



Australian and New Zealand College of Veterinary Scientists

Fellowship Examination

June 2017

Small Animal Medicine

Paper 1

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

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

Answer **ALL FIVE (5)** questions

All five questions are of equal value.

Answer **FIVE** questions each worth 48 markstotal 240 marks

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Paper 1: Small Animal Medicine

Answer all five (5) questions

1. Describe the pathophysiology of heart failure secondary to mitral valve regurgitation in dogs. (48 marks)

2. Discuss the pathogenesis of sepsis. (48 marks)

3. There are many commercial tests available now that screen for genetic defects in dogs and cats.

Answer **all** parts of this question:

- a) Discuss factors that may cause these genetic tests to be inaccurately interpreted in the general pet population. (11 marks)

 - b) Briefly explain the difference between missense mutations and frameshift mutations, including how these mutations can affect functionality. (7 marks)

 - c) Discuss the genetic basis for hypertrophic cardiomyopathy in cats. Include in your answer the interpretation and use of genetic testing for this condition for individuals and breeding programs in different breeds. (15 marks)

 - d) Discuss the genetic basis of ABCB1 (formerly known as MDR-1) gene mutation in dogs, and implications this has for drug metabolism in affected dogs. (15 marks)
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4. Answer **all** parts of this question:
 - a) List the physiological role(s) of iron in dogs and cats. (4 marks)

 - b) Discuss iron homeostasis in dogs and cats. (22 marks)

 - c) Discuss the pathogenesis of anaemia of inflammatory disease. (22 marks)

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

- a) Outline the mechanisms by which tumours overcome immunosurveillance.
(8 marks)

- b) Explain the mechanism(s) of action of **each** of the following in the context of small animal oncology:
 - i. therapeutic monoclonal antibodies (14 marks)

 - ii. metronomic chemotherapy (12 marks)

 - iii. tumour vaccines (including consideration of different types of tumour vaccines). (14 marks)

End of paper



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Paper 2

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Paper 2: Small Animal Medicine

Answer all five (5) questions

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

- a) Describe the mechanisms by which probiotics are proposed to exert therapeutic benefit in the gastrointestinal tract. (10 marks)
- b) Discuss the evidence for the use of probiotics in the prevention or treatment of gastrointestinal disease in dogs and cats. (11 marks)
- c) Identify indications for, and limitations of, measuring serum cobalamin concentration in dogs with intestinal disease. (5 marks)
- d) Detail the indications for, and limitations of, measuring serum and faecal anti-protease trypsin inhibitor concentration in dogs with gastrointestinal disease. (4 marks)
- e) Commercially available faecal PCR panels for dogs test for *Giardia* spp., *Cryptosporidium* spp., *Salmonella* spp., *Clostridium perfringens* enterotoxin A gene, canine enteric coronavirus, canine parvovirus 2 and canine distemper virus. For cats, the organisms tested for are *Giardia* spp., *Cryptosporidium* spp., *Salmonella* spp., *Clostridium perfringens* enterotoxin A gene, *Tritrichomonas foetus*, *Toxoplasma gondii*, feline coronavirus and feline panleukopenia virus.

Detail the indications for, and limitations of, using this test in dogs and cats with gastrointestinal disease. (18 marks)

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

- a) Discuss the rationale for antiproteinuric therapy in cats with chronic kidney disease (CKD) and your recommendations for management of proteinuria in a cat with CKD. (24 marks)
- b) Discuss the interpretation of subclinical bacteriuria in dogs and cats and evaluate the rationale for, and risks of, antimicrobial therapy in dogs and cats with subclinical bacteriuria. (24 marks)

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

- a) With respect to the use of trilostane in the management of canine pituitary dependent hyperadrenocorticism, discuss the intended effects, means of monitoring treatment, unintended effects and causes of treatment failure. *(24 marks)*
- b) Outline the management goals in cats with long-term, insulin-dependent diabetes mellitus where remission is unlikely. *(4 marks)*
- c) Discuss the advantages and disadvantages of the methods that can be used to monitor a feline diabetic patient being managed with insulin injections. *(20 marks)*

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

- a) List predisposing factors, or causes of, primary hyperlipidaemia in dogs. *(3 marks)*
- b) List diseases and drugs that can cause secondary hyperlipidaemia in dogs. *(5 marks)*
- c) Discuss the diagnostic investigation of a canine patient with hyperlipidaemia. *(10 marks)*
- d) List possible complications of primary hyperlipidaemia in dogs. *(5 marks)*
- e) With respect to the management of primary hyperlipidemia discuss:
 - i. Indications for initiating treatment. *(3 marks)*
 - ii. Goals of treatment. *(2 marks)*
 - iii. Treatment options including mechanisms of action and side effects of the treatments. *(16 marks)*
 - iv. Monitoring of treatment. *(4 marks)*

Continued over page

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

- a) Discuss the advantages and disadvantages of the various techniques to detect *Mycoplasma* spp. in the respiratory tract of cats. Your response should include sample handling and laboratory techniques to optimise identification of the organism. Discuss the clinical significance of a positive finding of *Mycoplasma* spp. from cats with respiratory signs. (16 marks)
- b) Describe how pulmonary function testing of lung mechanics can be used to differentiate feline asthma from chronic bronchitis. (8 marks)
- c) Discuss the diagnosis and management of a dog with neurological signs caused by:
 - i. L-2-hydroxyglutaric aciduria (6 marks)
 - ii. malonic aciduria (4 marks)
 - iii. methylmalonic aciduria. (6 marks)
- d) Discuss management and prognosis of feline audiogenic reflex seizures. (8 marks)

End of paper