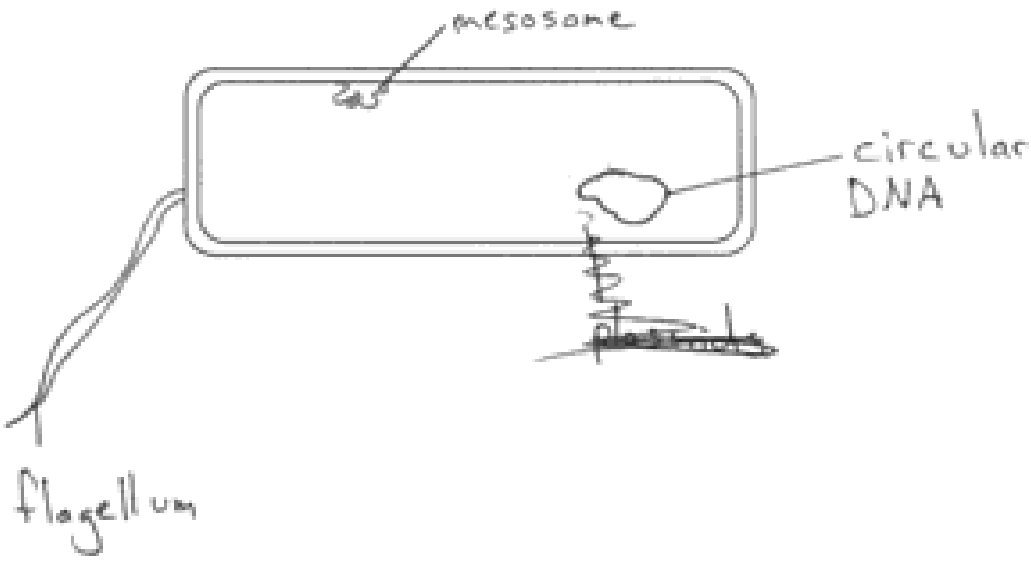
**2** Organisms can be classified into one of three taxonomic groups called domains.

The Archaea and Bacteria are two of these domains. Organisms belonging to these two domains have prokaryotic cells.

(a) The diagram below shows the outline of a typical rod-shaped bacterial cell.

Draw and label **three** features on this diagram that may be found in a prokaryotic cell, but **not** in a plant cell.

**(3)**

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## WBI02_01_Q02bi

### Introduction

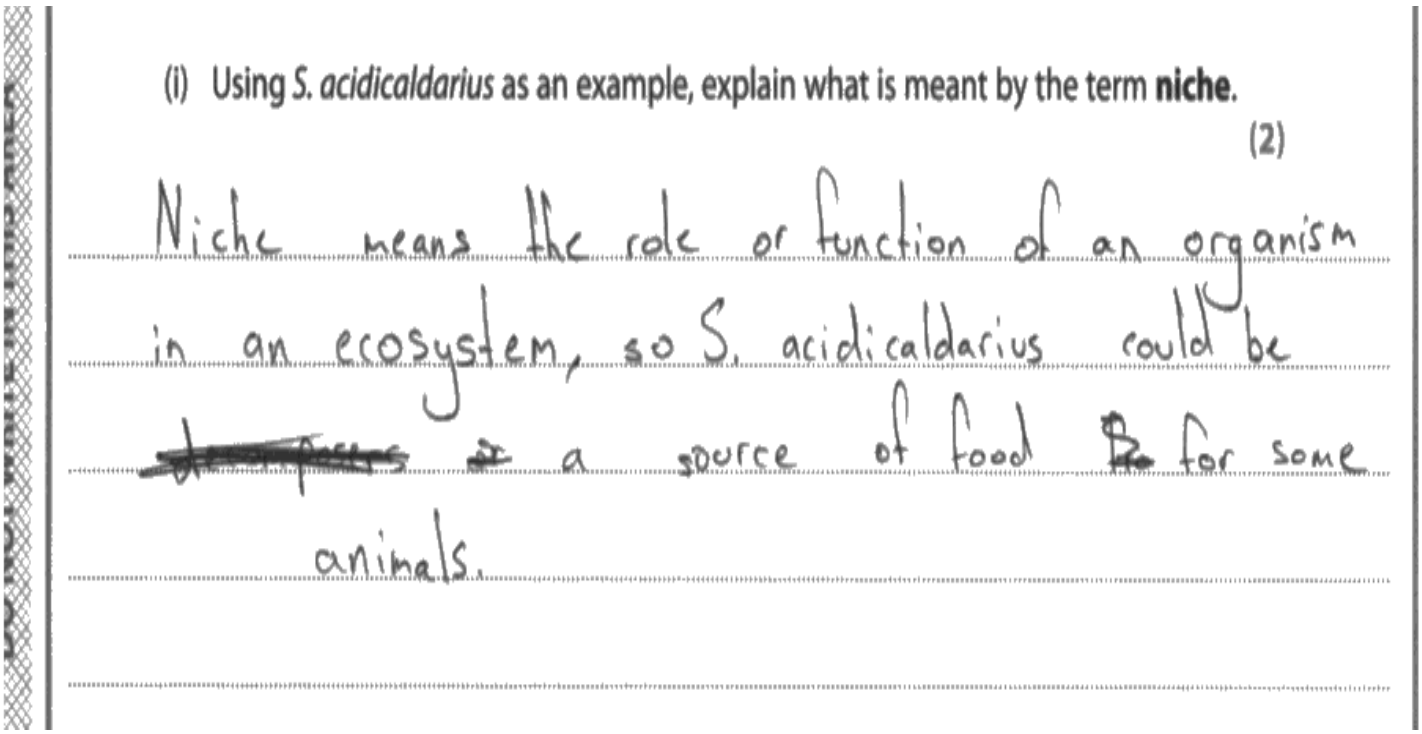
This was a typical example of where candidates simply wrote what they have been taught without writing their response in the context of the question. More candidates now seem to appreciate that a species' niche is its ***role*** in its habitat.

### Examiner Comment

An example of what we were looking for.

### Examiner Tip

Give your answer in the context of the question, not just a generic response.



(i) Using *S. acidicaldarius* as an example, explain what is meant by the term **niche.**

**(2)**

Niche means the role or function of an organism in an ecosystem, so S. acidicaldarius could be a source of food for some animals.

## WBI02_01_Q02bii

### Question Introduction

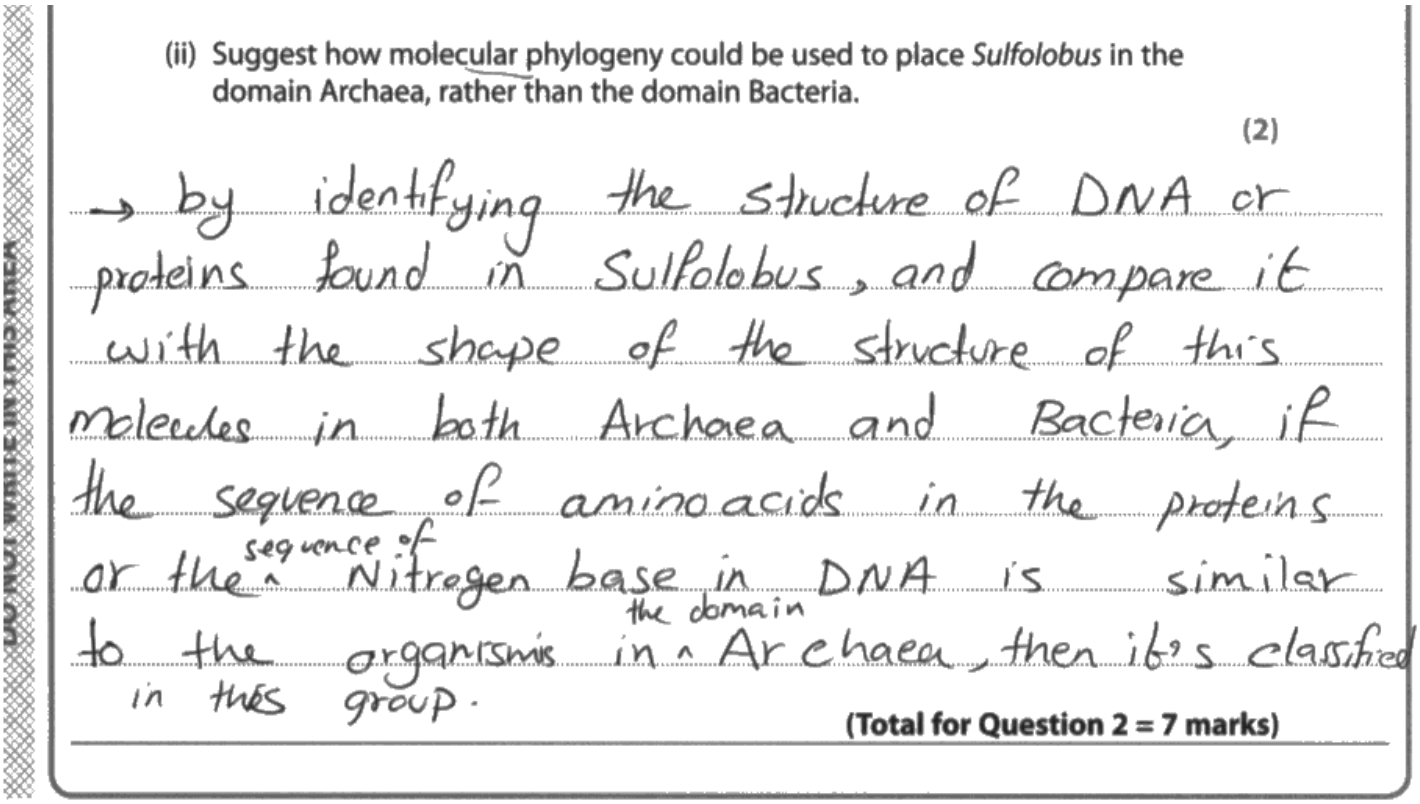
A high proportion of candidates knew that molecular phylogeny involved looking at molecules found in cells, but fewer went on to answer the question and comment on what would be done with the information.

### Examiner Comment

This is an example of the type of response that we were hoping for to this question.

### Examiner Tip

If you are asked a question in a particular context, your answer must include the context; try not to simply regurgitate facts that have been learnt.



(ii) Suggest how molecular phylogeny could be used to place *Sulfolobus* in the domain Archaea, rather than the domain Bacteria.

**(2)**

→ by identifying the structure of DNA or proteins found in Sulfolobus, and compare it with the shape of the structure of this molecules in both Archaea and Bacteria, if the sequence of amino acids in the proteins or the sequence of Nitrogen base in DNA is similar to the organisms in the domain Archaea, then it's classified in this group.

**(Total for Question 2 = 7 marks)**

## WBI02_01_Q03ai

### Question Introduction

This calculation caused few problems to the candidates. Those who did not score both marks generally scored the first mark.

