

**Confidential**

**Qualification name:** 7457-43 Level 3 Diploma in Small Animals Veterinary Nursing

**Exam name:** Level 3 Anatomy and Physiology Knowledge Test – Paper 3

**Exam Version Name:** December 2020

<b>Q1</b>	Define the following physiological terms. a) Hyperthermia. (1 mark) b) Chondritis. (1 mark) c) Dysphagia. (1 mark)		
<b>Q1</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q1</b>	<b>1 mark each for any of the following, to a maximum of 3 marks:</b> a) Hyperthermia – above normal temperature (1) b) Chondritis – inflammation of the cartilage (1) c) Dysphagia – difficulty eating/swallowing (1)	Similar wording/terminology acceptable	<b>3</b>

<b>Q2</b>	Name <b>one</b> site for venepuncture <b>and</b> state where it is anatomically positioned in a dog. (2 marks)		
<b>Q2</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q2</b>	<b>1 mark each for any of the following, to a maximum of 2 marks:</b> <ul style="list-style-type: none"> <li>• Jugular (1) –lateral to the trachea left and right sides of the neck (1)</li> <li>• cephalic (1) – cranial aspect of the forelimb (1)</li> <li>• lateral saphenous (1) – lateral aspect of the tibia</li> <li>• medial saphenous (1) – medial aspect of the tibia (1)</li> <li>• femoral vein (1) – medial aspect of the thigh next to femoral vein (1)</li> <li>• sublingual vein (1) – lateral aspect of underside of tongue (1)</li> </ul>	For saphenous veins may just state saphenous for one mark	<b>2</b>

**Confidential**

<b>Q3</b>	a. Name the synovial joint between the femur and tibia. (1 mark) b. Classify the joint type by range of movement. (1 mark) c. State <b>one</b> type of movement made by this joint. (1 mark)		
<b>Q3</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q3</b>	<b>1 mark each for any of the following, to a maximum of 3 marks:</b> a. Stifle/knee joint (1) b. Hinge (1) c. Flexion (1) or Extension (1)		<b>3</b>

<b>Q4</b>	a. List the <b>four</b> active phases of mitotic cell division. (4 marks) b. Name <b>one</b> example of tissue type that is replaced by mitotic cell division. (1 mark) c. State the cell organelle in which this division occurs. (1 mark)		
<b>Q4</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q4</b>	<b>1 mark each for any of the following, to a maximum of 6 marks:</b> a. Mitotic division <ul style="list-style-type: none"> <li>• Prophase (1)</li> <li>• Metaphase (1)</li> <li>• Anaphase (1)</li> <li>• Telophase (1)</li> </ul> b. Any tissue in the body other than the cells involved in reproduction (1) c. Nucleus (1)	b . can be any type of tissue e.g. skin, bone etc other than the gamete cells in the ovary or testis	<b>6</b>

**Confidential**

Q5	a. Define the term electrolyte. (1 mark) b. Name <b>one</b> electrolyte that can be found in Extracellular Fluid (ECF). (1 mark)		
Q5	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
Q5	<p><b>1 mark each for the following, to a maximum of 1 mark:</b></p> <p>a. A mineral that carries an electrical charge (1)</p> <p><b>1 mark each for the following, to a maximum of 1 mark:</b></p> <p>b. name</p> <ul style="list-style-type: none"> <li>• Sodium (1)</li> <li>• Chloride (1)</li> <li>• Potassium (1)</li> <li>• Phosphate (1)</li> <li>• Magnesium (1)</li> <li>• Calcium (1)</li> <li>• Bicarbonate (1)</li> </ul> <p><i>Any other acceptable answer for a.</i></p>	Similar wording acceptable for definition in a.	<b>2</b>

Q6	a. Name the tactile hairs commonly known as whiskers in dogs and cats. (1 mark) b. State the function of these hairs. (1 mark)		
Q6	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
Q6	<p><b>1 mark each for the following, to a maximum of 1 mark:</b></p> <p>a. Name</p> <ul style="list-style-type: none"> <li>• Sinus hairs/ Vibrissae (1)</li> </ul> <p><b>1 mark each for the following, to a maximum of 1 mark:</b></p> <p>b. Function</p> <ul style="list-style-type: none"> <li>• Sensors (1)</li> <li>• Feel the environment around them (1)</li> <li>• Sensory function (1)</li> </ul> <p><i>Any other acceptable answer</i></p>	For function similar wording or terminology acceptable	<b>2</b>

