

L3 Lead Examiner Report 1906

June 2019

**L3 Qualification in Applied
Human Biology**

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What is a grade boundary?

A grade boundary is where we set the level of achievement required to obtain a certain grade for the externally assessed unit. We set grade boundaries for each grade, at Distinction, Merit and Pass.

Setting grade boundaries

When we set grade boundaries, we look at the performance of every learner who took the external assessment. When we can see the full picture of performance, our experts are then able to decide where best to place the grade boundaries – this means that they decide what the lowest possible mark is for a particular grade.

When our experts set the grade boundaries, they make sure that learners receive grades which reflect their ability. Awarding grade boundaries is conducted to ensure learners achieve the grade they deserve to achieve, irrespective of variation in the external assessment.

Variations in external assessments

Each external assessment we set asks different questions and may assess different parts of the unit content outlined in the specification. It would be unfair to learners if we set the same grade boundaries for each assessment, because then it would not take accessibility into account.

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Unit 1 (21325L)

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	0	10	20	34	49

Introduction to the Overall Performance of the Unit

This was the paper's first sitting and it was pleasing to see learners able to access the questions across the breadth of the specification.

Where questions required analysis of source material, for example the description of trends on a graph, use of a genetic pedigree diagram or performing a calculation from information given learners showed a strong ability to take the information given and use it effectively to inform their answers.

There was evidence of good preparation for the extended open response questions by many learners, especially when questions called for description of biological processes in a familiar context.

Where learners found a greater degree of challenge was when required to apply their knowledge of these processes to a specific context as given within the question.

This could be seen particularly when a question used a context outside of the examples learners may be familiar with, in several cases learners gave generic or vague answers in these circumstances and missed out on gaining credit due to lack of application in their answers.

Some areas of the specification were better understood by learners than others. The topics that learners appear to be less confident on are largely those that are not familiar from their learning at level 2. Areas of the specification concerning immunology and diagnostic testing revealed a lack of depth in learner's knowledge and understanding of these topics.

More familiar topics, on the other hand, in many cases showed a good level of understanding developed in terms of both breadth and depth of the content. Topics on genetics and respiratory and digestive systems were generally handled well by learners with many examples of responses which were both detailed and confident in nature.

Individual Questions

Question 1a (i)

This question was generally well answered with many learners able to correctly name the pancreas as the organ which secretes hormones to maintain a constant blood glucose level. Several learners gave the incorrect answer of “liver” for this question, identifying an organ which plays a part in blood glucose regulation but not the role stated in the question.

Question 1a (ii)

Most learners could correctly recall insulin as the hormone responsible for converting glucose into glycogen and selected the correct answer from the multiple choice responses.

Question 1b

This question was very well answered with learners correctly identifying the structure of a glucose molecule from the structural formulae provided.

Question 1c

This question saw many learners achieving both of the marking points required for correctly identifying that the patient was at risk of developing Type 2 diabetes and linking this to an increased risk caused by a very high BMI.

Below is a response which scored both of the marking points:

Type 2 diabetes because you can only get type 1 by chance of your pancreas not working, whereas type 2 is when you become old or overweight which is why type 2 diabetes is the one he will get, as if your BMI is high you are overweight.

Handwritten notes: This is due to any on the my cells or weight, you have only 100% this

(Total for Question 1 = 5 marks)

The following response was awarded one mark as although the learner has correctly identified the type of diabetes the patient is at risk of developing their explanation is not linked to the information given in the question and so cannot be awarded the second marking point.

This man has ^{a risk of} type 2 diabetes as type 1 is a genetic disease, yet type 2 is caused by a poor diet and lack of exercise.

(2)

Question 2a

Several candidates answered this question very well, with a comprehensive description of anaphase occurring in the cell labelled on the figure. Many learners could not recall the name of the stage of mitosis pictured but it was possible to gain full credit for the answer without this piece of information. In several cases learners were awarded one mark for naming the stage as anaphase but then did not provide further description in their answer.

The answer below achieved all three marking points. One point was awarded for the correct identification of anaphase, the second was for the description of the centromeres being “pulled apart” (an acceptable rephrasing of “dividing”) and the third mark was awarded for the description of the role of the spindle fibres in the process.