### Examiner Comment

A typical response, showing the working clearly laid out.

The table below shows the results of this investigation.

| Concentration of honey (%) | Diameter of zone of inhibition / mm |
|---|---|
| 0.0 | 0 |
| 12.5 | 13 |
| 25.0 | 19 |
| 50.0 | 24 |

(a) (i) Calculate the percentage increase in the diameter of the zone of inhibition when the concentration of honey was increased from 25% to 50%.
Show your working.

(2)

$24 - 19 = 5$

$\frac{5}{19} \times 100 = 26.32\%$

Answer 26.32 %

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### Examiner Comment

Dividing by 24 was the most common error made.

The table below shows the results of this investigation.

| Concentration of honey (%) | Diameter of zone of inhibition / mm |
|---|---|
| 0.0 | 0 |
| 12.5 | 13 |
| 25.0 | 19 |
| 50.0 | 24 |

(a) (i) Calculate the percentage increase in the diameter of the zone of inhibition when the concentration of honey was increased from 25% to 50%.
Show your working.

(2)

$\frac{24-19}{24} \times 100 = 20.83\%$

Answer 20.8 %

DO NOT WRITE IN THIS AREA

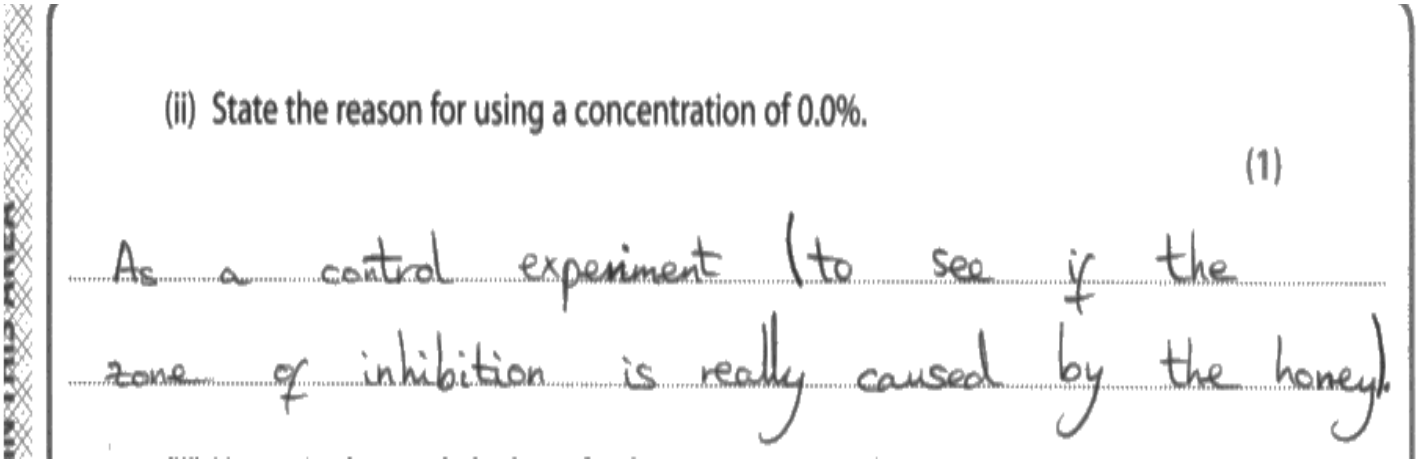
## WBI02_01_Q03aii

### Introduction

This question was high-scoring. The commonest error was for stating that 0% was included as a control variable

### Examiner Comment

We accepted a simple reference to 0% acting as a control but we preferred responses of this standard.



(ii) State the reason for using a concentration of 0.0%.

(1)

As a control experiment (to see if the zone of inhibition is really caused by the honey).

## WBI02_01_Q03aiii

### Question Introduction

Candidates were not deterred by this unfamiliar context for testing the core practical.

### Examiner Comment

This response is particularly good, demonstrating all our mark points.

### Examiner Tip

If you write about the need for repeating a procedure, you need to further explain that a mean can be calculated from the sets of data.

(iii) Honey is also made by bees feeding on the nectar from Ulmo trees in Chile.

It has been claimed that Ulmo honey is more effective against bacteria than Manuka honey.

Describe how a valid investigation could be carried out to test this claim.

(5)

First, extracts of both types of honey are made using the same solvent (e.g. sterile water) and using the same mass of honey ~~(testing)~~ (making the extracts of both varieties of honey of the same concentrations, like 12.5%, 25% and 50%). Next, inoculate two agar plates with the same type of bacteria and in each section, place the same volume of each of the extracts in wells of the same site (use a control experiment with 0% honey concentration in both agar plates for the last section). Then, seal the agar plates the same way letting oxygen in (to prevent anaerobic respiration) and incubate them in the same conditions (same temperature, same humidity, etc.) for 48 hours. Finally, measure the zone of inhibition of each section in both agar plates (using the same technique) and repeat the experiment to get an average of the zone of inhibition and get more valid and reliable results

## WBI02_01_Q03bi

### Question Introduction

A range of structures were given but we felt that just a reference to nucleus was too vague given the context of the question.

## WBI02_01_Q03bii

### Introduction

The majority of candidates were familiar with the events that occur following pollination; leading up to fertilisation. However, there was confusion between the order of the tissues that the pollen tube has to grow through and which nuclei do what.

Disappointingly, mark point 1 was very rarely seen; candidates know the events that take place but not the significance of pollination.

### Examiner Comment

Mark points 3, 4 and 5 are illustrated here.

### Examiner Tip

You need to be very clear which nucleus you are writing about by naming them; mark point 2 could not be awarded on line 7 for this reason.

(ii) Describe how pollen is involved in the fertilisation of a flower.

(4)

→ when pollen stick to the stigma of the flower, the tube nucleus in the pollen produce digestive enzymes that digest the the cells of the style and produce pollen tube through the style of the flower, the pollen tube contain three nuclei, one is the tube nucleus, and other 2 nucleus framed from the generative nucelus, when the pollen reach the ovary of the plant the pollen tube burst, so the 2 nuclei enter through the micrphyl, one nucleus will fuse with the ovule and fertilisation take place to produce embyro. The other nucleus fuse with the 2 polar bodies to form triploid endosperm nucleus, so double fertilisation take place.

**(Total for Question 3 = 13 marks)**

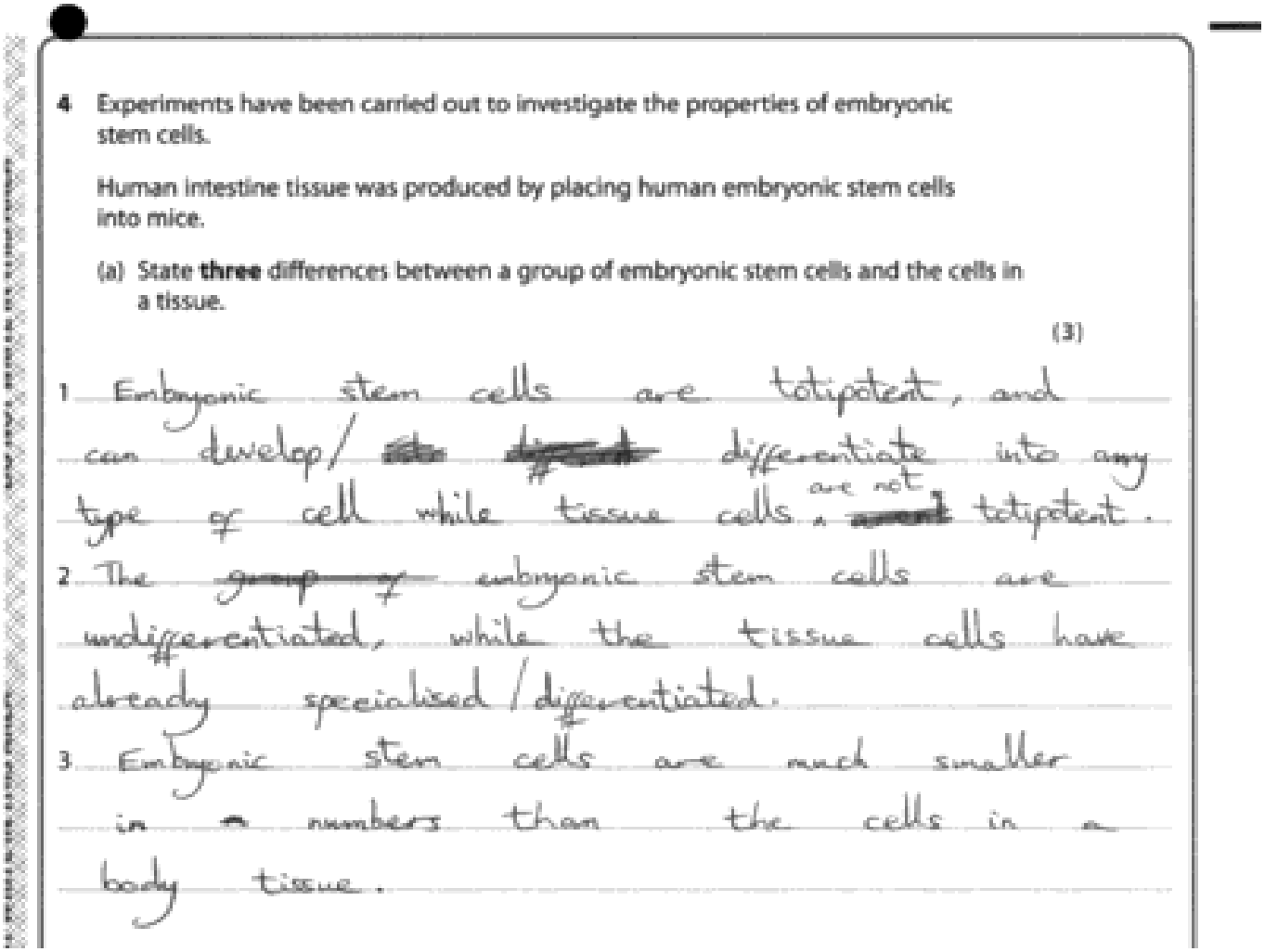
## WBI02_01_Q04a

## Question Introduction

Candidates generally scored 1 or 2 marks for this question. Very few could give 3 clear differences between embryonic stem cells and tissue cells. One misconception was apparent : a relatively large number of candidates could tell us that embryonic stem cells are totipotent but thought that tissue cells are pluripotent.

## Examiner Comment

Mark points 1 and 2 are illustrated here.



4 Experiments have been carried out to investigate the properties of embryonic stem cells.

Human intestine tissue was produced by placing human embryonic stem cells into mice.

(a) State **three** differences between a group of embryonic stem cells and the cells in a tissue.

(3)

1 Embryonic stem cells are totipotent, and can develop/ differentiate into any type of cell while tissue cells are not totipotent.

