BTEC

L3 Lead Examiner Report 1906

June 2019

L3 Qualification in Equine Management: Equine Structure Form and Function

Pearson

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications website at http://qualifications.pearson.com/en/home.html for our BTEC qualifications.

Alternatively, you can get in touch with us using the details on our contact us page at http://qualifications.pearson.com/en/contact-us.html

If you have any subject specific questions about this specification that require the help of a subject specialist, you can speak directly to the subject team at Pearson. Their contact details can be found on this link:
http://qualifications.pearson.com/en/support/support-for-you/teachers.html

You can also use our online Ask the Expert service at https://www.edexcelonline.com
You will need an Edexcel Online username and password to access this service.

Pearson: helping people progress, everywhere

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your learners at: www.pearson.com/uk

June 2019
Publications Code 20108K_1906_ER

Grade Boundaries

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.

Grade boundaries for this, and all other papers, are on the website via this link:

http://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html

Equine Structure Form and Structure: 20108K

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	0	9	19	35	52

Introduction

This was the third time that this exam had been sat. All questions were attempted by some learners, with some learners demonstrating a clear ability to apply the knowledge learnt from the specification. Responses from the learners generally showed good coverage of the unit specification and that good use of the Sample Assessment Materials and past papers had been made. There were numerous examples of learners using their knowledge in applied situations throughout the paper, indicating a good level of understanding.

This paper was able to evidence effective ramping of the questions, with there being an obvious drop off point where pass level learners struggled to access marks in questions which were targeted at merit or distinction learners. The 8-mark questions were also highly effective in discriminating the level of learner as the candidates had to provide specific examples of disease prevention to obtain maximum marks.

One area of weakness was the learners ability recall bones and muscles of the equine and to recall the function of the named hormone, oxytocin.

In questions which tested higher level skills, explanations and discussions were provided. Where learners did well, they had a good understanding of key areas and concepts and were able to relate these throughout the paper. The most able candidates were able to apply the knowledge in a range of scenarios, including complex situations where a number of cognitive steps were required.

In the questions requiring an extended response learners struggled to access higher marks, this was generally due to not understanding the question, i.e. learners discussed aerobic respiration rather than anaerobic respiration or discussed tissue types rather than cell shape and structure.

Finally, learners would still benefit from additional coaching on exam technique, in particular the way to structure answers for “explain” and “compare” questions to ensure maximum marks are achieved as this continues to be where marks are unnecessarily lost.

Individual Questions

The following section considers each question on the paper, providing examples of popular learner responses and a brief commentary of why the responses gained the marks they did. This section should be considered with the live external assessment and corresponding mark scheme.

Question 1a

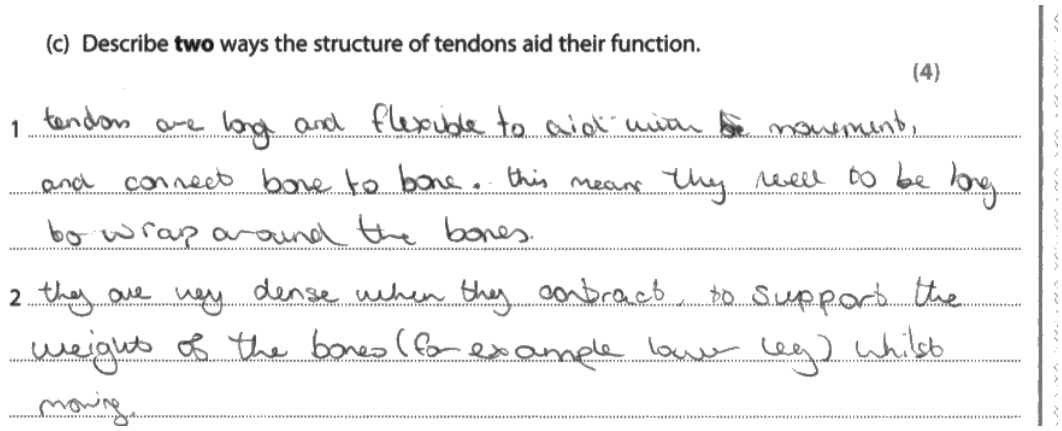
This was a labelling question worth two marks. Learners were provided with an image of an equine skeleton and were asked to label two of the bone (radius and cannon bone). As a pass level question this had a mixed response with most learners being able to access the mark for the cannon bone but struggling to correctly identify the radius. A variety of incorrect answers were provided by the learners for the radius.

Question 1b

This was a one mark multiple-choice question where learners had to identify the area on the image which showed the spongy bone by placing a tick in the appropriate answer box. Most learners were able to access the marks for this question by correctly identifying the correct letter. There was no trend in the wrong answers provided.

Question 1c

This was a 4 mark question where learners had to explain two ways that the structure of tendons aid their function. Most learners were able to state two separate functions but only merit learners were able to link this with a specific aspect of their function therefore access all 4 marks. Some learners wrote their answer in a way which included the same answer twice, for example strength for support and strength for movement.



(c) Describe **two** ways the structure of tendons aid their function.

(4)

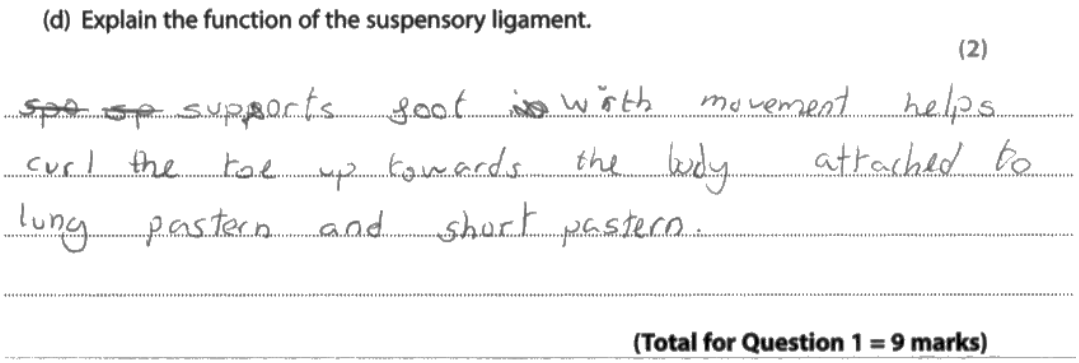
1 tendons are long and flexible to aid with movement, and connect bone to bone. this means they need to be long to wrap around the bones.

