

L3 Lead Examiner Report 2001

January 2020

**L3 BTEC Nationals in Equine
Management**

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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:

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Equine Structure Form and Function Unit 1

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	0	09	18	35	52

Introduction

This was the fourth sitting of this exam. All questions were attempted by some learners, with some learners demonstrating a clear ability to apply the knowledge learnt from the specification. However, there were a number of learners who made a very limited attempt at answering the paper, leaving many answers blank. Where learners had attempted all questions they were able to show a good coverage of the unit specification and apply their knowledge to a range of situations.

Introduction to the Overall Performance of the Unit

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 discuss the lymphatic system and how the structure of the hoof aids stability.

One area of weakness was the learner's ability answer questions relating to hormones, including reproductive hormones, and hormones of the thyroid gland and the role of insulin.

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.

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

Individual Questions

Question 1a

This was a labelling question worth two marks. Learners were provided with an image of an equine urinary system and were asked to label two parts, the ureter and the bladder. As a pass level question this had a mixed response with most learners being able to access the mark for the bladder but struggled to correctly identify the ureter. A variety of incorrect answers were provided by the learners.

Question 1c

This was a 4 mark question where learners had to explain two functions of sweat. 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.

(c) Explain **two** roles of sweat. (4)

1 ~~to~~ Help slow down the horses
Temperature

2 Helps get out any unwanted wastes
on

2 marks awarded. Two marks for each function, but no explanation provided.

Question 1d

This was a 2 mark question where learners were asked to explain the role of Anti Diuretic Hormone (ADH). Learners struggled with this question. Some learners were able to state that it was connected to the urine output but many provided incorrect answers which were not rewardable. Very few learners were able to access both marks for this question.

(d) Explain **one** role of antidiuretic hormone (ADH).

(2)

ADH or antidiuretic hormone is released in the body and is used in the kidneys to maintain water balance and prevents too much water being lost from the body

(Total for Question 1 = 9 marks)

2 marks awarded. Controls water balance (1) by causing concentrated urine (1)

Question 2a

This was a labelling question worth two marks. Learners were provided with two images of equine front legs and were asked to identify the conformation fault. Learners struggled to answer this question. The answers provided were very varied with reference being made to the weight of the horse, the angle of the hoof and whether the horse was going up or down hill.

(a) Identify the named conformation fault in **Figures 3 and 4** by labelling the boxes provided.

(2)

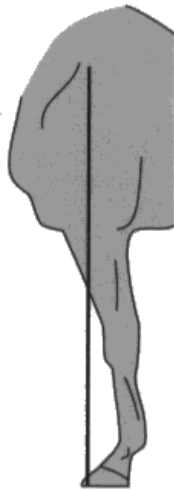


Figure 3

Downhill

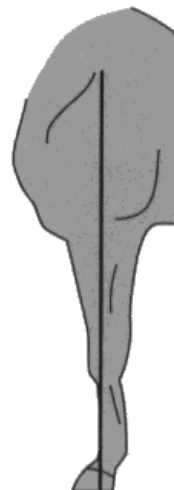


Figure 4

Uphill

0 marks awarded

Question 2b

This question was worth a maximum of 4 marks and asked the candidates to describe two types of joint found in the equine leg. While most learners were able to state 2 types of joint most were unable to provide an accurate description. Other ways that learners lost marks was by discussing joints which are not found in the equine leg.

(b) Describe **two** types of joint found in the equine leg.

(4)

1 Knee joint which allows the leg to bend when jumping

2 Shoulder joint which allows the leg to move back for forward & backwards with out friction

2 marks awarded: 2 joints identified (2) no accurate description provided.

Question 2c

This was the first describe question of the paper. Learners were asked to describe how weight bearing changes between trot and canter for 4 marks. This question had a good response with learners generally being clear on the difference in footfall between the two paces and how this affects the distribution of weight.

(c) Describe how weight bearing changes between trot and canter.

(4)

During trot, a horse moves in diagonal pairs which ~~split~~ evenly ~~of~~ splits the weight on each leg. However, in canter a horse will move its ~~hind~~ ~~back~~ one of its front legs (depending on the rein), then the back opposite leg and lastly the two remaining legs as a pair. This means that for the first few milliseconds that the horse's weight ~~is~~ would be ~~on~~ mostly on one leg.

(Total for Question 2 = 10 marks)

4 marks awarded. The learner has provided a logical description footfall in both trot and canter and has linked this to how the weight is distributed.

Question 3a

This was a 2-mark question where learners had to explain one role of Purkinje fibres. This question was poorly answered and many learners left the question blank. Where marks were awarded it was generally for basic answers making reference to the heart.

3 (a) Explain **one** role of the Purkinje fibres.

(2)

Purkinje fibres are the small fibres connected to the valves of the heart which open and close the valves as the heart beats.

2 marks awarded, 1 mark for the identification of heart fibres and 1 mark for causing the contractions of the heart.

