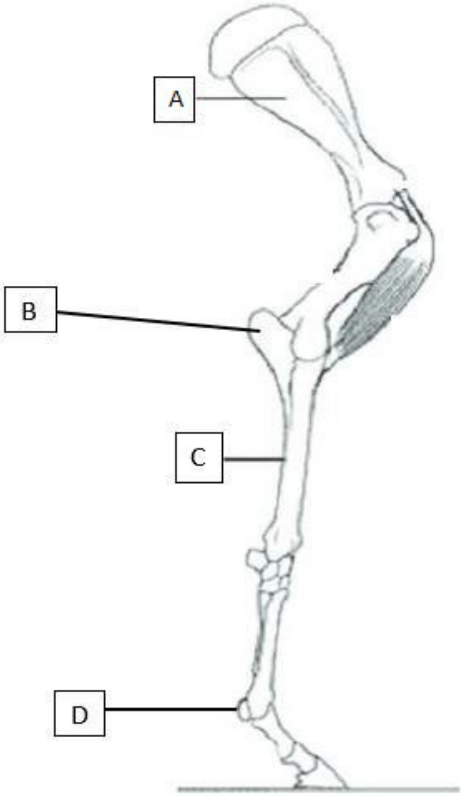


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Qualification name: 7457-43 Level 3 Diploma in Equine Veterinary Nursing
Exam name: Level 3 Anatomy and Physiology Knowledge test – Paper 3
Exam Version Name: September 2021

Q1	State the three bones that make up the acetabulum in the horse.	(3 marks)
Q1	Acceptable answer(s)	Guidance
Q1	1 mark each to a maximum of 3 marks <ul style="list-style-type: none"> • Ilium • Ischium • Pubis 	3

Q2	Name the following bones labelled in Figure 1 .	(4 marks)
		
Figure 1 https://researchgate.net		
Q2	Acceptable answer(s)	Guidance
Q2	1 mark each to a maximum of 4 marks A Scapula (1) B Olecranon (1) C Radius (1) D Sesamoid bones (1)	4

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Q3	Define the following terms: a) Ipsilateral. b) Contralateral. c) Dorsal.	(1 mark) (1 mark) (1 mark)	
Q3	Acceptable answer(s)	Guidance	Max mks
Q3	1 mark for each of the following to a maximum of 3 marks a. Ipsilateral – situated/appearing on/affecting the same side of the body (1) b. Contralateral - relating to/ denoting the side of the body opposite to that on which a particular structure or condition occurs (1) c. Dorsal - on or relating to the upper side/back (1)	Similar wording accepted	3

Q4	Define the following prefixes and for each give one example of a medical term where it is used. a) Pseudo. b) Infra. c) Supra.	(2 marks) (2 marks) (2 marks)	
Q4	Acceptable answer(s)	Guidance	Max mks
Q4	1 mark for meaning and 1 mark for an example to a maximum of 2 marks each. a) Pseudo - not real/but pretending to be real (1) Pseudopregnancy (1) b) Infra - below/ beneath/inferior (1) Infraorbital (1) c) Supra - above/over/on top/greater than (1) Supraorbital (1)	Any acceptable answer Any correct medical word using prefix is acceptable	6

Q5	a) Describe the term 'flexion' as a mode of joint movement. b) Give one example of a joint that uses this mode of joint movement.	(1 mark) (1 mark)	
Q5	Acceptable answer(s)	Guidance	Max mks
Q5	a) 1 mark for the following: • Is a movement that decreases the angle between two body parts (1) b) 1 mark each, up to a maximum of 1 mark: • carpus (1) • metacarpophalangeal joint (1)	Any other acceptable answer	2

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Q6	a) State the meaning of the suffix 'penia'. b) Give one example of a medical term where it is used.	(1 mark) (1 mark)
Q6	Acceptable answer(s)	Guidance
Q6	a) 1 mark for the following, to a maximum of 1 mark. <ul style="list-style-type: none"> • lack/ deficiency. b) 1 mark for the following, to a maximum of 1 mark. <ul style="list-style-type: none"> • leukopenia 	Any acceptable medical term accepted
		2