2 they are very dense when they contract, to support the weights of the bones (for example lower leg) whilst moving.

4 marks awarded. Two marks for each feature/ structure (flexible and dense) and two marks for function that the structure aids.

Question 1d

This was a 2 mark question where learners were asked to explain the function of the suspensory ligament. This question was generally well answered with learners being clear on the location and the specific function of the named ligament. Where learners lost marks it was due to providing an explanation of the function of ligaments, rather than the specific ligament named.



(d) Explain the function of the suspensory ligament.

(2)

supports foot with movement helps curl the toe up towards the body attached to lung pastern and short pastern.

(Total for Question 1 = 9 marks)

2 marks awarded. Supports foot (1) to allow movement (1)

Question 2a

This was a labelling question worth two marks. Learners were provided with an image of an equine male reproductive system and were asked to label two parts (testicle and retractor muscle). As a pass level question this provided a mixed response, most learners were able to access 1 mark by correctly identifying the testicle but ta range of incorrect answers were provided for the retractor muscle.

Question 2b

This question was worth a maximum of 4 marks and asked the candidates to explain two features of the equine penis which aids reproduction.

Many of the learners were not clear on what part of the reproductive system the penis was, and provided answers about the testies producing sperm. A number of learners also did not attempt this question.

Question 2c

This was the first describe question of the paper. Learners were asked to describe the movement of the egg through the mares reproductive system for 4 marks. This question had a good response with learners generally being clear of the structure of the reproductive system and the route taken by the egg. Where marks were lost this was due to learners discussing the development of the embryo or the process of fertilisation which limited the number of marks which could be achieved. Some learners also appear confused about where in the system fertilisation and implantation takes place.

(c) Describe the movement of an ovum (egg) through the mare's reproductive system.

(4)

The egg moves from the ovary, down the fallopian tubes due to a hormone that tells the ovary to release the egg, LH. (leutnising hormone). Then is reaches the womb, this is where insemination occurs and if successfull the egg will bind to the lining of the womb.

(Total for Question 2 = 10 marks)

4 marks awarded. The learner has provided a logical description of the route taken by the egg, with all information provided being accurate.

Question 3a

This was a 2-mark question where learners had to explain one function of the equine eye lid

Virtually all learners were able to access both of the two available marks. Learners provided a range of answers including protection from sun and debris and providing moisture.

3 (a) Explain **one** function of the equine eyelid.

(2)

The equine eyelid [redacted] protects the eye by preventing debris been able to enter. The eyelid can shut when ins necessary. It also [redacted] is what eyelashes are attached to, again preventing dust particles entering the eye.

2 marks awarded, 1 mark for the identification of protection and 1 mark for it protects from dust.

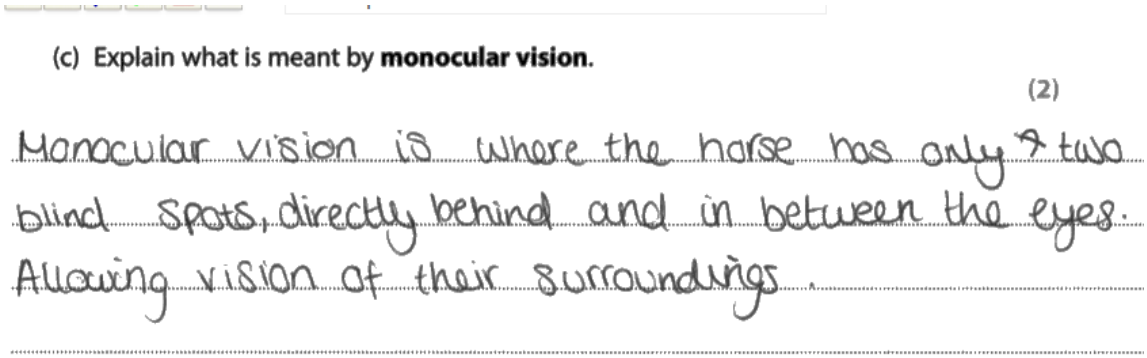
Question 3b

This was a 4 mark, describe question with learners being asked to describe two feature of the equine eye which allow the horse to see in low levels of light. This question had a mixed response, many of the learners were able to discuss the role of the pupil in adjusting to light levels and some learners were able to discuss the role of the rods, however very few learners were able to discuss both and access all 4 marks.

Question 3c

This was a 2 mark question where learners were asked to explain the term monocular vision.

The question was generally well answered with learners demonstrating good knowledge of a horse's blind spot. However, some learners appeared confused and discussed the colour vision of a horse or stated that horses could see all around them.



(c) Explain what is meant by **monocular vision**.

(2)

Monocular vision is where the horse has only 2 two blind spots, directly behind and in between the eyes. Allowing vision of their surroundings.

2 marks awarded. Small blind spots (1) allowing a wide field of vision (1)

Question 3d

This was a 4-mark question where learners had to explain 2 feature of the equine eye that allow images to be focused.

Most learners were able to access at least 2 of the marks for this question by identifying the features of the eye but were unable to offer full explanations as to how this helps the eye focus.

(d) Explain **two** features of the equine eye that allow images to be focused.

(4)

1 The equine eye contains a lense at the front of the eyeball, this means objects can be magnified and focused to be seen more clearly.

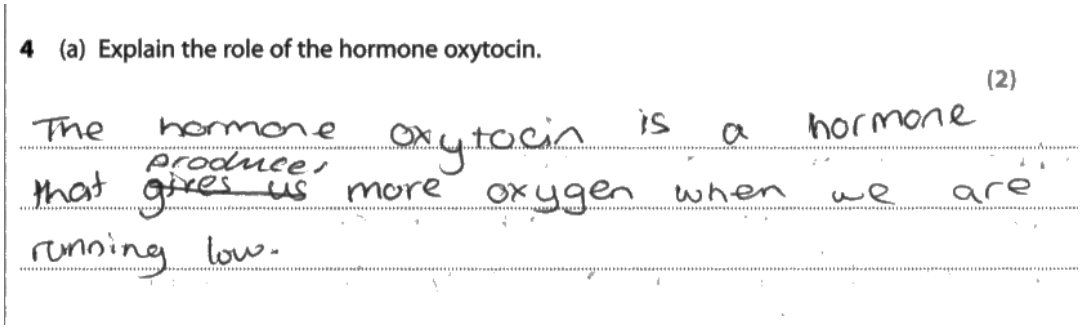
2 The equine eye also contains the pupil which contracts or relaxes to allow more light or less in, this way the can see more clearly as images are focused.

