Examiners' Report
Lead Examiner Feedback

January 2022

Pearson BTEC Nationals
In Animal Management (31645H)
Unit 2: Animal Biology

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January 2022
Publications Code 31645H_2201_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

Awarding BTEC qualifications in 2022

Ofqual has set out their plans for awarding qualifications in 2022 and intend to return to a normal, pre-pandemic, approach to grading standards over by 2023. They have confirmed that 2022 will be a transition year, to reflect that we are in a pandemic recovery period and students' education has been disrupted.

Our guiding principle and approach to awarding BTEC qualification results in 2022 will be to ensure parity in relation to the approach being taken for GCSE and A level learners. BTEC courses have a different structure and design to academic qualifications - BTECs are modular qualifications (with assessments taking place throughout the course) compared to GCSEs and A levels which are linear (assessed and awarded at the same time at the end of the year), and therefore our approach needs to be different.

In 2022 we will return to the usual method of calculating BTEC qualification results, however adaptations including, U-TAGs and reduced internal assessment, are in place to provide a comprehensive package of support for students.

The basis of our awarding approach to BTECs this year is to ensure it is as fair as possible for all learners. We will use a range of evidence to set grade boundaries for the external units. Part of this evidence will be to closely monitor learner performance in all assessments that contribute to learners' final qualification grade, to ensure parity with A level and GCSEs.

Further information can be found on our website and via our Social Media channels.

31645H Unit 2 – Animal Biology

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	**0**	**10**	**20**	**36**	**52**

Introduction

January 2022 was the eighth series of the new specification for Animal Management, when this mandatory unit has been assessed via an external assessment rather than via centre based internal assessment.

The question paper followed the format identified in the additional sample assessment materials published on the Pearson website.

The paper had seven questions. Each question was based on an area of the specification. Learners were required to demonstrate knowledge and understanding of a range of specification topics and to apply this knowledge to the specific question scenarios. The intention was to offer as broad coverage as possible for all areas of the unit content. Questions had varying weightings attached to them, with 1 to 3 marks for the lower demand questions and 4 to 8 marks for questions where an extended response was required.

The extended response, eight mark, questions were marked using a 'levels based' approach to assessment. The overall quality of the response was considered rather than the specific number of points gained.

There was also a focus on the use of suitable technical and vocational language and terminology within each response. The remainder of the questions on the paper were assessed using a range of indicative content and on the quality and clarity of the explanation provided.

Major gaps in knowledge were evident from responses seen with the mean mark for the paper being 24.34 out of 80.

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 1

This question performed well with 79% of learners scoring 1 or 2 out of the 2 available marks.

Q1 (a)

A good response demonstrated that the learner was able to recall the names of the missing groups of vertebrate classes as per section C1.3 in the unit content.

1 Animals can be classified into groups for identification.

(a) Complete the table with the **two** missing vertebrate classes. **(2)**

Mammalia
aves
Reptilia
amphibia
Pisces

2 marks

The two correct vertebrate classes have been included in the table - 2 marks awarded.

A poor response:

1 Animals can be classified into groups for identification.

(a) Complete the table with the **two** missing vertebrate classes. (2)

Mammalia
birds
Reptilia
[redacted] fish
Pisces

0 marks

Two incorrect answers have been included- no rewardable marks.

Q1 (b)

Reponses for this question showed 78% of learners scored 0 through being unable to recall the name 'species'.

A good response demonstrated that the learner was able to recall the name of a group of similar animals that can produce fertile young from section C3.2ii in the unit content.

(b) State the name of a group of similar animals that can produce fertile young. (1)

Species

1 mark

Species correctly stated- 1 mark awarded.

A poor response:

(b) State the name of a group of similar animals that can produce fertile young.

(1)

Mammalia

0 mark

'Mammalia' is an incorrect answer and there were many similar incorrect responses seen- no rewardable mark.

Q1 (c)

73.6% of learners were unable to recall the names of any of the four bases. It was a four mark question from section C2.1 of the unit content i.e. DNA bases, with the learner required to recall the names of the four bases. Phonetic spellings were credited but 'adenosine' for 'adenine' was incorrect.

A good response:

(c) Give the names of the **four** bases that pair together to form DNA.

(4)

1 Adenine
2 Thymine
3 Guanine
4 Cytosine

4 marks

All four bases correctly named – 4 marks awarded.

A poor response:

(c) Give the names of the **four** bases that pair together to form DNA.

(4)

1 A-T
2 G-C
3 T-A
4 C-G

0 marks

No marks awarded for letters only / correct letter pairings.

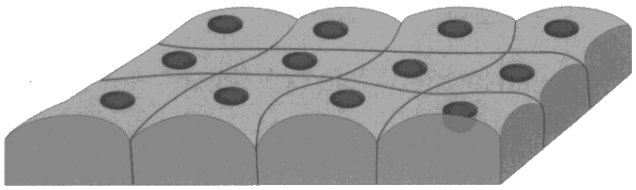
Question 2

Q2 (a)

55.2% of learners were unable to recognise the tissue type in the diagram and give the correct name.

This was a memory recall question from section B4.3i of the unit content regarding epithelial tissue.
A good response demonstrated that the learner was able to recall the name of the tissue type.

2



(Source: © DesignuaShutterstock)

(a) Give the name of the type of tissue shown in the diagram.

(1)

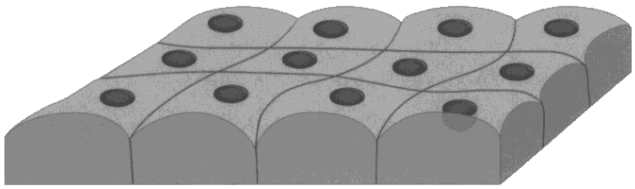
Simple squamous

1 mark

The correct name of the tissue type given – 1 mark awarded.

A poor response:

2



(Source: © DesignuaShutterstock)

(a) Give the name of the type of tissue shown in the diagram.

(1)

Cuboidal

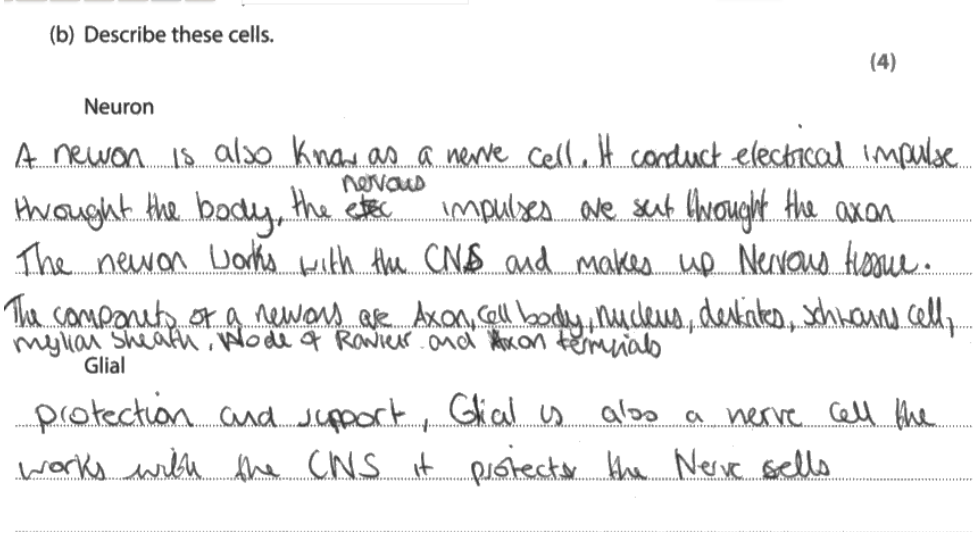
0 mark

Incorrect name given – no mark awarded.