Question 3b

This was a 4 mark, describe question with learners being asked to describe the structure of the equine heart. This question had a positive response, with many learners accessing the full 4 marks. The way learners approached the question was varied, with some focusing on the muscular structure and the flow of blood through the heart where as other discussed individual structures within the heart. Both types of answer were rewarded.

(b) Describe the structure of the equine heart.

(4)

The ~~left~~ right side of the heart has two entrances, one being the superior vena cava and the other being the inferior vena cava. This allows the blood to be collected quickly. The heart contains a valve between the atrium and ventricle and a valve between the ventricle and exiting vein/artery; ~~it~~ preventing blood from flowing backwards. The left side of the heart - especially near the ventricle - is more muscular than the right. This is because the oxygenated blood leaving the right side of the heart has to be pumped all of the way round the body.

4 marks awarded: a comprehensive discussion of the anatomy of the heart using correct terminology.

Question 3c

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

The question was not well answered with many learners leaving the question blank. Where learners did provide an answer they struggled to access both marks, generally providing a vague answer about it being something to do with the heart.

Diastole is when blood is pushed out of the ventricles causing a drop in ventricular pressure. It is commonly known as the 'dub' of the 'lub, dub' noise associated with a pulse.

2 marks awarded. Correct term explained.

Question 3d

This was a 4-mark question where learners had to explain 2 ways in which the structure of capillaries aid their function.

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

(d) Explain **two** ways the structure of capillaries aids their function.

(4)

1. Capillaries are one cell thick which allows ~~them~~ to diffusion and osmosis to be carried out effectively due to not having to travel far

2. Capillaries ~~have a large lumen~~ are semi-permeable which allows cells and liquid to diffuse quickly because it is easy to pass through.

4 marks awarded. The learner has provided two examples: one cell thick (1) to allow osmosis (1) and semi permeable (1) to allow diffusion (1)

Question 4a

This was a 2 mark question where learners had to explain the role of simple epithelial cells. This question was generally well answered, with most learners recognising the cells have a protective function, however there are still a significant number of learners who are not providing a link response answer for an explain question and therefore are not able to achieve both marks.

4 (a) Explain the role of simple epithelial cells.

(2)

TO protect the body by creating a barrier to the external environment from bacteria but to also aid in stability towards internal structures.

2 marks awarded. Protective barrier (1) against external environment (1)

Question 4b

This was a 4-mark question where learners were asked to explain two roles of tendons

This was a more advanced question, requiring learners to investigate the range of roles that the tendons have.

Only distinction level learners were obtaining more than 2 marks for this question. They were able to identify and explain two separate functions. Most learners were able to state that tendons connect bone to muscle to aid movement.

(b) Explain **two** roles of tendons. (4)

1 Tendons connect muscles and bones, they are made of fibers and slightly stretchy which creates a strong connection between muscles and bones as they are pulled taut.

2 Tendons help to hold everything in place and without them, a majority of movement would be impossible as muscles wouldn't stay attached and in place which would not allow a horse to function.

3 marks awarded. Connects muscle to bone (1 mark) providing strength (1) and stability (1).

Question 4c

This was a 4-mark question where learners had to describe the structure of striated muscle.

Most learners were able to correctly identify that striated muscle had a striped appearance and therefore able to access 1 mark. However many learners struggled to access any of the higher end marks.

(c) Describe the structure of striated muscle.

(4)

Striated muscle is a complex of smaller muscles to add together. They are small, thin tubes of muscle that look striped across the overall muscle and allow for movement. By adding together they form a strong bond that is not easily broken and can be built larger upon exercise.

(Total for Question 4 = 10 marks)

3 marks awarded. Made of many fibres (1) Shape is long and thin (1). Appear striped (1)

Question 5

This was the first 8-mark question of the paper where learners had to discuss the structure and function of the equine lymphatic system.

As a banded question there were 3 marks available for pass learners and these were obtained through basic statements including the function of the system and recognising key structure (e.g. glands / lymph nodes). Pass level learners were not able to access additional marks as they struggled to provide a greater depth of knowledge as to how the system works. Many learners struggled to access more than one mark, indicating that they were not confident in their knowledge of this topic.

Lymphatic fluid flows around in the blood stream, this transparent and yellowish liquid collects any toxins or waste in the blood. When it reaches the capillaries, it flows in to the interstitial space between them and collects any thing that was small enough to escape the capillaries. Once the lymphatic fluid exits the blood, it is called lymph. The lymph then travels through lymphatic vessels and lymph nodes where toxins are destroyed. Toxins are destroyed by two types of cells, b cells and t cells. B cells are found inside lymph nodes and destroy anything that is tagged as a foreign body where as t cells flow through out the lymph vessels looking for any toxins or foreign bodies. The lymph flows through the vessels until they reach a valve that opens depending on the amount of pressure, allowing lymph back in to the blood stream.

6 marks awarded. A detailed and thorough account of equine lymphatic system. Use of appropriate terminology. Structure and function discussed in a logical format.

Question 6a

This was a 1-mark question where learners were asked to state the location of the thyroid gland in equines

This question was well answered, with most learners stating the equine neck.

6 (a) State the location of the thyroid gland in an equine.