This stage is called Anaphase. The Chromosomes are being pulled apart ~~at~~^{nt} their centromere (middle of chromosome). ~~This splits the~~
The spindle fibres are the organelle that is pulling the chromosomes apart at opposite ends of the cell.

The following answer was credited with one of the marking points only. The learner correctly describes the role of the spindle fibres in the process but then there is some confusion in the next section of the answer when the learner writes about dividing pairs in half – this is too ambiguous to be credited for the second marking point.

In this cell the chromosomes are being separated by spindle fibres, dividing the homologous pairs of chromosomes in half. (prophase)
This stage comes after the chromosomes have lined up in the middle and before the cell can split/divide.

Question 2b

This question proved difficult for some learners with just under half of answers correctly selecting S phase as the stage of the cell cycle where DNA was replicated. The most common wrong answer given was that DNA was replicated during mitosis.

Question 2c

The magnification calculation was answered correctly by many learners. Learners were confident with this calculation and could use the magnification data given in the question to calculate the actual size of the nucleus. The vast majority of learners were then able to convert their answer into the required units for the

question. Nearly all answers which were awarded marks were given the maximum of three for this item.

The following is an example of a calculation which was awarded full marks. The learner has correctly substituted and evaluated the values from the question for the first two marks. Following this there is a correct unit conversion to micrometres for the final marking point.

$$11 \div 500 = 0.022 \text{ mm}$$

$$0.022 \times 1000 = 22 \mu\text{m}$$

The response below shows an example of an answer awarded two of the three marking points. Here the learner has clearly shown correct substitution and evaluation in their working, but has failed to correctly convert between millimetres and micrometres in their final answer.



I = Image size

A = actual size

M = Magnification

(3)

$$\frac{11}{500} = 0.022 \text{ mm}$$

$$\times 1000$$

$$= 0.242 \mu\text{m}$$

0.242 μm

(Total for Question 2 = 7 marks)

The answer below shows where a learner has attempted the calculation but not provided a creditworthy response. Here the learner has attempted a conversion from millimetres to micrometres but has ended up with an incorrect answer and so cannot be given the mark. Had the learner stated a correct value in micrometres they would have been awarded one mark as the unit conversion could be performed at any stage of the calculation.

$$\begin{array}{l}
 1.1 \text{ mm} \\
 11 \text{ mm} \\
 11000 \mu\text{m}
 \end{array}
 \begin{array}{l}
) \times 10 \\
) \times 1000
 \end{array}
 \quad
 1.1 \mu\text{m}$$

Question 3a

This question was surprising as only a very few candidates could correctly identify the answer as innate immunity from the given options on the multiple choice. There appeared to be a common misconception that the non-specific physical and chemical defences of the body were classed as passive immunity – this may indicate a general lack of understanding about the different types of immunity within the human body which is a fundamental piece of understanding required by section B of the specification.

Question 3b

Most candidates could identify the locations of sebum and/or hydrochloric acid within the body. Identification of lysozyme as present in either tears (the eyes) or saliva (the mouth) proved more difficult with only a few learners able to successfully give the locations of all three chemical defence mechanisms within the body.

Question 3c

This question proved difficult for the majority of learners with very few answers scoring as would be expected. In many cases learners failed to interpret the question correctly, explaining the role of T-helper cells in immunity and how a viral infection in these cells could lead to a reduction in function of the immune system. Many learners instead gave vague answers about the virus triggering the

immune system to destroy the T-helper cells but without further expansion on how this could lead to immunodeficiency.

The answer below is an example of a level 1 response to this question. The learner has made a good attempt at answering the question and has given information about the potential mechanism of replication of the virus, which is not required by the specification and is also not relevant to the application asked for in the question. The answer does make reference to infection with HIV leading to damage to the T-cells and potential immunodeficiency but without further expansion this is not sufficient for more than level 1.

(6)

HIV uses the host cells machinery to replicate. The virus will combine with the hosts DNA using the enzyme, integrase. After reverse-transcription and the work of reverse-transcriptase, the DNA of the host and virus will travel to a ribosome where it is then translated into viral proteins. These viral proteins form into more HIV viruses, which cause the host cell to lyse. Therefore the host T-helper cell dies and the viruses go onto replicate and destroy more T-helper cells, leading to immunodeficiency.

