



# Australian and New Zealand College of Veterinary Scientists

## **Fellowship Examination**

June 2018

## **Small Animal Medicine**

## **Paper 1**

Perusal time: **Twenty (20)** minutes

Time allowed: **Four (4)** hours after perusal

Answer **ALL FIVE (5)** questions

All five (5) questions are of equal value.

Answer **FIVE (5)** questions, each worth 48 marks .....total 240 marks

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# Paper 1: Small Animal Medicine

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Answer all five (5) questions

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

- a) Describe the life cycle, transmission and antibody kinetics of *Toxoplasma gondii* in cats. Include an assessment of the public health risk of seronegative versus seropositive cats. (20 marks)
- b) Describe the life cycle and pathophysiology of canine neural angiostrongyliasis. Include the factors that lead to clinical disease. (16 marks)
- c) Outline the causes of, and pathophysiological mechanisms that occur with ischaemic stroke. (12 marks)

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

- a) Briefly discuss the pathophysiological mechanisms by which proteinuria results from these diseases: (14 marks)
  - i. membranous nephropathy (MN)
  - ii. membranoproliferative glomerulonephritis (MPGN)
  - iii. glomerular amyloidosis.
- b) Explain how the progressive loss of renal tissue affects phosphorous and calcium homeostasis. You can use a diagram as part of your discussion. (22 marks)
- c) Compare and contrast the mechanisms and consequences of proximal **and** distal renal tubular acidosis. (12 marks)

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3. Answer **all** parts of this question:

a) Describe the pathogenesis of:

i. pre-hepatic jaundice (6 marks)

ii. post-hepatic jaundice. (6 marks)

b) Describe the physiological effects of hyperbilirubinaemia in cats. (12 marks)

c) Outline the important hepatic cell types **and** define their roles in the development of hepatic fibrosis in dogs. (12 marks)

d) Outline how underlying conditions may lead to hepatic fibrosis in dogs, and the consequence of this fibrosis. (12 marks)

4. Answer **all** parts of this question:

a) Describe and/or draw the mechanisms of type II hypersensitivity, as they apply to immune-mediated haemolytic anaemia (IMHA) in dogs. (15 marks)

b) Explain the mechanisms that lead to an increased risk of thrombosis in dogs and cats with IMHA. (16 marks)

c) Describe the blood typing (classification) for dogs and cats. Include in your answer the incidence, where known, of **each** type as well as any significance of these types for blood transfusion. (6 marks)

d) Describe the causes of adverse, non-immunologic transfusion reactions. (11 marks)

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5. Answer **all** parts of this question:

- a) Describe the role of cardiac troponin I (cTnI) and brain natriuretic peptide (BNP) in normal cardiac function. *(4 marks)*
  
- b) Describe the mechanisms by which cardiac and non-cardiac disease affect serum cTnI and n-terminal pro-BNP concentration. *(24 marks)*
  
- c) Describe the pathophysiology of pulmonary hypertension in the following diseases:
  - i. chronic interstitial lung disease *(6 marks)*
  
  - ii. canine myxomatous mitral valve disease *(6 marks)*
  
  - iii. pulmonary thromboembolism. *(8 marks)*

**End of paper**



# Australian and New Zealand College of Veterinary Scientists

## **Fellowship Examination**

June 2018

## **Small Animal Medicine**

## **Paper 2**

Perusal time: **Twenty (20)** minutes

Time allowed: **Four (4)** hours after perusal

Answer **ALL FIVE (5)** questions

All **five (5)** questions are of equal value.

**Question 1 a) i.** requires completion of the table located in the answer booklet that has been provided to you.

Answer **FIVE (5)** questions, each worth 48 marks .....total 240 marks

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# Paper 2: Small Animal Medicine

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Answer all five (5) questions

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

a) Answer **all** parts of this sub-question:

- i. Complete the table provided in your answer booklet for the different types of glucocorticoids for dogs and cats **and** indicate the relative potencies of each drug. *(4 marks)*
- ii. For **each** of the drugs listed above for question 1 a) i., indicate the degree of cross-reactivity with commercial serum cortisol assays. *(2 marks)*
- iii. Discuss any additional factors that may complicate the interpretation of the hypophyseal–pituitary–adrenal axis testing in dogs receiving glucocorticoids. Indicate the specific impact of **each** factor on an adrenocorticotrophic hormone (ACTH) stimulation response or a low-dose dexamethasone suppression test. *(6 marks)*

b) Compare and contrast the mechanisms of action, indications for use **and** side effects of the following anticoagulant drugs in small animal medicine. *(18 marks)*

- i. rivaroxaban
- ii. clopidogrel
- iii. heparin – unfractionated and low molecular weight.

c) Discuss the methods of monitoring thromboprophylaxis therapy **and** include any limitations of these methods. *(18 marks)*

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

- a) Compare and contrast the methods available to manipulate the gastrointestinal (GI) microbiome in dogs with chronic enteropathy. Include an evaluation of the evidence for the efficacy of **each** of these methods. (32 marks)
- b) Discuss the limitations **and** clinical applications for the use of immunohistochemistry (IHC) and polymerase chain reaction (PCR) for antigen receptor rearrangement (PARR) testing to differentiate between inflammatory bowel disease (IBD) and small cell lymphoma in endoscopic biopsies in cats. (16 marks)

3. Answer **all** parts of this question:

- a) Discuss the management **and** outcomes associated with the different treatment options for nasal lymphoma in cats. (10 marks)
- b) Answer **both** parts of this sub-question:
  - i. Discuss the advantages **and** disadvantages of the methods for the diagnosis of sinonasal aspergillosis in cats. Include the clinical usefulness for the diagnostic modalities. (12 marks)
  - ii. Discuss the treatment options for feline sinonasal aspergillosis, including their efficacy and side effects. (6 marks)
- c) Discuss the management options for sinonasal aspergillosis in dogs, with or without cribriform plate destruction. (20 marks)

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

- a) Referencing recent literature, discuss the options for monitoring dogs with hyperadrenocorticism treated with trilostane. (20 marks)
- b) Critically evaluate the indications **and** considerations surrounding the treatment of cats with levothyroxine post I-131 therapy. (28 marks)

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

a) Discuss the current approaches in the dietary management of:

- i. idiopathic epilepsy in newly diagnosed dogs (*12 marks*)
- ii. idiopathic epilepsy in dogs treated with potassium bromide (*6 marks*)
- iii. hepatic encephalopathy in puppies. (*15 marks*)

b) Answer **all** parts of this sub-question:

- i. Discuss how you would identify the point of obstruction in obstructive urethral transitional cell carcinoma (TCC) in the dog. (*2 marks*)
- ii. List the treatment options to relieve the obstruction in obstructive urethral TCC in the dog. Include the advantages **and** disadvantages of **each** treatment. (*5 marks*)
- iii. Discuss the treatment options for urethral TCC in the dog once obstruction is relieved. Include in your answer an indication of the expected survival time with each treatment. (*8 marks*)

**End of paper**