**Confidential**

<b>Q7</b>	<p>a. Define the term sesamoid. (1 mark)</p> <p>b. State the function of sesamoid bones. (1 mark)</p> <p>c. Name <b>one</b> example of a sesamoid bone <b>and</b> state where it is in the body. (2 marks)</p>		
<b>Q7</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q7</b>	<p><b>1 mark each for the following, to a maximum of 1 mark:</b></p> <p>a. Definition</p> <ul style="list-style-type: none"> <li>• A bone that forms in the tissues of tendons or soft tissues (1)</li> </ul> <p><b>1 mark each for the following, to a maximum of 1 mark:</b></p> <p>b. Function</p> <ul style="list-style-type: none"> <li>• Alter the direction that tendons and muscle pull over bony prominences (to prevent wear and tear) (1)</li> </ul> <p><b>1 mark each for the following, to a maximum of 2 marks:</b></p> <p>c. Name</p> <ul style="list-style-type: none"> <li>• Patella (1) – tendon of the quadriceps femoris (1) <b>or</b> patella ligament of the stifle (1)</li> <li>• Fabella(e) (1) –tendons of the gastrocnemius muscle (1)</li> </ul> <p><i>Any other acceptable answer</i></p>	similar wording acceptable	<b>4</b>

<b>Q8</b>	<p>a. State the scientific term for the sensation of taste. (1 mark)</p> <p>b. Name the <b>three</b> cranial nerves involved with the sense of taste <b>and</b> the area of the tongue they innervate. (6 marks)</p>		
<b>Q8</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q8</b>	<p><b>1 mark for the following, to a maximum of 1 mark:</b></p> <p>a. Term</p> <ul style="list-style-type: none"> <li>• Gustation (1)</li> </ul> <p><b>1 mark each for any of the following, to a maximum of 3 marks:</b></p> <p>b. Cranial nerves</p> <ul style="list-style-type: none"> <li>• Facial XII (1) – rostral/cranial 2/3rds (1)</li> <li>• Glossopharyngeal XI (1) – caudal third (1)</li> <li>• Vagus X (1) – epiglottis/soft palate/pharynx (1)</li> </ul>	<p>For b. name or number acceptable</p> <p>Similar wording acceptable</p> <p>Will accept cranial or rostral and epiglottis or soft palate or pharynx</p>	<b>7</b>

**Confidential**

<b>Q9</b>	<p>a. Name the hormone that regulates red blood cells production. (1 mark)</p> <p>b. Name the organ of production for this hormone. (1 mark)</p> <p>c. Explain the negative feedback loop in relation to this hormone. (4 marks)</p>		
<b>Q9</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q9</b>	<p><b>1 mark for the following, to a maximum of 1 mark:</b></p> <p>a. Hormone</p> <ul style="list-style-type: none"> <li>• Erythropoietin (1)</li> </ul> <p><b>1 mark for the following, to a maximum of 1 mark:</b></p> <p>b. Organ</p> <ul style="list-style-type: none"> <li>• Kidney (1)</li> </ul> <p><b>1 mark each, to a maximum of 4 marks:</b></p> <p>c. Negative feedback loop</p> <ul style="list-style-type: none"> <li>• Anaemia causing low blood oxygen levels/ hypoxia stimulates kidneys to produce erythropoietin (1)</li> <li>• Erythropoietin stimulates the bone marrow to produce red blood cells (erythrocytes) (1)</li> <li>• Normal Red blood cell level restored (1)</li> <li>• Erythropoietin production stopped (1)</li> </ul>	Similar wording acceptable for c	<b>6</b>

<b>Q10</b>	<p>a. Name the structure that initiates the heart to contract. (1 mark)</p> <p>b. State where this structure can be located. (1 mark)</p> <p>c. Define the term myogenic in relation to this structure. (1 mark)</p>		
<b>Q10</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q10</b>	<p><b>1 mark each for any of the following, to a maximum of 3 marks:</b></p> <p>a. structure</p> <ul style="list-style-type: none"> <li>• Sinoatrial node (1)</li> </ul> <p>b. Location</p> <ul style="list-style-type: none"> <li>• Wall of the right atrium (1)</li> </ul> <p>c. definition</p> <ul style="list-style-type: none"> <li>• Heart muscle initiates a contraction within the muscle rather than nerve impulse (1)</li> </ul>	<p>For a. SA node is acceptable</p> <p>For c. similar wording/terminology acceptable if originating from muscle is referred to</p>	<b>3</b>

**Confidential**

<b>Q11</b>	Define the following terminology associated with respiration. a) Residual Volume. (1 mark) b) Functional residual volume. (1 mark)		
<b>Q</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q</b>	<b>1 mark each for any of the following, to a maximum of 2 marks:</b>  a) Residual – the amount of air remaining in the lungs after <b>forced</b> expiration (1) b) Functional – the amount of air remaining in the lungs after <b>normal</b> expiration (1)	Answers to include the highlighted words	<b>2</b>