Question 4a

This question was answered correctly by the majority of candidates. Most learners correctly identified the genotypes for individual A and B using the information provided in the pedigree diagram.

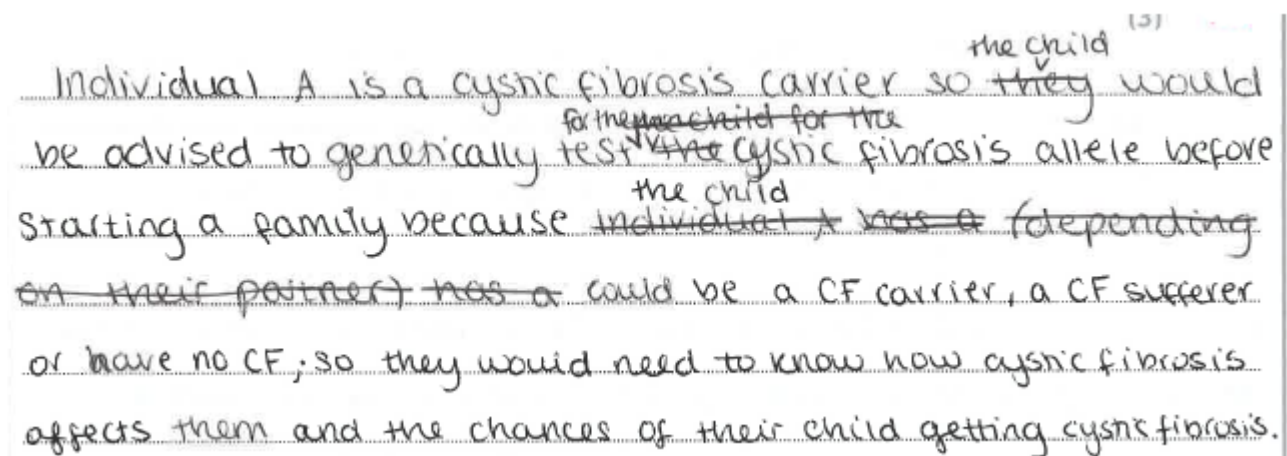
Question 4b

Very few learners could identify that for a recessive disorder the phenotype would be the expressed characteristic and thus the individual would be unaffected – the majority of answers stated that the individual was a carrier as stated in the diagram.

Question 4c

In this question learners demonstrated their understanding of the inheritance pattern of recessive conditions. However, learners frequently scored two out of three marks but failed to develop their explanation far enough to be awarded the second expansion mark for the question.

The response below is an example of an explanation scoring two of the maximum three marks for the question. The first mark is awarded for correctly identifying that the individual is a carrier of the cystic fibrosis allele. The second mark is for linking this to the fact that their child may be affected by cystic fibrosis. There is not enough development of the explanation for the third mark.



Individual A is a cystic fibrosis carrier so ^{the child} they would be advised to genetically test ^{for the ~~the~~ child for the} cystic fibrosis allele before starting a family because ~~individual A has a~~ ^{the child} ~~depending~~ ~~on their partner~~ ~~has a~~ could be a CF carrier, a CF sufferer or have no CF; so they would need to know how cystic fibrosis affects them and the chances of their child getting cystic fibrosis.

The following response is an example of where an answer has been awarded one out of the three possible marks. Here the learner has identified that the individual is a carrier for the first marking point. Although they have made a statement that the individual's offspring may have a chance of being affected by

the condition, they have not linked this to the inheritance of the allele and so the answer is not sufficient for a second marking point.

(3)
As individual A is a carrier for the CF gene, there is a 25% chance of their offspring having CF, this means a genetic test could tell if the individual's offspring will have CF

Question 4d

This question was answered well in most cases with many instances of learners achieving full marks. In many cases learners were able to explain the effects of increased mucus secretion on the respiratory system but the effect on the digestive system was something that learners appeared to be less confident with. The quality of explanation in this question was very good with learners able to make clear links between the immediate effect of the mucus on the system named and the wider consequences in the body as a result.