(Total for Question 3 = 12 marks)

4 marks awarded. The learner has provided two examples: lens (1) magnified and alters image (1), pupil contracts (1) controls amount of light entering (1)

Question 4a

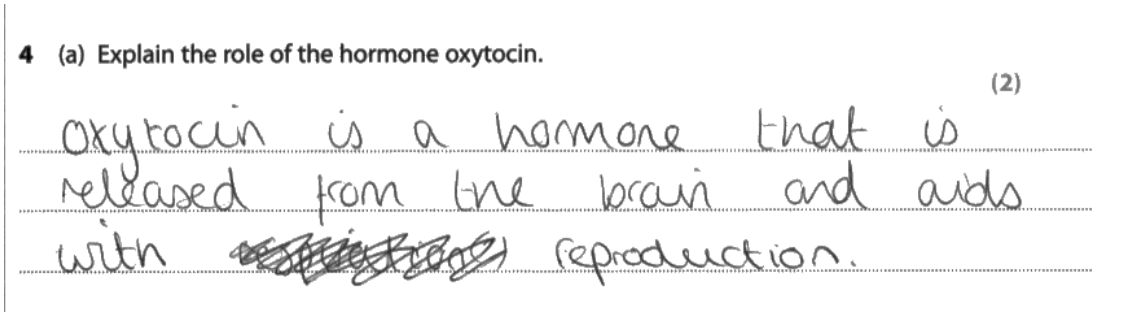
This was a 2 mark question where learners had to explain the role of the hormone oxytocin. This question was not well answered, with most learners stating that the hormone was related to oxygen control in the body. A limited number of learners were able to state that the hormone was related to reproduction but could not provide answers specific enough to be rewardable.


4 (a) Explain the role of the hormone oxytocin.

(2)

The hormone oxytocin is a hormone that ~~gives us~~ produces more oxygen when we are running low.

0 marks awarded. Incorrect answer provided


4 (a) Explain the role of the hormone oxytocin.

(2)

oxytocin is a hormone that is released from the brain and aids with ~~[illegible]~~ reproduction.

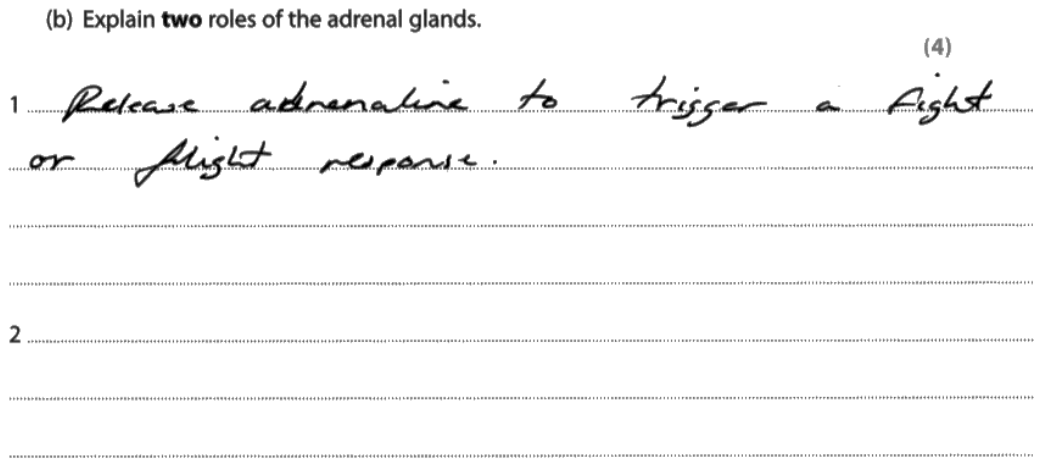
0 marks awarded. The answer is not specific enough.

Question 4b

This was a 4-mark question where candidates were asked to explain two roles of the adrenal glands.

This was a more advanced question, requiring candidates to investigate the range of roles that the adrenal glands have.

Only distinction level learners were obtaining more than 2 marks for this question as were able to identify and explain two separate functions. Most learners were able to explain that adrenaline was produced for the fight or flight response but very few were able to provide an additional role.


(b) Explain **two** roles of the adrenal glands.

(4)

1 Release adrenaline to trigger a fight or flight response.

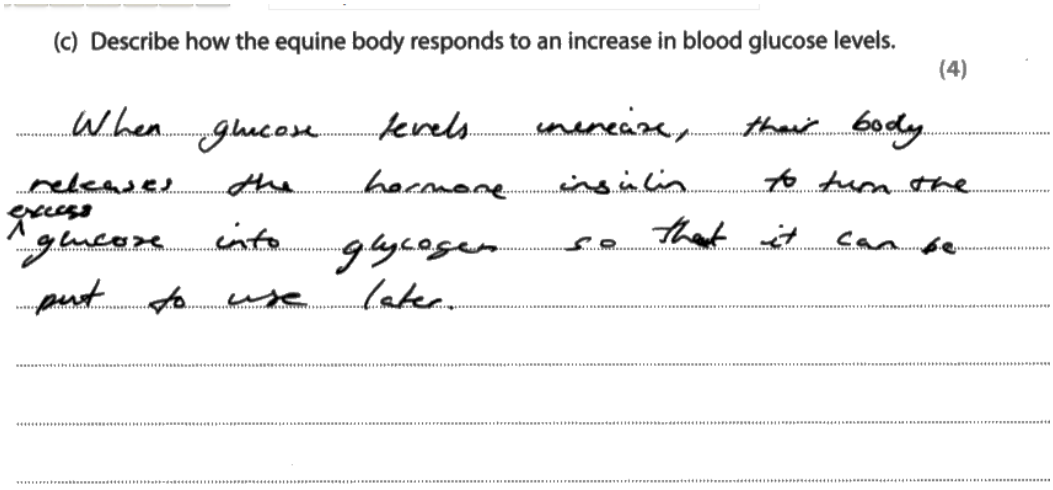
2

2 marks awarded. Produces adrenaline (1 mark) for fight or flight response (1)

Question 4c

This was a 4-mark question where learners had to describe how the equine body responds to an increase in blood glucose levels.

Most learners were able to correctly identify that insulin was involved and the glycogen was produced and stored, however there was some confusion about where each of these processes occurred resulting in marks being lost.



(c) Describe how the equine body responds to an increase in blood glucose levels.

