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Mark Scheme (Results)

June 2018

BTEC Level 3 National in Animal
Management
Unit 2: Animal Biology (31645H)



Animal Management

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Unit 2: Animal Biology

General marking guidance

- All learners must receive the same treatment. Examiners must mark the first learner in exactly the same way as they mark the last.
- Marking grids should be applied positively. Learners must be rewarded for what they have shown they can do, rather than be penalised for omissions.
- Examiners should mark according to the marking grid, not according to their perception of where the grade boundaries may lie.
- All marks on the marking grid should be used appropriately.
- All the marks on the marking grid are designed to be awarded. Examiners should always award full marks if deserved. Examiners should also be prepared to award zero marks, if the learner's response is not rewardable according to the marking grid.
- Where judgement is required, a marking grid will provide the principles by which marks will be awarded.
- When examiners are in doubt regarding the application of the marking grid to a learner's response, a senior examiner should be consulted.

Specific marking guidance

The marking grids have been designed to assess learner work holistically. Rows in the grids identify the assessment focus/outcome being targeted. When using a marking grid, the 'best fit' approach should be used.

- Examiners should first make a holistic judgement on which band most closely matches the learner's response and place it within that band. Learners will be placed in the band that best describes their answer.
- The mark awarded within the band will be decided based on the quality of the answer, in response to the assessment focus/outcome and will be modified according to how securely all bullet points are displayed at that band.
- Marks will be awarded towards the top or bottom of that band, depending on how they have evidenced each of the descriptor bullet points.

Question Number	Answer	Mark
1a	<p>Award 1 mark for each.</p> <ul style="list-style-type: none"> • Locomotion/movement/ • Structure/shape/ support • Protection • Mineral storage • Haematopoiesis/ formation of blood cells • Attach muscles 	4

Question Number	Answer	Mark
1b	<ul style="list-style-type: none"> • A Scapula/shoulder blade • B Pelvis/hip bone <p>Award 1 mark for each.</p>	2

Question Number	Answer	Mark
1c	<ul style="list-style-type: none"> • Protection /Protects (the body's internal organs/from predators) • Provides protective barrier against infectious organisms/infections • Reduces dehydration • Thermoregulation • Helps dispose of waste materials/secretion • Acts as a receptor for touch/pressure/ pain/heat/cold/ sensory organs • Storage of water/fat • Keeps water out/ keeps moisture in/water proof • Camouflage • Vitamin D synthesis • Holds internals in position • Signaling/display <p>Accept any other appropriate wording.</p> <p>Award up to 3 marks.</p>	3

Question Number	Answer	Mark										
2a	<p>Award up to 4 marks.</p> <table border="1"> <thead> <tr> <th>PART</th> <th>FUNCTION</th> </tr> </thead> <tbody> <tr> <td>Iris</td> <td>Controls how much light enters the eye / controls pupil size/diameter of the pupil (1)</td> </tr> <tr> <td>Lens</td> <td>Focuses (1)</td> </tr> <tr> <td>Retina</td> <td>Absorbs light /detects colour/detects movement (1)</td> </tr> <tr> <td>Cornea</td> <td>Protection/changes direction of light (refraction) (1)</td> </tr> </tbody> </table> <p>Accept any other appropriate wording.</p>	PART	FUNCTION	Iris	Controls how much light enters the eye / controls pupil size/diameter of the pupil (1)	Lens	Focuses (1)	Retina	Absorbs light /detects colour/detects movement (1)	Cornea	Protection/changes direction of light (refraction) (1)	4
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Iris	Controls how much light enters the eye / controls pupil size/diameter of the pupil (1)											
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Question Number	Answer	Mark
2b	<p>Tapeta bounce light back (1) improving night vision in nocturnal animals (1)</p> <p>Award 1 mark for identification and 1 marks for extension.</p> <p>Accept any other appropriate wording.</p>	2

Question Number	Answer	Mark
2c	<p>Tapetum lucidum is a layer at the back of the eye (1) that reflects light (1) providing better light absorption (1)</p> <p>Award 1 mark for identification and 2 marks for extension.</p> <p>Accept any other appropriate wording.</p>	3

Question Number	Answer	Mark
3a	i)LH – Decreases (1) ii)FSH – Decreases (1) iii)Oestrogen – Decreases (1) iv)Progesterone – Increases (1)	4

Question Number	Answer	Mark
3b	A- Urethra B- Prostrate Award up to 2 marks.	2

Question Number	Answer	Mark
3c	21 days/3 weeks Accept range of days or specific number that falls within 19 – 24 days.	1

Question Number	Answer	Mark
4a	<p>Award up to 2 marks.</p> <ul style="list-style-type: none"> • Ball and socket / rotating (1) • Pivot (1) • Hinge (1) • Fused (1) • Gliding (1) • Saddle (1) • Planar (1) • Condylloid (1) • Fibrous (1) • Cartilaginous (1) • Synovial (1) 	2

Question Number	Answer	Mark
4b	<p>Accept any 4 of the following:</p> <ul style="list-style-type: none"> • Acetylcholine is a neurotransmitter (1) • Acetylcholine causes depolarisation (1) • calcium is released (1) • calcium binds to troponin /actin (1) • tropomyosin is removed (1) • myosin attaches to actin/cross bridge (1) • fibre then slides/muscle shortens (1) <p>Accept any other appropriate wording.</p> <p>Do not accept muscle contracts.</p>	4