Q2 (b)

Knowledge of a neuron transmitting messages was the most popular response with 44.5% of learners able to score 1 out of 4 marks.

This was a four mark 'describe two cells' question from section B4.5i of the unit content
A good response described what each cell is / what it does / what it looks like:



(b) Describe these cells.

(4)

Neuron

A neuron is also know as a nerve cell. It conduct electrical impulse throught the body, the nervous elec impulses are sent throught the axon The neuron works with the CNS and makes up Nervous tissue. The components of a neuron are Axon, cell body, nucleus, dentrites, schwann cell, myelin sheath, Node of Ranvier and Axon terminals

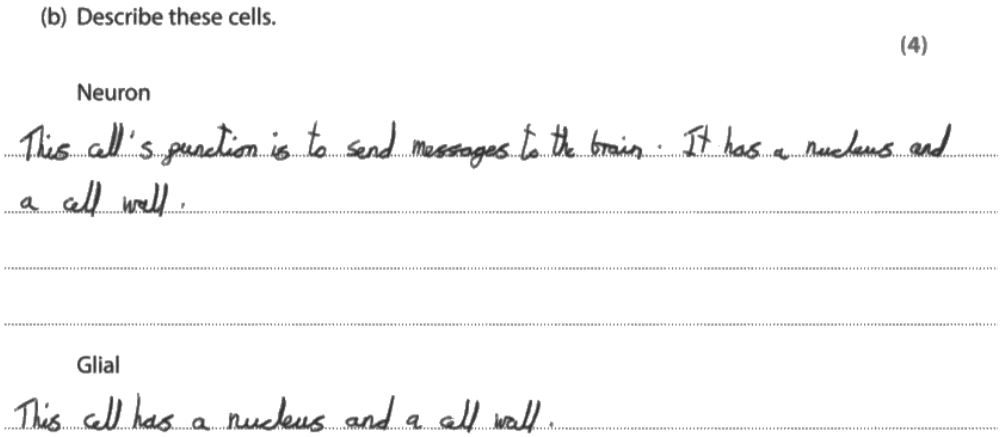
Glial

protection and support, Glial is also a nerve cell the works with the CNS it protects the Nerve cells

4 marks

Correct descriptions have been included for each cell as per the mark scheme – 4 marks awarded.

A poor response:



(b) Describe these cells.

(4)

Neuron

This cell's function is to send messages to the brain. It has a nucleus and a cell wall.

Glial

This cell has a nucleus and a cell wall.

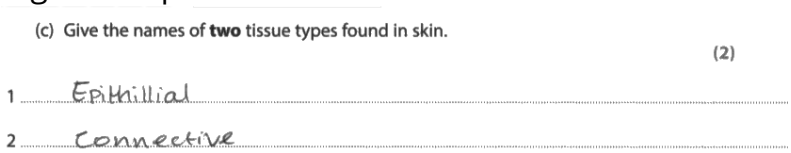
1 mark

1 mark awarded for 'send messages'. This marking point allowed many learners to score 1 mark for this question. The majority of responses were incorrect for 'glial'.

Q2 (c)

43.4% of learners were unable to recall the names of any tissue types found in the skin from section B4.3/4/5/6 of the unit content.

A good response:


(c) Give the names of **two** tissue types found in skin.

(2)

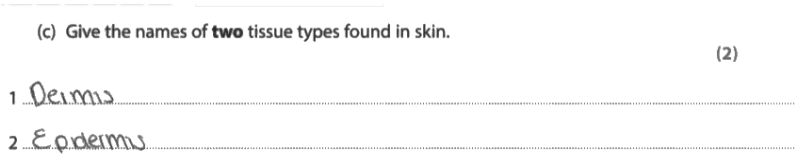
1 Epithillial

2 Connective

2 marks

Incorrect spellings were credited if similar enough as above for 'epithelial' – 2 marks awarded.

A poor response:


(c) Give the names of **two** tissue types found in skin.

(2)

1 Derms

2 Epiderms

0 marks

This was a common response which incorrectly refers to layers of the skin- no marks awarded.

Q2 (d)

This was a four mark 'describe facilitated diffusion' question from section B3.4II of the unit content with 52.4% of learners scoring 0 marks. There was a gap in knowledge about this process with one mark awarded for 'high to low concentration' as a response demonstrating just this one area of understanding.

A good response:

(d) Describe facilitated diffusion.

(4)

The diffusion of large molecules from a high to low concentration ~~[illegible]~~ across a semi permeable membrane using a carrier protein. This goes across the concentration gradient and doesn't require energy.

4 marks

Four marking points from the mark scheme included in this response for full marks.

A poor response:

(d) Describe facilitated diffusion.

(4)

this is when a cell moves from high solute to low solute. the cells split into 2 identical cells called daughter cells. they do this by using RNA which is a replica of DNA then the chromosomes carry this out of the cell where the process starts again.

0 marks

This response does not answer the question and demonstrates no understanding - no marks awarded.

Question 3

Q3 (a)

The majority of learners i.e. 91.3% either did not know or were unable to recall the names the two phases of the cardiac cycle from section A4.5 of the unit content.

A good response correctly named the two phases in the cardiac cycle for two marks.

3 (a) State the names of the **two** phases in the cardiac cycle.

(2)

1 systole

2 diastole

2 marks

The two correct phases have been stated for two marks.

A poor response:

3 (a) State the names of the **two** phases in the cardiac cycle.

(2)

1 pulmonary

2 systemic

0 marks

Two incorrect answers stated - no marks awarded.

Q3 (b)

The average mark for this question was 1.61 with 25.6% of learners scoring 2 out of the available 4 marks for identifying 'moves to the lungs / alveoli / bronchi' and 'exhaled/ breathed out/ through mouth and nose'.
A good response required the learner to demonstrate understanding of the process of exhalation involving carbon dioxide from section A4.8 of the unit content with a description identifying four marking points from the mark scheme.

(b) Describe the movement of carbon dioxide from cells to leaving the body.

(4)

Carbon dioxide is diffused out of the cells into the bloodstream. The red blood cells carry the carbon dioxide molecules around the body to the lungs. The carbon dioxide is diffused into the alveoli which is then diffused into the bronchioles, the trachea and out of the mouth or nose when the animal breathes out.

4 marks

This response demonstrates an understanding of the way carbon dioxide exits the cell, is carried in the blood to the lungs and leaves the body via the trachea and nose / mouth to be awarded 4 marks.

A poor response:

(b) Describe the movement of carbon dioxide from cells to leaving the body.

(4)

When we exercise we increase our use of oxygen and pace of transportation of red blood cells, which carry haemoglobin due to our heart pumping faster. We excrete carbon dioxide through our cells when this happens through aerobic respiration

0 marks

This response is incorrect, demonstrating no understanding of the processes involved - no rewardable marks available.

Q3 (c)

There were three marks available for this question and 34.7% of learners scored 1 out of three with the average mark being 1.37
A good response required the learner to name three structures used in respiration in birds from section A4.8 in the unit content for three marks.

(c) Give **three** structures used in inhalation and exhalation in birds.

(3)

1 The larynx
2 Air sacs
3 ~~trachea~~ Nares

3 marks

Three correct structures given – 3 marks awarded.

A poor response:

(c) Give **three** structures used in inhalation and exhalation in birds.

(3)

1 Oesophagus
2 Lungs
3 Brain

1 mark

'Lungs' have been identified for one mark and this was the most common marking point.

