



# Australian and New Zealand College of Veterinary Scientists

## Membership Examination

June 2017

## 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) Briefly describe the pathophysiology of feline asthma and describe the typical respiratory pattern associated with an acute asthmatic crisis. *(10 marks)*
- b) List the diagnostic tests indicated for the investigation of a cat presenting with clinical signs consistent with feline asthma. For **each** of these diagnostic tests, outline the predicted findings that would support this diagnosis. *(10 marks)*
- c) Briefly describe the mechanism of action, route of administration, and expected efficacy of glucocorticoids and bronchodilators for the management of feline asthma. Name **two (2)** drugs from **each** category. *(10 marks)*

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

- a) With regard to feline leukemia virus (FeLV) infection:
  - i. Briefly describe the methods of transmission between cats. *(5 marks)*
  - ii. Outline a rational approach to confirming the diagnosis, with reference to the limitations of available diagnostic tests. *(10 marks)*
- b) Briefly outline the pathogenesis, typical clinical findings, and diagnostic tests used for confirmation of nasal cryptococcosis in cats. *(15 marks)*

**Continued over page**

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

- a) Briefly outline the risk factors that contribute to the development of diabetes mellitus in cats **and** their implications for management of the disease. *(10 marks)*
- b) Briefly describe the presumed pathophysiology and end-organ consequences of feline hypertension secondary to chronic kidney disease. *(10 marks)*
- c) Outline the pathogenesis, typical pathogens **and** risk factors associated with bacterial cystitis in cats. *(10 marks)*

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

- a) Describe the aetiology and clinical signs associated with hyperkalaemia affecting a cat. *(10 marks)*
- b) Briefly explain the mechanisms by which uraemia causes vomiting in cats with renal insufficiency. *(5 marks)*
- c) Describe the indications, mechanisms of action and contraindications/adverse effects for cats treated with:
  - i. sucralfate *(5 marks)*
  - ii. maropitant citrate *(5 marks)*
  - iii. omeprazole. *(5 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 13-year-old neutered female Tonkinese cat is presented with signs of weakness, polyuria, polydipsia, and weight loss (current weight 3.0 kg). Body condition score is 3/9 and temperature is 38.1°C. Heart rate is 160 beats per minute (bpm) and femoral pulses are moderate and symmetrical. Respiratory rate is 24 breaths per minute and mucous membranes are pink and moist with a capillary refill time (CRT) of 1.5 seconds.

Haematology, biochemistry, and urinalysis results and Doppler blood pressure measurement results for this cat are as follows:

**Haematology** – no significant findings

### Biochemistry

Parameter	Result	Reference interval
Sodium	155	146–156 mmol/L
Potassium	3.0	4.0–4.6 mmol/L
Chloride	125	115–130 mmol/L
Blood urea nitrogen (BUN)	21	6.1–12.8 mmol/L
Creatinine	200	76–164 mmol/L
Glucose	18.0	3.6–6.6 mmol/L
Betahydroxybutyrate (BHOB)	0.6	0.00–0.05 mmol/L
Cholesterol	4.4	2.50–3.90 mmol/L
Bilirubin	2.3	<10 µmol/L
Alanine aminotransferase (ALT)	58	<60 U/L
Alkaline phosphatase (ALP)	35	0–50 U/L
Total protein	65	54–73 U/L
Albumin	27	19–38 g/L
Globulin	38	26–51 g/L
Total calcium	2.5	2.0–2.8 g/L
Phosphate	1.1	0.9–2.3 mmol/L
Creatine kinase (CK)	220	<300 U/L
Total T4	24	19–65 nmol/L

Question 1 continued over page

**Urinalysis: urine sample collected by cystocentesis**

<b>Parameter</b>	<b>Result</b>
Specific gravity	1.020
pH	6
Protein	2+
Glucose	3+
Ketones	negative
Bilirubin	negative
Blood	negative
Microscopic sediment examination	normal

Doppler measurement of arterial blood pressure revealed an average systolic pressure of 210 mmHg (reference <160 mmHg)

Answer **all** parts of question 1:

- a) Interpret the above results and those on the previous page in the context of the clinical findings for this case. *(10 marks)*
- b) State the **most** probable diagnosis/es. *(2 marks)*
- c) List **and** justify additional diagnostic tests indicated for further investigation of this case. *(8 marks)*
- d) Design **and** justify an appropriate treatment plan for this cat. *(10 marks)*

**Continued over page**

2. A six-year-old, indoor only, neutered female domestic shorthair cat is presented with progressive lethargy and inappetance of seven days duration. The owner reports the cat is licking concrete bricks near the fireplace. Over the previous 24 hours the cat has become very weak.

