



Australian and New Zealand College of Veterinary Scientists

Fellowship Examination

November 2020

Feline Medicine

Paper 1

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

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

Answer **ALL FIVE (5)** questions

All five (5) questions are of equal value.

Answer **FIVE (5)** questions, each worth 48 markstotal 240 marks

Paper 1: Feline Medicine

Answer all five (5) questions

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

- a) Discuss the classification of feline cholangitis, based on its clinical and pathological features. *(24 marks)*
- b) With reference to the literature, discuss the proposed aetiopathogenesis of the different forms of feline cholangitis. *(12 marks)*
- c) In relation to feline liver disease, discuss the available techniques, their interpretation, utility and limitations, for both of the following: *(12 marks)*
 - i core needle biopsy
 - ii serum bile acids.

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

- a) List and briefly discuss the acquired cellular characteristics that are necessary for the pathogenesis of cancer. *(10 marks)*
- b) Discuss the principles and anti-tumour mechanisms of metronomic chemotherapy. *(12 marks)*
- c) Outline the indications, mechanism of action and adverse effects of each of the following agents in the treatment of feline neoplasia:
 - i Toceranib *(6 marks)*
 - ii Meloxicam *(10 marks)*
 - iii Chlorambucil. *(10 marks)*

Continued over page

3. Answer **both** parts of this question:
- a) Outline the normal synthesis, regulation and cellular interactions of thyroid hormones in cats. *(20 marks)*
 - b) Discuss the proposed aetiopathogenesis of both of the following conditions in cats:
 - i congenital hypothyroidism *(4 marks)*
 - ii hyperthyroidism. *(24 marks)*
4. Answer **all** parts of this question:
- a) Outline the normal physiological control of blood pressure. *(25 marks)*
 - b) Discuss the aetiopathogenesis of feline hypertension. *(17 marks)*
 - c) Briefly outline the rationale for the use of angiotensin receptor blockers in the treatment of feline hypertension, with reference to the normal physiological control of blood pressure. *(6 marks)*
5. Answer **both** parts of this question:
- a) Describe the pathogenesis of feline leukaemia virus (FeLV) infection. In your answer, include a detailed description of the potential outcomes following natural exposure to FeLV infection. *(30 marks)*
 - b) Outline the pathogenesis of feline immunodeficiency virus (FIV) infection. Compare and contrast this with the pathogenesis of FeLV infection, outlined in Q5, a). *(18 marks)*

End of paper



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Paper 2

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

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

Answer **ALL FIVE (5)** questions

All five (5) questions are of equal value.

Answer **FIVE (5)** questions, each worth 48 markstotal 240 marks

Paper 2: Feline Medicine

Answer all five (5) questions

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

- a) With reference to the literature, discuss both of the following:
 - i The role of serum symmetric dimethylarginine (SDMA) in the diagnosis of feline chronic kidney disease. *(9 marks)*
 - ii The role of SDMA in determining post-treatment renal function in cats with hyperthyroidism. *(9 marks)*

- b) A three-year-old, female, spayed Birman cat is presented for acute-onset lethargy, vomiting and inappetence. She is housed exclusively inside but was observed to be chewing on some lily flowers in the house two days prior to presentation. Initial serum biochemistry, haematology and urinalysis results are reported on the following pages:

Question 1 b) continued over page

Parameter	Abbreviation	Units	Result	Reference range
Alkaline phosphatase	ALP	U/L	29	14–111
Alanine transaminase	ALT	U/L	14	12–130
Gamma-glutamyltransferase	GGT	U/L	0	0–4
Total bilirubin	TBIL	µmol/L	10	0–15
Cholesterol	CHOL	mmol/L	2.95	1.68–5.81
Urea	UREA	mmol/L	93.5	5.7–12.9
Creatinine	CREA	µmol/L	2455	71–212
Calcium	CA	mmol/L	2.53	1.95–2.83
Phosphorus	PHOS	mmol/L	4.03	1.00–2.42
Total protein	TP	g/L	91	57–89
Albumin	ALB	g/L	35	22–40
Globulin	GLOB	g/L	56	28–51
Albumin: globulin ratio	A:G Ratio		0.7	
Glucose	GLU	mmol/L	6.72	4.11–8.84
Amylase	AMYL	U/L	1136	500–1500
Lipase	LIPA	U/L	544	100–1400
Sodium	Na	mmol/L	147	150–165
Potassium	K	mmol/L	6.6	3.5–5.8
Chloride	Cl	mmol/L	109	112–129
Symmetric dimethylarginine	SDMA	µg/dL	70	0–14
Total T4	TT4	nmol/L	15	10–60