Q3 (d)

This two mark 'explain' question required an understanding of foetal and adult haemoglobin from section A4.12 of the unit content to achieve two marks and 89% of learners scored 0 marks

A good response:

(d) Explain the difference between foetal haemoglobin and adult haemoglobin.

(2)

foetal haemoglobin has a higher affinity to oxygen than adult haemoglobin and so foetal haemoglobin is able to steal oxygen from haemoglobin. Foetal haemoglobin is ~~only~~ only found in foetuses

2 marks

A correct explanation as per marking points in the mark scheme to be awarded 2 marks.

A poor response:

(d) Explain the difference between foetal haemoglobin and adult haemoglobin.

(2)

foetal haemoglobin contains less white blood cells and moves slower than adult haemoglobin.

0 marks

An incorrect explanation demonstrating no understanding– no rewardable marks available.

Q3 (e)

A memory recall question from section A4.6 of the unit content requiring the name of the vein carrying deoxygenated blood to the heart for 1 mark. 75.3% of learners scored 0 marks from being unable to recall the name vena cava.

A good response:

(e) State the name of the vein carrying deoxygenated blood to the heart.

(1)

Vena Cava

1 mark

The correct vein has been named – 1 mark awarded.

A poor response:

(e) State the name of the vein carrying deoxygenated blood to the heart.

(1)

pulmonary vein

0 marks

An incorrect answer- no mark awarded.

Question 4

Q4 (a)

This question was well answered with a mean mark of 2.52 and 32.3% of learners scoring 3 out of the 4 available marks

An understanding of food types and function from section A2.1 of the unit content was required to complete the table for four marks.

A good response:

4 (a) Complete the table to show the names and functions of food types in the body.

(4)

Name of food type	Function
Proteins	Supports growth + repair
Fibre	→ healthy bowels Allows good bowel movement
Carbohydrates	Provides energy
Lipids (Fat)	Stored energy, protection and insulation

4 marks

Two correct functions and two correct food types have been included to be awarded 4 marks.

A poor response:

4 (a) Complete the table to show the names and functions of food types in the body.

(4)

Name of food type	Function
Proteins	Storage
Fibre	Reactions
Vitamins	Provides energy
Carbohydrates	Stored energy, protection and insulation

0 marks

No understanding of food types has been demonstrated by the responses given -no rewardable marks.

Q4 (b)

A two mark 'explain' question which required an understanding of a function of the liver from section A2.4 of the unit content to achieve two marks. 51.4% of learners were unable to identify or explain a function of the liver to achieve either 1 or 2 marks

A good response:

(b) Explain **one** function of the liver.

(2)

produce bile to emulsify fats

2 Marks

A correct function has been identified and explained as per the first marking point in the mark scheme – 2 marks awarded.

A poor response:

(b) Explain **one** function of the liver.

(2)

The liver helps absorb molecules like water and proteins.

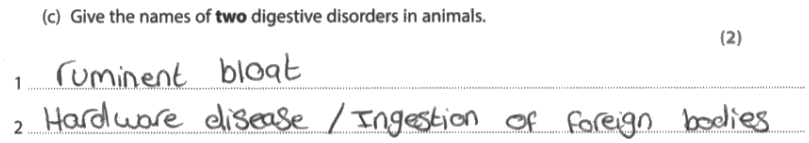
1 mark

An incorrect response - no rewardable marks available.

Q4 (c)

This was a two mark memory recall question requiring the learner to know the digestive disorders mentioned in section A2.8 in the unit content. 49.1% of learners were unable to recall a digestive disorder and scored 0 marks.

A good response:


(c) Give the names of **two** digestive disorders in animals.

(2)

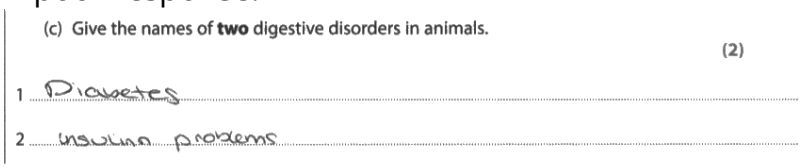
1 ruminent bloat

2 Hardware disease / Ingestion of foreign bodies

2 marks

Two correct digestive disorders named – 2 marks awarded.

A poor response:


(c) Give the names of **two** digestive disorders in animals.

(2)

1 Diabetes

2 insulin problems

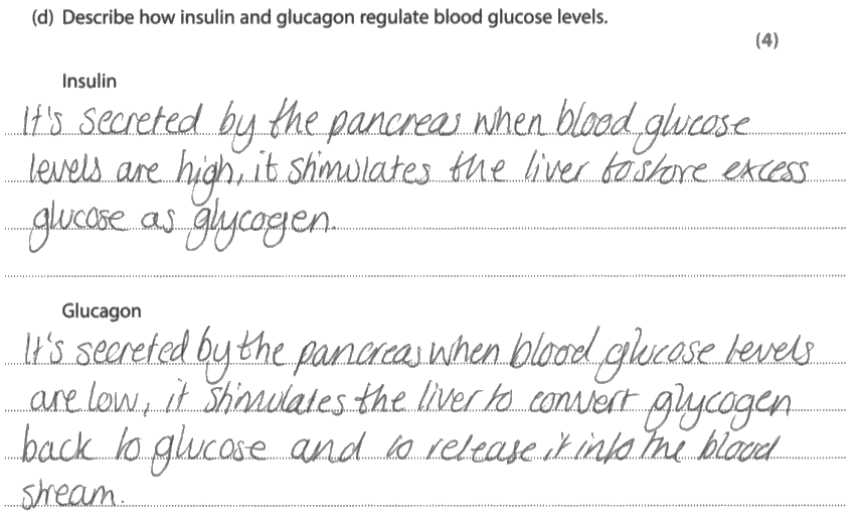
0 marks

'Diabetes' is not a disorder and appeared many times in learner responses as well as 'lactose intolerance'- no rewardable mark.

Q4 (d)

This four mark question required the learner to demonstrate an understanding of the roles of insulin and glucagon to regulate blood glucose levels from section A2.5 in the unit content. The mean mark was 1.28 and 49.6% of learners scored 0 marks.

A good response:


(d) Describe how insulin and glucagon regulate blood glucose levels.

(4)

Insulin

It's secreted by the pancreas when blood glucose levels are high, it stimulates the liver to store excess glucose as glycogen.

Glucagon

It's secreted by the pancreas when blood glucose levels are low, it stimulates the liver to convert glycogen back to glucose and to release it into the blood stream.

4 marks

Two complete descriptions to be awarded 4 marks.

A poor response:

(d) Describe how insulin and glucagon regulate blood glucose levels. (4)

Insulin

Insulin helps ~~bread~~ break down things in the ~~digestive~~ digestion.

Glucagon

Glucagon helps build things back up in your digestion

0 marks

This response is incorrect – no rewardable marks.