On physical examination the cat is quiet, alert and responsive, heart rate is 200 bpm and a grade II/VI left parasternal systolic murmur. Mucous membranes are pale and moderately icteric. Respiratory rate is 60 breaths per minute and the cat intermittently pants during examination. Rectal temperature is 39.7°C and splenomegaly is palpable.

Haematology and biochemistry results for this cat are as follows:

Parameter	Result	Reference interval
Red blood cell counts (RBC)	3.1	4.9–10 x10 <sup>12</sup> /L
Haemoglobin	42	77–155 g/L
Haematocrit	0.12	0.25–0.48 L/L
Mean cellular volume (MCV)	63	43–55 fL
Mean cellular haemoglobin (MCH)	12	13–17 pg
Mean cellular haemoglobin concentration (MCHC)	264	282–333 g/L
Platelets		
Platelet count	429	300–800 x10 <sup>9</sup> /L
Reticulocyte %	3.9	<0.5 %
Absolute reticulocyte count	204	<61 x10 <sup>9</sup> /L
Plasma appearance	icteric	
Mild rouleaux formation to red blood cells, with moderate polychromasia and mild anisocytosis.		
White blood cell parameters and morphology all within normal limits		

Parameter	Result	Reference interval
Cholesterol	2.1	2.50–3.90 mmol/L
Bilirubin, Total	58	0–7 µmol/L
Globulins	54	31–52 g/L
Total protein	85	60–90 g/L
ALT	152	19–100 IU/L
ALP	21	0–50 IU/L
Direct Coombs' test	positive	
Remaining biochemical parameters and electrolytes were within normal limits		

**Question 2 continued over page**

Answer **both** parts of question 2:

- a) Provide a diagnostic assessment of this case with reference to the clinical and clinicopathological findings. *(15 marks)*
- b) List **and** justify the additional diagnostic tests indicated in order to refine the diagnosis. *(15 marks)*

3. A 12-year-old neutered male Russian blue cat is presented with a three day history of inappetence and lethargy and a three month history of vomiting once a week. Physical examination reveals a body condition score of 3/9 and a firm, non-compressible, 2 cm soft tissue mass located in the cranial abdomen.

Abdominal ultrasound reveals a focal, 1.8 x 1.0 cm, hypoechoic, mid-jejunal mass arising from the serosal layer. There is no apparent obstruction of the lumen. Adjacent mesenteric lymph nodes are mildly enlarged and rounded. There are no other abnormal findings.

Answer **all** parts of this question:

- a) List the differential diagnoses for a focal jejunal mass in a cat. *(5 marks)*
- b) List **and** justify additional diagnostic tests indicated to achieve diagnosis for this case, guide treatment, and inform prognosis. *(15 marks)*
- c) The final diagnosis is intestinal mast cell tumour with mesenteric lymph node infiltration. Discuss your management strategy, including both specific and supportive treatment intervention. *(10 marks)*

**Continued over page**

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

- a) A six-year-old neutered male domestic shorthair cat is presented for evaluation of acute-onset left head-tilt and ataxia. The cat is an indoor cat in a single-cat household and is fed a veterinary brand dry adult diet.

Physical examination reveals a body condition score of 6/9. Heart rate is 150 bpm with normal auscultation, respiratory rate is 30 breaths per minute, and rectal temperature is 38.5°C.

On neurologic examination, the cat has normal mentation but is ataxic, and circling and occasionally falling to the left. Horizontal nystagmus with fast phase to the right is present with normal direct and consensual pupillary light reflexes in both eyes. The remaining cranial nerves are normal. Conscious proprioception and spinal reflexes are normal in all limbs.

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

- i. Identify the neuroanatomical location of this lesion. (2 marks)
  - ii. Provide a complete differential diagnoses list for this case. (6 marks)
  - iii. List **and** justify additional diagnostic tests indicated to further investigate this case. (10 marks)
- b) A three-year-old neutered male domestic shorthair cat presents following accidental owner application of large dog topical flea/tick preventative to the cat. Outline a rational, orderly treatment intervention for permethrin toxicity in cats. (12 marks)

**End of paper**