Question 1 b) continued over page

Parameter	Abbreviation	Units	Result	Reference range
Haematocrit	HCT	L/L	45.7	29.7–44.5
Red blood cells	RBC	x 10 ¹² /L	10.26	5.30–10.60
Reticulocyte %	Retic %	%	0.3	
Reticulocytes ABs	Retic	x 10 ⁹ /L	32.1	3.0–50.0
Red blood cell distribution width	RDW	%	17.6	17.3–22.0
Haemoglobin	Hb	g/dL	13.8	9.2–15.4
Mean corpuscular volume	MCV	fL	44.5	38.1–53.9
Mean corpuscular haemoglobin	MCH	pg	13.4	11.5–19.2
Mean corpuscular haemoglobin concentration	MCHC	g/L	30.2	29.9–38.6
White blood cells	WBC	x 10⁹/L	20.81	5.50–19.50
Neutrophils		x 10⁹/L	18.15	2.50–12.50
Lymphocytes		x 10 ⁹ /L	1.12	0.4–6.80
Monocytes		x 10 ⁹ /L	1.13	0.15–1.70
Eosinophils		x 10 ⁹ /L	0.36	0.10–0.79
Basophils		x 10 ⁹ /L	0.04	0.00–0.10
Platelet count	PLT	x 10 ⁹ /L	459	175–600
Comments:				

Parameter	Result	Reference range
Collection method	cystocentesis	
USG	1.014	
Colour	light yellow	
Clarity or turbidity	cloudy	
pH	5.5	
Glucose	+	
Ketones	negative	
Protein	++++	
Bilirubin	negative	
Crystals	-	
Casts	20–25 granular casts/LPF	
Epithelial cells	-	
Bacteria	-	

Question 1 b) continued over page

Answer **both** parts of this sub-question 1 b):

- i Outline your interpretation of these results and state the most likely diagnosis. (10 marks)
- ii Discuss the initial investigations, management and monitoring of this patient. (20 marks)

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

- a) A four-year-old, male, neutered domestic shorthair cat is presented for further investigation of a chronic cough. Computed tomography scans reveal a marked diffuse broncho-interstitial lung pattern with a collapsed right middle lung lobe. The results of broncho-alveolar lavage from the cat are presented below:

“Across the two smears examined, the cytopsin smear was the superior smear and revealed good cellular yield and reasonable cell morphological preservation, accompanied by mild protein deposition and the following total nucleated cell count differential:
7% neutrophils (mainly non-degenerate), 4% macrophages (some of which appeared reactive), 7% lymphocytes (mainly mature) and 83% eosinophils. No obvious micro-organisms were seen.”

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

- i Briefly discuss the initial interpretation of these results and the provisional diagnosis. (6 marks)
 - ii Outline **three (3)** additional diagnostic procedures that could be performed to further investigate this case. Include in your answer, the rationale for performing each test, an outline of each procedure, and the interpretation and limitations of each test/procedure performed. (24 marks)
- b) Briefly discuss the basic principles of pseudo-breathing flow-volume loops and describe the expected results of a pseudo-breathing flow-volume loop in a case of feline asthma. (6 marks).
 - c) With reference to the underlying pathophysiology, compare and contrast the treatment of feline asthma and chronic bronchitis. (12 marks)

Continued over page

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

a) For each of the following diagnostic tests outline the rationale for its use, interpretation, sensitivity and specificity, and its limitations in relation to the antemortem diagnosis of feline infectious peritonitis (FIP):

i Haematology and serum biochemistry (4 marks)

ii Rivalta's test (2 marks)

iii Detection of anti-feline coronavirus (FCoV) antibodies in the blood (4 marks)

iv Detection of FCoV antigen in macrophages, using immunostaining (10 marks)

v Polymerase chain reaction (PCR). (18 marks)

b) Discuss, with reference to the literature, the available treatments for the management of FIP. (10 marks)

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

a) Describe the treatment options available for the management of ureteral obstruction in the cat. In your answer, include discussion of the rationale for use, relative merits, prognosis, long-term outcome and the potential complications of each treatment option. (30 marks)

b) Briefly describe and justify the rationale for the following diagnostic tests in evaluating a nine-year-old, female, neutered domestic shorthair cat with suspected ovarian remnant syndrome.

i vaginal cytology (1 mark)

ii measurement of oestradiol levels (1 mark)

iii abdominal ultrasound. (1 mark)

Question 4 continued over page

- c) Answer the following, with reference to feline osteoarthritis:
- i Describe the typical historical and physical examination findings. *(5 marks)*
 - ii Describe and justify a rational diagnostic approach to a cat with suspected osteoarthritis. *(3 marks)*
 - iii Describe your approach to treatment of feline osteoarthritis, using the available literature to justify your choices. *(7 marks)*

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

- a) Describe the expected clinicopathological and ultrasonographic changes seen in cats with small cell alimentary lymphoma. In your answer reference the available literature. *(8 marks)*
- b) Describe and justify the diagnostic approach to a patient with suspected small cell alimentary lymphoma (SCL). Include in your answer a description of the results that would indicate a diagnosis of SCL, rather than inflammatory bowel disease (IBD), and discuss the limitations of these diagnostic techniques. *(30 marks)*
- c) Compare and contrast the treatment options available for the management of IBD and SCL. Justify the approach to the management of each of these conditions, using the available literature. *(10 marks)*

End of paper