(4)

When glucose levels increase, their body releases the hormone insulin to turn the excess glucose into glycogen so that it can be put to use later.

3 marks awarded. Insulin produced (1) turns glucose into glycogen (1), stored for later use (1)

Question 5

This was the first 8-mark question of the paper where learners had to discuss equine conformation faults.

As a banded question there were 3 marks available for pass learners and these were obtained through basic statements including listing and describing common faults. Pass level learners were not able to access additional marks with a greater depth of knowledge as to how these faults effect a horse's performance. While some learners were limited to band one many learners were able to access the top range marks by demonstrated highly detailed knowledge on a range of conformation faults and the impact these can have on the horse. Generally this question was well answered.

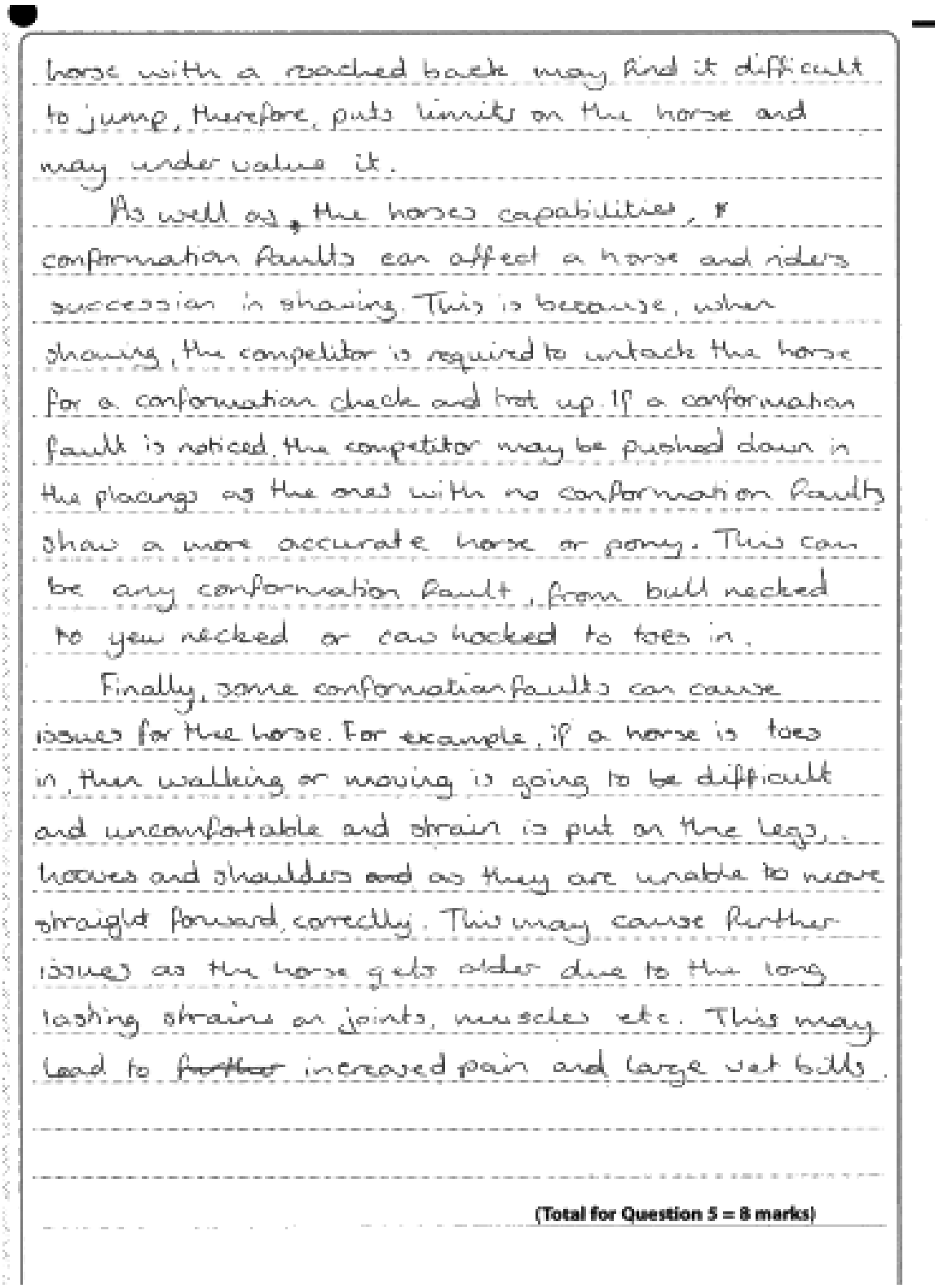
5 Discuss equine conformation faults.

Equine conformation is a common thing which people look for when viewing horses or ponies. This is so that they are able to assess the body and recognise any potential problems which may occur with them or currently. This would decide whether or not the horse is worth owning or buying.

Some faults may not cause much of an issue. For example, a horse with a short back. This may be recognised as a conformation fault, however it is becoming more popular that people believe, horses with short backs make more successful show jumpers. This could be an advantage.

Also, it is believed that horses with long necks make good eventers as they are able to stretch out over jumps, as well as come round for dressage. Although this may be classed as a conformation fault, some people may think of it as an advantage.

However, there are also disadvantages to conformation faults, such as, a horse being roach backed. This means the horses vertebrae is slightly misshaped and causes a lump on the horses back. This ~~be~~ sometimes limits the horses capabilities as it can be restrictive and uncomfortable at times. For example, a



horse with a reached back may find it difficult to jump, therefore, puts limits on the horse and may under value it.

As well as the horses capabilities, conformation faults can affect a horse and riders succession in showing. This is because, when showing, the competitor is required to untrack the horse for a conformation check and trot up. If a conformation fault is noticed the competitor may be pushed down in the placings as the ones with no conformation faults show a more accurate horse or pony. This can be any conformation fault, from bull necked to yew necked or cow hocked to toes in.

Finally, some conformation faults can cause issues for the horse. For example, if a horse is toes in, then walking or moving is going to be difficult and uncomfortable and strain is put on the legs, hooves and shoulders ~~and~~ as they are unable to move straight forward correctly. This may cause further issues as the horse gets older due to the long lasting strains on joints, muscles etc. This may lead to ~~further~~ increased pain and large vet bills.

