



# Australian and New Zealand College of Veterinary Scientists

## Membership Examination

June 2016

## Medicine of Cats

## 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 marks .....total 120 marks

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# Paper 1: Medicine of Cats

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## Answer all four (4) questions

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

- a) Explain the pathophysiology of feline primary hyperthyroidism in relation to physiological mechanisms of thyroid hormone regulation. You may incorporate a diagram in your answer. (15 marks)
- b) Explain the aetiopathogenesis and pathophysiological sequelae of hypersomatotropism in cats. (15 marks)

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

- a) Discuss the clinical indications, interpretation and limitations of serum cobalamin (vitamin B12) assays in cats. Your answer should relate these aspects to cobalamin physiology. (10 marks)
- b) Explain the aetiology and pathophysiology of feline hepatic lipidosis. (20 marks)

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

- a) Explain how infection with *Dirofilaria immitis* causes disease in cats. Your answer should integrate pathogenic effects of the parasite with expected clinical manifestations. (18 marks)
- b) Discuss a rational approach to the diagnosis of feline dirofilariasis, with reference to the limitations of available tests. (12 marks)

**Continued over page**

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

- a) Explain the pathophysiological mechanisms that result in a hypercoagulable state. *(9 marks)*
  
- b) Explain how cardiac disease in cats may lead to the formation of aortic thromboembolism and its sequelae. *(12 marks)*
  
- c) Evaluate the mechanism of action, expected efficacy and potential adverse effects of **each** of the following drugs for the prevention of feline aortic thromboembolism: *(9 marks)*
  - i. clopidogrel
  
  - ii. aspirin
  
  - iii. low molecular weight heparin.

**End of paper**



# Australian and New Zealand College of Veterinary Scientists

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## Medicine of Cats

## Paper 2

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

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

Answer **ALL FOUR (4)** questions

Answer **FOUR** questions each worth 30 marks .....total 120 marks

# Paper 2: Medicine of Cats

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Answer all four (4) questions

1. A nine-year-old castrated male domestic shorthair cat is presented in peracute respiratory distress. Over the past five days, the owner has noted a 'wheeze', and perceived that the cat has been trying to clear phlegm from his throat. The cat now is recumbent, has a rectal temperature of 36°C, heart rate of 200 bpm, respiratory rate of 76 bpm, and marked expiratory effort. The cat has appropriate heartworm and vaccination prophylaxis and is an indoor cat in a single cat household with no known history of trauma and no previously diagnosed illnesses.

Answer **both** parts of this question:

- a) Outline the immediate steps to be taken to stabilise this cat during the initial investigation of his dyspnoea. (10 marks)
- b) Outline a rational diagnostic approach to this cat's respiratory distress. Justify **each** diagnostic intervention and the order in which you propose to perform them, emphasising the discriminatory value of **each** intervention. (20 marks)
2. You are presented with an 11-year-old neutered female domestic shorthair cat. The owner has noted inappetance, weight loss, and vocalisation at night over the previous three months. The cat has also been drinking and urinating more than usual over the past six months. She has hyphaema in the right eye, and a grade II/VI systolic murmur (HR 160, normal rhythm). Hydration appears adequate.

Answer **all** parts of this question:

- a) You are concerned that this cat may have chronic kidney disease. List other major differential diagnoses that should be considered. (2 marks)

**Question 2 continued over page**

The following results were obtained (remainder of biochemistry and electrolyte panel, haematology and urinalysis within normal limits):

|                       | <b>Units</b> | <b>Result</b> | <b>Reference interval</b> |
|-----------------------|--------------|---------------|---------------------------|
| Creatinine            | µmol/L       | 360           | 80–200                    |
| Urea                  | mmol/L       | 41            | 7–10.7                    |
| Calcium               | mmol/L       | 2.3           | 1.5–2.6                   |
| Phosphate             | mmol/L       | 4.2           | 1.4–2.5                   |
| Sodium                | mmol/L       | 147           | 142–161                   |
| Potassium             | mmol/L       | 3.6           | 3.8–5.2                   |
| Total T4              | mmol/L       | 12            | 9.0–32                    |
| SDMA*                 | µg/dL        | 26            | 0–14                      |
| USG                   |              | 1.016         | candidate to interpret    |
| UPC**                 |              | 0.7           | candidate to interpret    |
| Aerobic urine culture |              | negative      |                           |

\*SDMA= symmetric dimethylarginine assay

\*\* UPC = urine protein: creatinine ratio

The cat demonstrated an average systolic blood pressure (Doppler) of 260 mmHg and the creatinine measurement was similar to the above value on repeated testing.