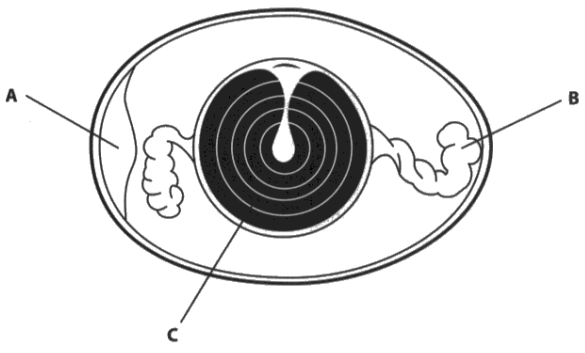
Question 5

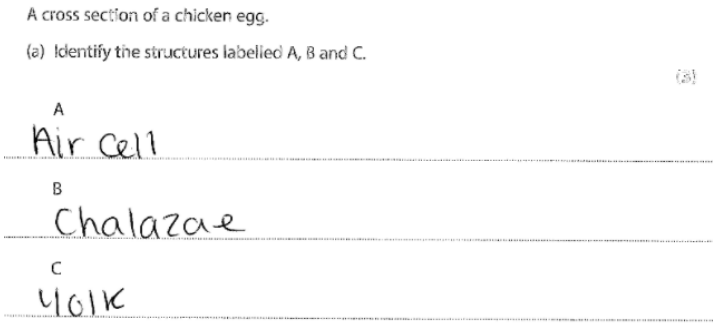
Q5 (a)

42.6% of learners scored 0 marks for his question through being unable to identify any of the three structures within a chicken's egg by way of memory recall from section A5.2iv in the unit content.

A good response:

5




A cross section of a chicken egg.

(a) Identify the structures labelled A, B and C.

(3)

A
Air Cell

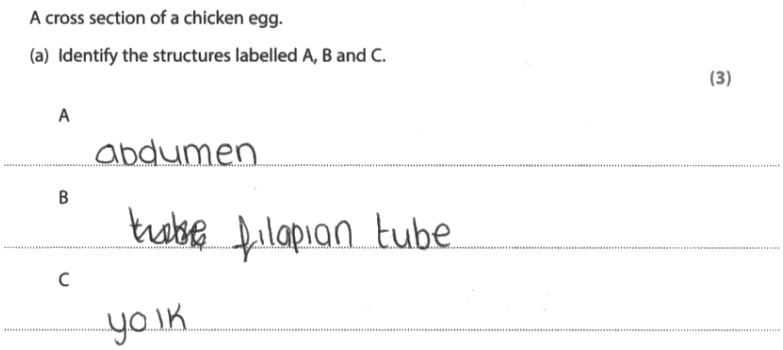
B
Chalazae

C
Yolk

3 marks

All structures correctly identified – 3 marks awarded.

A poor response:


A cross section of a chicken egg.

(a) Identify the structures labelled A, B and C.

(3)

A
abdumen

B
tube filopian tube

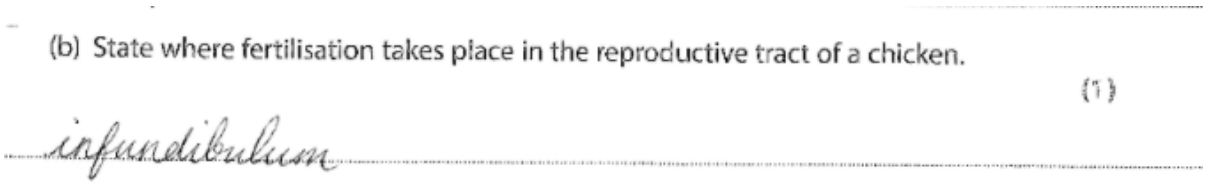
C
yolk

1 mark

'Yolk' is the only correct response – I mark awarded.
'Embryo' was often incorrectly included as structure C.

Q5 (b)

A one mark memory recall question from section A5.2iii of the unit content with 87.4% of learners scoring 0 marks.
A good response:


(b) State where fertilisation takes place in the reproductive tract of a chicken.

(1)

infundibulum

1 mark

The correct part of a chicken's reproductive tract stated for 1 mark.

A poor response:

(b) State where fertilisation takes place in the reproductive tract of a chicken.

(1)

Cloaca

0 marks

An incorrect answer – no rewardable mark.

Q5 (c)

40.9% of learners scored 1 mark for this four mark question from section A5.2v of the unit content by identifying 'shell' but not expanding with an explanation or knowing as second way.

A good response:

(c) Explain **two** ways a chicken embryo is protected during development.

(4)

1 The shell is hard to protect the embryo from getting damaged

2 The albenum protects the embryo from bacterica.

4 marks

This response is as per the marking points 1 and 3 in the mark scheme -4 marks awarded.

A poor response:

(c) Explain **two** ways a chicken embryo is protected during development.

(4)

1 the embryo is protected by the hard egg shell surrounding it.

2 the embryo is also protected by the mother when she 'incubates' / sits on top of it.

1 mark

One mark awarded for identification of 'the shell' but the second point, which was a common response, is incorrect.

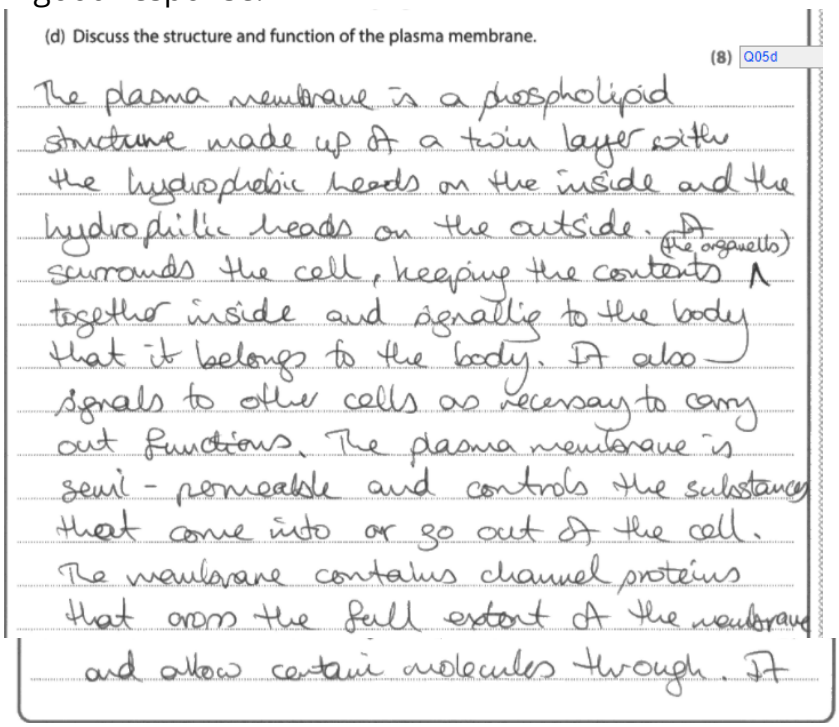
Q5 (d)

This was the first of two competency based questions with marks awarded for the response being at Level 1, Level 2 or Level 3. If no rewardable material was evident the learner scored 0 marks. There was a tendency to describe the blood plasma / only mention the function and not the structure / not include a discussion.

A Level 3 response required mostly accurate and detailed knowledge of both the structure and function of the plasma membrane with clear links between the two as suggested in the indicative content in the mark scheme.

The mean mark for this 8 mark question was 1.25 and 44.2% of learners failed to score any marks through having no knowledge of the plasma membrane.