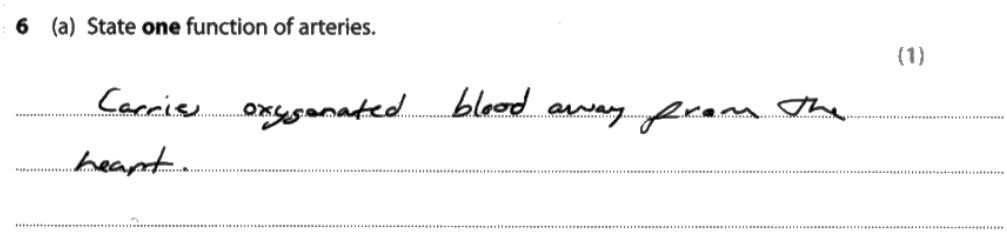
(Total for Question 5 = 8 marks)

8 marks awarded. A detailed and thorough account of equine confirmation discussing the physical signs and consequences for a comprehensive a range of conformation faults.

Question 6a

This was a 1-mark question were learners were asked to state one function of arteries.

This question was generally well answered, although some learners were confused about the direction of the blood flow and therefore lost marks.


6 (a) State **one** function of arteries.

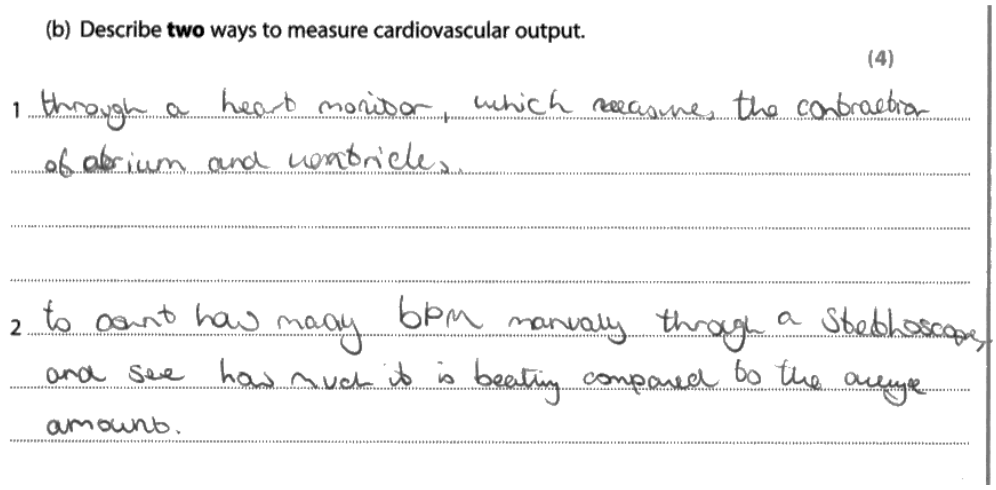
(1)

Carries oxygenated blood away from the heart.

1 mark awarded. Correct function stated.

Question 6b

This was a 4 mark question where learners were asked to describe two ways to measure cardiac output. While most learners were able to list two ways only a few were able to provide descriptions of how this should be carried out.


(b) Describe **two** ways to measure cardiovascular output.

(4)

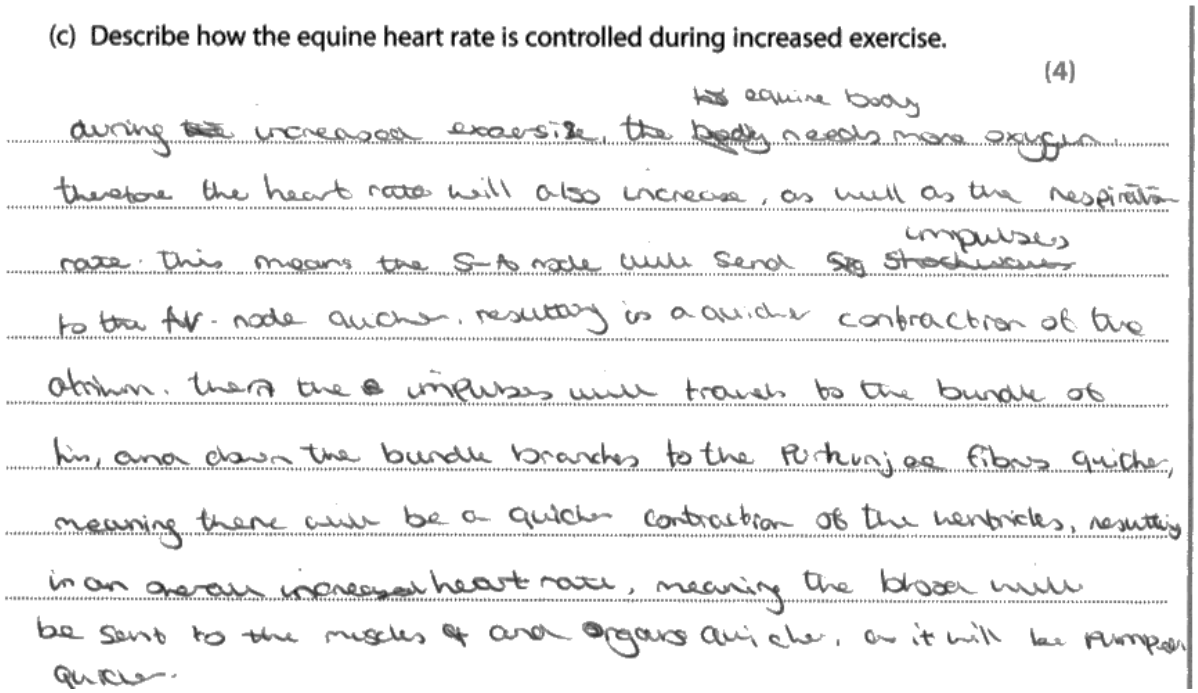
1 through a heart monitor, which measures the contraction of atrium and ventricle.

2 to count how many bpm manualy through a stethoscope and see how much it is beating compared to the average amounts.

4 marks awarded. The learner have described two ways to measure heart rate.

Question 6c

This was a 4 mark question where learners were asked to explain how the equine heart rate is controlled during increased exercise. This question was challenging to pass learners who were only accessing the first mark by recognising that the heart rate increased. However there were some learners who were able to provide highly technical answers and achieve all 4 marks.



(c) Describe how the equine heart rate is controlled during increased exercise.

