

**Qualification name:** 7457-43 Level 3 Diploma in Equine Veterinary Nursing  
**Exam name:** Level 3 Anatomy and Physiology Knowledge Test – Paper 3  
**Exam Version Name:** March 2020

<b>Q1</b>	Define the following directional terms: A. Median/mid-sagittal plane. (1 mark) B. Sagittal/paramedian plane. (1 mark) C. Dorsal plane. (1 mark) D. Transverse plane. (1 mark)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><i>One mark for any of the following, to a total of 4 marks</i></p> <p><b>a) Median/mid-sagittal plane</b> – describes the sagittal plane as it bisects the body vertically through the midline (1)</p> <p><b>b) Sagittal/paramedian plane</b> – describes any plane parallel/adjacent to the median plane (1)</p> <p><b>c) Dorsal plane</b> - Passes through a body part parallel to the ‘top’ / upper surface- (back, head, neck, trunk, tail) (1)</p> <p><b>d) Transverse plane</b> – Passes through the head/trunk/ limb perpendicular to the part's long axis (1)</p>	similar wording is acceptable	<b>4</b>

<b>Q2</b>	Give a definition for the following prefixes: A. Ante. (1 mark) B. Dys. (1 mark) C. Hypo. (1 mark) D. Neo. (1 mark) E. Pseudo. (1 mark)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><i>One mark for each of the following, to a total of 5 marks</i></p> <p>a) Ante – Before (1) b) Dys – Bad, ill or abnormal (1) c) Hypo – Beneath, below or low (1) d) Neo – New, young or fresh (1) e) Pseudo – False (1)</p> <p><i>Any other acceptable answer</i></p>	Other correct definitions are also acceptable e.g. dys can also be interpreted as impaired, abnormal or difficult	<b>5</b>

<b>Q3</b>	Define the following terms in relation to joint movement: A. Flexion. (1 mark) B. Adduction. (1 mark) C. Circumduction. (1 mark)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><i>One mark for each of the following, to a total of 3 marks</i></p> <p>a) Flexion- bending the joint b) Adduction- moving the joint inwards c) Circumduction- moving the limb in a circle</p>	Similar wording acceptable	<b>3</b>

<b>Q4</b>	Using the correct terminology, identify <b>three</b> anatomical landmarks found in the hindlimb, including the pelvis. (3 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><i>One mark for any of the following, to a total of 3 marks</i></p> <ul style="list-style-type: none"> <li>• Ilium (1)</li> <li>• Ischium (1)</li> <li>• Pubis (1)</li> <li>• Tuber ischii (1)</li> <li>• Tuber sacrale (1)</li> <li>• Tuber coxae (1)</li> <li>• Brim of pubis (1)</li> <li>• Acetabulum (1)</li> <li>• Greater trochanter (1)</li> <li>• Patella (1)</li> <li>• Tibial tuberosity (1)</li> <li>• Malleolus (1)</li> <li>• Calcaneus (1)</li> <li>• Tarsometatarsal joint</li> <li>• Metatarsophalangeal joint (fetlock) (1)</li> <li>• Proximal sesamoid bones (1)</li> <li>• Coronary border (1)</li> <li>• Solar border (1)</li> </ul>		<b>3</b>

<b>Q5</b>	List <b>two</b> clinically significant arteries that can be used as anatomical landmarks in equids. (2 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><i>One mark for any of the following, to a total of 2 marks</i></p> <ul style="list-style-type: none"> <li>• Carotid (1)</li> <li>• Coccygeal (1)</li> <li>• Femoral (1)</li> <li>• Lingual (1)</li> <li>• Metatarsal (1)</li> <li>• Palmar digital (1)</li> <li>• Facial (1)</li> </ul>		<b>2</b>

<b>Q6</b>	Name <b>three</b> body cavities. (3 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><i>One mark for any of the three following.</i></p> <ul style="list-style-type: none"> <li>• Thoracic cavity (1)</li> <li>• Abdominal cavity (1)</li> <li>• Pelvic cavity (1)</li> <li>• Mediastinum (1)</li> <li>• Coelum (1)</li> </ul>		<b>3</b>

<b>Q7</b>	Explain <b>two</b> differences between mitosis and meiosis. (4 marks)												
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>										
	<p><i>2 marks per difference, to a total of 2 marks</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;"><b>Mitosis</b></th> <th style="text-align: left; padding: 2px;"><b>Meiosis</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">Produces two daughter cells (1)</td> <td style="padding: 2px;">Produces four daughter cells (1)</td> </tr> <tr> <td style="padding: 2px;">Produces cells that are genetically identical to the parent cell (1)</td> <td style="padding: 2px;">Produces cells which are genetically unidentical to the parent cell (1)</td> </tr> <tr> <td style="padding: 2px;">Produces diploid cells (1)</td> <td style="padding: 2px;">Produces haploid cells (1)</td> </tr> <tr> <td style="padding: 2px;">Used in growth and asexual reproduction (1)</td> <td style="padding: 2px;">Used to produce (gametes), the cells of sexual reproduction (1)</td> </tr> </tbody> </table> <p><i>Any other acceptable answer</i></p>	<b>Mitosis</b>	<b>Meiosis</b>	Produces two daughter cells (1)	Produces four daughter cells (1)	Produces cells that are genetically identical to the parent cell (1)	Produces cells which are genetically unidentical to the parent cell (1)	Produces diploid cells (1)	Produces haploid cells (1)	Used in growth and asexual reproduction (1)	Used to produce (gametes), the cells of sexual reproduction (1)		<b>4</b>
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<b>Q8</b>	Explain the term <b>osmosis</b> . (2 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><i>Two marks for the following</i></p> <p>Osmosis is the process where molecules (of a solvent move) from an area of low concentration to an area of high concentration (1), through a semipermeable membrane (1)</p>	Similar wording is acceptable	<b>2</b>