The following response is an example where a learner has scored full marks for the question. The effects of mucus on both named body systems has been clearly explained with a sustained line of reasoning seen in both cases.

Explain **one** effect of increased mucus secretion for the respiratory system.

The mucus narrows the airways, meaning less oxygen can be inhaled or exhaled, meaning less aerobic respiration can take place, leading to less energy.

Explain **one** effect of increased mucus secretion for the digestive system.

Less digestive enzymes can be released because the mucus ~~to~~ blocks them ~~from~~ ~~out~~ - meaning food cannot be digested to its maximum potential, leading to less energy.

The following is an example of where a learner has been awarded three out of the four marks. The effect on the respiratory system has been explained in terms of reducing respiration but there is no statement made to explain why this is a result of the increased mucus secretion, so the second marking point is not awarded. The explanation of the effect on the digestive system is correct and is given two marks.

Explain **one** effect of increased mucus secretion for the respiratory system.

More mucus built up in the lungs leads to a shorter amount of respiration can occur ~~in~~ in the alveoli. This means there will be a shorter amount of O₂ being able to diffuse into the blood leading to a shorter amount / less amount of ATP production / less energy.

Explain **one** effect of increased mucus secretion for the digestive system.

The mucus blocks the pancreatic duct causing a shortage of digestive enzymes to be released. This means that not as much ~~work~~ food can be digested due to a decrease in enzyme secretion. Therefore, this leads to a ~~decrease~~ ^{shortage} in the amount of nutrients absorbed.

The answer below is an example of a response from a learner which was awarded one mark. There is a description of the mucus getting “caught in the lungs” and therefore increased difficulty in breathing. This is just enough for the awarding of the first marking point describing the effect of the increased mucus secretion on the respiratory system. There is not enough expansion on this to award the second marking point on this section. The learner has then given an explanation about mucus increasing the rate of digestion for the second section of the answer. This is incorrect and so is not awarded any marks.

Explain **one** effect of increased mucus secretion for the respiratory system.

The respiratory system would need to work a lot harder as it tries to get rid of the mucus. The mucus would get caught in the lungs, making it harder to breath.

Explain **one** effect of increased mucus secretion for the digestive system.

As there is a lot more mucus present, this would break down food quicker and this would mean the digestive system over works the substances and would have a negative effect on the way the person would discharge their waste.

(Total for Question 4 = 9 marks)

Question 5a (i)

This question did not score as well as anticipated with very few learners achieving all four marks for their answers. The majority of learners identified cartilage rings as one feature of the trachea, but few were able to explain this adaptation – a description of the feature was seen far more frequently. Surprisingly few learners were able to correctly identify other structural features.

Where features were identified answers in many cases were vague and did not provide an explanation – many answers were descriptions and so could not access the second marking point for each of the features.

The response below is an example where the learner achieved full marks for their response. Correctly identifying two structural features and providing an explanation for each.

1. The trachea is formed of many ~~car~~ cartilage rings which hold open the trachea
2. Cilia are located inside the trachea and are a defence against pathogens as they are able to waft the pathogens trapped in mucus up and out of your body, protecting your lungs.

Below is an example which scored two marks. The learner has correctly identified and explained one feature, but the second feature does not gain any credit.

1. The trachea is ringed ^{with cartilage} so it is strong to withstand the forces of inhalation otherwise it may collapse, therefore no air can enter the lungs. ~~The rings can also bend so they are adapted to~~
2. The tracheas tissue is ^{smooth} ~~smooth~~, reducing friction, so there is no drag on the air and air can easily ~~see~~ get to the lungs. therefore, inhalation is easier.

Question 5a (ii)

This question was answered correctly by around half of the learners who were able to recall the name of the tissue type within the alveoli which causes recoil.

Question 5a (iii)

Most learners answered this question correctly with the large majority giving answers relating to the surface area of the alveoli as their response.

The following answers both scored the mark for the question.

thin alveolar walls to create
a small diffusion pathway.

large surface area meaning more oxygen can be absorbed.

