



# Mark Scheme (Results)

Series: 2001

Pearson BTEC Level 3 - Animal  
Management

Unit 2: Animal Biology

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Question Number	Answer	Mark
1(a)	Connective tissue Nervous tissue	2

Question Number	Answer	Mark
1(b)	Cilia	1

Question Number	Answer	Mark
1(c)	Award <b>one</b> mark for each structure identified correctly, up to a maximum of <b>three</b> marks.  A. Nucleolus / Nucleoli (1) B. Mitochondrion /Mitochondria (1) C. Cytoplasm (1)	3

Question Number	Answer	Mark
1(d)	Award <b>one</b> mark for reference to any of the following: <ul style="list-style-type: none"> <li>• maintains cell shape/structure/form (1)</li> <li>• provides strength and support (1)</li> <li>• allows cell movement (1)</li> <li>• attachment of organelles/ keeps together/ all structures in place (1)</li> </ul> <p><b>DO NOT ACCEPT: protect</b></p>	1

Question Number	Answer	Mark
2(a)	Award one mark for any one of the following: <ul style="list-style-type: none"> <li>• Synovial</li> <li>• Hinge</li> <li>• Diarthrosis</li> </ul>	1

Question Number	Answer	Mark
2(b)	Award <b>one</b> mark for the identification and <b>one</b> additional mark for the appropriate expansion, up to a maximum of <b>four</b> marks.  Ligaments <ul style="list-style-type: none"> <li>• Connect bones to bones (1) to form a joint (1)</li> <li>• keeps bones together (1) to allow flexibility/ support movement/ absorbs shock (1)</li> </ul> Tendons <ul style="list-style-type: none"> <li>• Connect bones to muscle (1) to allow movement (1)</li> </ul> <p><b>Accepts specific examples and any other appropriate responses.</b></p>	4

Question Number	Answer	Mark
2(c)	Award up to <b>two</b> marks. <ul style="list-style-type: none"> <li>• Lameness in hind end/loss of function in hind end (1)</li> <li>• Difficulty standing up (1)</li> <li>• Difficulty running/ walking (1)</li> <li>• Uneven gait/ swaying (1)</li> <li>• Narrow stance (1)</li> <li>• Grinding of joint when moving/ loose joints (1)</li> <li>• Decreased activity/ less movement (1)</li> <li>• Pain/ discomfort (1)</li> <li>• Stiffness (1)</li> </ul> <p><b>DO NOT ACCEPT: overweight/ weakness/ loss of appetite/ lethargy</b></p>	2

Question Number	Answer	Mark
2(d)	<p>Award up to a maximum of <b>two</b> marks for each descriptive point for mammals and also for birds.</p> <p>Mammals</p> <ul style="list-style-type: none"> <li>• Bone marrow (1)</li> <li>• blood cells/ red blood cells (1)</li> <li>• spongy bone (1)</li> <li>• compact bone (1)</li> <li>• strong/ hard/ dense (1)</li> <li>• support (1)</li> <li>• minerals (1)</li> </ul> <p>Birds</p> <ul style="list-style-type: none"> <li>• A honeycomb structure (1)</li> <li>• air pockets (1)</li> <li>• hollow (1)</li> <li>• lighter/ for flying (1)</li> </ul> <p><b>Accept any other appropriate wording.</b></p>	<p>2</p> <p>2</p>

Question Number	Answer	Mark
3(a)	<ul style="list-style-type: none"> <li>• Brain (1)</li> <li>• Spinal cord (1)</li> </ul> <p><b>DO NOT ACCEPT: spine</b></p>	2

Question Number	Answer	Mark
3(b)	<p>Award <b>one</b> mark for the identification and <b>one</b> additional mark for the appropriate expansion, up to a maximum of <b>four</b> marks.</p> <ul style="list-style-type: none"> <li>• Slows heartbeat (1) calm animal/ relax/ rest (1)</li> <li>• Systems return to normal / homeostasis (1) 'rest and digest' / conserve energy (1)</li> <li>• Constricts pupils (1) to prevent damage to the retina (1)</li> <li>• Breathing rate back to normal (1) less oxygen demand (1)</li> <li>• Stomach / intestines / saliva production stimulated (1) aid digestion</li> <li>• Contracts bladder (1) urination (1)</li> </ul> <p><b>Accept any other appropriate response.</b></p>	4

Question Number	Answer	Mark
3(c)	<p>Award up to <b>four</b> marks for a description that makes reference to the following:</p> <ul style="list-style-type: none"> <li>• At the axon terminal / nerve ending / dendrite (1)</li> <li>• Calcium channels open / vesicles fuse (1)</li> <li>• Release of neurotransmitter / chemical / acetylcholine (1)</li> <li>• Across the gap / synapse (1)</li> <li>• To stimulate action potential / electrical impulse (1)</li> </ul> <p><b>Accept any other appropriate response.</b></p>	4