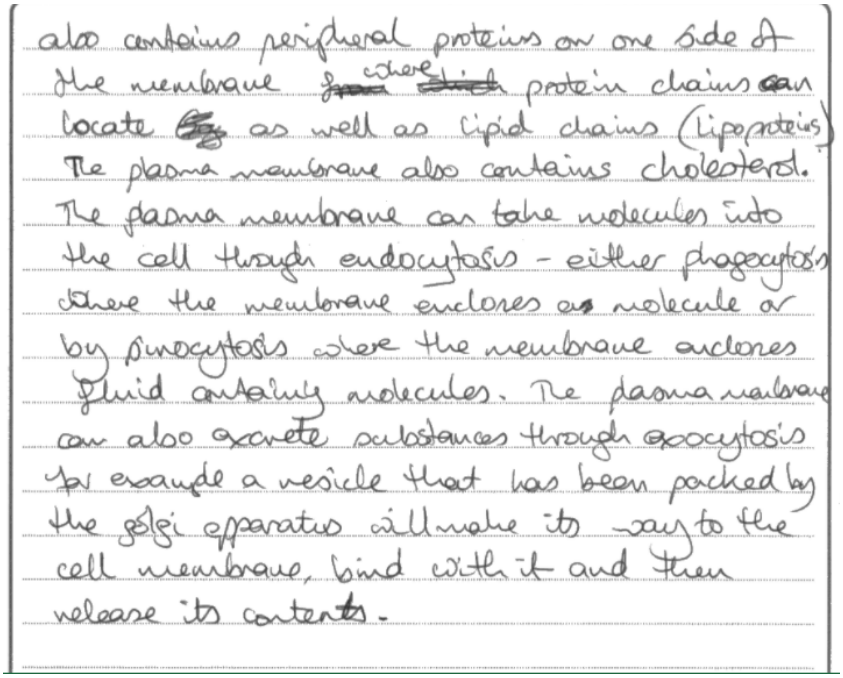
A good response:



(d) Discuss the structure and function of the plasma membrane.

(8) Q05d

The plasma membrane is a phospholipid structure made up of a twin layer with the hydrophobic heads on the inside and the hydrophilic heads on the outside. It (the organelles) surrounds the cell, keeping the contents together inside and signalling to the body that it belongs to the body. It also signals to other cells as necessary to carry out functions. The plasma membrane is semi-permeable and controls the substances that come into or go out of the cell. The membrane contains channel proteins that cross the full extent of the membrane and allow certain molecules through. It



also contains peripheral proteins on one side of the membrane ~~from~~ where ~~this~~ protein chains can locate as well as lipid chains (lipoproteins) The plasma membrane also contains cholesterol. The plasma membrane can take molecules into the cell through endocytosis - either phagocytosis where the membrane encloses a molecule or by pinocytosis where the membrane encloses fluid containing molecules. The plasma membrane can also excrete substances through exocytosis for example a vesicle that has been packed by the golgi apparatus will make its way to the cell membrane, bind with it and then release its contents.

8 marks

This response demonstrates accurate knowledge of both the structure and function of the plasma membrane through a well-developed, logical discussion which includes relevant points with a range of different aspects considered and interrelated.
This is a Level 3 answer which was awarded 8 marks.

A poor response:

A cell is the basic structural unit for all living organisms.

(d) Discuss the structure and function of the plasma membrane.

(8)

plasma membrane is very important in the body. one of the main functions of plasma is to transport nutrients around the body. It can be found in the blood and is one of the key components of blood. It can transfers all types of nutrients such as protein which is important in the bloodstream to work to move the blood around the body At the end of the membrane they have ~~little~~ tail like structure to help move across the body to transport the nutrients

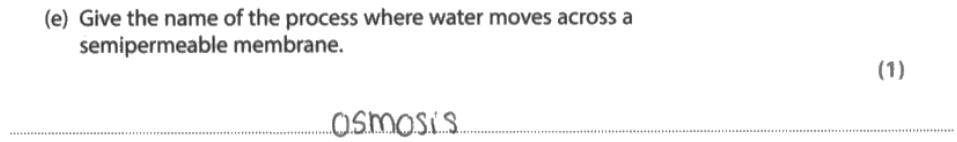
0 marks

This learner has attempted the question but confused the circulatory system with the digestive system. There are therefore no rewardable marks available.
A number of responses incorrectly discussed either blood plasma or the plasma membrane in a chicken egg, following on with the theme from the previous questions and not reading the stem of this question.

Q5 (e)

66.3% of learners were able to recall the name 'osmosis' from section B3.4iii of the unit content to score 1 mark for this question.

A good response:


(e) Give the name of the process where water moves across a semipermeable membrane.

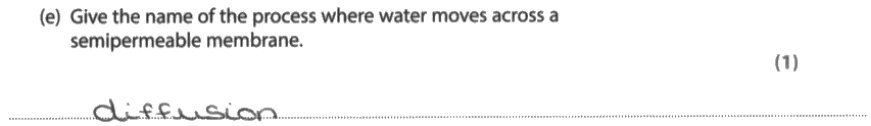
(1)

osmosis

1 mark

'Osmosis' has been correctly stated for 1 mark.

A poor response:


(e) Give the name of the process where water moves across a semipermeable membrane.

(1)

diffusion

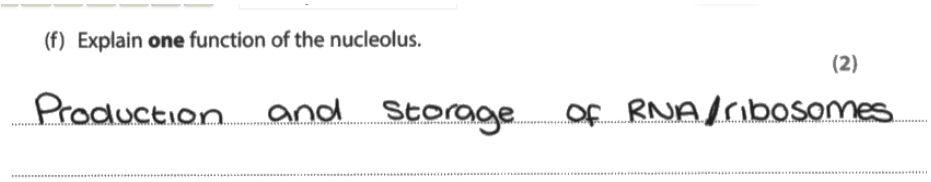
0 marks

'Diffusion' is an incorrect answer which was seen quite often – no mark awarded.

Q5 (f)

59.9% of learners were unable to identify or explain a function of the nucleolus from section B1.1 of the unit content and scored 0 marks.

A good response:


(f) Explain **one** function of the nucleolus.

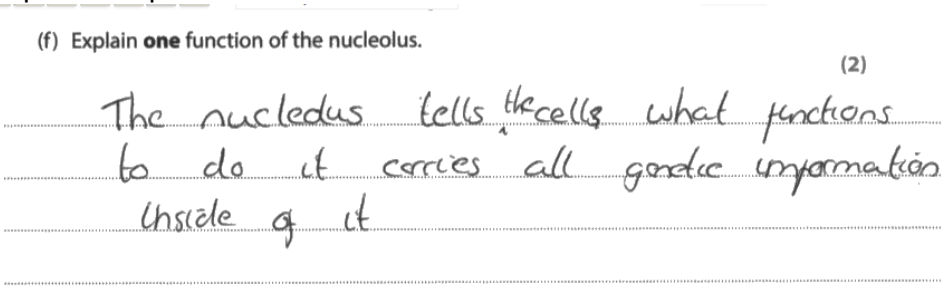
(2)

Production and storage of RNA/ribosomes

2 marks

One function has been correctly explained – 2 marks awarded.

A poor response:



(f) Explain **one** function of the nucleolus.

(2)

The nucledus tells the cells what functions to do it carries all gendic imformation inside of it