Although many learners gave explanations with their answers this was not required. The response below also was awarded the maximum one mark.

large surface area

Question 5b

This question was very well answered by learners across the board with the vast majority attaining both marks available.

The response below was awarded both marks – the first for stating that both allergic and non-allergic asthma have increased and the second for the comparison in the rate of increase between the two different types of asthma.

women with non-allergic asthma have had
a steady increase whereas allergic asthma
has shot up almost 2¹⁴¹ fold from 1996-2006
showing a steep increase.

An example of a response scoring one out of the two marks available is shown below. Here the candidate has described only one of the trends seen on the graph, although they have suggested an explanation for this trend this was not required by the question and so does not score additional credit.

(2)

Allergic asthma has a steeper increase of percentage of women affected, with an increase of 2.6% over 20 years. This could be due to an increase of known ~~and~~ allergies causing asthma.

Question 5c

This question proved difficult for many learners with few managing to score more than one mark. Where one mark was awarded it was for a description of the airways narrowing. The few learners who achieved two marks for this question provided a more detailed description but nearly all answers referred to the consequences of the immune response (shortness of breath, narrowed airways) with little to no mention of the inflammatory response or the triggering of muscle contraction in the bronchioles.

The following is an example of a response which was awarded two marks for the learner's description of the narrowing airways and the reduction in the volume of air inhaled.

(3)

The ~~immune system~~ ^{immune system} ~~body~~ detects the allergen ^{from its antigens} and then narrows the airways to inhibit ~~any more~~ ^{any more} allergens from entering the body. This ~~can decrease~~ ^{can decrease} the volume of air that is able to be inhaled. The white blood cells attack the foreign body and digest it.

In the example below the learner has been awarded one mark for their mention of histamine in response to the allergen but has not been awarded further credit as their answer does not specifically refer to the effects of the histamine on the body with respect to asthma.

The body releases histamine ~~to the~~ to the area where the impact of the allergy is and depending on the severity of the allergy the body could go into anaphalaxict shock. ~~the body~~

Question 6a

Learners found this question difficult, with the majority failing to score any marks for their answers. The only answers gaining credit obtained both marks.

The response below was awarded both marks for the learner's description of the removal of the introns (from the mRNA) and the joining of the exons.

mRNA after transcription will have exons and introns in the strand. ^{protein} an enzyme chops away the introns and puts the exons together to form a mature mRNA

Question 6b

Most of the learners were able to correctly identify mRNA as the type of molecule produced during transcription.

Question 6c

This question was very well answered by a large number of learners with some impressive and thorough answers given. The best answers not only discussed the processes listed in the question but also linked this to the specific context given of the enzyme pepsin.

Below is an example of an answer which was awarded a Level 3 for this question. The learner gives a detailed description of the processes, demonstrating their knowledge and understanding and then puts this into the context of the question. The structure of the answer is excellent and there is a well developed line of reasoning throughout their discussion.

(19)

A mutation is where the DNA sequence is changed slightly and causes the protein to misfold into a different molecule.

Pepsin is a digestive enzyme found in the stomach and the small intestine and it digests proteins.

During transcription, the DNA found within the nucleus will unzip. If the bases on the DNA are (an amino acid or multiple) is slightly incorrect, the mRNA will attach to the DNA with complementary base pairing. The mRNA will then carry this code out of the nucleus and to a ribosome. If the DNA bases are slightly incorrect (a change in an amino acid or multiple), then the mRNA will then be carrying the wrong code. This means the digestive enzyme pepsin will not fold correctly.

Translation occurs within a ribosome. The mRNA binds to the ribosome which contains tRNA. A tRNA will bind to the codon (3 bases on mRNA) of mRNA. This causes tRNA to now have an anti-codon (3 bases).

When 2 tRNA molecules do this on the same ribosome, a peptide bond is formed between the amino acid found on the ribosome.

This occurs multiple times on the ribosome where it will eventually form a polypeptide. If the tRNA now has

bases that matches to the mRNA, it means that the tRNA will now be ~~fixed~~ coding for a different protein due to the mRNA carrying the incorrect codes from the DNA. The pepsin ~~may~~ will still be produced but because of the mutation, it could cause the pepsin to not work correctly. For example a substrate might find the pepsin but can't bind to it because the active site doesn't fit the substrate.

