



# Australian and New Zealand College of Veterinary Scientists

## Membership Examination

June 2015

## 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 **all** parts of this question:

- a) Draw a diagram of a normal lead II electrocardiograph (ECG) recorded during a single heartbeat from a cat in sternal position. Label the ECG components and briefly describe what causes **each** component. Your diagram does not need to be to scale. *(8 marks)*
- b) Discuss the potential indications, clinical interpretation and limitations of NT-pro BNP (N-terminal pro brain natriuretic peptide) testing in cats. *(12 marks)*
- c) Explain what practical steps you could take in order to achieve an accurate and repeatable non-invasive measurement of systolic arterial blood pressure in a cat. *(10 marks)*

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

- a) Describe what a congenital portosystemic shunt (PSS) is, and the gross anatomical classifications of congenital portosystemic shunts. You may use a diagram(s) to aid your answer. *(6 marks)*
- b) Answer **both** parts of this sub-question:
  - i. Describe the pathophysiological consequences of a portosystemic shunt. *(10 marks)*
  - ii. Outline risk factors known to exacerbate hepatic encephalopathy. *(7 marks)*
- c) List the typical laboratory abnormalities observed with portosystemic shunts in cats. (Include abnormalities for any specific laboratory tests for PSS testing.) *(7 marks)*

Continued over page

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

- a) Describe the physiological processes and neurological pathways involved in vomiting. Include reference to the neurotransmitter receptors understood to be involved. You may use a diagram in your answer. (15 marks)
- b) Outline the options for induction of emesis in a cat. (5 marks)
- c) Briefly evaluate the usefulness and safety of **each** of the following drugs for prevention of vomiting in cats. Your answer should include the general mechanism of action of **each** of the drugs and how it is believed to apply to cats, as well as any adverse effects:
  - i. metoclopramide (5 marks)
  - ii. maropitant. (5 marks)

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

- a) Outline the epidemiology and life cycle of *Toxoplasma gondii* infection in cats. You may use a diagram as part of your answer. (20 marks)
- b) Discuss the public health risks of *Toxoplasma gondii* and preventative steps to minimise these risks. (10 marks)

**End of paper**



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## Paper 2

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Answer **ALL FOUR (4)** questions

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

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# Paper 2: Medicine of Cats

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## Answer all four (4) questions

1. A colleague asks for your advice about a 10-year-old female neutered Burmese (5 kg, body condition score 6/9) that she has been treating for diabetes mellitus for the last 2 months following initial diagnosis. The cat is currently receiving 5 units of insulin glargine subcutaneously every 12 hours. Blood glucose readings taken every 4 hours over 12 hours in the clinic remain above 20 mmol/l (reference interval 3-5 mmol/l). The cat's weight has been stable since diagnosis but the cat remains polydipsic and polyphagic.

Answer **both** parts of this question:

- a) Describe your interpretation and approach to this case, listing and justifying additional information you would like to obtain and diagnostic tests you would like to perform to further investigate this case. Include possible differential diagnoses for the apparent poor response to insulin. (20 marks)
- b) Describe how to treat and further monitor this case. (10 marks)
2. A five-year-old female spayed domestic longhair cat presents in respiratory distress. The owners believe that the respiratory distress has only appeared overnight, however the cat has been quiet, lethargic and increasingly inappetent for a few days. Occasionally a cough has been noted. Ventilation is shallow and rapid (80 bpm) with increased inspiratory effort. The cat has tacky mucous membranes with capillary refill time of 2.5 seconds, a rectal temperature of 40.0°C and a heart rate of 200 beats per minute, although the heart sounds are muffled.