0 marks

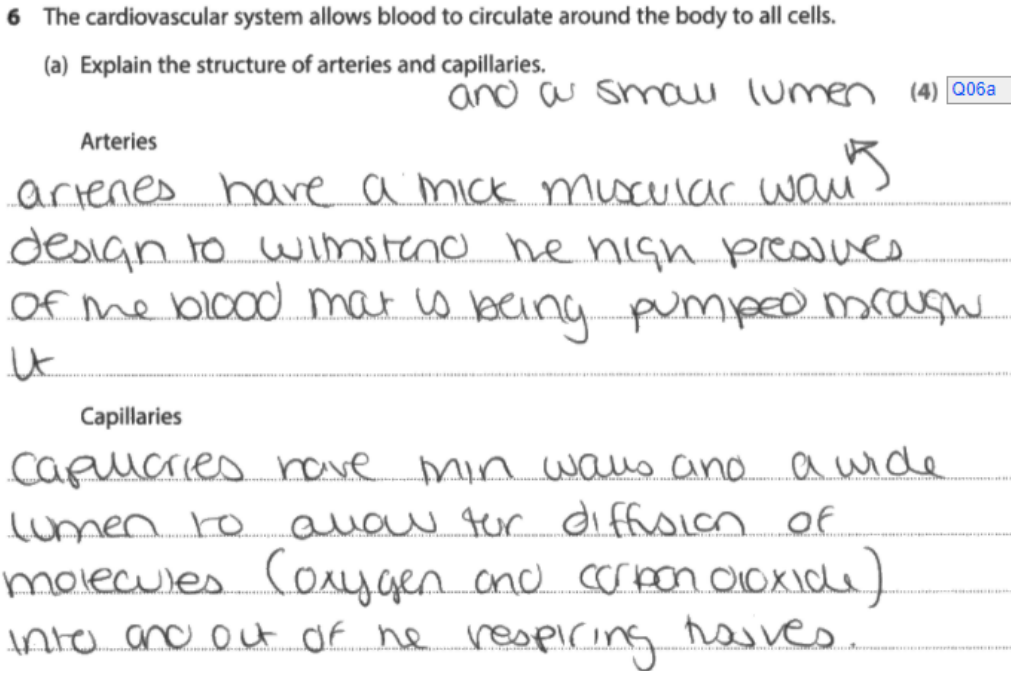
An incorrect response – no rewardable mark.

Question 6

Q6 (a)

This question is from A4.6 of the unit content and required an understanding of the structure of arteries and capillaries to gain 4 marks. 53.7% of learners scored 0 marks with responses which identified only 'thick' / 'thin' without including 'walls'.

A good response:



6 The cardiovascular system allows blood to circulate around the body to all cells.

(a) Explain the structure of arteries and capillaries.

and a small lumen (4) Q06a

Arteries

arteries have a thick muscular wall
design to withstand the high presures
of the blood that is being pumped through
it

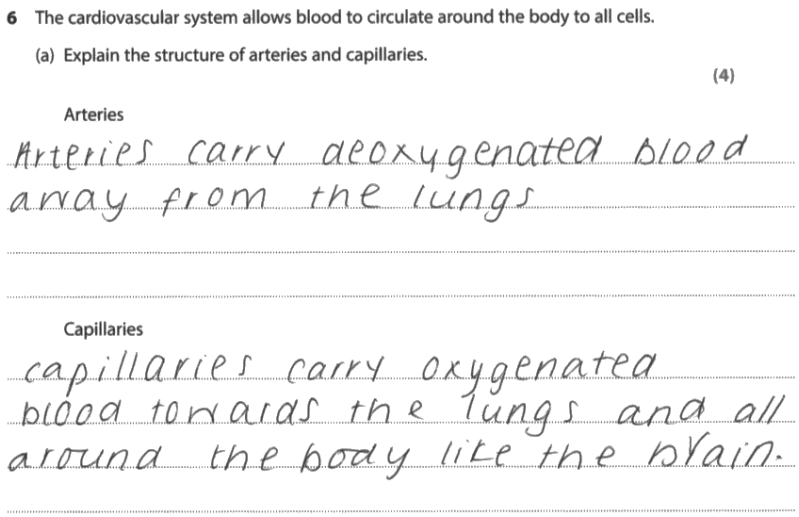
Capillaries

capillaries have thin walls and a wide
lumen to allow for diffusion of
molecules (oxygen and carbon dioxide)
into and out of the respiring tissues.

4 marks

This response demonstrates an understanding of the structure of both arteries and capillaries to achieve 4 marks.

A poor response:



6 The cardiovascular system allows blood to circulate around the body to all cells.

(a) Explain the structure of arteries and capillaries.

(4)

Arteries

Arteries carry deoxygenated blood away from the lungs

Capillaries

capillaries carry oxygenated blood towards the lungs and all around the body like the brain.

0 marks

An incorrect answer, not related to structure – no rewardable marks.

Q6 (b)

The majority of learners, i.e. 92.2%, either did not know or were unable to recall the name of blood formation from section A1.1 in the unit content.

(b) Give the name of blood formation.

(1)

haemato poesis

1 mark

'Haematopoiesis' is the correct response to score 1 mark.

A poor response:

(b) Give the name of blood formation.

(1)

heamoglobin

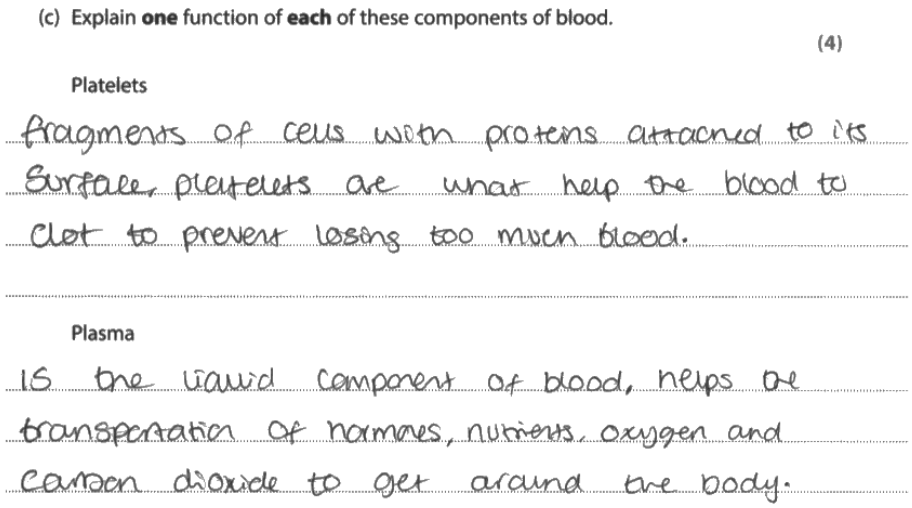
0 marks

'Haemoglobin' is an incorrect response and there were many incorrect responses seen- no rewardable mark.

Q6 (c)

This four mark question from section A4.1 in the unit content required the learner to know the function of these two components of blood for four marks. The mean mark was 1.32 with 38.7% scoring 0 marks.

A good response:



(c) Explain **one** function of **each** of these components of blood.

(4)

Platelets

fragments of cells with proteins attached to its surface, platelets are what help the blood to clot to prevent losing too much blood.

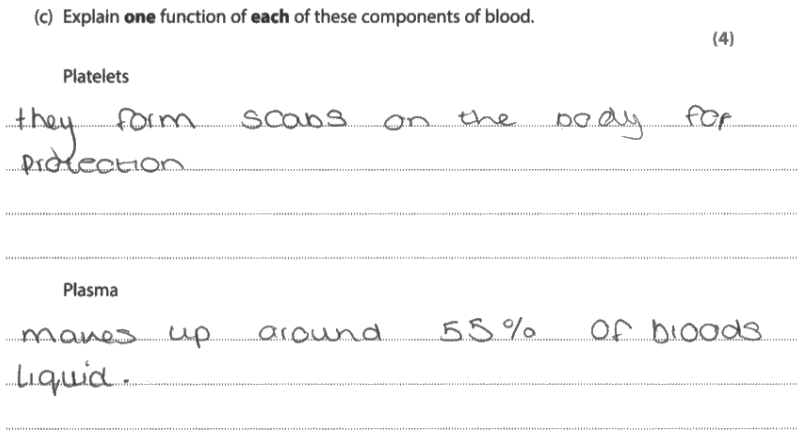
Plasma

is the liquid component of blood, helps the transportation of hormones, nutrients, oxygen and carbon dioxide to get around the body.

4 marks

A complete, accurate response as per the mark scheme to achieve the full four marks.

A poor response:



(c) Explain **one** function of **each** of these components of blood.