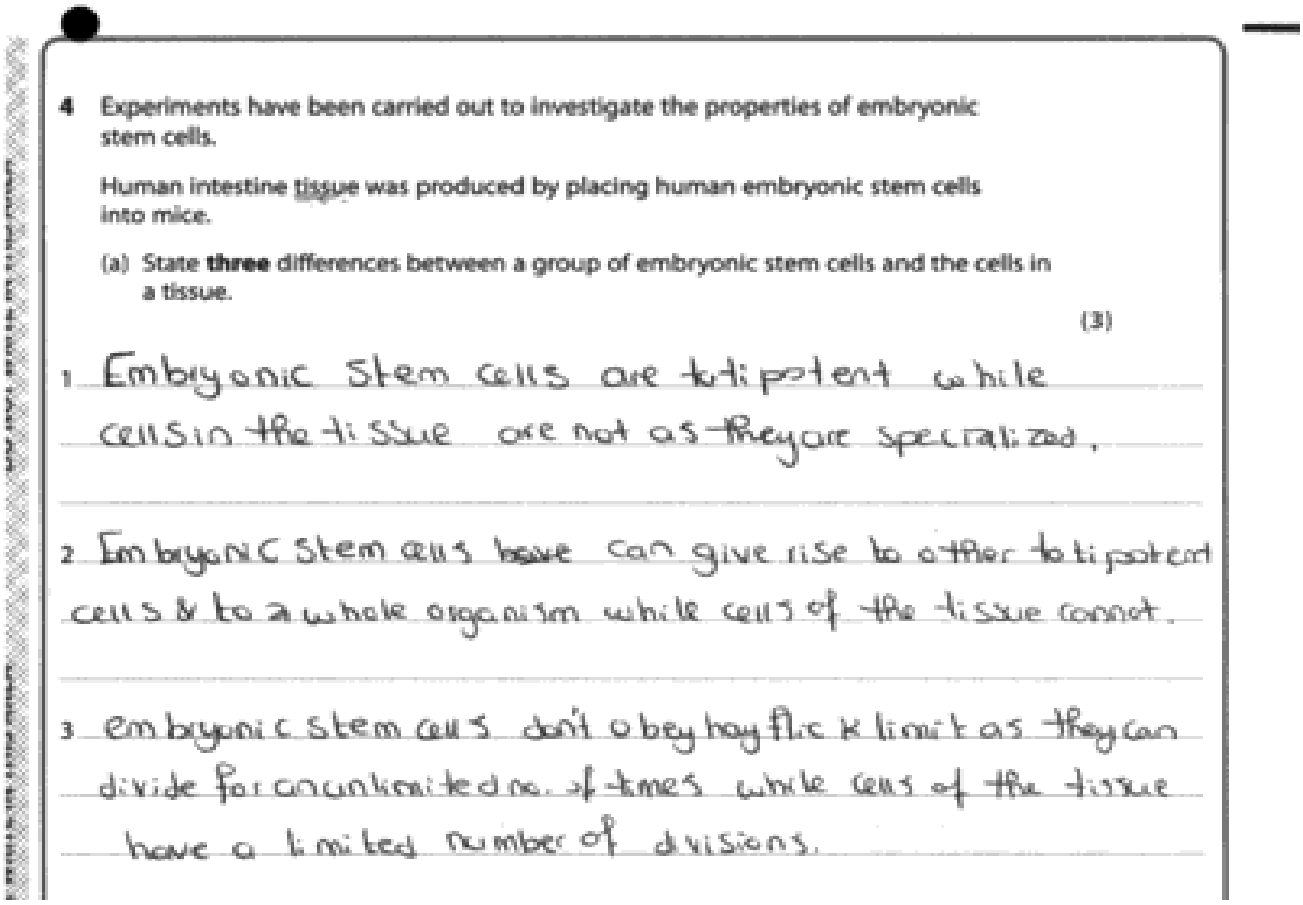
2 The embryonic stem cells are undifferentiated, while the tissue cells have already specialised / differentiated.

3 Embryonic stem cells are much smaller in numbers than the cells in a body tissue.

## Examiner Comment

This item illustrates mark points 1 and

4.



4 Experiments have been carried out to investigate the properties of embryonic stem cells.

Human intestine tissue was produced by placing human embryonic stem cells into mice.

(a) State **three** differences between a group of embryonic stem cells and the cells in a tissue.

(3)

1 Embryonic stem cells are totipotent while cells in the tissue are not as they are specialized.

2 Embryonic stem cells have can give rise to other totipotent cells & to a whole organism while cells of the tissue cannot.

3 embryonic stem cells don't obey hayflic k limit as they can divide for an unlimited no. of times while cells of the tissue have a limited number of divisions.

## WBI02_01_Q04b

## Introduction

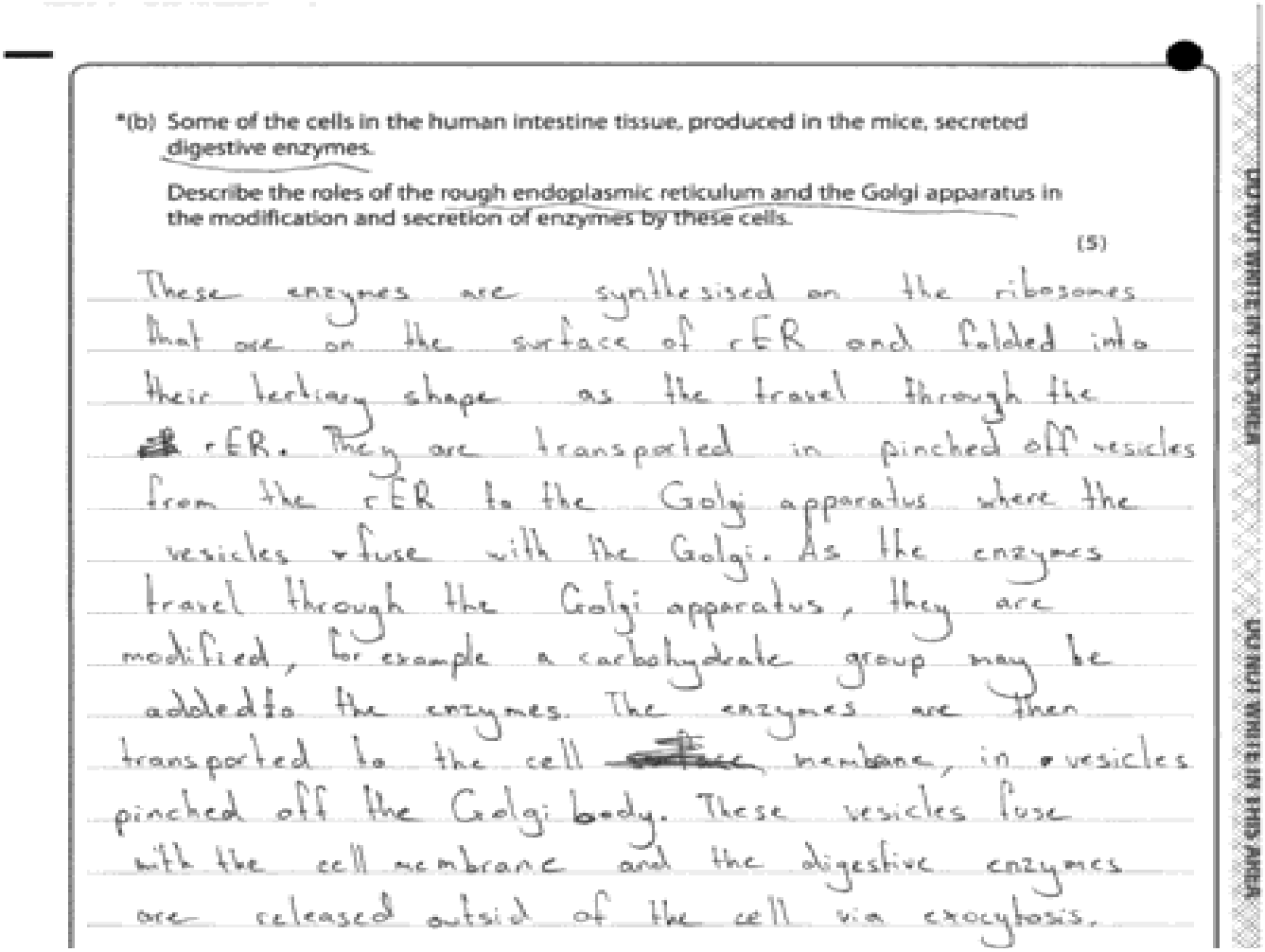
We saw some good accounts of the roles of RER and Golgi apparatus, discriminating across the abilty range.

## Examiner Comment

This response illustrates all our mark points.

## Examiner Tip

Ensure that your answer extends beyond the information that we give you in the stem of the question. In this question we told you that these structures were involved in modification of the enzyme, therefore to score mark point 4 you had to describe a particular modification.



*(b) Some of the cells in the human intestine tissue, produced in the mice, secreted digestive enzymes.

Describe the roles of the rough endoplasmic reticulum and the Golgi apparatus in the modification and secretion of enzymes by these cells.

(5)

These enzymes are synthesised on the ribosomes that are on the surface of rER and folded into their tertiary shape as the travel through the rER. They are transported in pinched off vesicles from the rER to the Golgi apparatus where the vesicles fuse with the Golgi. As the enzymes travel through the Golgi apparatus, they are modified, for example a carbohydrate group may be added to the enzymes. The enzymes are then transported to the cell membrane, in vesicles pinched off the Golgi body. These vesicles fuse with the cell membrane and the digestive enzymes are released outside of the cell via exocytosis.