<b>Q12</b>	a. Name the structure in the kidney that antidiuretic hormone acts upon. (1 mark) b. Briefly describe the effect of the hormone on the structure. (1 mark)		
<b>Q</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q</b>	<b>1 mark each for any of the following, to a maximum of 2 marks:</b> a. structure Collecting ducts  b. effect Makes the walls more permeable to allow water to move (into plasma and ECF) (1)	In b must contain permeability and water movement.  Similar wording acceptable	<b>2</b>

**Confidential**

<b>Q13</b>	a. Name <b>one</b> accessory gland to the genital tract of a male cat. (1 mark) b. Give <b>one</b> function of the seminal fluid produced in the gland. (1 mark)		
<b>Q</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q</b>	<p><b>1 mark each for any of the following, to a maximum of 1 mark:</b></p> <ul style="list-style-type: none"> <li>a. gland                             <ul style="list-style-type: none"> <li>• Prostate gland (1)</li> <li>• Bulbo-urethral gland (1)</li> </ul> </li> </ul> <p><b>1 mark each for any of the following, to a maximum of 1 mark:</b></p> <ul style="list-style-type: none"> <li>b. function                             <ul style="list-style-type: none"> <li>• Increases ejaculate volume (1)</li> <li>• Provide correct environment for sperm survival (1)</li> <li>• Neutralises acidity of urine in urethra (1)</li> </ul> </li> </ul> <p>Any other acceptable answer</p>	For b. similar wording acceptable	<b>2</b>

<b>Q14</b>	a. Name the paired olfactory organ in snakes. (1 mark) b. State the location of this organ. (1 mark) c. State <b>two</b> functions of this sense (2 marks)		
<b>Q</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q</b>	<p><b>1 mark each for any of the following, to a maximum of 4 marks:</b></p> <ul style="list-style-type: none"> <li>a. organ                             <ul style="list-style-type: none"> <li>• Jacobson’s organ (1) or Vomeronasal organ (1)</li> </ul> </li> <li>b. Location                             <ul style="list-style-type: none"> <li>• Nasal cavity extending into roof of mouth</li> </ul> </li> <li>c. Function                             <ul style="list-style-type: none"> <li>• Detect prey (1)</li> <li>• Detect predators (1)</li> <li>• Detect pheromones from a mate (1)</li> </ul> </li> </ul> <p>Any other acceptable answer</p>	For b. accept nasal cavity or roof of mouth also	<b>4</b>

<b>Q15</b>	Explain the pathway of a piece of complete adult dog kibble during each stage to include the entire digestive process from ingestion to absorption. (12 marks)		
<b>Q</b>	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
<b>Q</b>	<p><b>Band 1 (1-4 marks)</b> The candidate gave limited responses in relation to digestion organs and may not have considered the accessory organs, referring to the pathway through the organs as the main response. They show basic understanding of the sequential order of the process.</p> <p><b>To access the higher marks in the band</b> The response will show understanding of the sequential order of the process and outline a basic description of each stage. There would be limited reference to enzymes but no description. The response shows a basic understanding and use of technical terminology. Candidates at the top of the band would make some reference to the accessory organs.</p> <p><b>Band 2 (5-8marks)</b> Candidate gave a more detailed response to include knowledge of digestive and accessory organs involved with each digestive process and basic secretions and their actions. There would be multiple enzymes considered, but may not discuss their action. The response will have a greater application of understanding and use of technical terminology.</p> <p><b>To access higher marks in the band</b> The explanation on secretions show a more detailed understanding of the process and their role. Response is focused and does not include much irrelevant information. The response will have a greater application of understanding and use of technical terminology and mostly accurate.</p> <p><b>Band 3 (9-12 marks)</b> The candidate produced detailed and holistic response to include roles and functions of the organs related to the actions of the secretions and accessory organs at each stage of the digestive process. They described all stages comprehensively. Technical terminology was used accurately throughout their response</p> <p><b>To access the higher marks in the band</b> The response will discuss chemical and Mechanical digestion. They will also bring all aspects of the digestion process. They have given consideration through to the colon. The response will comprehensive and technically accurate.</p>	<p><b>Indicative content</b></p> <ul style="list-style-type: none"> <li>• Digestive organs to include, mouth, oesophagus, stomach, duodenum, (jejunum, Ileum), Colon</li> <li>• Accessory organs – pancreas, liver, gall bladder</li> <li>• Mechanical and chemical digestion</li> <li>• Digestive enzymes/secretions to at least include– saliva, pepsin, HCL, trypsin, amylase, lipase, bile</li> <li>• Process of digestion to match organ of occurrence</li> <li>• Food groups matched to enzyme and action</li> </ul>	<b>12</b>