



# Australian and New Zealand College of Veterinary Scientists

## Membership Examination

June 2021

## Medicine and Surgery of Unusual Pets

### 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 and Surgery of Unusual Pets

**Answer all four (4) questions**

1. For each of the **three (3)** drugs in the species listed below:
  - i. List the type/class of medicine. *(1 mark)*
  - ii. Outline the mode of action. *(2 marks)*
  - iii. Give the recommended route of administration, dosage and frequency. *(2 marks)*
  - iv. Describe a clinical indication where this medicine would be appropriate. *(2 marks)*
  - v. Describe any contraindications and/or side effects of the medicine. *(3 marks)*
  
- a) Amikacin in snakes. *(10 marks total)*
  
- b) Medetomidine in rabbits. *(10 marks total)*
  
- c) Butorphanol in ferrets. *(10 marks total)*

**Continued over page**

2. A year seven teacher wished to house a Darwin carpet python (*Morelia spilota variegata*) in the biology classroom. The teacher of this subject has not cared for snakes before and has come to you seeking advice regarding the keeping of this specimen.

Answer **all** parts of this question:

- a) Describe the appropriate housing set up for this species, when kept in an indoor environment. (10 marks)
  - b) Discuss the nutritional requirements for this species, including appropriate prey items and feeding schedules. (8 marks)
  - c) List **four (4)** potential zoonotic diseases which could be associated with keeping this species. (4 marks)
  - d) Briefly discuss appropriate handling of this species, including biosecurity in your discussion. (8 marks)
3. Describe appropriate management of each of the following presentations. Include in your response any physiological considerations relevant to bone healing in each species:
- a) A closed and minimally displaced transverse fracture in the distal tibia in a two-month-old guinea pig. (*Cavia porcellus*). (10 marks)
  - b) A closed mid-shaft oblique fracture of the femur in a four-year-old adult coastal bearded dragon. (*Pogona barbata*). (10 marks)
  - c) An open and comminuted distal forelimb fracture in an axolotl (*Ambystoma mexicanum*). (10 marks)

**Continued over page**

4. Outline a recommended protocol for the diagnosis, treatment and prevention of each of the following parasitic conditions:
- a) *Eimeria* infection in a group of breeding rabbits housed outdoors. (10 marks)
  - b) *Strongyluris paronai* infection in a colony of 10 frillneck lizards (*Chlamydosaurus kingii*). (10 marks)
  - c) *Ophionyssus natricis* infection in a snake collection. (10 marks)

**End of paper**



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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 and Surgery of Unusual Pets

**Answer all four (4) questions**

1. For each of **three (3)** species scenarios listed below, describe the anatomical approach for ultrasonographic examination, including the structures viewed through the sonography window. Describe how the anatomy of these species can interfere with performing the study and strategies to overcome these limitations to improve the image obtained:
  - a) Coelom of a long neck turtle (*Chelodina longicollis*). (10 marks)
  - b) Coelom of a green tree frog (*Litoria caerulea*). (10 marks)
  - c) Abdomen of a guinea pig (*Cavia porcellus*). (10 marks)
  
2. For the following **two (2)** diseases:
  - a) Atadenovirus in central bearded dragons (*Pogona vitticeps*):
    - i. Describe the pathophysiology of the disease condition, as it relates to the clinical signs of the disease. (6 marks)
    - ii. Discuss the appropriate samples to collect in order to confirm the presence of the disease, and outline the tests that will be performed on these samples. Your answer should include the limitations of the recommended tests. (6 marks)
    - iii. Briefly discuss strategies for the prevention of this disease. (3 marks)

**Question 2 continued over page**

b) Tyzzer's disease in rats (*Rattus norvegicus*):

- i. Name the causative agent. (1 mark)
- ii. Describe the pathophysiology of the disease condition, as it relates to the clinical signs of the disease. (6 marks)
- iii. Discuss the appropriate samples to collect in order to confirm the presence of the disease, and outline the tests that will be performed on these samples. Consider in your answer, the limitations of the tests recommended. (6 marks)
- iv. Briefly discuss strategies for the prevention of the disease. (2 marks)

3. A five-year-old, female, entire inland bearded dragon (*Pogona vitticeps*) has presented due to an inability to climb to the upper branches of her enclosure, where her radiant heat source is located. Her owner is concerned that she is not able to warm herself, and that this has decreased her appetite and willingness to mate with her cage mate.

On physical examination, she is underweight with a body condition score of 3/9, and has notably swollen joints on her distal limbs. The swellings are firm and round, and the joints have decreased range of motion on flexion and extension.

The owner has consented to the collection of blood for haematological and biochemical analysis, and the results are shown below:

#### Haematology

Parameter	Result	Reference interval
PCV	<b>55%</b>	33–45%
RBC	1.6	1.2–1.8 x 10 <sup>12</sup> /L
Hb	100	90–120 g/L
MCV	240	235–330 fL
MCHC	270	250–310 g/L
WBC	<b>30</b>	8–25 x 10 <sup>9</sup> /L
Heterophils	<b>15</b>	11–14%
Lymphocytes	68	65–70%
Monocytes	<b>12</b>	7–9%
Eosinophils	1	0.5–2%
Basophils	3	3–4%
Azurophils	1	0–1%

**Question 3 continued over page**

### Biochemistry

Parameter	Result	Reference interval
ALKP	<b>95</b>	25–90 IU/L
ALT	<b>92</b>	5–90 IU/L
AST	<b>150</b>	10–100 IU/L
Total bilirubin	40	5–50 µmol/L
Uric acid	<b>1650</b>	50–400 µmol/L
Cholesterol	8	5–9 mmol/L
Glucose	7	3.5–8.9 mmol/L
Calcium	3.5	2.5–3.5 mmol/L
Phosphorus	<b>4</b>	1–3 mmol/L
Potassium	<b>8</b>	3–6 mmol/L
Sodium	160	150–170 mmol/L
Chloride	120	115–130 mmol/L
Total Protein	<b>80</b>	50–75 g/L
Albumin	<b>42</b>	15–30 g/L
Globulin	50	28–52 g/L
A:G ratio	0.91	0.3–1

Answer **all** parts of question 3:

- Interpret the abnormalities displayed on these blood tests and briefly discuss the significance and limitations of each abnormal parameter in this species. *(15 marks)*
- List the top **three (3)** most likely differential diagnoses. *(3 marks)*
- List **three (3)** further diagnostic tests you would like to employ to further work up this case and briefly describe your expected result for each test. *(6 marks)*
- Discuss appropriate treatment of this patient. *(6 marks)*

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4. A client has asked you to castrate their male sugar glider.

Answer **both** parts of this question:

- a) Outline how you will house and feed this animal in the clinic during its stay.  
*(10 marks)*
  
- b) Describe how you will anaesthetise the patient and perform the castration. In your answer discuss how the size of the patient will influence your decisions.  
*(20 marks)*

**End of paper**