Q7	Describe four key differences between mitosis and meiosis.	(8 marks)														
Q7	Acceptable answer(s)	Guidance														
Q7	<p>To receive the marks learner must put both parts of the comparison. 1 mark from mitosis with matching point from Meiosis.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Mitosis</th> <th style="width: 50%;">Meiosis</th> </tr> </thead> <tbody> <tr> <td>Produces 2 daughter cells (1)</td> <td>Produces 4 daughter cells (1)</td> </tr> <tr> <td>Produces cells which are genetically identical to the parent cell (1)</td> <td>Produces cells which are unidentical to the parent cell and to one another (1)</td> </tr> <tr> <td>Each daughter cell is diploid/contains the normal number of chromosomes (1)</td> <td>Each daughter cell is haploid/contains half the number of normal chromosomes (1)</td> </tr> <tr> <td>DNA replicates within 1 cell division (1)</td> <td>There are two cell divisions/the parent cell divides once and then each cell produced by this first division divides once (1)</td> </tr> <tr> <td>Used in growth and asexual reproduction (1)</td> <td>sperm and egg cells/ the cells of sexual reproduction (1)</td> </tr> <tr> <td>Produces somatic cells (1)</td> <td>Produce gametes (1)</td> </tr> </tbody> </table>	Mitosis	Meiosis	Produces 2 daughter cells (1)	Produces 4 daughter cells (1)	Produces cells which are genetically identical to the parent cell (1)	Produces cells which are unidentical to the parent cell and to one another (1)	Each daughter cell is diploid/contains the normal number of chromosomes (1)	Each daughter cell is haploid/contains half the number of normal chromosomes (1)	DNA replicates within 1 cell division (1)	There are two cell divisions/the parent cell divides once and then each cell produced by this first division divides once (1)	Used in growth and asexual reproduction (1)	sperm and egg cells/ the cells of sexual reproduction (1)	Produces somatic cells (1)	Produce gametes (1)	<p>Other wording accepted</p> <p>Any other acceptable answer</p>
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		8														

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Q8	Explain the purpose of a negative feedback loop and give one example of this.		(3 marks)
Q8	Acceptable answer(s)	Guidance	Max mks
Q8	<p>1 mark each to a maximum of 2 marks</p> <ul style="list-style-type: none"> • Negative feedback loops are used to maintain homeostasis (1) • Keeps the body within their target values, known as (set points)/ Serves to reduce an excessive response (and to keep a variable within the normal range.) (1) • Inhibits the ability of the stimulus to continue as it did (prior to sensing of the receptor) (1) <p>1 mark given for an example, maximum 1 mark</p> <ul style="list-style-type: none"> • Controls systems such as body temperature (1) • Blood glucose level (1) • Blood sugar regulation/ (insulin lowers blood glucose when levels are high; glucagon raises blood glucose when levels are low) (1) 	<p>Any other acceptable answer</p> <p>Other wording maybe used</p>	3

Q9	Explain the difference between an 'exocrine gland' and an 'endocrine gland'.		(2 marks)
Q9	Acceptable answer(s)	Guidance	Max mks
Q9	<p>1 mark for each of the following to a maximum of 2 marks:</p> <p>Endocrine glands are the glands that secrete hormones without ducts (1) while exocrine glands secrete hormones through ducts.(1)</p>	Other wording acceptable	2

Q10	Describe the function of the following layers of skin:		
	a) Epidermis.		(1 mark)
	b) Dermis.		(1 mark)
	c) Hypodermis.		(1 mark)
Q10	Acceptable answer(s)	Guidance	Max mks
Q10	<p>1 mark each to a maximum of 3 marks</p> <ul style="list-style-type: none"> a) Provides a waterproof barrier (1) b) (The role of the dermis is) to support and protect the skin and deeper layers/assist in thermoregulation/aid in sensation (1) c) It provides the main structural support for the skin/ insulates the body from cold/aids shock absorption (1) 	Any other acceptable answer	3