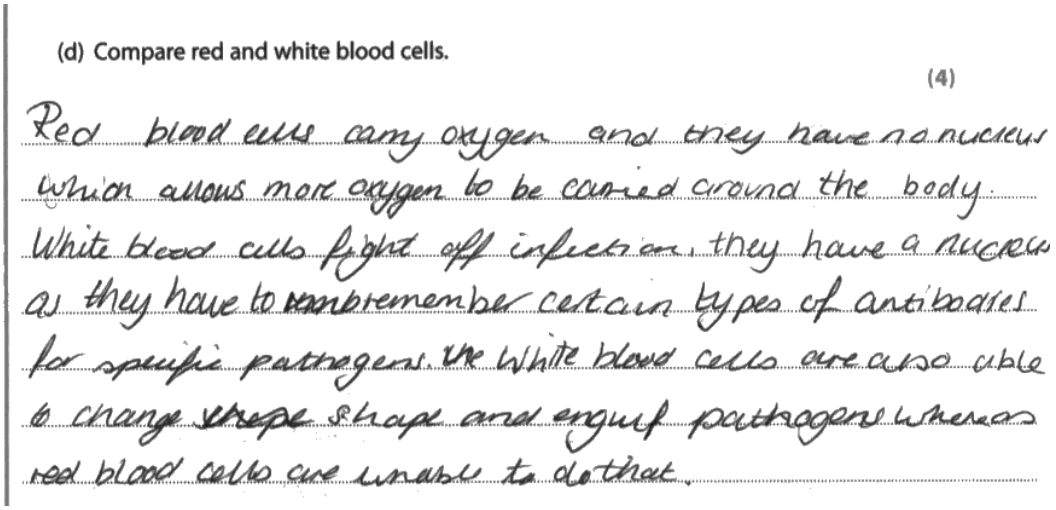
(4)

during increased exercise, the equine body needs more oxygen. therefore the heart rate will also increase, as well as the respiration rate. this means the S-A node will send impulses to the A-V node quicker, resulting in a quicker contraction of the atrium. then the impulses will travels to the bundle of his, and down the bundle branches to the Purkinjee fibres quicker, meaning there will be a quicker contraction of the ventricles, resulting in an overall increased heart rate, meaning the blood will be sent to the muscles and organs quicker, as it will be pumped quicker.

4 marks awarded. Heart rate increases (1), SA node sends impulses (1) to tv node (1) impulse travels through Purkinjean fibres resulting in increased contractions

Question 6d

This was a higher level 4 mark question where learners had to compare red and white blood cells. While most learners were able to demonstrate sound knowledge on both red and white blood cells there were not providing answers which compared them and therefore were unable to access many of the marks. Leaners must be clear on the structure of compare answers.



(d) Compare red and white blood cells.

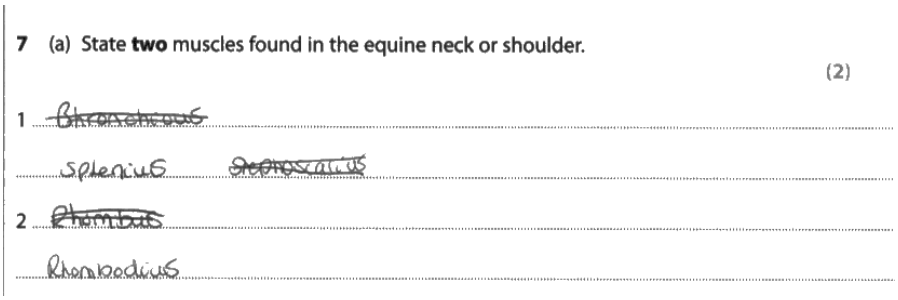
(4)

Red blood cells carry oxygen and they have no nucleus which allows more oxygen to be carried around the body. White blood cells fight off infection, they have a nucleus as they have to remember certain types of antibodies for specific pathogens. the White blood cells are also able to change shape and engulf pathogens whereas red blood cells are unable to do that.

3 marks awarded. 1 mark awarded for comparing functions, 1 mark awarded for nucleus/no nucleus and 1 mark awarded for white blood cells changing shape but red remaining constant.

Question 7a

This was a 2 mark recall question where learners were required to state two muscles found in the equine neck. Only a limited number of learners even attempted this question showing a lack of knowledge in this area.


7 (a) State **two** muscles found in the equine neck or shoulder.

(2)

1 ~~Brachiocephalicus~~

splenius ~~Deltoideus~~

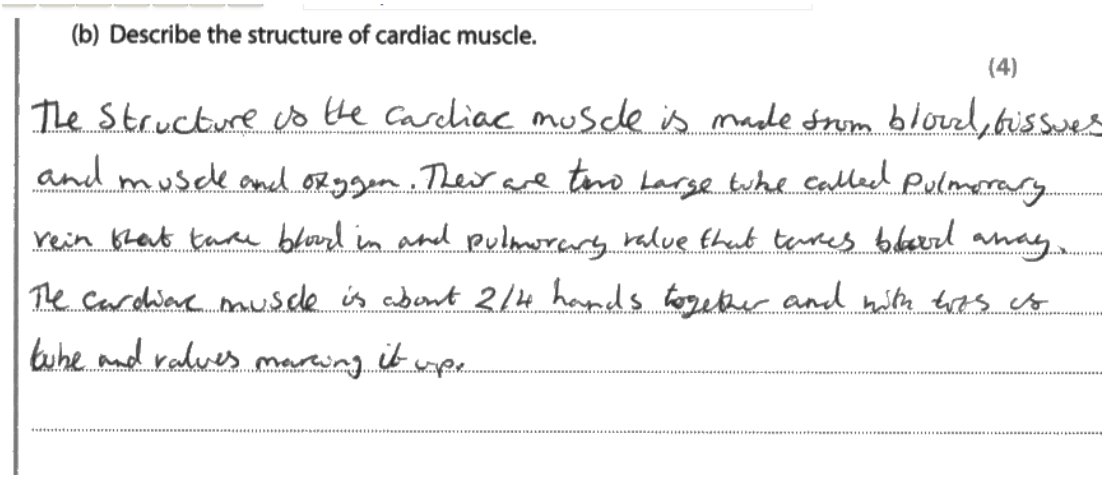
2 ~~Rhomboideus~~

Rhomboideus

2 marks awarded. 2 correct answers provided.

Question 7b

This was a 4 mark question where learners had to describe the structure of cardiac muscle. This question was poorly answered with many learners describing the structure of the heart rather than the muscle tissue and therefore were not able to achieve any marks. Where learners did discuss the tissue structure they provided general statements (strong / elastic) rather than having a clear understanding of the cellular structure.