- b) Interpret the clinical and clinical pathological findings. Explain how this information supports a most likely diagnosis of chronic kidney disease ahead of the other differentials listed in part 2 a). (12 marks)
- c) Outline an appropriate therapeutic approach to this case, justifying your treatment decisions. (12 marks)
- d) Discuss the prognosis for this cat, considering the whole clinical picture in relation to the IRIS grading system. (4 marks)

**Continued over page**

3. A three-year-old castrated male Siamese cat is presented with a two-week history of inappetance progressing to complete anorexia, and lethargy. The cat has a body weight of 4.2 kg and body condition score of 3/9. Rectal temperature is 39.5°C and there is mild hepatomegaly and icterus. You estimate that the cat is 10% dehydrated.

Haematology and serum biochemistry results are listed below (remainder of haematology and biochemistry including electrolyte panel are within normal limits).

**Haematology**

|   |                      | <b>Result</b> | <b>Reference interval</b> |
|---|----------------------|---------------|---------------------------|
| PCV   | L/L                  | 0.30          | 0.25–0.45                 |
| Platelets   | x 10 <sup>9</sup> /L | 210           | 200–700                   |
| WBC   | x 10 <sup>9</sup> /L | 16.4          | 6.0–16.0                  |
| Neutrophils                                       | x 10 <sup>9</sup> /L | 13.5          | 3.8–10.1                  |
| Bands   | x 10 <sup>9</sup> /L | 1.3           | <0.5                      |
| Lymphocytes                                       | x 10 <sup>9</sup> /L | 1.0           | 1.6–7.0                   |
| Blood smear: anisocytosis +, toxic neutrophils ++ |                      |               |                           |

**Serum biochemistries**

|               |        | <b>Result</b> | <b>Reference interval</b> |
|---------------|--------|---------------|---------------------------|
| Glucose       | mmol/L | 10.9          | 3.9–8.3                   |
| TBIL          | µmol/L | 30            | <17                       |
| AST           | U/L    | 356           | <60                       |
| ALT           | U/L    | 469           | <80                       |
| ALP           | U/L    | 253           | <81                       |
| GGT           | U/L    | 49            | <6                        |
| Total protein | g/L    | 94            | 55–78                     |
| Albumin       | g/L    | 40            | 22–35                     |
| Globulin      | g/L    | 52            | 33–43                     |

Answer **all** parts of this question:

- Provide a diagnostic assessment of this case with reference to the clinical and clinicopathological findings. (8 marks)
- State the most likely diagnosis and justify your opinion. (2 marks)
- Outline any further diagnostic testing you could employ to confirm a diagnosis in this cat. (10 marks)
- Discuss a detailed therapeutic strategy for a cat with neutrophilic cholangitis. (10 marks)

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4. A 12-year-old neutered male domestic shorthair cat presents with a history of three generalised tonic-clonic cluster seizures in the previous week (the last seizure was 48 hours ago). The cat is a 100% indoor cat in a single-cat household and is exclusively fed a veterinary brand dry senior diet.

On physical examination, the cat weighs 4.5 kg and has a body condition score of 5/9. Heart rate is 160 bpm with normal auscultation, respiratory rate is 30 breaths per minute, and rectal temperature is 38.7°C. Heart and lung field auscultation, abdominal palpation, peripheral lymph nodes and coat condition are all within normal limits.

On neurologic examination, the cat appears mentally dull, and constantly circles in large circles to the left. There is a right menace deficit with normal direct and consensual pupillary light reflexes in both eyes. The remaining cranial nerves are normal. There is a proprioceptive deficit in the right hindlimb but the remaining limbs are normal. Spinal reflexes are normal in all limbs and panniculus reflex is normal.

Answer **all** parts of this question:

- a) What is your neuroanatomical diagnosis in this cat? Justify your answer. *(4 marks)*
- b) What are your differential diagnoses for the lesion/s? *(4 marks)*
- c) List and briefly justify additional diagnostic tests you would perform to further investigate this case. *(12 marks)*
- d) Compare and contrast phenobarbitone and other anticonvulsants with regard to safety and efficacy in the long-term symptomatic control of seizures in cats. *(10 marks)*

**End of paper**