



Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2015

Small Animal Medicine

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: Small Animal Medicine

Answer all four (4) questions

1. Answer **both** parts of this question:
 - a) List **five (5)** types of pleural effusion. *(5 marks)*
 - b) With reference to pathophysiological mechanisms, describe the processes by which the pleural effusions listed in part 1 a) form, including examples of diseases that may be associated with each of these effusions. *(25 marks)*

2. Answer **all** parts of this question:
 - a) Describe the structure and function of the normal renal glomerulus. *(10 marks)*
 - b) Discuss the indications, clinical significance and limitations of the urine protein-to-creatinine ratio in the diagnosis of glomerular disease in dogs and cats. *(10 marks)*
 - c) List the medical complications that can develop in dogs and cats secondary to glomerular disease. *(5 marks)*
 - d) Describe the mechanism(s) of action of angiotensin converting enzyme (ACE) inhibitors when used in the treatment of dogs and cats with glomerular disease. *(5 marks)*

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

- a) Discuss the pathophysiology of jaundice. Include in your answer a brief summary of bilirubin metabolism, **and** give examples of diseases that can cause jaundice. (10 marks)
- b) Discuss the indications, clinical significance and limitations of the following liver function tests:
 - i. measurement of pre- and post-prandial serum bile acid concentrations (5 marks)
 - ii. ammonia tolerance test. (5 marks)
- c) Discuss the nutritional management of liver failure, with particular mention to specific complications of liver failure including hepatic encephalopathy and abdominal effusion. (10 marks)

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

- a) Briefly describe the mechanism by which nerve impulses are normally transmitted through the neuromuscular junction. (8 marks)
- b) Describe the pathophysiology and clinical signs of myasthenia gravis in dogs and cats. (12 marks)
- c) Discuss the clinical significance and limitations of the following diagnostic tests for myasthenia gravis in dogs:
 - i. edrophonium response test (5 marks)
 - ii. detection of serum anti-acetylcholine receptor antibodies. (5 marks)

End of paper



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Paper 2

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Paper 2: Small Animal Medicine

Answer all four (4) questions

1. A nine-year-old male neutered domestic shorthair cat is presented with a two week history of lethargy, inappetence and an abnormal hindlimb gait. On physical examination the cat is non-weight bearing on the left hindlimb. Conscious proprioception is absent in the left hindlimb and delayed in the right hindlimb. Muscle tone appears reduced in both hindlimbs. The patellar reflex is absent in the left hindlimb.

There is no pain response on squeezing of digit 1 of the left hindlimb. A pain response and withdrawal reflex is present when digit 4 of the left hindlimb is squeezed. The patellar and withdrawal reflexes are present but reduced in the right hindlimb. Conscious proprioception, muscle tone and spinal reflexes are normal in both thoracic limbs.

The owner considers the hindlimb gait abnormalities have been progressive since onset.

The cat is fed a complete and balanced, commercial diet for adult cats, and has shown no previous clinical signs.

Answer **all** parts of this question:

- a) Provide a neuroanatomical localisation based on the physical examination findings. (6 marks)
- b) Provide a prioritised list of differential diagnoses for this cat's presenting signs. (6 marks)
- c) Describe your approach to diagnostic investigation in this case, justifying your choice of tests based on the differentials provided in part 1 b). (8 marks)
- d) Serum is submitted for *Toxoplasma gondii* and feline coronavirus serology. The following results are obtained:

IgM (ELISA)	1:128
IgG (ELISA)	1:64
Feline coronavirus (indirect FA)	1:400

What is your interpretation of these results? Your answer can include reference to additional testing you would perform to facilitate interpretation of these results. (10 marks)