(1)

Located in the throat/neck

1 mark awarded. Correct location stated.

Question 6b

This was a 4 mark question where learners were asked to explain the action of two hormones released by the thyroid gland. Most learners struggled to correctly identify the hormones in this question and therefore were not able to access any of the marks.

(b) Explain the actions of **two** hormones released by the thyroid gland.

1. Thyroxine helps manage a horse's metabolism making it faster or slower. ⁽⁴⁾

2. Glycogen helps increase blood sugar so the horse is able to digest quicker

2 marks awarded. The learner has identified one correct hormone (thyroxine) (1) and its action (regulates metabolism) (1).

Question 6c

This was a 4 mark question where learners were asked to describe the hormonal control of ovulation in equines. While learners appeared to have good knowledge on the topic of reproduction they did not always answer the question, rather they discussed the development of foetus or reproductive behaviours shown by the mare.

(c) Describe the hormonal control of ovulation in equines.

(4)

When the female horses body is content with external factors such as heat, food levels and needs they will begin a cycle where testosterone and oestrogen is released to begin the eggs ovums journey from the ovaries, down the fallopian tube to the uterus where it will wait to be fertilised. If unfertilised, the level of oestrogen will decrease.

2 marks awarded. Oestrogen decreases (1) if eggs are unfertilised (1)

(c) Describe the hormonal control of ovulation in equines.

(4)

Mares are quite naughty and try to kick out and bite other horses. Hormonal control also shows that the mare will also kick and bite a stallion to prevent it from being near them if they are not ready.

0 marks awarded. No rewardable answer.

Question 6d

This was a higher level 4 mark question where learners had explain two actions of insulin. While most learners were confident in the effect of insulin on blood sugar most struggled to identify a second function and therefore were not able to access the more than two marks.

(d) Explain **two** actions of insulin.

(4)

1 It ~~produces~~ lowers the amount of sugar levels in the blood and is produced when the levels get too high. However some bases may ~~be~~ not be effected by insulin.

2

2 marks awarded. Regulates blood sugar (1) by reducing blood sugar (1)

Question 7a

This was a 2 mark recall question where learners were required to state two divisions of the vertebral column. This question was very well answered with most learners correctly identifying two areas.

7 (a) State the name of **two** divisions of the vertebral column.

(2)

1 Thoracic vertebral

2 Cervical vertebrae

2 marks awarded. 2 correct answers provided

Question 7b

This was a 4 mark question where learners had to describe the bones in the equine lower front leg. There were two ways in which learners could answer this question, by listing, in order the bones or by providing a physical description for two of the bones. Both types of answer were seen and learners were generally accessing 3 or 4 marks for this question.

(b) Describe the bones in the equine lower front leg, from the knee to the hoof.

(4)

The carpus bone is in the knee of an equine and it's pieced together with tiny pieces and is on a socket. Moving down is the cannon bone which is a long bone for stability. The long and short pastern is ~~the~~ like a wrist in a human, ^{they} allow movement ~~and~~ when the horse is moving and support when standing. The pedal bone is in the hoof and provides strength and stability at all time for the horse.

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

Question 7c

This was a 4 mark question where learners had to describe the structure of osteons. This question was poorly answered with many learners leaving the answer blank.

(c) Describe the structure of osteons.

(4)

Osteons have a central canal which are part of the Haversian system which contains a central canal. Osteons have a nucleus.

3 marks awarded. Central canal (1) known as Haversian canal (1) Have a nucleus (1)

Question 8

This was an 8-mark question where learners were asked to discuss how hoof structure effects equine stability.

In order to access band two marks the learners were required to have made some reference to stability rather than just discussing the structure of the hoof. Many learners quoted “no hoof, no horse” but then struggled to back up the statement with any evidence. There we a number of learners who provided detailed accounts of the hoof structure but did not make clear links to the impact these structures have on stability.

Internally, the hoof is connected to the sesamoid and navicular bone with laminae and skeletal tissue, followed by the long, short ~~pad~~ pastern bones and the splint bone ~~is~~ supported by tendons and ligaments to bear the horse's full weight. At the sole of the hoof, soft deep digital extensor cushions (DE) are positioned between the ~~sesamoid~~ coffin bone and the sole of the hoof, towards the back of the hoof and frog to allow for movement without pain as it absorbs shock and pressure.

Externally, the hoof's tough, hard structure stops injuries and allows the horse to be stable as it lays flat on the ground, bearing the horse's full weight. The white line, toe and sole all connect with the floor and allow the horse to stand on all four legs equally. The frog, heel bulbs and commissure of the frog do not touch the ground but help with balance and stability by supporting the back of the hoof and protecting internal structures from injury.

6 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.

Summary

Based on their 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 reproductive hormones then hormones and not behaviour should be discussed.

Develop explain answers to allow the maximum number of marks to be awarded.

Provide answers for all questions. This paper had a significant number of questions where learners did not attempt an answer.

Based on the performance of this paper, centres should:

Ensure learners are familiar with the whole of the specification.

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Rewarding Learning