Question Number	Answer	Mark
4c	<p>Award 1 mark for identification and 3 marks for extension.</p> <p>ATP breaks down to ADP and P (1) providing energy (1) this enable myosin to pull/join actin filaments /forming cross bridge(1) resulting in the filaments sliding/allowing the process to recycle (1)</p>	4

Question Number	Indicative content	Mark
5a	<p data-bbox="472 295 1139 421">Award up to 8 marks. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <ul data-bbox="520 461 1171 1079" style="list-style-type: none"> <li data-bbox="520 461 1107 497">• transportation of nutrients, e.g. glucose <li data-bbox="520 497 724 533">• controls pH <li data-bbox="520 533 1155 640">• removes toxins from the body, which helps to maintain a balance of electrolytes in the blood and tissues of the body <li data-bbox="520 672 1161 770">• regulation of body fluid electrolytes, which helps to control the pH of the blood and the body tissues <li data-bbox="520 779 1171 846">• blood plasma is 90-92 % water, which helps to maintain body temperature <li data-bbox="520 855 1091 922">• erythrocytes (red blood cells) contain haemoglobin and transports oxygen <li data-bbox="520 931 1155 999">• leucocytes (white blood cells) major part of the immune system <li data-bbox="520 1008 1171 1079">• thrombocytes (platelets) many granules but no nucleus to facilitate blood clotting 	8
Mark scheme (Award up to 8 marks) Refer to the guidance on the cover of this document for how to apply Levels Based Mark Schemes*.		
Level	Mark	Descriptor
Level 0	0	No rewardable material
Level 1	1-2	<ul data-bbox="628 1980 1299 2033" style="list-style-type: none"> <li data-bbox="628 1980 1299 2033">• Demonstrates isolated elements of knowledge and understanding, there will be major gaps or omissions

		<ul style="list-style-type: none"> • 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 relationship between them
Level 2	3-5	<ul style="list-style-type: none"> • 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 partially developed discussion which considers some different aspects and some consideration of how they interrelate, but not always in a sustained way
Level 3	6-8	<ul style="list-style-type: none"> • 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
5b	A- Trachea/ wind pipe B- Lungs	2

Question Number	Answer	Mark
6a	<p>Net movement of water/solvent (1) from a less concentrated solution to a more concentrated solution/against the concentration (1) through a partially permeable membrane (1) until the concentrations are equal/isotonic (1)</p> <p>Accept answers referring to water potential</p> <p>Award up to 4 marks. Allow answers in any order</p>	4

Question Number	Answer	Mark
6b	<p>A - (simple) columnar B - pseudostratified C - stratified squamous D - (simple) squamous</p>	4

Question Number	Answer	Mark
6c	<p>A- Dendrite B- Axon terminal/nerve ending C- Schwann cell/nucleus</p> <p>Do not accept Axon own its own.</p>	3

Question Number	Answer	Mark
6d	<p>Award up to 2 marks. Accept similar wording.</p> <p>Movement of molecules/solute/gases/substances (1) from a more concentrated solution to less concentrated solution/down a concentration gradient (1) until the concentrations are equal (1)</p>	2

Question Number	Answer	Mark
6e	<p>Accept any 4 up to a maximum of 4 marks.</p> <p>Active transport requires energy (from ATP) (1)</p> <p>Requires protein carriers/receptors/sodium channels/changes protein shape (1)</p> <p>Movement of substances (against the concentration gradient) (1)</p> <p>Examples include the sodium potassium pump, absorption of nutrients and any form of cytolysis (1)</p>	4

Question Number	Answer	Mark
7a	<p>Award 1 mark for each grouping level identified correctly.</p> <p>Reptilia (1) Pisces (1)</p> <p>Answers can appear in either box</p>	2

Question Number	Answer	Mark
7b	<ul style="list-style-type: none"> • Amphibians have a backbone/they are vertebrates. (1) • Amphibians are cold-blooded/poikilotherm/ectothermic (1) • They cannot regulate their own body temperature (1) • Amphibians do not have scales (1) • Have moist skin (1) • Skin is permeable (molecules and gases can pass through). (1) • Amphibians have gills for at least part of their lives. (1) • Most amphibians go through metamorphosis. (1) • Lays eggs (no shell) • Camouflage • Amphibians spend at least part of their lives in water and on land. <p>Accept any other appropriate amphibian feature. Award up to 4 marks.</p>	4

Question Number	Answer	Mark
7c	<p>Award 1 mark for identification and 1 mark for extension.</p> <ul style="list-style-type: none"> • They return/migrate to water to spawn /lay eggs (1) as the young breathe through gills/to keep the egg moist (1) • Live in damp places/ nocturnal (1) as they are susceptible to dehydration (1) • They are more active during the daytime (1) because they raise their body temperature (1) • They hibernate (1) to survive cold periods (1) • Basking (1) to increase body temperature • Call/communication/visual display (1) to attract mate (1) • climb tree (1) to escape danger/predation/find food (1) <p>Accept similar wording and any other relevant answer. Award up to 4 marks.</p>	4

Question Number	Answer	Mark
8	<p>The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <p>Discussion of overall structure. U-shaped portion of the tubule that conducts urine within each nephron of the kidney of reptiles, birds, and mammals. The principal function of the nephron is the recovery of water and sodium chloride from the urine and the removal of urea from the blood. This function allows production of urine that is more concentrated than blood. Limits the amount of water needed as intake for survival. Many species that live in arid environments such as deserts have highly efficient loops of Henle. Adaptations in species in other extreme environments allow them to survive. Sodium Potassium pump allows reabsorption of water.</p>	8

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