

7457-402 Marking Scheme

Level 3 Diploma in Small Animal Veterinary Nursing

Level 3 Anatomy and Physiology Knowledge Test – Paper 3

Series: March 2022

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Q1	Define the following physiological terms. a) Dysuria. (1 mark) b) Orchitis. (1 mark) c) Tachypnoea. (1 mark)		
Q1	Acceptable answer(s)	Guidance	Max marks
Q1	1 mark each for any of the following to a maximum of 3 marks: a) Dysuria – difficulty in passing urine (1) b) Orchitis – inflammation of the testes (1) c) Tachypnoea – increased breathing rate (1)	Similar wording / terminology acceptable	3

Q2	State two modes of joint movement that can be applied to the pelvic joint of a dog. (2 marks)		
Q2	Acceptable answer(s)	Guidance	Max marks
Q2	1 mark each for any of the following to a maximum of 2 marks: <ul style="list-style-type: none"> • Circumduction (1) • Rotation (1) • Abduction (1) • Adduction (1) • Protraction (1) • Retraction (1) 	Similar wording / terminology acceptable Accept 'extension'	2

Q3	Define the following terms relating to body cavities. a) Coelom. (1 mark) b) Mediastinum. (1 mark) c) Thorax. (1 mark)		
Q3	Acceptable answer(s)	Guidance	Max marks
Q3	1 mark each for any of the following to a maximum of 3 marks: a) main body cavity – <u>without a diaphragm</u> (1) b) area separating the lungs/area between pleural cavity/division of the thoracic cavity (1) c) area of the body between the neck and the abdomen /diaphragm (1)	Similar wording / terminology acceptable	3

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Q4	Explain the difference between 'endochondral ossification' and 'intramembraneous ossification'. (4 marks)		
Q4	Acceptable answer(s)	Guidance	Max marks
Q4	1 mark each for any of the following to a maximum of 4 marks: Endochondral ossification describes bone growth in long bones (1) It involves the laying down of bone (ossification / mineralisation) into cartilage (1) Whereas, Intramembraneous ossification describes bone growth in flat bones (1) It involves the laying down of bone (ossification / mineralisation) between two fibrous plates / membranes. (1)	Similar wording / terminology acceptable	4

Q5	Describe two actions taken by the integument system to conserve heat. (4 marks)		
Q5	Acceptable answer(s)	Guidance	Max marks
Q5	1 mark for each action and 1 mark for each linked description to a maximum of 4 marks: <ul style="list-style-type: none">• Narrowing of the blood vessels/ vasoconstriction occurs (1) to prevent the transfer of heat to the surface of the skin/reduces the flow of blood to the skin (1)• Involuntary movement of the muscles/shivering (1) this helps to create warmth/heat using energy (1)• Pilo-erection (hair standing on end) (1) This creates a trapped layer of warm air between the fur and the skin. (1)	Similar wording / terminology acceptable	4

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Q6	Name three components of the upper respiratory tract. (3 marks)		
Q6	Acceptable answer(s)	Guidance	Max marks
Q6	1 mark for any of the following to a maximum of 3 marks: <ul style="list-style-type: none">• Nares/nostrils (1)• Nasal passages (1)• Hard and soft palates (1)• Naso-pharynx/pharynx (1)• Larynx (1)• Bifurcation/trachea (1)• Epiglottis (1)		3

Q7	Explain the enzymatic and microbial breakdown of food as it passes through the digestive tract in a rabbit. (6 marks)		
Q7	Acceptable answer(s)	Guidance	Max marks
Q7	1 mark each of the following to a maximum of 6 marks: <p>Enzymatic digestion involves the action of chemical substances (enzymes) (1) which are involved in the breakdown of food/nutrients (carbohydrates, proteins and fats) (1) which takes place in the stomach/small intestine (1)</p> <p>Microbial digestion involves the action of <u>bacteria</u> (saprophytic bacteria) (1) used to breakdown <u>cellulose/plants/vegetation</u> (insoluble carbohydrates) (1) which takes place in the <u>caecum</u>/colon (1)</p>	Similar wording / terminology acceptable Small intestine – duodenum or jejunum and ileum accepted	6

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Q8	State the location of the pancreas in a dog. (1 mark)		
Q8	Acceptable answer(s)	Guidance	Max marks
Q8	1 mark each for any of the following to a maximum of 3 marks: a) The pancreas is located in the fold/curvature of the duodenum /right side of abdomen adjacent to the stomach (1)	Similar wording / terminology acceptable	1