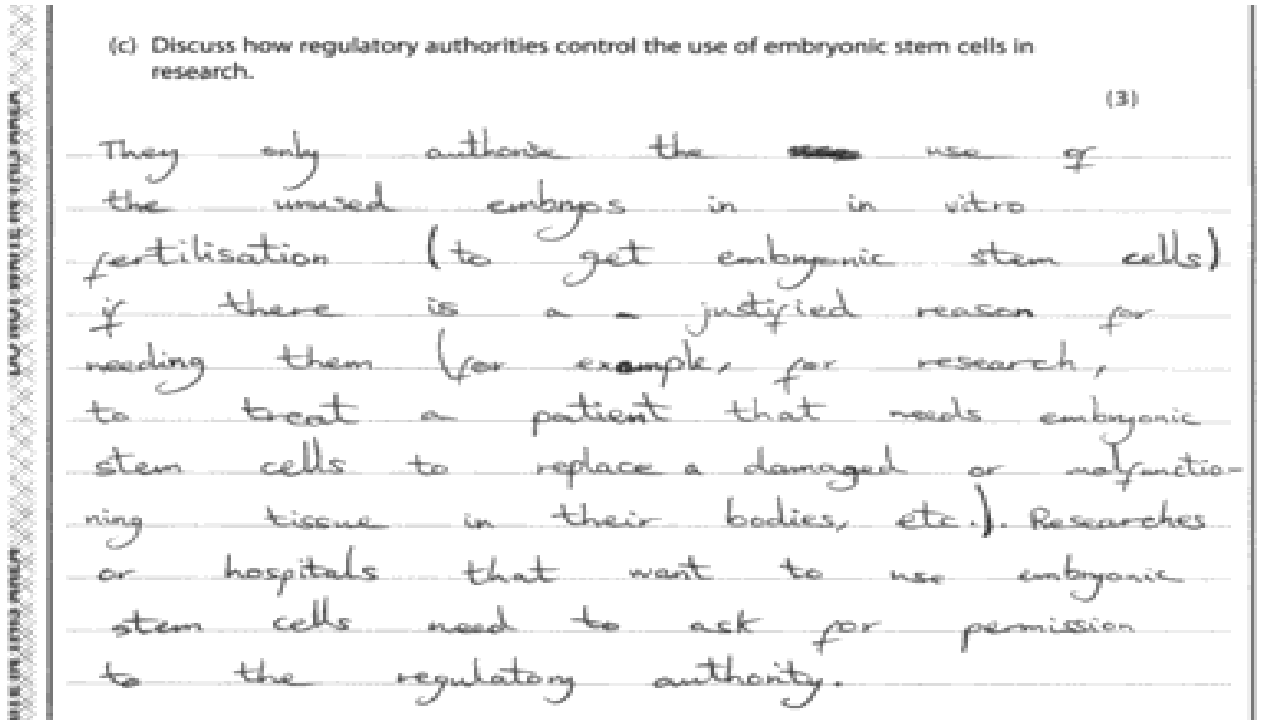
## WBI02_01_Q04c

## Question Introduction

A range of responses was seen for this question. Candidates who had not read the question carefully enough described considerations that should be made in using stem cells instead of discussing how regulatory authorities actually control the research. Other than this, the main reason for candidates not scoring the three marks was that three controls were not given.

## Examiner Comment

Mark points 1 and 2 awarded for this response.



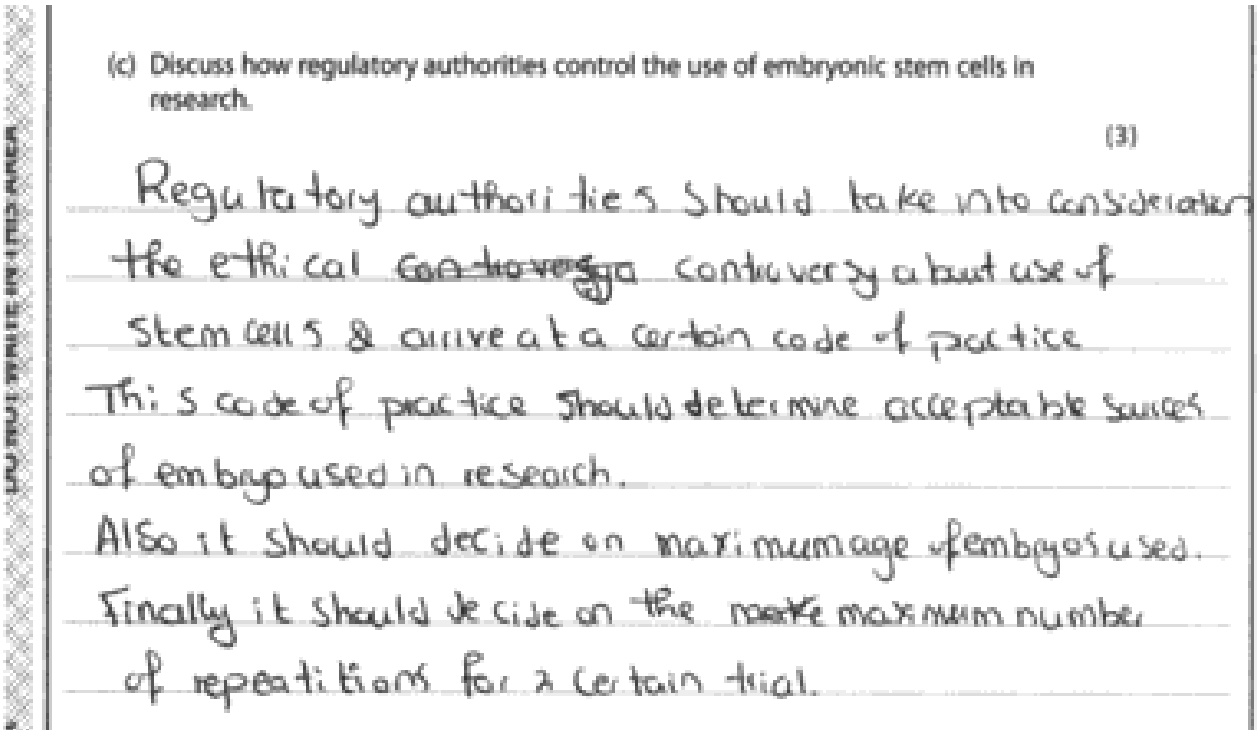
(c) Discuss how regulatory authorities control the use of embryonic stem cells in research.

(3)

They only authorise the use of the unused embryos in in vitro fertilisation (to get embryonic stem cells) if there is a justified reason for needing them (for example, for research, to treat a patient that needs embryonic stem cells to replace a damaged or malfunctioning tissue in their bodies, etc.). Researches or hospitals that want to use embryonic stem cells need to ask for permission to the regulatory authority.

## Examiner Comment

Mark points 3 and 4 awarded for this response.



(c) Discuss how regulatory authorities control the use of embryonic stem cells in research.

(3)

Regulatory authorities should take into consideration the ethical ~~controversy~~ controversy about use of stem cells & arrive at a certain code of practice. This code of practice should determine acceptable sources of embryo used in research.
Also it should decide on maximum age of embryos used.
Finally it should decide on the ~~maxi~~ maximum number of repeatitions for a certain trial.

## WBI02_01_Q05ai

### Introduction

This should have been relatively straightforward. Failure to score two marks for this question was because candidates :

- did not discuss the actual data relating to grain production
- referred to grain production and not the specific aspects of grain production given in the table
- compared the calcium deficiency with the control and not magnesium deficiency.

### Examiner Comment

Mark points 3 and 4 were very common.

### Examiner Tip

However straightforward data or a question might appear, always read through the question again and check that you have not overlooked something.

(a) An investigation was carried out to determine the effects of calcium ion and magnesium ion deficiency on rice plants in three fields.

The results are shown in the table below.

| Field | Mean plant height / cm | Mean shoot dry mass / g | Mean number of seed heads per plant | Mean number of grains per seed head | Mean grain yield per plant / g |
|---|---|---|---|---|---|
| Control | 132.5 | 30.4 | 6.3 | 150.7 | 16.1 |
| Calcium deficient | 119.1 | 15.3 | 4.2 | 122.7 | 9.0 |
| Magnesium deficient | 119.5 | 16.7 | 5.1 | 125.7 | 10.4 |

(i) Using information from the table, compare the effects of calcium deficiency with the effects of magnesium deficiency on the production of grain.

(2)

Fields with calcium deficiency produced shorter plants (by 0.4 cm) than that of magnesium deficiency. They also produced a lower grain yield per plant (~~by~~ 1.4 g lower) than that of magnesium deficiency.

## WBI02_01_Q05aii

### Introduction

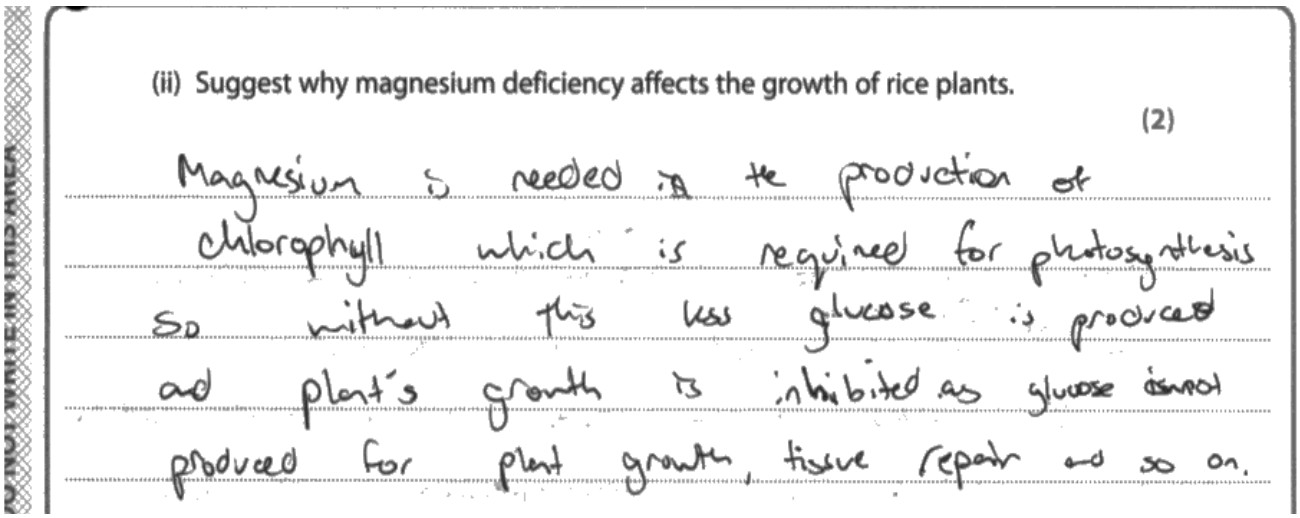
Candidates have clearly learnt the role of magnesium ions in the plant. The second mark was only awarded to the candidates who told us the effect of the deficiency and not the role of chlorophyll.

### Examiner Comment

Mark point 2 could not be awarded as this response was telling us the role of chlorophyll and not the effect of magnesium ion deficiency.

### Examiner Tip

You must answer the question, not simply write down the information that you have been taught.