(4)

Platelets

they form scabs on the body for protection

Plasma

makes up around 55% of bloods liquid.

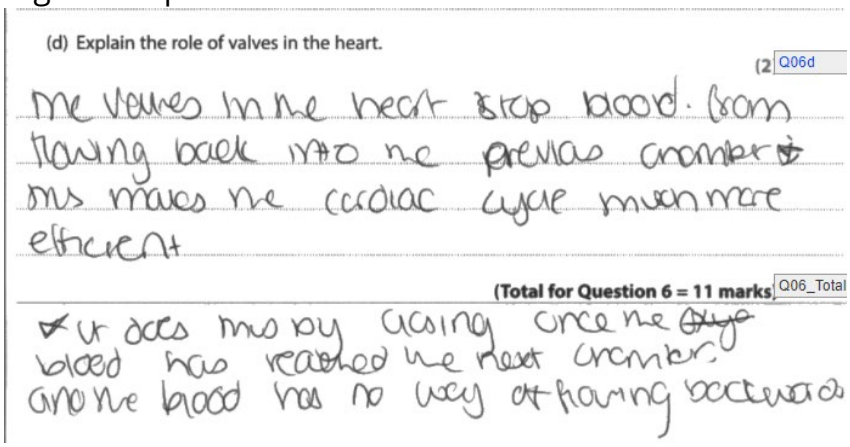
1 mark

'form scabs' gains 1 mark and was a common response seen without an explanation. The above response for 'plasma' is not about function.

Q6 (d)

This two mark question from section A4.3 in the unit content required the learner to demonstrate understanding of the role of valves in the heart to be awarded two marks. 51.9% of learners scored 0 marks.

A good response:


(d) Explain the role of valves in the heart.

(2) Q06d

the valves in the heart stop blood from flowing back into the previous chamber ✓ this makes the cardiac cycle more efficient

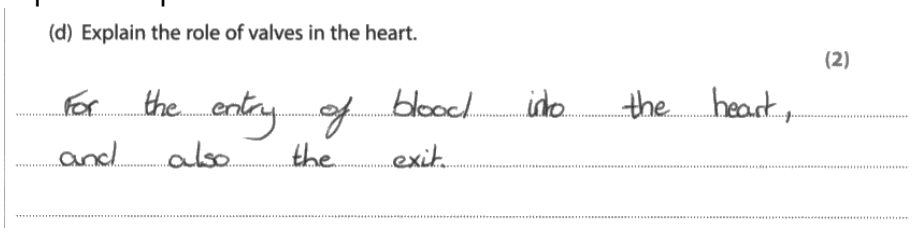
(Total for Question 6 = 11 marks) Q06_Total

✓ it does this by closing once the blood has reached the next chamber and the blood has no way of flowing backwards

2 marks

An accurate response as per the mark scheme achieving the full two marks.

A poor response:


(d) Explain the role of valves in the heart.

(2)

For the entry of blood into the heart, and also the exit.

0 marks

This response is incorrect– no rewardable marks.

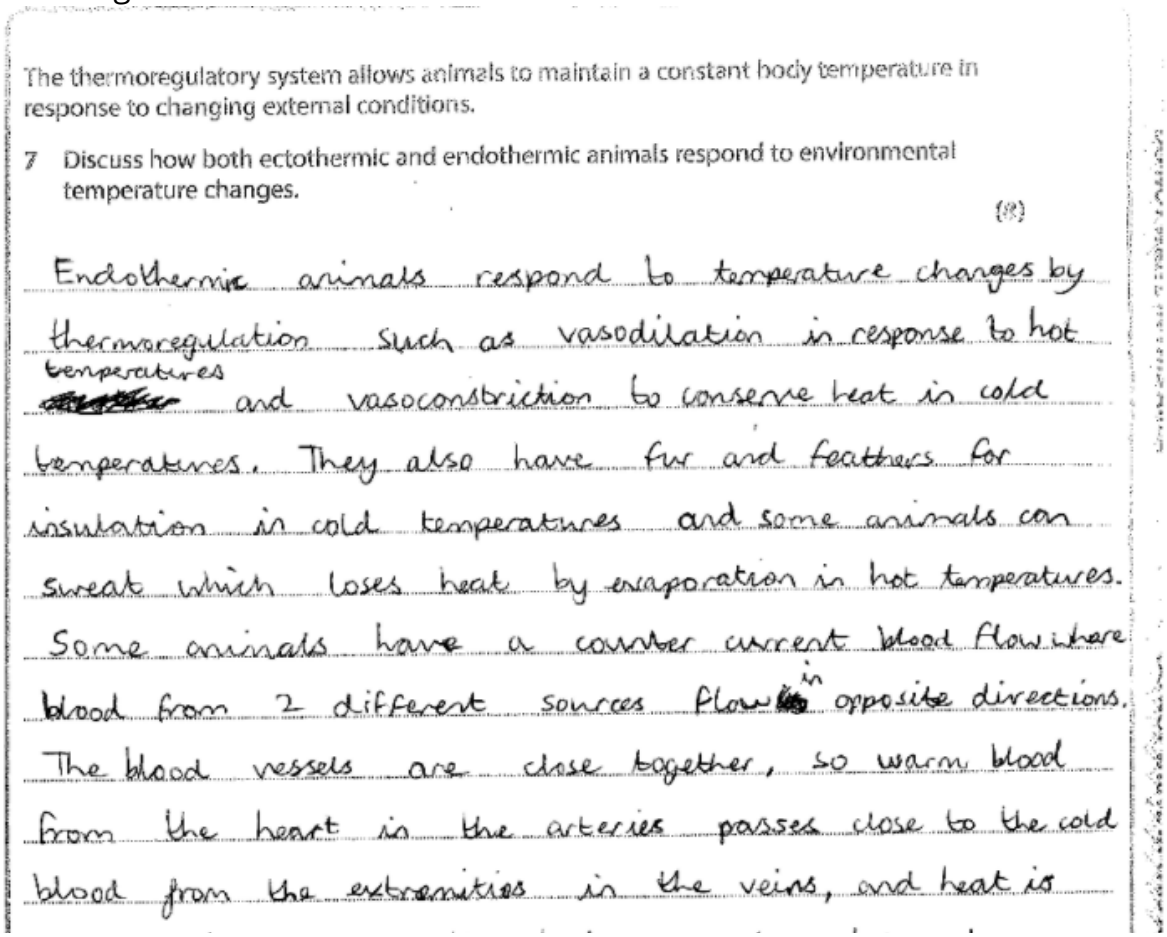
Question 7

Q7

This was the second competency based question and the last question on the paper which had eight available marks awardable for the overall accuracy, detailed knowledge and understanding plus a well-developed discussion with relevant points about ectothermic and endothermic animals responding to environmental temperature changes.
It is from section C1.1 of the unit content and allowed the learner to include examples of each type of animal as well as a discussion of responses to

both increased and decreased temperature changes for each. Some responses mixed up ecto and endothermic and could then only score a maximum of 2 marks.

The mean mark for this 8 mark question was 2.43, i.e. a Level 1 answer, with 24.8 % scoring 2 marks.