Q9	Explain how the negative feedback mechanism of insulin and glucagon regulate sugar levels in the blood. (4 marks)		
Q9	Acceptable answer(s)	Guidance	Max marks
Q9	1 mark each for any of the following to a maximum of 4 marks: When sugar levels are high in the blood (hyperglycaemic) the pancreas releases insulin (1) which puts sugar/glucose into storage in the liver / muscle cells (Glycogenesis) (1) When sugar levels are low in the blood (hypoglycaemic) the pancreas releases glucagon (1) to release stored sugar / glycogen back into the blood (Glucogenesis) (1)	Similar wording / terminology acceptable	4

Q10	Name the three different groups of blood cells. (3 marks)		
Q10	Acceptable answer(s)	Guidance	Max marks
Q10	1 mark each for any of the following to a maximum of 3 marks: <ul style="list-style-type: none">• Erythrocytes (1)• Leucocytes (1)• Thrombocytes (1)	Similar wording / terminology acceptable Accept: red blood cells, white blood cells and platelets Do not accept RBCs, WBCs	3

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Q11	Name two peripheral nerves which supply the hindlimb. (2 marks)		
Q11	Acceptable answer(s)	Guidance	Max marks
Q11	1 mark for each of the following <ul style="list-style-type: none">• Femoral nerve (1)• Sciatic nerve (1)• Saphenous (1)• Tibial nerve (1)		2

Q12	State the three sensory cranial nerves. (3 marks)		
Q12	Acceptable answer(s)	Guidance	Max marks
Q12	1 mark for each of the following to a maximum of three marks. <ul style="list-style-type: none">• Vestibulo-cochlea nerve/Auditory nerve (1)• Olfactory nerve (1)• Optic nerve (1)	Can accept the mixed sensory nerves eg Vagus	3

Q13	Define the following terms. a) Osmosis. (2 marks) b) Diffusion. (2 marks)		
Q13	Acceptable answer(s)	Guidance	Max marks
Q13	1 mark each for any of the following to a maximum of 2 marks a) The passage of water through a semi-permeable membrane (1) from a weak concentration of solutes to a higher concentration of solutes (1) b) The passage of solutes (or gases) through a partially permeable membrane/semi-permeable membrane (1) from a high concentration to a weaker concentration (1) Any other acceptable answer		4

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Q14	Name two hormones produced in the testes in the entire male dog. (2 marks)		
Q14	Acceptable answer(s)	Guidance	Max marks
Q14	1 mark each for any of the following to a maximum of 2 marks: <ul style="list-style-type: none">• Testosterone (1)• Oestrogen (1)		2

Q15	State four differences in the form and function of the urinary tract in a bird compared to a cat. (4 marks)		
Q15	Acceptable answer(s)	Guidance	Max marks
Q15	1 mark each for any of the following to a maximum of 4 marks: <ul style="list-style-type: none">• A bird does not have a bladder (1)• The ureters enter into the cloaca (1)• The bird has a cloaca/uric acid is excreted into the urodeum. (1)• Uric acid (urates) is excreted instead of urine in the bird (1)• The uric acid and faeces are combined in the bird. (1)• Only 50% of bird nephrons have a loop of Henlé (1)• Birds are able to reflux urinary products into the large intestine for further fluid absorption. (1) Any other acceptable answer	Similar wording / terminology acceptable	4

Q16	Discuss the sequential passage of blood through the heart to supply the systemic and pulmonic circulations including the process of gaseous exchange. (12 marks)		
Q16	Acceptable answer(s)	Guidance	Max marks
	<p>Band 1 (1-4 marks) A limited range of considerations with a mostly descriptive answer showing clear gaps in knowledge and limited understanding. Candidate attempts to use technical terminology infrequently.</p> <p>To access the higher marks in the band The candidate demonstrates a wider range of considerations with superficial explanations, which may not all be valid. Attempted to provide some explanations, but may not all be relevant.</p> <p>Band 2 (5-8 marks) The candidate considered a range of aspects of the topic with a developed discussion showing clear knowledge and understanding with some gaps. Technical terminology is used frequently.</p> <p>To access the higher marks in the band Discussion is supported with relevant explanation(s) with clear and valid links to the topic.</p> <p>Band 3 (9-12 marks) Candidate considered a wide range of aspects of the topic with a comprehensive discussion showing thorough knowledge and understanding. Technical terminology is used correctly and appropriately throughout.</p> <p>To access the higher marks in the band The discussion is supported using a broad range of highly relevant links to the topic with clear and detailed justifications.</p>	<p>To include:</p> <ul style="list-style-type: none"> • Brief details of the passage of blood between heart and body and heart and lungs • Further explanation to cover passage of blood through the components of the heart, to include, chambers, valves and vessels • Details of blood gases in the heart chambers and vessels • Gaseous exchange across the alveoli in the lungs 	12