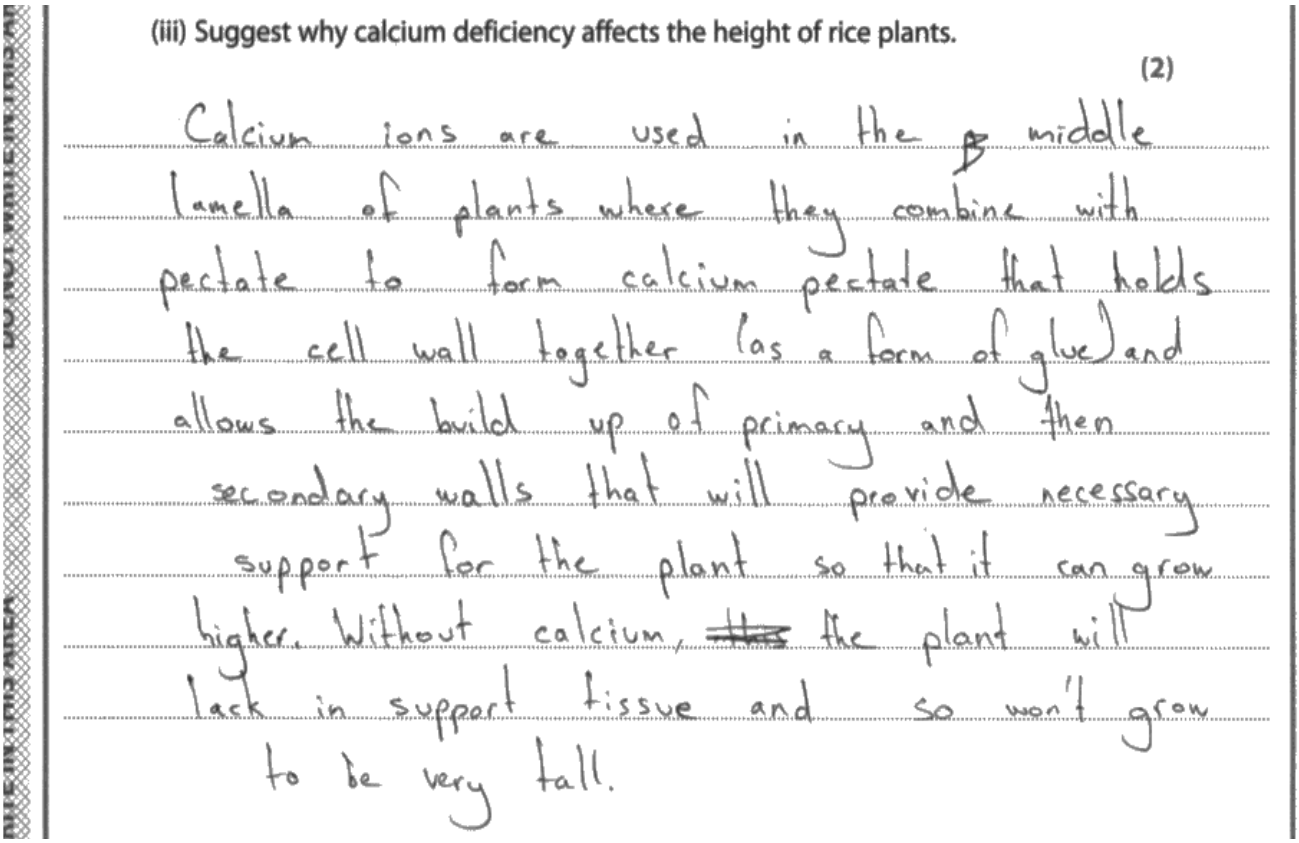

## WBI02_01_Q05aiii

### Introduction

Similar mistakes were made in response to this question as were seen in the previous one. Candidates could tell us the role of calcium but not the effect of calcium ion deficiency.

## Examiner Comment

Mark points 1 and 3 awarded for this response.



(iii) Suggest why calcium deficiency affects the height of rice plants.

(2)

Calcium ions are used in the middle lamella of plants where they combine with pectate to form calcium pectate that holds the cell wall together (as a form of glue) and allows the build up of primary and then secondary walls that will provide necessary support for the plant so that it can grow higher. Without calcium, ~~this~~ the plant will lack in support tissue and so won't grow to be very tall.

## WBI02_01_Q05b

## Introduction

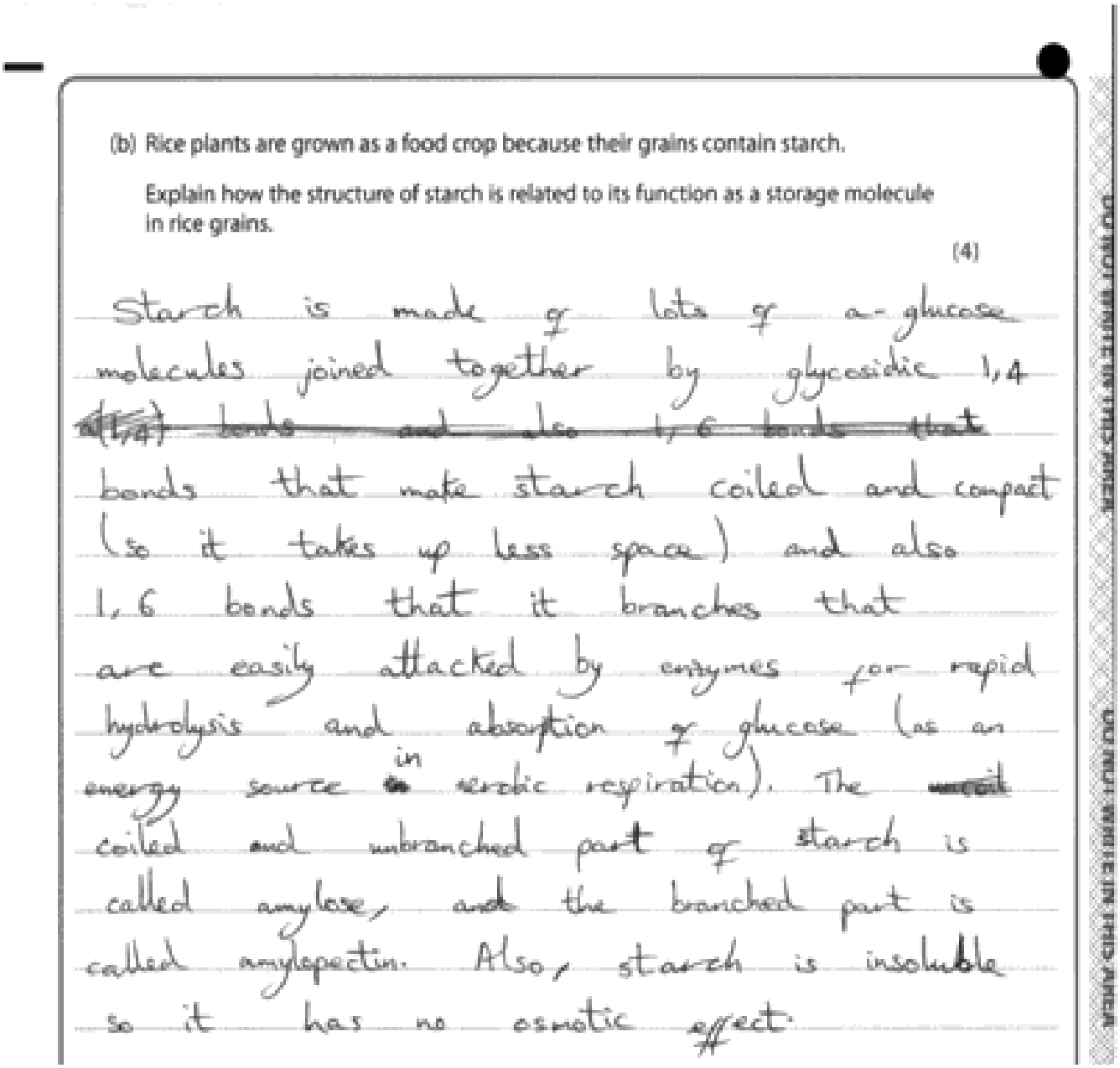
This question has been asked several times now and those candidates that have practised previous papers and who linked structure to function scored well.

## Examiner Comment

A very good response, illustrating all our mark points except mark points 2 and 5.

## Examiner Tip

The branched structure of amylopectin enables it to be broken down faster, not easier.



(b) Rice plants are grown as a food crop because their grains contain starch.

Explain how the structure of starch is related to its function as a storage molecule in rice grains.

(4)

Starch is made of lots of α-glucose molecules joined together by glycosidic 1,4 ~~α(1,4) bonds and also 1,6 bonds that~~ bonds that make starch coiled and compact (so it takes up less space) and also 1,6 bonds that it branches that are easily attacked by enzymes for rapid hydrolysis and absorption of glucose (as an energy source in aerobic respiration). The ~~coil~~ coiled and unbranched part of starch is called amylose, and the branched part is called amylopectin. Also, starch is insoluble so it has no osmotic effect.

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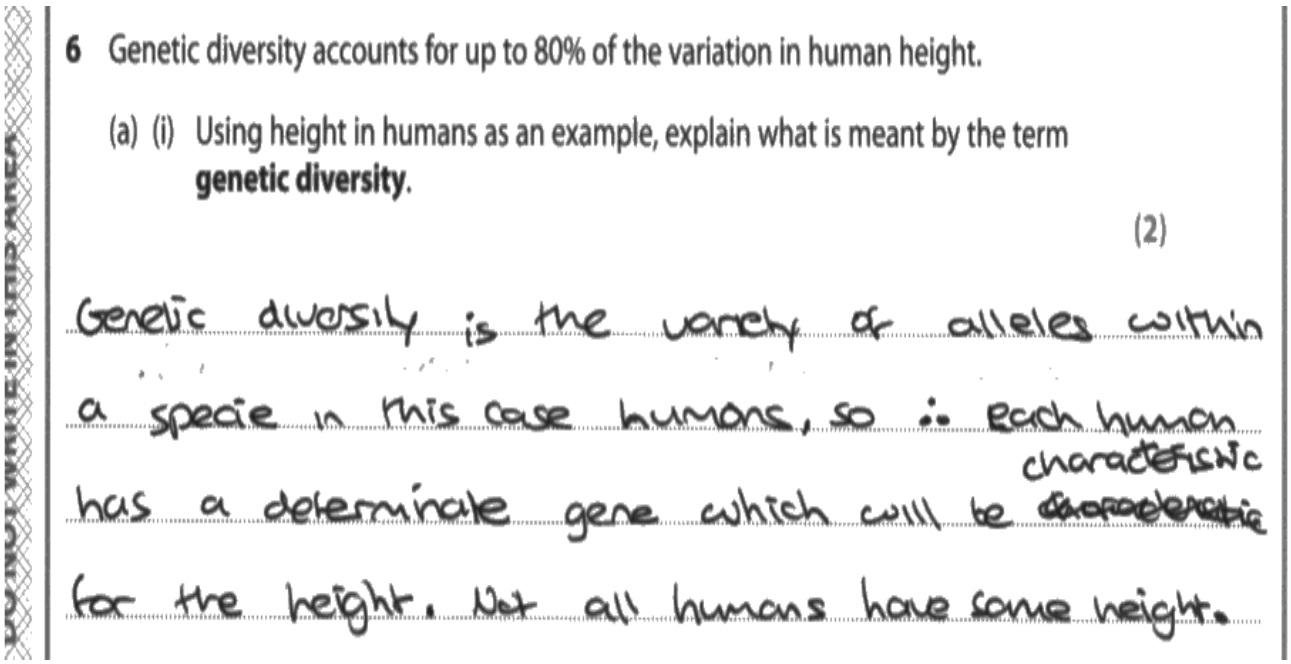
## WBI02_01_Q06ai

### Introduction

This question was answered well by the candidates who did as the question asked and used height in humans to explain genetic diversity.

### Examiner Comment

This candidate attempted to answer the question as we asked them to.