<b>Q9</b>	Explain the function of the following components of the eye: A. Cornea. (1 mark) B. Nictitating membrane. (1 mark) C. Corpora nigra. (1 mark) D. Sclera. (1 mark)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<i>One mark for each of the following, to a total of 4 marks</i> a) Cornea – Refracts / bends light (1) b) Nictitating membrane – Protects / moistens the eye (1) c) Corpora nigra – shades the pupil from glare (1) d) Sclera – Provides protection / gives shape to the eye (1)	Similar wording acceptable	<b>4</b>

<b>Q10</b>	State the dental formula for: A. An adult horse. (1 mark) B. A foal. (1 mark)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<i>One mark for each of the following, to a total of 2 marks</i> (a) Horse: 3. 1. 4. 3. 3. 1. 4. 3. (1)  (b) Foal: 3. 0. 3. 0. 3. 0. 3. 0. (1)		<b>2</b>

<b>Q11</b>	A. Describe the location of the <b>Caecum</b> . (2 Marks) B. Describe <b>three</b> functions of the <b>Caecum</b> . (3 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<i>Two marks for the location and Three marks for the function, to a total of 5 marks</i> <b>Caecum</b> a) Location: The base lies in the right dorsal part of the abdomen (1). The apex lies on the ventral abdominal wall (1).  b) Function: mixes food material with microorganisms (1) to begin the fermentation process for fibre digestion (1), stores water/electrolytes (1)	Similar wording acceptable	<b>5</b>

<b>Q12</b>	A. State <b>two</b> components that make up the central nervous system. (2 marks) B. Explain the function of the central nervous system. (3 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p>(a) <i>One mark for each of the following, to a total of 2 marks</i></p> <p><b>Structures of the central nervous system:</b>          brain(1), spinal cord (1), cerebrospinal fluid (1)</p> <p>(b) <b>Function of the central nervous system:</b> to collect and interpret sensory input from the body (1) and external environment (1), and then respond to it appropriately (1)</p>	Similar wording acceptable for part b	<b>5</b>

<b>Q13</b>	Describe the function of the following components of a neuron: A. Soma. (1 mark) B. Axon. (1 mark) C. Dendrites. (1 mark) D. Synapses. (1 mark)												
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>										
	<p><i>1 mark for each of the following, to a total of 4 marks</i></p> <table border="1"> <thead> <tr> <th>Structure</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Soma</td> <td>Connects with the dendrites (1)</td> </tr> <tr> <td>Axon</td> <td>Conducts electrical impulses (1)</td> </tr> <tr> <td>Dendrites</td> <td>receive messages from other neurons (1)</td> </tr> <tr> <td>Synapses</td> <td>junctions between neurons that transfer electrical activity (1)</td> </tr> </tbody> </table>	Structure	Function	Soma	Connects with the dendrites (1)	Axon	Conducts electrical impulses (1)	Dendrites	receive messages from other neurons (1)	Synapses	junctions between neurons that transfer electrical activity (1)	Similar wording may be acceptable	<b>4</b>
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<b>Q14</b>	State the origin and insertion for the <b>Trapezius</b> muscle. (2 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><i>One mark for each of the following, to a total of 2 marks</i></p> <p>Trapezius Origin: supraglenoid tubercle (1) Insertion: medial radial tuberosity (1)</p>		<b>2</b>

Q15	Discuss how the structure of the respiratory system aids athleticism in the horse. (12 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max marks</b>
	<p><b>Band 1 (1-4 marks)</b> Candidate provided a basic explanation demonstrating some knowledge of the structures that make up the respiratory system. The process of gaseous exchange was described at a basic level. Obligate nasal breathing was defined, but there was no mention of the anatomical structures responsible.</p> <p><b>Band 2 (5-8 marks)</b> Candidate provided a more detailed knowledge of the structure of the respiratory system including the mention of the nasal cavity, pharynx, larynx, trachea, bronchi, bronchioles and alveoli. They showed an understanding of gaseous exchange including oxygen moving from the lungs to the bloodstream, and carbon dioxide moving from the bloodstream to the lungs. Obligate nasal breathing was defined and the soft palate and epiglottis were mentioned.</p> <p><b>Band 3 (9-12 marks)</b> Candidate produced a comprehensive explanation of the structure of the respiratory system including the mention of the nares, nasal cavity, turbinate bones, pharynx, larynx, trachea, bronchi, bronchioles, alveoli, lobes of the lungs and the surrounding pleura. They showed a comprehensive understanding of gaseous exchange including oxygen moving from the lungs to the bloodstream, and carbon dioxide moving from the bloodstream to the lungs. The structures involved were mentioned, and gaseous exchange was identified as a passive process. Obligate nasal breathing was defined and the soft palate and epiglottis were mentioned. Dorsal displacement of the soft palate was discussed. Locomotor respiratory coupling.</p>	<p>Indicative content</p> <ul style="list-style-type: none"> <li>• Nasal cavity, larynx, pharynx, trachea, bronchi, bronchioles, alveoli, lungs</li> <li>• Gaseous exchange</li> <li>• Obligate nasal breathing Locomotor respiratory coupling</li> </ul>	<p><b>12</b></p>