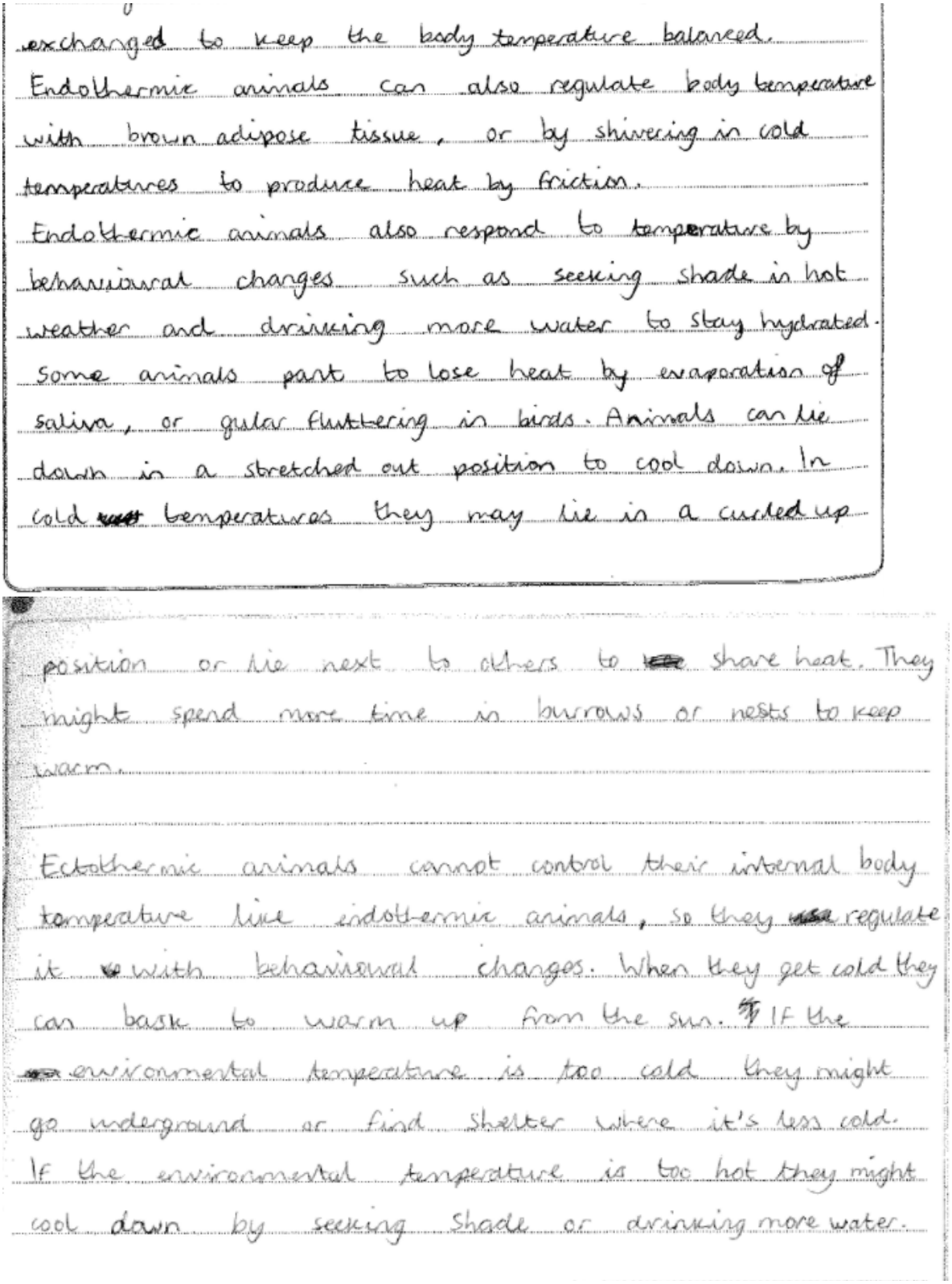


The thermoregulatory system allows animals to maintain a constant body temperature in response to changing external conditions.

7 Discuss how both ectothermic and endothermic animals respond to environmental temperature changes.

(8)

Endothermic animals respond to temperature changes by thermoregulation such as vasodilation in response to hot temperatures and vasoconstriction to conserve heat in cold temperatures. They also have fur and feathers for insulation in cold temperatures and some animals can sweat which loses heat by evaporation in hot temperatures. Some animals have a counter current blood flow where blood from 2 different sources flow in opposite directions. The blood vessels are close together, so warm blood from the heart in the arteries passes close to the cold blood from the extremities in the veins, and heat is



exchanged to keep the body temperature balanced.
Endothermic animals can also regulate body temperature with brown adipose tissue, or by shivering in cold temperatures to produce heat by friction.
Endothermic animals also respond to temperature by behavioural changes such as seeking shade in hot weather and drinking more water to stay hydrated. Some animals pant to lose heat by evaporation of saliva, or gular fluttering in birds. Animals can lie down in a stretched out position to cool down. In cold temperatures they may lie in a curled up position or lie next to others to share heat. They might spend more time in burrows or nests to keep warm.

Ectothermic animals cannot control their internal body temperature like endothermic animals, so they regulate it with behavioural changes. When they get cold they can bask to warm up from the sun. If the environmental temperature is too cold they might go underground or find shelter where it's less cold. If the environmental temperature is too hot they might cool down by seeking shade or drinking more water.

8 marks

This response demonstrates accurate knowledge of responses by both endothermic and ectothermic animals to increased and decreased environmental changes with a range of different aspects considered and how they interrelate.
This is a Level 3 answer which was credited with 8 marks.

A poor response:

The thermoregulatory system allows animals to maintain a constant body temperature in response to changing external conditions.

7 Discuss how both ectothermic and endothermic animals respond to environmental temperature changes.

(8)

Into the Surrounding environment

Ectothermic animals release energy to maintain their constant body temperature where as the endothermic animals take in energy from the Surrounding environment to maintain their ~~bod~~ constant body temperature.

Ectothermic ~~anim~~ animals ~~with~~ react and respond to the environmental temperature changes by ~~heat~~ releasing more energy when it is ~~wh~~ warmer temperatures and release less energy when its colder temperatures.

Endothermic animals then react and respond to the environmental temperature changes by taking in more energy from the surrounding environment when it is colder temperatures and the taking in ~~the~~ less energy when it is warmer temperatures.

~~They~~ Both ecto thermic and endothermic ~~anim~~ animals do this to maintain a constant ~~bla~~ balance of their temperature.

0 marks

This response does not demonstrate an understanding of the concept of how different animals respond to environmental temperature changes. There is evidence of confusion through use of the term 'energy' instead of 'heat'.

Summary

Based on the performance on this paper learners should:

- Be familiar with the function / structure / role / location of cells, tissues and components of the body systems.
- Know the name of common digestive disorders from the unit content.
- Be able to differentiate between diffusion, facilitated diffusion and osmosis.
- Know the names and pairing of the four based of DNA.
- Understand the difference between foetal and human haemoglobin.
- Be familiar with different parts of the circulatory system including structure and function and effect of hormones.
- Establish a complete understanding of the regulation of blood glucose levels and the hormones involved.
- Know the processes involved in inhalation and exhalation in mammals and birds and the passage of carbon dioxide from cells.
- Be familiar with all aspects of the reproductive system of a chicken.
- Ensure ecto and endothermic animals are correctly understood and not confused.
- Read the question to ensure the answer given reflects what has been asked i.e. the 'plasma membrane' not 'blood plasma'.
- Practice the levels-based, extended response questions to ensure a Level 3 answer includes a well-developed and logical discussion with accurate knowledge relevant to the context of the question, plus clear links which consider a range of different aspects and inter-relationships with body systems. This will then gain the 6-8 marks for each of the two levels-based questions included in the paper.
- Responses should be based on the command verb in the question i.e. 'state' / 'give' do not require expansion of a point but 'explain' / 'describe' do.
- Identify the marks allocated to the question and the space available to guide the extent of the response required and ensure the answer is included in the appropriate point / label.
- Practice papers from previous series to become familiar with the content and style of questions asked.

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