6 Genetic diversity accounts for up to 80% of the variation in human height.

(a) (i) Using height in humans as an example, explain what is meant by the term **genetic diversity**.

(2)

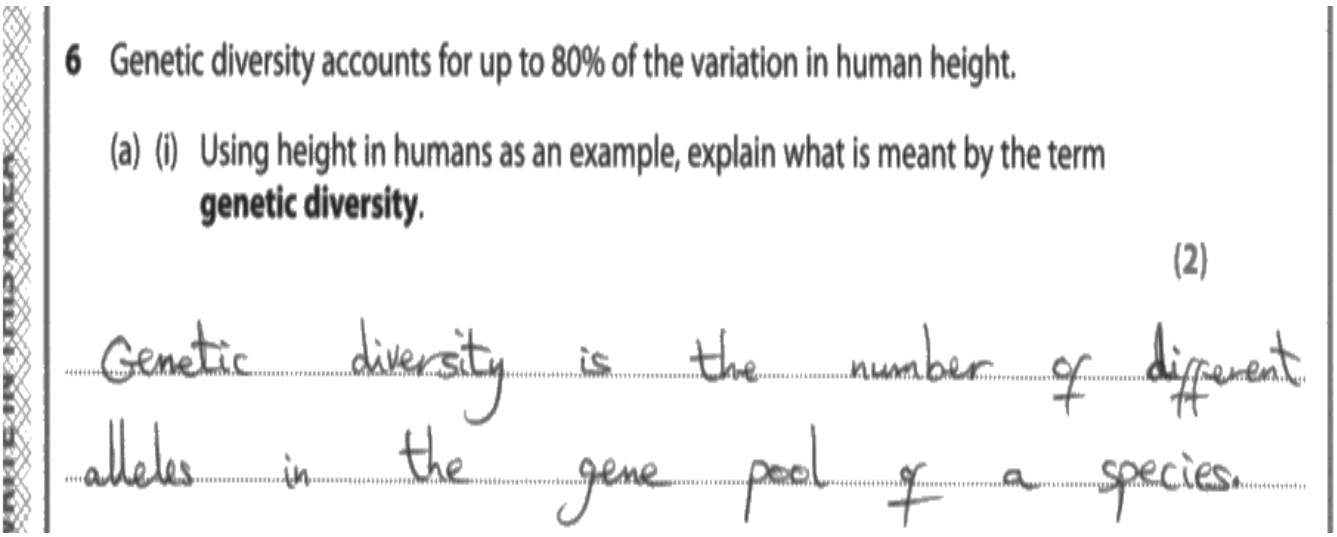
Genetic diversity is the variety of alleles within a specie in this case humans, so ∴ each human characteristic has a determinate gene which will be characteristic for the height. Not all humans have same height.

### Examiner Comment

This is a typical response of candidates who simply wrote a definition of genetic diversity.

### Examiner Tip

You must answer the question in its context when required.



6 Genetic diversity accounts for up to 80% of the variation in human height.

(a) (i) Using height in humans as an example, explain what is meant by the term **genetic diversity**.

(2)

Genetic diversity is the number of different alleles in the gene pool of a species.

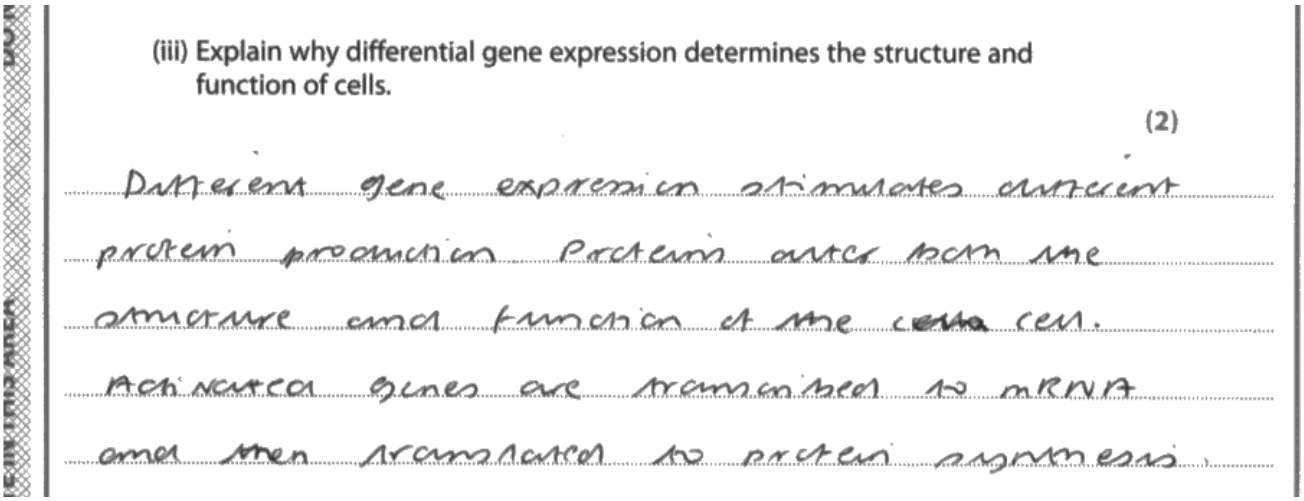
## WBI02_01_Q06aiii

### Introduction

Many candidates clearly have a good understanding of this spec point. A few candidates tried to answer the question without mentioning proteins at all in their response.

### Examiner Comment

A clear response, typical of many that we saw.



(iii) Explain why differential gene expression determines the structure and function of cells.

(2)

Different gene expression stimulates different protein production. Protein alter both the structure and function of the cell. Activated genes are transcribed to mRNA and then translated to protein synthesis.

## WBI02_01_Q06bi

### Question Introduction

The most frequently seen, correct, suggestions were exposure to sunlight and disease. A surprisingly high proportion of candidates thought that exercise would affect height and we felt that the references to smoking and alcohol were not really reasonable.

## WBI02_01_Q06bii

### Question Introduction

A range of responses were seen making this quite a discriminating question. Provided the candidates did not confuse the greater and lesser signs, mark point 1 was awarded frequently. A reasonable proportion of candidates did a calculation and only a minority commented on the standard deviation.

## Examiner Comment

A typical response made by a large number of our candidates.

## Examiner Tip

In general, if you are describing data where standard deviation has been given, you need to comment on it.

(ii) A study was conducted into the effect of consuming milk on growth in children.

The heights of 45 girls and 47 boys were measured when these children were 9 years old. When these children were 12 years old, their heights were measured again.

The children were asked how much milk they consumed each day.

The results of this study are shown in the table below.

| Milk consumed per day / $cm^3$ | Mean change in height / cm | Standard deviation of change in height |
|---|---|---|
| < 500 | 18.8 | 0.5 |
| >500 | 21.3 | 1.1 |

Using the data in the table, describe the relationship between milk consumption and height in children.

**(3)**

Childen that consumed below 500 $cm^3$ of milk per day had a lower mean change in height than those that consumed above 500 $cm^3$, thus they didn't grow as much if they consumed smaller amounts of milk.

(lower by 2.5 cm)

## WBI02_01_Q06biii

### Question Introduction

Candidates did not find this question particularly straightforward. We did award mark point 1 on a number of occasions and mark point 4 was the most frequently awarded. A lot of candidates suggested that the unequal number of boys and girls was significant. Many candidates only gave one suggestion.

## WBI02_01_Q07a

### Introduction

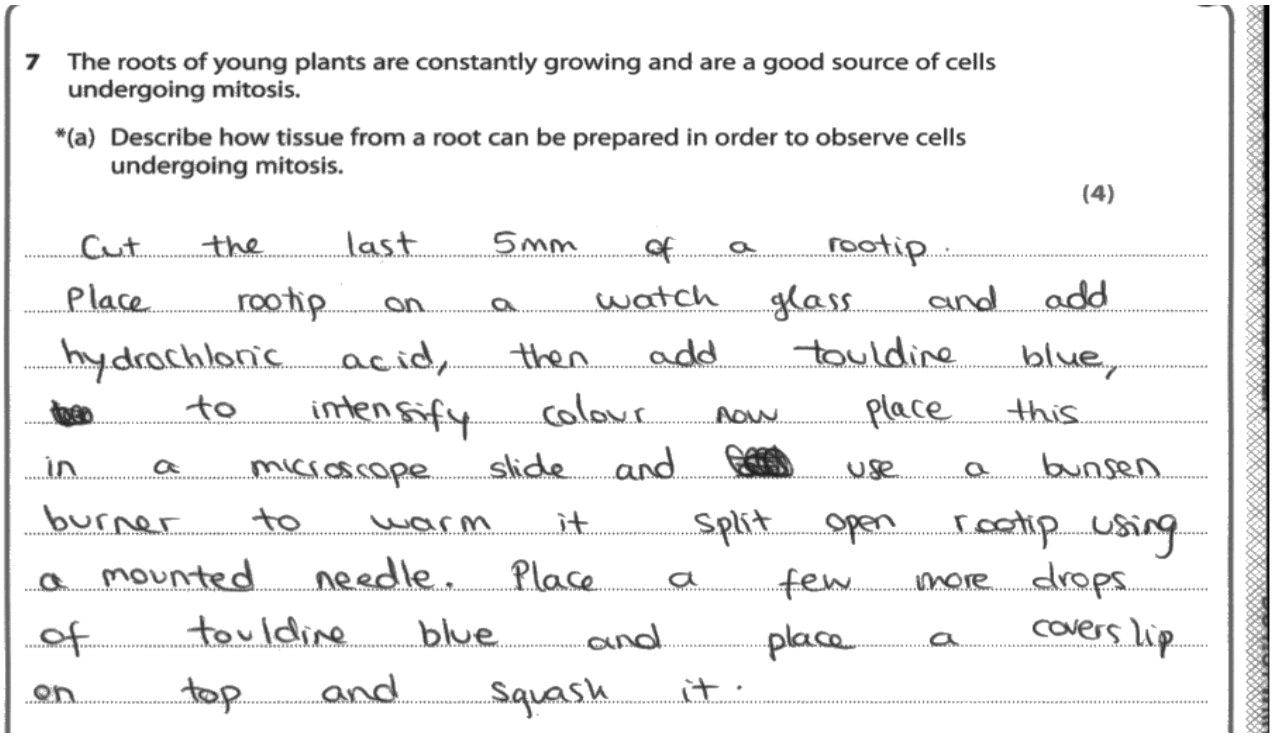
This core practical has been tested on numerous occasions now and those candidates who have used past papers in their preparation for this exam scored well.

### Examiner Comment

This candidate scored all four mark points. This was a QWC question focussing on a logical sequence; the mark points are not in the order printed on the mark scheme but we felt that the order that the steps were described in would work.

### Examiner Tip

Always state that 5 - 10 mm of root tip should be used. Remember to make it clear that the root tip is placed on a microscope slide and a coverslip is placed on it before it is squashed.