In conclusion, if coding for pepsin the ~~correct bases of DNA~~ DNA must be correct in order for pepsin to be replicated correctly. If not, then the pepsin produced will not bind to the substrate meaning ~~some~~ proteins or the substrates can't be broken down.

An example of a learner who gave a Level 2 response is below. Here the learner has discussed the effects of a mutation during transcription and translation and has begun to link it to the context of the question. There is not enough detail given to each of the processes for a level 3 answer, nor is there evidence of sustained consideration of how the different aspects of the question are interrelated.

(9)

If there is a mutation in the gene for the enzyme pepsin, transcription will be more difficult to make sense because if there is a change in the structure of the bases, when the mRNA molecule attaches to the ribosome, the ~~PR~~ tRNA strand will ~~to~~ attach to a different three base codon, meaning the structure of the polypeptide chain will be different and there will be different proteins made. ~~to the~~

If the digestive enzyme has a mutation, it is likely to have a different substrate that can connect with the active site of the protein, meaning the pepsin enzyme will be less effective or not effective at all. This means that the protein cannot be ~~for~~ broken down and digested fully.

In translation

The response below was awarded a mark at the bottom end a level 1. The learner has made some statements that demonstrate some isolated elements of knowledge about the action of pepsin but this has not been linked to the processed given in the question. The discussion is very limited and does not provide any evidence of the learner considering other related factors.

If there is a mutation in the gene encoding the digestive enzyme pepsin, pepsin won't be produced. Without pepsin, food won't be broken down sufficiently. This may lead to a blockage in the intestines, meaning that bacteria may build up and cause an infection.

Question 7a (i)

This question was answered correctly by the majority of learners, they were able to correctly identify the p wave from the "normal" ECG trace provided which hopefully they were familiar with.

Question 7a (ii)

Even though most candidates could correctly identify the part of the ECG trace in the question above far fewer were able to analyse the trace from the patient and identify what made it abnormal. Very few learners used the expected language of "Elevated ST phase" or noted the absence of the S wave – most answers gaining credit were for descriptions of the trace. Several used annotations on the figure itself which was helpful in many cases.

The following answer is an example of a description awarded one mark.

(1)
The ST waves should have gone further down however it is ~~an~~ abnormally high.

Where learners provided a description of the trace but did not make it clear which section they were referring to no mark was awarded. The following response is an example of a description which did not gain credit.

The voltage doesn't drop back down as much before increasing.

Question 7b

This question was answered well with all learners scoring at least one mark and the majority being awarded full credit. Learners demonstrated an understanding of how the readings given in the question differed from the expected readings for a healthy person and could explain what effects these differences could cause within the body.

The response below is an example of an answer where the learner has achieved all four marks

Explain how the blood pressure of this patient affects their body.

The high blood pressure of this patient may lead to coronary heart diseases such as atherosclerosis or a heart attack

Explain how the temperature of this patient affects their body.

Due to the high body temperature, it could cause the patient to sweat more than $\frac{1}{4}$ normal meaning too much water may be lost.

An example of a response awarded two marks can be seen below. Here the learner has correctly identified that this is hypertension/high blood pressure although they have not adequately explained a consequence in the body. The second mark is awarded for their statement that the body temperature is higher than normal, the learner's explanation of the effect of this is, however, incorrect and so does not gain a mark.

Explain how the blood pressure of this patient affects their body.

A high blood pressure will ~~create~~ force more blood to brain, too much blood in the brain will cause hypertension

Explain how the temperature of this patient affects their body.

A high body temp will start to make body cells denature as they are not in the optimal temp zone (36.5 - 37.5)

Question 7c (i)

Very few candidates could correctly name the department responsible for blood testing as haematology. The majority of incorrect answers referred to the "blood department" of the hospital.

Question 7c (ii)

This question was answered well by most learners with full marks awarded in many cases. Some answers showed that the learners had confused full blood count with blood typing or immune related diagnostic testing.

Below is an example of an answer awarded all three marks

A full blood count measures how many red blood cells an individual has, how many white blood cells a person has and how many platelets and plasma a person has.