(b) Describe the structure of cardiac muscle.

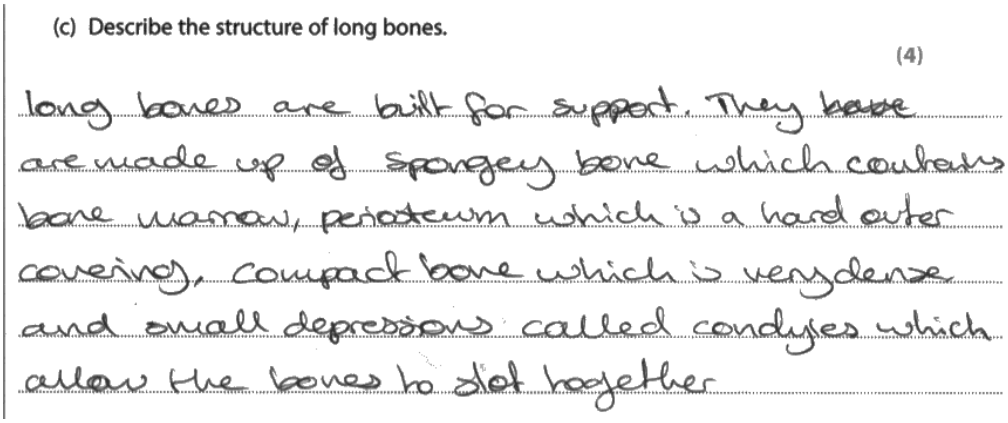
(4)

The Structure of the cardiac muscle is made from blood, tissues and muscle and oxygen. There are two large tube called Pulmonary vein that take blood in and pulmonary valve that carries blood away. The cardiac muscle is about 2/4 hands together and with tubes as tube and valves moving it up.

0 marks awarded. The learner has discussed the structure of the heart rather than focusing on the cellular structure of the tissue.

Question 7c

This was a 4 mark question where learners had to discuss the structure of long bones. This question differentiated well between learners of different abilities. Some very strong answers were seen which allowed the 4 marks to be achieved in a number of different ways however there were also answers from pass level learners who did little more than state that long bones were strong.



(c) Describe the structure of long bones.

(4)

long bones are built for support. They ~~have~~ are made up of spongey bone which contains bone marrow, periosteum which is a hard outer covering, compact bone which is very dense and small depressions called condyles which allow the bones to slot together

4 marks awarded. This is a comprehensive answer where the four marks could have been achieved in a variety of ways.

Question 8

This was an 8-mark question where candidates were asked to discuss how the shape of cells are related to tissue function.

This was a more advanced question and while the answer is banded distinction learners were gaining 3 or more marks by making a clear referenced to cell shapes and their function. Many lower learners were discussing tissue types rather than cells and therefore not accessing the marks as a result the average mark achieved for this question was low.

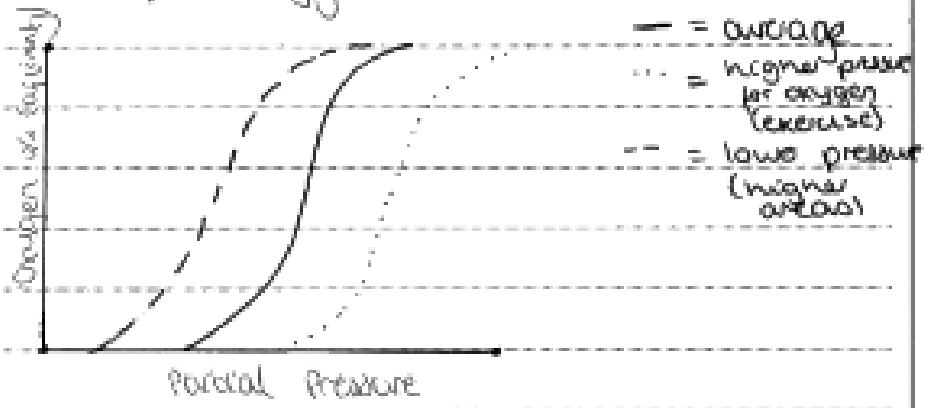
8 During respiration, oxygen and carbon dioxide are exchanged between blood and tissues.

Discuss how the Bohr effect impacts this exchange.

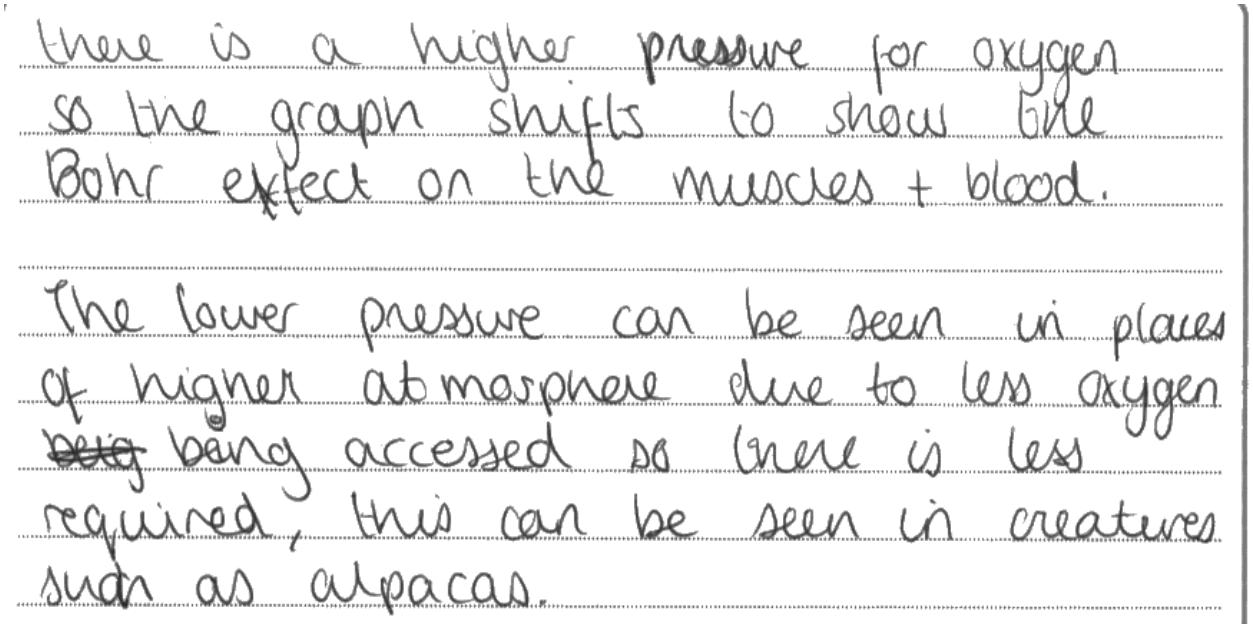
(8)

The Bohr effect is the exchange between blood and oxygen and it effects the rate in ~~em~~ which blood cells are susceptible to the loading and unloading of oxygen into the tissue cells.