7 The roots of young plants are constantly growing and are a good source of cells undergoing mitosis.

*(a) Describe how tissue from a root can be prepared in order to observe cells undergoing mitosis.

(4)

Cut the last 5mm of a rootip. Place rootip on a watch glass and add hydrochloric acid, then add toulidine blue, to intensify colour now place this in a microscope slide and use a bunsen burner to warm it split open rootip using a mounted needle. Place a few more drops of toulidine blue and place a coverslip on top and squash it.

## WBI02_01_Q07ci

### Introduction

The vast majority of candidates can describe the structure of xylem. However there were a proportion of candidates who did not use the details shown in the photograph in their description, thus not actually answering our question.

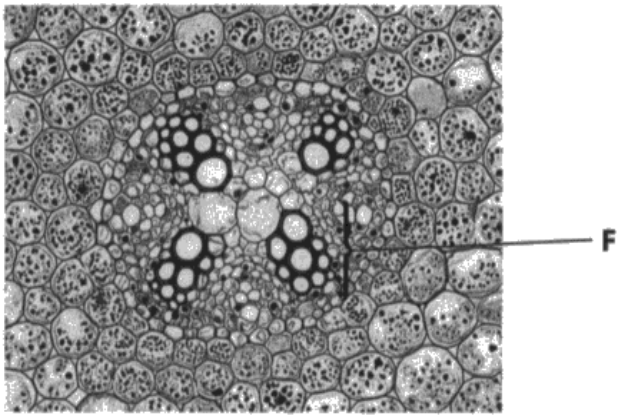
### Examiner Comment

Mark points 1 and 2 were the commonest awarded. Some candidates did attempt mark point 3 but were too vague.

### Examiner Tip

Read the question carefully - do not pick out key words and then write everything that you can recall about a topic.

(c) The photograph below shows part of a cross section of a root of a buttercup, *Ranunculus*, as seen with a light microscope.




Magnification ×30

(i) Use the photograph to explain how the tissue labelled **F** can be identified as xylem.

**(2)**

Tissue F can be seen to have very thick walls (secondary walls), with no cytoplasm or a nucleus, which would indicate that the cell is xylem. Also no cell organelles like rER are present.

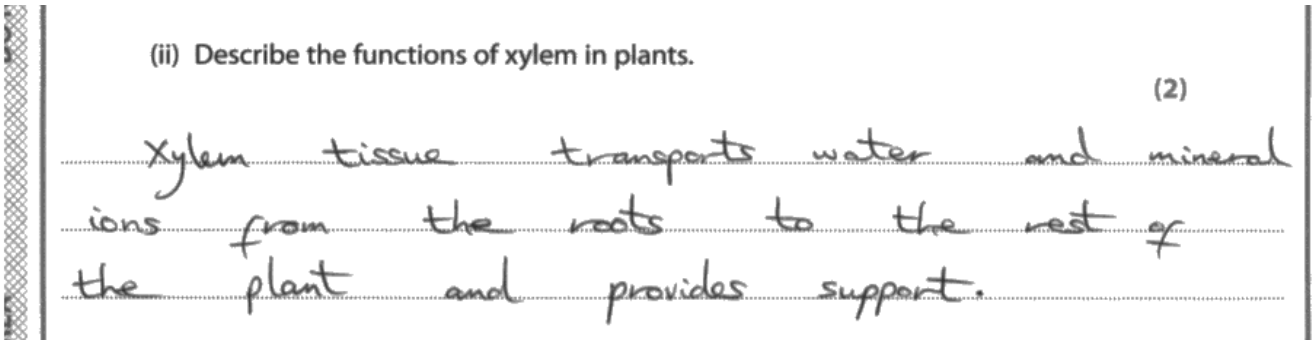
## WBI02_01_Q07cii

### Introduction

Not surprisingly, a high-scoring question.

### Examiner Comment

A typical response.



(ii) Describe the functions of xylem in plants.

(2)

Xylem tissue transports water and mineral ions from the roots to the rest of the plant and provides support.

## WBI02_01_Q08a

### Introduction

Although a perfectly reasonable question to have at the end of the paper, this question caused many candidates a problem and only discriminated at the very top end. The problem was that candidates did not read the question or the key carefully enough.

## Examiner Comment

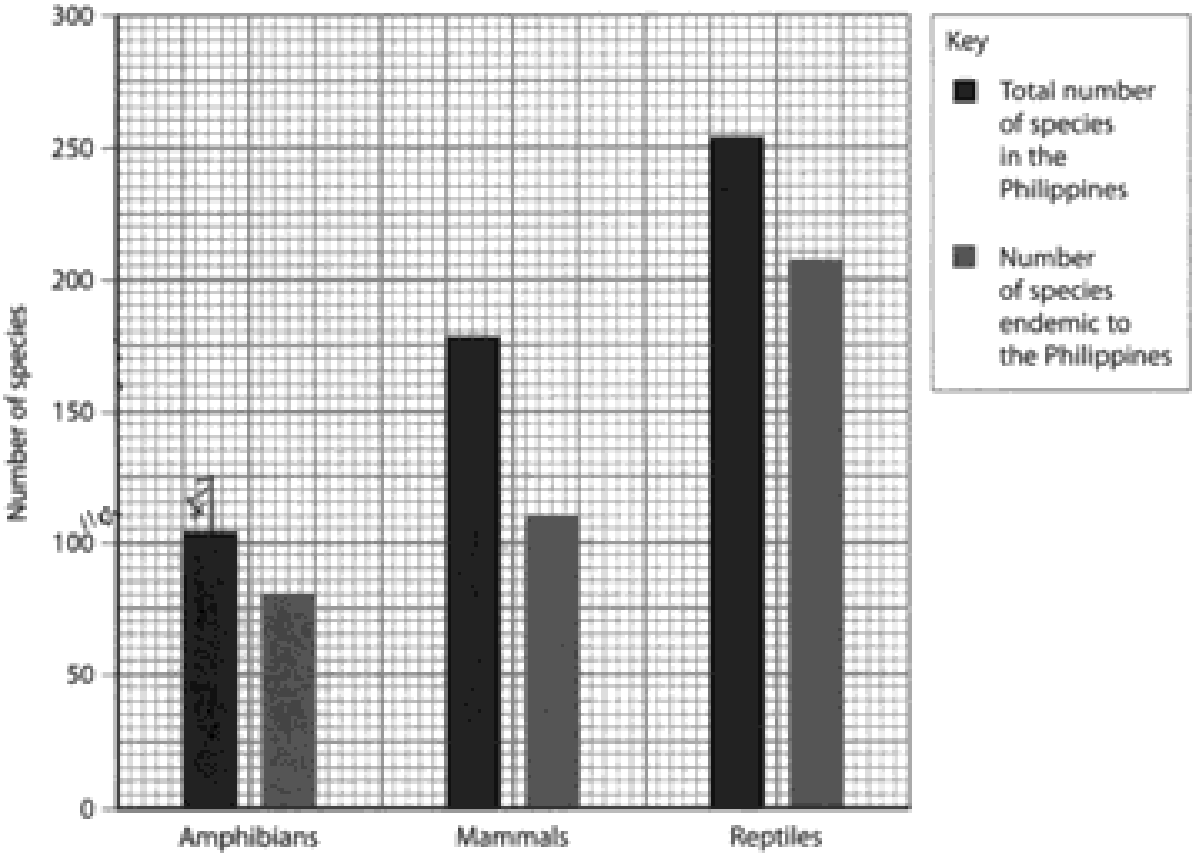
This scored two marks. This candidate read the question and remembered to include a calculation.

## Examiner Tip

Include a calculation in your response when describing data. It does not have to be a complicated percentage calculation, it can be something as simple as a subtraction.

**8** The Philippines is a country that is composed of many islands. There are many species found on these islands that are endemic to the Philippines.

(a) The graph below shows the number of species of amphibians, mammals and reptiles found in the Philippines.




Using the information in the ~~graph, compare~~ the biodiversity of endemic and non-endemic species in the Philippines.

(2)

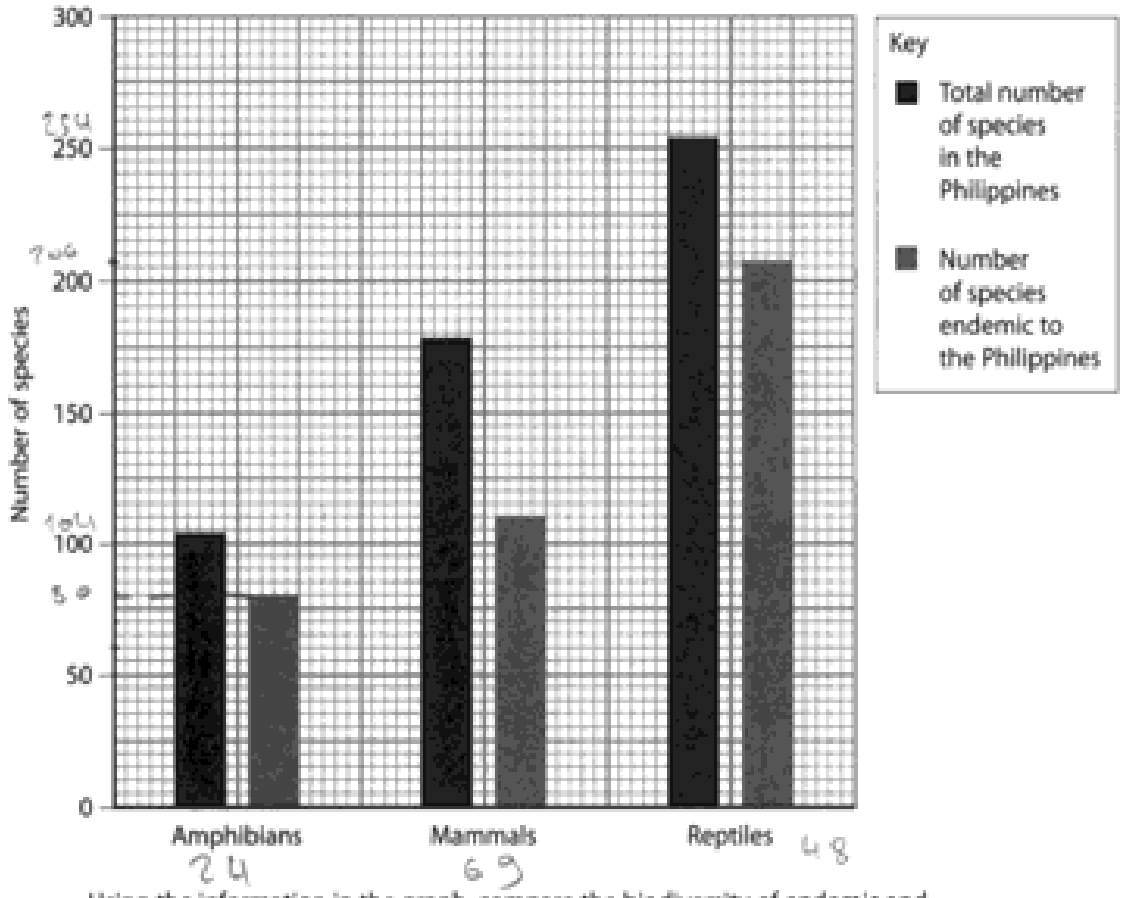
The number of species endemic to the philippines are higher than non-~~endemic~~ endemic species. For mammals, ~~there~~ there are about 64% more endemic species than non-endemic species.