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Q11	State the origin, insertion and action of the following muscles: a) Latissimus dorsi. b) Gastrocnemius.			(3 marks) (3 marks)												
Q11	Acceptable answer(s)	Guidance	Max mks													
Q11	<table border="1" style="width: 100%;"> <thead> <tr> <th>Muscle</th> <th>Origin</th> <th>Insertion</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>a. Latissimus dorsi</td> <td>Caudal thoracic and cranial lumbar vertebrae (1)</td> <td>Caudal Humerus (1)</td> <td>Retraction of the limb and flexion of the shoulder (1)</td> </tr> <tr> <td>b. Gastrocnemius</td> <td>Caudal distal femur (1)</td> <td>Calcanean tuber/ point of calcaneus (1)</td> <td>Flexion of the stifle and extension of the hock (1)</td> </tr> </tbody> </table>	Muscle	Origin	Insertion	Action	a. Latissimus dorsi	Caudal thoracic and cranial lumbar vertebrae (1)	Caudal Humerus (1)	Retraction of the limb and flexion of the shoulder (1)	b. Gastrocnemius	Caudal distal femur (1)	Calcanean tuber/ point of calcaneus (1)	Flexion of the stifle and extension of the hock (1)		6	
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Q12	Explain the characteristics of the following cranial nerves and state their function. a) III. b) IX.			(3 marks) (3 marks)
Q12	Acceptable answer(s)	Guidance	Max mks	
Q12	<p>a) 1 mark each to a maximum of 3 marks.</p> <p>Characteristics III is one cranial nerves that is associated with <u>vision</u> and the eyes/known as the <u>oculomotor</u> (1) and is a motor nerve (1)</p> <p>Function (This nerve in combination with IV abd VI) are responsible for <u>eye movement/ pupil size/focusing the lenses</u> (1)</p> <p>b) 1 mark each to a maximum of 3 marks</p> <p>Characteristics (IX is one of three nerves that are) associated with the muscles of the <u>tongue and face</u> /known as the <u>glossopharyngeal nerve</u> (1) this nerve is both a <u>motor nerve</u> as it controls facial muscles and a <u>sensory nerve</u> controlling the taste from the tongue (1)</p> <p>Function Responsible for <u>swallowing</u> and some <u>motor tongue movement</u> (1)</p>	Similar wording accepted	6	

Q13	Discuss the components that make up the nephron and their functions.	(12 marks)
Q13	Acceptable answer(s)	Guidance
Q13	<p>Band 1 (1-4 marks)</p> <p>A limited range of considerations with a mostly descriptive answer showing clear gaps in knowledge and limited understanding. Candidate attempts to use technical language infrequently.</p> <p>To access the higher marks in the band</p> <p>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)</p> <p>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</p> <p>Discussion is supported with relevant explanation(s) with clear and valid links to the topic.</p> <p>Band 3 (9-12 marks)</p> <p>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</p> <p>The discussion is supported using a broad range of highly relevant links to the topic with clear and detailed justifications.</p>	<p>Indicative content:</p> <p>Glomerular Capsule (Bowman’s Capsule Proximal Convoluted Tubule (PCT) Loop of Henle Distal Convoluted Tubule (DCT)</p> <p>a. Collecting Glomerular Capsule (Bowman’s Capsule) - Bowman's capsule is a cup-like sack at the beginning of the tubular component of a nephron in the mammalian kidney that performs the first step in the filtration of blood to form urine.</p> <p>b. Proximal Convoluted Tubule (PCT) - Long twisted tube leading from the lumen of the glomerulus. Responsible for: 65% of all reabsorption – water, sodium and glucose, Concentration of nitrogenous waste, Secretion of certain drugs and toxins</p> <p>c. Loop of Henle - U-shaped tube which dips into the renal medulla and then back up into the renal cortex. Descending limb (DL) is made of a thin layer of epithelium and is permeable to water but contains no pumps. Ascending limb (AL) is made up of a thick layer of epithelium and is impermeable to water but the walls contain pumps to pump out Na⁺ and Cl⁻ ions. Water is drawn out of the DL by osmosis – pulled by Na⁺ ions from the AL. The resulting filtrate is reduced in volume but the same concentration</p> <p>d. Distal Convoluted Tubule (DCT) - Less twisted tube lying within the renal cortex. Lined with cuboidal epithelium but with no brush boarder. Fine</p>
		12

		<p>adjustment is made here via the reabsorption of Na⁺ ions and water, for every Na⁺ ion that is reabsorbed back into the blood a K⁺ ion is excreted into the urine</p> <p>e. Collecting Duct - Runs within the pyramids of the kidney. Each collecting duct receives urine from several nephrons. Final adjustments to water content occur here. Walls can change their permeability according to the status of the ECF, Controlled by Antidiuretic Hormone (ADH). Drains the urine formed into the renal pelvis duct</p>	
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