Answer **all** parts of this question:

- a) Provide an initial assessment **and** explain in detail your initial management of this cat, including treatment and diagnostic testing. Justify your tests and the order in which you will perform them. (15 marks)
- b) A foul-smelling, sanguinous, turbid fluid is obtained on thoracocentesis. You examine the fluid in your practice laboratory.  
Describe features of the fluid which would be consistent with a diagnosis of pyothorax. (4 marks)

**Question 2 continued over page**

- c) List the types of organisms which are typically found in feline pyothorax, with examples, and describe an appropriate initial antimicrobial regimen. (5 marks)
- d) Assuming that this cat has pyothorax, explain the rationale of thoracic drainage following initial stabilisation. Outline an ideal management plan for the cat with respect to thoracic drainage over the next few days. (6 marks)

3. A two-year-old male entire domestic shorthair cat is presented with a four day history of lethargy. The cat lives mainly outdoors in New Zealand and is fed a complete and balanced commercial diet. There is no travel history. The cat is treated with three monthly milbemycin oxime and praziquantel (Milbemax®). Core vaccinations (F3) were given two years ago. On examination his mentation is dull. Mucous membranes are dry and pale pink. Capillary refill time is 1.5 seconds. The resting heart rate is 240 beats per minute. His resting respiratory rate is 40 breaths per minute. Diffuse splenomegaly is suspected via abdominal palpation. Rectal temperature is 38.3°C. History and physical examination are otherwise normal.

A haemogram is performed:

Haematology		Result	Reference interval
<b>Haemoglobin</b>	<b>g/dL</b>	<b>6.7</b>	<b>10.0–15.0</b>
<b>PCV</b>	<b>L/L</b>	<b>0.19</b>	<b>0.30–0.45</b>
<b>Red cell count</b>	<b>x 10<sup>12</sup>/L</b>	<b>3.6</b>	<b>5.0–10.0</b>
MCV (PCV/RCC)	fL	39	37–49
MCH (Hb/RCC)	pg	14	13–17
MCHC (Hb/PCV)	g/dL	36	32–38
<b>Reticulocyte %</b>		<b>5</b>	<b>&lt;2</b>
White cell count	x 10 <sup>9</sup> /L	7.8	5.5–19.5
Neutrophils	x 10 <sup>9</sup> /L	6.4	2.5–12.5
<b>Lymphocytes</b>	<b>x 10<sup>9</sup>/L</b>	<b>1</b>	<b>1.5–7.0</b>
Monocytes	x 10 <sup>9</sup> /L	0.3	0–0.9
Eosinophils	x 10 <sup>9</sup> /L	0.1	0–1.5
Basophils	x 10 <sup>9</sup> /L	0	rare
Platelets	x 10 <sup>9</sup> /L	456	300–700
Total solids	g/L	78	60–80
Comments: <b>marked polychromasia</b>			

Question 3 continued over page

Answer **both** parts of question 3:

- a) Construct a problem list for this patient. Provide a list of differential diagnoses for **each** problem, ordering diagnoses from most likely to least likely.

*(15 marks)*

A fresh Wright-Giemsa blood smear is prepared:



Wright-Giemsa Staining 100X

[http://en.wikipedia.org/wiki/File:M. haemofelis IP2011.jpg](http://en.wikipedia.org/wiki/File:M._haemofelis_IP2011.jpg)

- b) State the most likely diagnosis. Describe the management of this case. Justify your treatment and any additional monitoring or tests you consider appropriate.

*(15 marks)*

**Continued over page**

4. You are presented with a three-year-old male neutered domestic shorthair cat for evaluation of a swelling in the left craniodorsal abdomen, noted by the owner. The owner has not observed any other clinical signs. On examination the cat has marked generalised non-painful bilateral renomegaly. Physical examination is otherwise normal.

Answer **all** parts of this question:

- a) List differential diagnoses for this cat's renomegaly and indicate which you think is most likely in this case, giving reasons for your choice. (5 marks)
- b) Outline and briefly justify what diagnostic tests could be performed to further investigate this case. Indicate which of these diagnostic tests are likely to yield the most diagnostic information. (12 marks)
- c) A fine needle aspirate of the kidneys is diagnostic for lymphoma:
- i. Outline the treatment options for this case. Briefly describe in your answer how to administer any chemotherapeutic drugs that may be indicated, including any safety precautions that you would take. (10 marks)
  - ii. Describe the prognosis for this cat and the factors that may influence the prognosis. (3 marks)

**End of paper**