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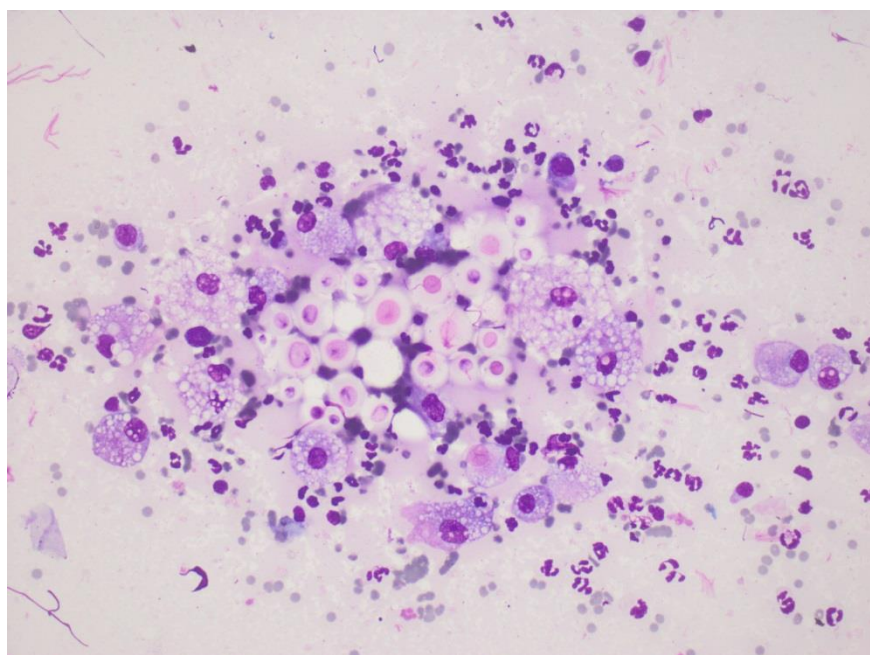
2. A five-year-old male neutered domestic shorthair cat is presented with a one month history of sneezing. Physical examination reveals a firm mass on the dorsal nasal bridge and bilateral mucopurulent nasal discharge (picture below). The remainder of physical examination is unremarkable.



Answer **all** parts of question 2:

- a) Provide a ranked list of differentials diagnoses for the cat's problems as identified in history and physical examination. (8 marks)
- b) Describe your diagnostic approach in this case. Justify your choice of diagnostic tests. (8 marks)

A fine needle aspirate was obtained from the mass and stained using Diff-Quik for cytological examination. A representative image of this slide is shown below.



Question 2 continued over page

c) Describe the cytological findings. State the most likely diagnosis. (4 marks)

d) Describe your management plan for this case, including treatment and monitoring. (10 marks)

3. A 10-year-old entire male Beagle is presented for investigation of haematuria. The owner reports he has had two similar episodes in the past three months, which both resolved with a five day course of amoxicillin-clavulanate (15 mg/kg PO BID). No other clinical signs have been observed by the owner. All preventative worming and vaccinations are up to date, and he is fed a complete and balanced commercial food designed for adult dogs.

Physical examination is otherwise unremarkable. On rectal examination the prostate is palpably enlarged, symmetrical, and non-painful on palpation. During examination the dog is observed to drip a small amount of serosanguinous fluid from the prepuce, not associated with urination.

Answer **all** parts of question 3:

- a) Provide a ranked list of differential diagnoses for **each** of the presenting problems, as identified in the history and physical examination. (6 marks)

You perform a urinalysis; the results are provided below.

Urinalysis	Results
Method of collection: cystocentesis	
USG	1.030
Protein (dipstick)	2+
pH (dipstick)	7.5
Blood (dipstick)	4+
Bilirubin (dipstick)	negative
Glucose (dipstick)	negative
Ketones (dipstick)	negative

Sediment examination: large numbers of white blood cells (predominantly neutrophils), red blood cells and bacterial rods are present, as well as occasional struvite crystals and occasional sperm cells.

Question 3 continued over page

- b) Discuss your assessment of the urinalysis results. (4 marks)
- c) Similar urinalysis results were obtained during the dog's previous two episodes of haematuria. Considering this information, what are the most likely reason(s) for the recurrent clinical signs in this dog? (10 marks)
- d) Describe your approach to management of this case, including further diagnostic investigation (if any) and formulation of a treatment plan. (10 marks)

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

- a) A seven-year-old female neutered Shar pei dog underwent surgical excision of a cutaneous mass on her left hind leg seven days earlier. The histopathologic diagnosis was a mast cell tumour, Patnaik grade three, and high grade using the Kuipel grading system. The report notes that the tumour was incompletely excised, with neoplastic cells extending to the surgical margins.

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

- i. Describe how you would stage mast cell neoplasia in this dog. (4 marks)
 - ii. No metastatic disease is identified on subsequent testing. Discuss further treatment, if any, you would recommend for this dog. (4 marks)
 - iii. Discuss the expected prognosis for this dog, considering the available information. (4 marks)
- b) A 10-year-old male neutered Boxer presents with generalised peripheral lymphadenomegaly. The dog is lethargic and has not eaten for the last three days, but is drinking very well according to his owner. You perform a fine needle aspirate of a popliteal lymph node and a pathologist report confirms lymphoma.

Answer **both** parts of this sub-question:

- i. Outline further diagnostic tests you would recommend in this case; justify your selection of tests with specific reference to their prognostic value. (10 marks)
- ii. Briefly describe **three (3)** treatment options for this patient and the expected prognosis with **each** of these options. (8 marks)

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