Question Number	Answer	Mark
3(d)	<p>Award <b>one</b> mark for reference to any of the following, up to a maximum of <b>two</b> marks.</p> <ul style="list-style-type: none"> <li>• Loss of appetite/ not eating/reluctant to eat(1)</li> <li>• Fever/temperature (1)</li> <li>• Lack of coordination/loss of balance/instability (1)</li> <li>• Salivation (1)</li> <li>• Facial paralysis (1)</li> <li>• Circling (1)</li> <li>• Red around the eyes/blindness/droopy eyelids (1)</li> <li>• Convulsions/seizures (1)</li> </ul> <p><b>Accept any other appropriate response.</b></p>	2

Question Number	Answer	Mark										
4(a)	<p>Award <b>one</b> mark for each row, up to a maximum of <b>four</b> marks.</p> <table border="1"> <thead> <tr> <th>Name of structure</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Iris</td> <td>Controls the amount of light entering the eye / changes the size of the pupil (1)</td> </tr> <tr> <td>Lens</td> <td>Focuses / refracts (1)</td> </tr> <tr> <td>Fovea (1)</td> <td>Provides sharp, central vision</td> </tr> <tr> <td>Sclera (1)</td> <td>Provides strength, structure and protection</td> </tr> </tbody> </table>	Name of structure	Function	Iris	Controls the amount of light entering the eye / changes the size of the pupil (1)	Lens	Focuses / refracts (1)	Fovea (1)	Provides sharp, central vision	Sclera (1)	Provides strength, structure and protection	4
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Sclera (1)	Provides strength, structure and protection											

Question Number	Answer	Mark
4(b)	<p>Award <b>one</b> mark for the identification and <b>one</b> additional mark for the appropriate expansion, up to a maximum of <b>two</b> marks.</p> <ul style="list-style-type: none"> <li>• Front of face/close together (1) to allow better focus (1)</li> <li>• Narrower field of vision (1) depth of perception (1)</li> </ul> <p>Binocular vision (1) to see their prey (1)</p> <p><b>Accept any other appropriate response.</b> <b>Do not accept 'big eyes'</b></p>	2

Question Number	Answer	Mark
4(c)	<ul style="list-style-type: none"> <li>• Rods (1)</li> <li>• Cones (1)</li> </ul>	2

Question Number	Answer	Mark
4(d)	<p>Award <b>one</b> mark for each identification and <b>one</b> additional mark for each appropriate expansion, up to a maximum of <b>four</b> marks.</p> <ul style="list-style-type: none"><li>• Large eyes/large pupils (1)</li><li>• To capture more light/see more clearly (1)</li><li>• Slit shaped pupils (1) easier to constrict (1)</li><li>• Tapetum lucidum/specialised layer at the back of the eye (1) to reflect light back to photoreceptors (1)</li><li>• More rods/photoreceptors (1) to react to lower light levels (1)</li></ul> <p><b>Accept any other appropriate response.</b> <b>Do not accept 'echolocation'</b></p>	4



Question Number	Answer	Mark
5(a)	<p>Award <b>one</b> mark for each identification and <b>one</b> additional mark for each appropriate expansion, up to a maximum of <b>four</b> marks.</p> <ul style="list-style-type: none"> <li>• Hooked/ curved tip(1)</li> <li>• To tear meat/Break of bits of food (1)</li> <li>• Strong/hard (1)To break nuts (1)</li> <li>• Saw toothed (1) To hold fish (1)</li> <li>• Straw like/long and narrow (1)To suck nectar (1)</li> <li>• Sharp/pointed (1) To pick up small pieces of food/spearfish (1)</li> <li>• Longer(1) to find worms/bugs in trees (1)</li> <li>• Flat bills (1) scooping vegetation (1)</li> </ul> <p><b>Accept any other appropriate response.</b></p>	4

Question Number	Answer	Mark
5(b)	Amylase	1

Question Number	Answer	Mark
5(c)	<p>Award up to a maximum of <b>three</b> marks.</p> <ul style="list-style-type: none"> <li>• Teeth/chewing (1)</li> <li>• Churning/stomach/rumen (1)</li> <li>• Bile in duodenum (1)</li> <li>• Grinding/gizzard (1)</li> </ul>	3

Question Number	Indicative content	Mark
5(d)	<p>Answers will be credited according to the learner's demonstration of knowledge and understanding of the material using the indicative content and levels descriptors below. The indicative content that follows is not prescriptive.</p> <p>Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <ul style="list-style-type: none"> <li>• Nutrients must be provided in the diet for the body to function correctly</li> <li>• Seven different nutrients needed for a balanced diet</li> <li>• Carbohydrates for energy</li> <li>• Fibre for bulk and movement through digestive tract</li> <li>• Protein for amino acids to make body protein such as cells, tissues, enzymes, hormones, muscle, hair, etc.</li> <li>• Lipids/fats for stored energy plus insulation and protection of organs</li> <li>• Vitamins for specific chemical reactions in cells</li> <li>• Minerals for bones and teeth, osmoregulation, nerve transmission, muscle contraction, etc.</li> <li>• Water, which makes up to 75% of bodyweight, involved in chemical reactions and transporting chemicals, regulating body temperature and removing waste products</li> </ul>	8

Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1-2	Demonstrates isolated elements of knowledge and understanding, with only minor gaps or omissions. Few of the points made will be relevant to the context in the question. Limited discussion which contains generic assertions rather than considering different aspects and the relationships between them.
Level 2	3-5	Demonstrates some accurate knowledge and understanding, with only minor gaps or omissions. Some of the points made will be relevant to the context in the question, but the link will not always be clear. Displays a partial developed discussion which contains some different aspects and some consideration of how they interrelate, but not always in a sustained way.
Level 3	6-8	Demonstrates mostly accurate and detailed knowledge and understanding. Most of the points made will be relevant to the context in the question, and there will be clear links. Displays a well-developed and logical discussion which clearly considers a range of different aspects and considers how they interrelate, in a sustained way.

Question Number	Answer	Mark
5(e)	Award up to a maximum of <b>one</b> mark. <ul style="list-style-type: none"> <li>• Proteases (1)</li> <li>• Trypsinogen/trypsin (1)</li> <li>• Lipases/lipase (1)</li> <li>• Amylases/amylase (1)</li> </ul> <p><b>Accept any other appropriate answer.</b></p>	1

Question Number	Answer	Mark
5(f)	Award <b>one</b> mark for identification and <b>one</b> additional mark for an appropriate expansion, up to a maximum of <b>two</b> marks. <ul style="list-style-type: none"> <li>• Finger-like projections (1) which increase the surface area (1)</li> <li>• Network of capillaries (1) to allow effective diffusion/absorption of molecules (1)</li> <li>• Contain a lacteal (1) to absorb lipids (1)</li> <li>• Larger surface area (1) more/efficient nutrients absorbed (1)</li> </ul> <p><b>Accept any other appropriate response.</b></p>	2

Question Number	Answer	Mark
6(a)	<p>Award <b>one</b> mark for each descriptive point up to a maximum of <b>four</b> marks. Award no more than <b>three</b> marks for either insulin or glucagon.</p> <ul style="list-style-type: none"> <li>• Insulin released from the pancreas (1)</li> <li>• Insulin converts glucose to glycogen (1)</li> <li>• Glucagon released from the pancreas/liver (1)</li> <li>• Glucagon converts glycogen to glucose (1)</li> <li>• Insulin secreted when high blood glucose/sugar levels (1)</li> <li>• Glucagon secreted when low blood glucose/sugar levels (1)</li> <li>• Insulin lowers blood glucose level/removes glucose from the blood (1)</li> <li>• Glucagon raises blood glucose/releases glucose into the blood (1)</li> <li>• Both hormones involved in regulating blood glucose levels/homeostasis (1)</li> </ul> <p><b>Accept any other appropriate response.</b></p>	4

Question Number	Answer	Mark
6(b)	<p>Adrenalin (1) Cortisol (1)</p>	1

Question Number	Answer	Mark
6(c)	<p>Award up to <b>four</b> marks.</p> <p>Oestrogen- increases (1) Oxytocin – increases (1) Progesterone - decreases (1) Prostaglandins –increases (1)</p> <p><b>Accept any other appropriate wording.</b></p>	4

Question Number	Answer	Mark
6(d)	<p>Award <b>one</b> mark for identification and <b>one</b> additional mark for an appropriate expansion, up to a maximum of <b>two</b> marks.</p> <ul style="list-style-type: none"> <li>• Layer around the embryo/chick/chorion (1) gaseous exchange (1)</li> <li>• Amnion (1) protects embryo/chick/holds amniotic fluid/shock absorber (1)</li> <li>• Allantois (1) for respiratory/excretory/digestive functions/embryo development (1)</li> <li>• Yolk sac (1) food source/provides nutrients (1)</li> </ul> <p><b>Accept any other appropriate response.</b></p> <p><b>Do not accept 'protects egg'</b></p>	2

Question Number	Indicative content		Mark
7	<p>Answers will be credited according to the learner's demonstration of knowledge and understanding of the material using the indicative content and levels descriptors below. The indicative content that follows is not prescriptive.</p> <p>Answers may cover some/all of the indicative content but should be rewarded for other relevant answers and diagrams.</p> <ul style="list-style-type: none"> <li>• A double helix formed by nucleotides</li> <li>• Made up of bases - adenine, thymine, cytosine and guanine</li> <li>• Attached to a sugar-phosphate backbone</li> <li>• Bases paired A with T and C with G</li> <li>• Each base contains nitrogen</li> <li>• Genes are short sections of DNA that carry the genetic code for characteristics</li> <li>• A triplet structure of the bases in a gene codes for an amino acid</li> <li>• The sequence of bases codes for the amino acids in a polypeptide chain</li> </ul>		8
Level	Mark	Descriptor	
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Level 1	1-2	<p>Demonstrates isolated elements of knowledge and understanding, with only minor gaps or omissions. Few of the points made will be relevant to the context in the question.</p> <p>Limited discussion which contains generic assertions rather than considering different aspects and the relationships between them.</p>	
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Ofqual



Llywodraeth Cynulliad Cymru  
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