During exercise, our muscles ~~use~~ need more oxygen than normal due to respiration so the heart beats faster to get more oxygen to the muscles from the blood. This means that there is a higher affinity for oxygen to be loaded onto the blood cells to keep up with the demand of oxygen.

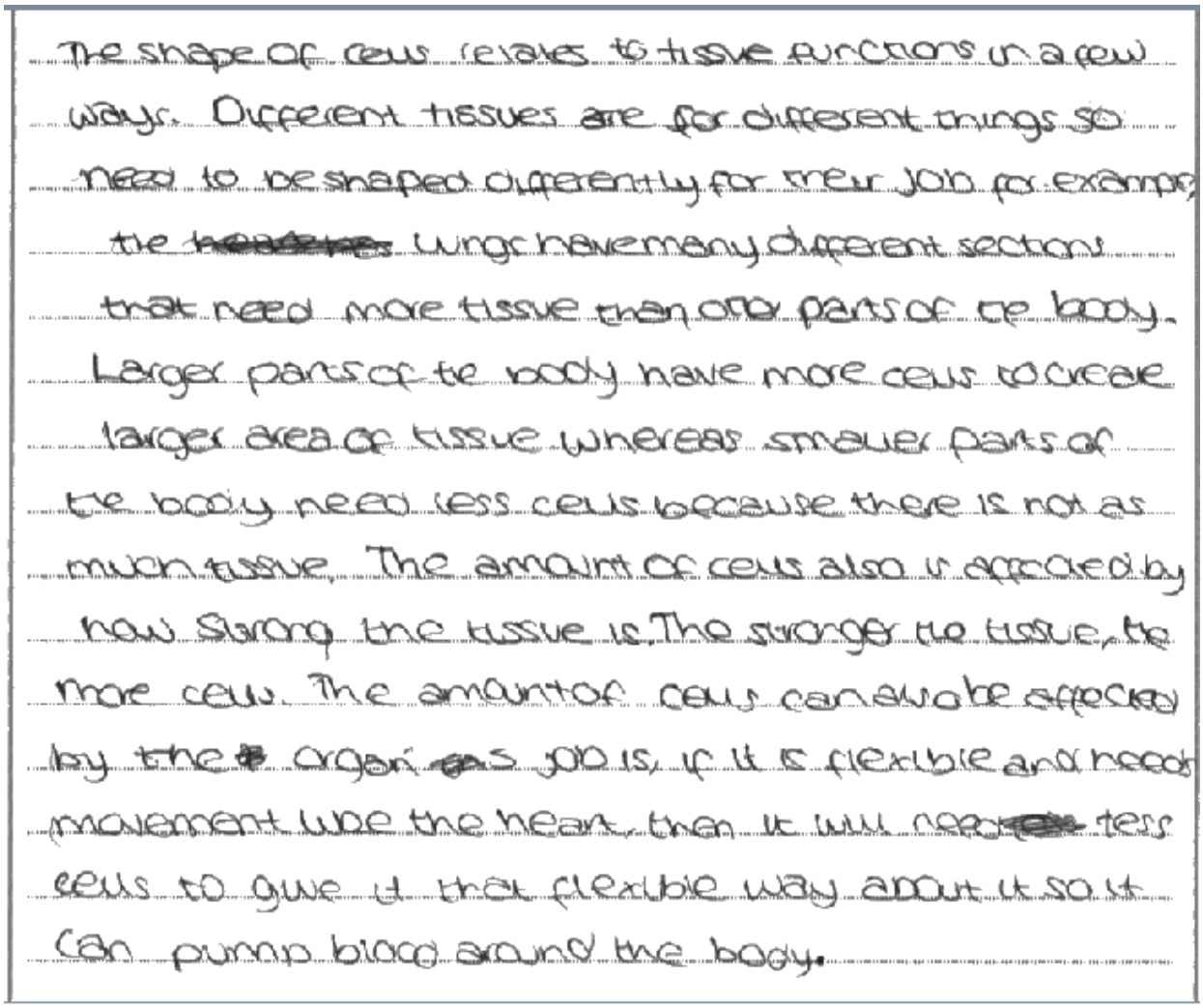


As shown in the graph, due to the exercise


there is a higher pressure for oxygen so the graph shifts to show the Bohr effect on the muscles + blood.

The lower pressure can be seen in places of higher atmosphere due to less oxygen ~~being~~ being accessed so there is less required, this can be seen in creatures such as alpacas.

8 marks awarded. A detailed discussion of a range of cell shapes has been provided with a good depth of knowledge demonstrated. There are clear links between the structure and function of each cell type.



The shape of cells relates to tissue functions in a few ways. Different tissues are for different things so need to be shaped differently for their job for example the lungs have many different sections that need more tissue than other parts of the body. Larger parts of the body have more cells to create larger area of tissue whereas smaller parts of the body need less cells because there is not as much tissue. The amount of cells also is effected by how strong the tissue is. The stronger the tissue, the more cells. The amount of cells can also be effected by the organs job is, if it is flexible and needs movement like the heart, then it will need less cells to give it that flexible way about it so it can pump blood around the body.

0 marks awarded. The learner has discussed the role and structure of tissues, not individual cells and the information provided is vague.

Unit Summary

Based on the performance on this paper learners should:

- Carefully read the question and keep the answer focused on what the question is actually asking. i.e if the question is about vasodilation information on vasoconstriction will not obtain marks, if the question is about the process of fertilisation then any processes after the point of fertilisation will not be rewardable.

- Avoid answers which are similar to other answers provided for the same question i.e structure and shape.

- Tailor their responses based on the command word in the question, eg. explain will require an expansion of a point, discuss requires looking at both possible points/arguments, evaluation will require some form of conclusion.

- Ensure any information contained within the question is not provided as part of the answer.

- Develop a greater depth of knowledge on the eye.

For more information on Pearson qualifications, please visit
http://qualifications.pearson.com/en/home.html

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE