



Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2021

Medicine of Horses

Paper 1

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

Answer **ALL FOUR (4)** questions

Answer **FOUR** questions, each worth 30 markstotal 120 marks

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Paper 1: Medicine of Horses

Answer all four (4) questions

1. Answer **both** parts of this question:

- a) Describe **three (3)** major mechanisms by which diarrhoea can occur in horses. Include in your answer which mechanism(s) would most likely occur in a horse with diarrhoea due to carbohydrate-induced acute colitis and why. (20 marks)
- b) Compare and contrast the rationale for the use of hydroxyethyl starch and equine plasma in a case of acute colitis. (10 marks)

2. Answer **both** parts of this question:

- a) Describe the aetiopathogenesis of laminitis in a pony with equine metabolic syndrome. (15 marks)
- b) Discuss the advantages and disadvantages of **two (2)** 'dynamic' tests for insulin dysregulation. Include in your answer an outline of the diagnostic procedure for each test chosen. (15 marks)

3. For each of the following diseases, outline the pathophysiology and describe the common clinical presentations:

- a) equine recurrent uveitis (10 marks)
- b) glaucoma (10 marks)
- c) ocular habronemiasis. (10 marks)

Continued over page

4. For each of the following drugs, outline the mechanism of action, clinical indications for use and potential side effects:
- a) doxycycline (*10 marks*)
 - b) atropine (*10 marks*)
 - c) butorphanol. (*10 marks*)

End of paper



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Paper 2: Medicine of Horses

Answer all four (4) questions

1. You are called to examine a seven-year-old Quarter horse gelding that has been reported by the owner to be reluctant to move. The gelding has been spelling from competition for the past four months. Two days ago, a new (unfamiliar) horse was added to his paddock and both horses were seen yesterday galloping around the paddock for some time. On examination, the gelding walks with a stiff, stilted gait. Mentation and cranial nerve function appear to be normal, and the gelding is well conditioned (body condition score 8 out of 9).

Answer **all** parts of this question:

- a) Sporadic exertional rhabdomyolysis is one potential cause of the horse's gait abnormality. List **five (5)** other plausible causes of a stiff, stilted gait in this horse. *(5 marks)*

- b) Explain how physical examination findings would help to differentiate between the potential causes of this horse's stiff, stilted gait. *(10 marks)*

- c) Describe an appropriate further diagnostic approach for this case to determine the cause of this horse's stiff, stilted gait. Assume you have access to a well-equipped clinic with no financial constraints. *(10 marks)*

- d) Briefly outline an appropriate treatment plan and therapeutic goals for the treatment of sporadic exertional rhabdomyolysis. *(5 marks)*

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2. You are asked to evaluate a horse with a chronic cough. Upon questioning the owner, coughing seems to be associated with arena work and the horse has not appeared to be unwell at any stage. A tracheal wash and bronchoalveolar lavage are performed as part of the investigation.

Answer **all** parts of this question:

- a) Describe an appropriate technique for each of the **two (2)** diagnostic procedures mentioned above. *(10 marks)*
- b) Compare and contrast the information that is gained by performing these **two (2)** procedures. *(10 marks)*

The following pertinent results are obtained from analysis of the bronchoalveolar lavage fluid.

Parameter (reference range)	Comment
Neutrophils (<5%)	10% - non-degenerate appearance
Mast cells (<2%)	20%
Eosinophils (<1%)	1%
Mucus	abundant, occasional Curschmann's spiral observed
Bacteria / fungi	none seen
Foreign material, plant material or pollen	none seen

- c) State the diagnosis in this case and describe an appropriate treatment and management plan for this horse. *(10 marks)*

Continued over page

3. You are called to a property in south-eastern Queensland to provide advice to the new owners of a small Thoroughbred breeding operation. The owners have not disclosed financial constraints and have indicated a willingness to follow the advice provided.

Answer **all** parts of this question:

- a) Describe a best-practice vaccination, deworming and dentistry schedule for each of the horses below:
- i. A four-month-old foal that has not been previously vaccinated or dewormed. *(10 marks)*
 - ii. A 10-year-old mare intended for breeding with an uncertain history. *(10 marks)*
- b) Outline an appropriate quarantine and biosecurity protocol for new horses that arrive at the farm. Include in your answer the specific infectious diseases that are of concern. *(10 marks)*

Continued over page

4. A six-day-old Quarter horse colt foal is presented with a history of lethargy and infrequent nursing. Examination of the foal reveals yellow discolouration of the oral mucous membranes and sclera. Physical examination findings include a heart rate of 148 beats/minute, respiratory rate of 64 breaths/minute, capillary refill time of less than two seconds and a rectal temperature of 39.8°C. No abnormalities are detected on examination of the mare, other than a full udder. The results of haematology, serum biochemistry and urinalysis from the foal are shown below.

Parameter	Result	Normal range	Unit
Red blood cell count	3.1	6.4–10.4	x10 ¹² /L
Haematocrit	0.2	0.3–0.5	L/L
Haemoglobin	60	107–165	g/L
White blood cells	13.6	4.9–11.1	x10 ⁹ /L
Neutrophils	10.4	2.5–6.9	x10 ⁹ /L
Lymphocytes	2.3	1.5–5.1	x10 ⁹ /L
Monocytes	0.7	0.0–0.6	x10 ⁹ /L
Eosinophils	0.1	0.0–0.8	x10 ⁹ /L
Basophils	0.1	0.0–0.1	x10 ⁹ /L
Platelets	114	100–250	x10 ⁹ /L
Glucose	7.4	6.1–14.9	mmol/L
Creatinine	49	75–150	µmol/L
Urea	2.0	2.0–9.6	mmol/L
Sodium	131	132–146	mmol/L
Potassium	3.2	2.44–4.7	mmol/L
Chloride	89	97–108	mmol/L
Total protein	58	47–72	g/L
Albumin	22	30–40	g/L
Globulins	36	18–36	g/L
AST	583	0–228	U/L
ALP	443	404–4667	U/L
GGT	75	0–71	U/L
Total bilirubin	203	0–69	µmol/L
Creatine kinase	116	21–473	U/L
L-Lactate	1.9	0.5–1.8	mmol/L
Urine specific gravity	1.020	1.002–1.006	
Urine bilirubin	6	<0	mg/dL

Question 4 continued over page

Assume that you have access to a well-equipped hospital and no financial constraints.

Answer **all** parts of question 4:

- a) State the most likely diagnosis in this foal and explain how the pertinent clinical data and observations support this diagnosis. *(15 marks)*
- b) Outline a suitable fluid therapy plan for this foal. *(5 marks)*
- c) List which clinical parameters could be monitored to assess the response to treatment and describe how they are useful. *(5 marks)*
- d) What recommendations should be given to the owner to manage this mare with future breedings, if any? *(5 marks)*

End of Paper