## Examiner Comment

This candidate did remember the calculation but unfortunately made the wrong comparison.

**8** The Philippines is a country that is composed of many islands. There are many species found on these islands that are endemic to the Philippines.

(a) The graph below shows the number of species of amphibians, mammals and reptiles found in the Philippines.




Using the information in the graph, compare the biodiversity of endemic and non-endemic species in the Philippines.

Reptile has the largest biodiversity of species that are endemic to the Philippines. While Amphibians have the lowest biodiversity of endemic species. Reptiles have 126 more endemic species than Amphibians. While mammals have the largest biodiversity of non-endemic species, 69. (2)

## WBI02_01_Q08cii

### Introduction

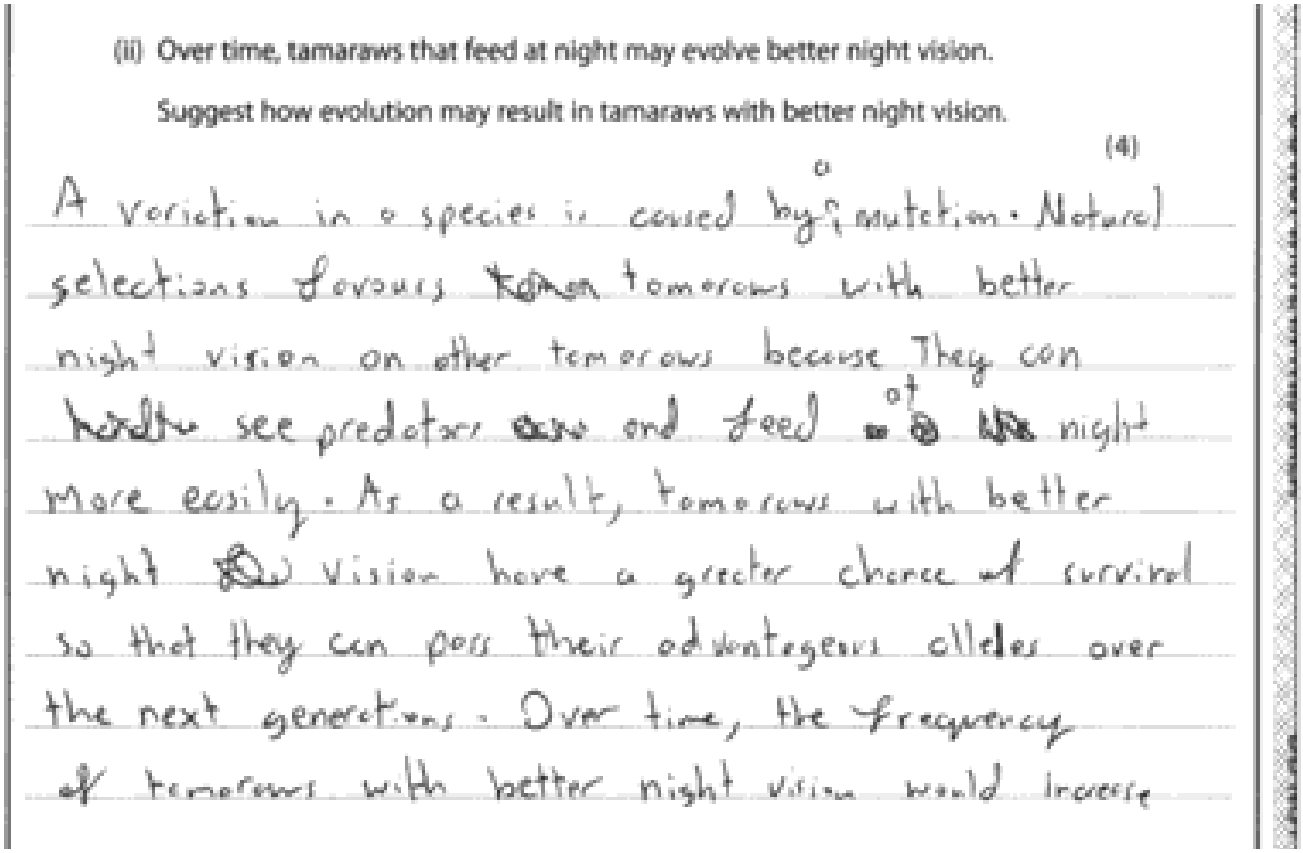
We have asked questions on evolution and natural selection on numerous occasions now and always have a mark scheme with similar mark points. This was no exception. Candidates are still making the same mistakes unfortunately: not answering the question in its context, confusing genes and alleles, having mutations in the organism and not in the DNA and passing desirable characteristics on to their offspring and not the alleles.

### Examiner Comment

All but the last mark point awarded in this response.

### Examiner Tip

Use the information in the question to illustrate your answer, do not simply write a generic answer.



(ii) Over time, tamaraws that feed at night may evolve better night vision.

Suggest how evolution may result in tamaraws with better night vision.

(4)

A variation in a species is caused by a mutation. Natural selection favours tamaraws with better night vision as other tamaraws because they can see predators and feed at night more easily. As a result, tamaraws with better night vision have a greater chance of survival so that they can pass their advantageous alleles over the next generations. Over time, the frequency of tamaraws with better night vision would increase

## WBI02_01_Q08ciii

### Question Introduction

Many responses focussed on the cause for a drop in the number of tamaraws, quoting the information that we had given in the stem of the question. Candidates who did pick up on the increased trend in their number tended not to use the mark allocation for the question and did not give three reasons.

### Examiner Comment

This response was awarded mark points 2 and 3. Several candidates discussed the role of zoos but failed to mention the release of the animals into the wild thus accounting for the increased number in the wild.

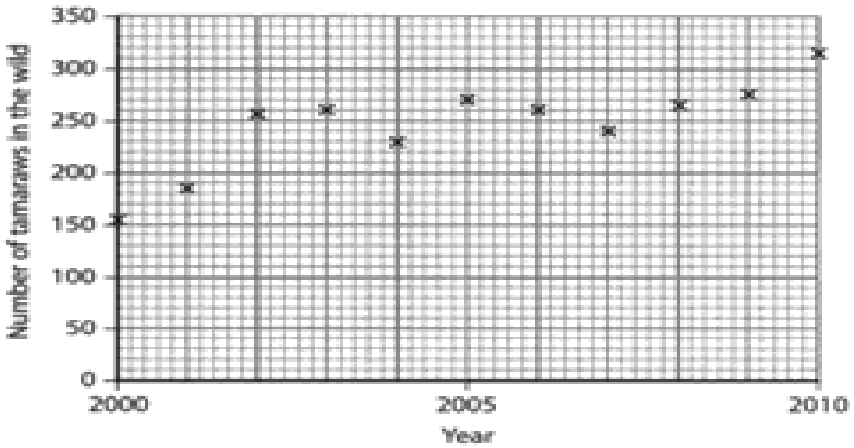
### Examiner Tip

Use the mark allocation to guide you on how much you need to write.

(iii) The tamaraw has become an endangered species due to loss of habitat and as a result of hunting.

Zoos in the Philippines have been involved in the conservation of the tamaraws.

The graph below shows the number of tamaraws found in the wild from 2000 to 2010.




Suggest explanations for the change in population of tamaraws in the wild.

(3)

→ the population of tamaraws has increased over the years, from 2000 to 2010

→ this is because conservation programs is done to save the tamaraws species, by using captive breeding programs, taking individuals of tamaraws that have different genetic make up and bred them to produce off springs then introduce them to the wild again, after removing the factor that may cause the extinction, such as the availability of food or predation. and also by saving their habitat from destruction.

**(Total for Question 8 = 11 marks)**

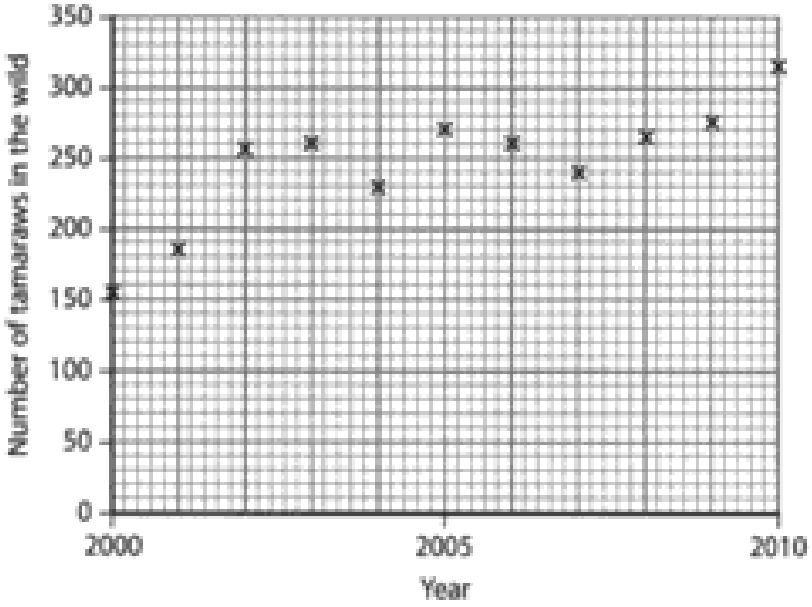
## Examiner Comment

This response illustrates mark points 1 and 4.

(iii) The tamaraw has become an endangered species due to loss of habitat and as a result of hunting.

Zoos in the Philippines have been involved in the conservation of the tamaraws.

The graph below shows the number of tamaraws found in the wild from 2000 to 2010.




Suggest explanations for the change in population of tamaraws in the wild.

(3)

Tamaraws in the wild may have not been hunted during years in which their population grew, such as from 2007 to 2010 when the Number of tamaraws in the wild increased from 240 to 315. other factors such as more plentiful ~~better~~ food sources could have also affected this change. Less food sources and an increase in hunting may have also contributed to the decrease in wild tamaraw population ~~tamaraw Population~~ by 30 tamaraws from 2003 to 2004.

## Paper Summary

At this late stage in the lifespan of a specification all specification points have been tested on a number of occasions in previous papers, but in different contexts. Based on their performance on this paper, candidates are offered the following advice:

- focus more on the context of the question and write a response that applies their knowledge rather than simply show their recalled knowledge
- use the command words and mark allocation to structure their response
- make calculations to quantify their data descriptions.
- read the information and look at the stimulus material supplied before making your response. You might think you recognise the question as some have been asked a number of times before but there will be differences.

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