The following response was awarded one mark as the learner has given the idea of measuring protein levels within the blood.

A full blood count measures individual substances within your blood and counts them, such as different proteins.

In some cases learners gave very generalised answers that were too vague to gain credit, an example of this can be seen below.

This measures blood pressure, blood viscosity, ~~and~~, temperature and checks if there are any abnormalities and things that shouldn't be there or are in different concentrations than they should be.

Question 7c (iii)

This question did not perform as expected. No candidates were able to explain what the presence of CRP in the blood indicated, which was very disappointing. Many incorrect answers suggested that the protein was produced in response to an allergic reaction which may indicate that the learners had confused two different types of diagnostic testing. Another relatively common misconception was that CRP was related to blood clotting.

An example of an incorrect answer, scoring zero marks, can be seen below.

There is the C-reactive protein in the patient's blood to help the blood clot if needed.

Question 8a

Almost all learners were able to correctly identify the name of the process given in the question as ultrafiltration.

Question 8b

Many learners struggled with this question with the majority of answers which gained credit only achieving one of the four possible marks. It was clear from the answers given that learners were not able to apply their knowledge to the context given with many answers giving generic answers about blood glucose levels and diabetes but not mentioning how the function of the kidney ensures glucose is returned to the bloodstream.

An example of an answer given three marks can be seen below. The learner has identified that glucose is removed in the proximal convoluted tubule and has gone on to describe re absorption for a second mark. The third mark is for their statement that this is via active transport.

This is because glucose is reabsorbed by the kidney as ~~it~~ the body does not want to waste glucose which could have been used for respiration. The glucose is reabsorbed in the proximal convoluted tubule via ~~diffusion~~ active transport back into the capillaries where it is then used for respiration.

Below is a response that was awarded one mark. Here the learner has correctly identified the proximal convoluted tubule as the site where glucose is removed for one mark but has then gone on to incorrectly state that this process happens by diffusion and so no further marks are gained.

Glucose ~~travels~~ ~~is found~~ ~~in the~~ ~~travels~~ ~~through the~~
it is not found in the urine because it diffuses ~~into~~
of the ~~proximal~~ Proximal convoluted tubule at the start.
But ~~because~~ it then ~~gets~~ it diffuses back ~~from~~ out of
the nephron in the loop of henle. The glucose is
needed in the blood. When the water diffuses into the nephron,
it causes the glucose to diffuse back into the blood.

Question 8c

An example of an answer achieving a level two can be seen below

Hypertension is high blood pressure. Too much water in the blood can lead to hypertension. ~~because the~~
~~Too~~ An increased amount of tissue fluid at the arterial end of the capillary can mean that the blood flow from the ~~capillary~~ artery to the capillary will be very powerful ~~due to~~ high pressure ~~due to~~ the blood going from a strong blood vessel to ~~the~~ a 1 cell thick capillary with a small lumen. However a decreased amount of tissue fluid at the venous end of the capillary can mean that ~~the~~ some of the organs aren't getting enough blood. Veins take ~~blood away from the heart~~ deoxygenated blood to the heart. Arteries take oxygenated blood away from the heart. A decreased amount of tissue fluid reabsorbed ~~at the veins~~ venous end of the capillary ~~suggests~~ that means that less tissue fluid formation will happen due to a high blood pressure $\&$ (hypertension) at the arterial end of the capillary. The ~~at~~ arteries of the kidneys

are the afferent and the efferent arterioles.
capillaries surround the nephron in the
kidneys so that ultrafiltration and selective
reabsorption can happen ~~very~~ easily.

The majority of responses scored within level 1. An example of one such response can be seen below. Here the learner indicates that there will be an increase in tissue fluid and states some of the potential effects of hypertension on the body, including cell swelling. There is no evidence of any deeper understanding or any relation of the information to the context of the question and so no more marks can be awarded in this case.

(2)

Hypertension causes an increase of tissue fluid, ~~an IF~~ there is too much of an increase in the tissue fluid, it will cause swelling of the tissue, this could cause tissue in the body to burst and cause liquid to travel around the body, if the tissue fluid bursts in the brain, this could cause a stroke.

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