# Australian and New Zealand College of Veterinary Scientists

# Membership Examination

June 2019

# Small Animal Surgery

# Paper 1

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

Answer **ALL <u>FOUR (4)</u>** questions

Answer **<u>FOUR (4)</u>** questions, each worth 30 marks..... Total: 120 marks

# Paper 1: Small Animal Surgery

**Answer all four (4) questions**

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

   a) State the most common reported signalment of cats that are diagnosed with idiopathic megacolon. Name **two (2)** additional causes, other than idiopathic, of feline megacolon. *(2 marks)*

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

      i. List and justify appropriate immediate treatments for managing a cat presenting for the first time with feline megacolon. *(2 marks)*

      ii. Briefly discuss appropriate longer term **medical** management options for feline megacolon. *(3 marks)*

   c) Describe the blood supply to the terminal ileum, caecum, colon and rectum in the cat. You may use an appropriately labelled diagram. *(6 marks)*

   d) Describe the physiological benefit of preserving the ileocolic junction when performing a subtotal colectomy. Include in your answer the consequences of removal of the ileocolic junction. *(2 marks)*

   e) State **two (2)** reasons why resection of the ileocolic junction may be necessary when performing a subtotal colectomy in cats with idiopathic megacolon. *(2 marks)*

   f) Describe the healing of the colon and include an appropriate timeline for the healing process. State how this healing differs from that of the small intestine. *(6 marks)*

   g) Name **three (3)** methods that can be used to overcome luminal disparity when performing an ileocolic anastomosis. *(3 marks)*

   h) Name **two (2)** alternative methods of closure for colocolonic or ileocolonic anastomosis **other than** a hand-suture pattern. State a potential advantage and a potential disadvantage for each method. *(4 marks)*

**Continued over page**

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

a) Describe the findings expected on neurological examination of a patient with an L4 to S3 myelopathy. In your answer, state the spinal segments being tested when evaluating the spinal reflexes. *(10 marks)*

b) Briefly explain the phenomenon 'pseudohyperreflexia' which may occur in an L4 to S3 myelopathy. *(2 marks)*

c) Briefly explain the difference between the anatomic pathways involved in the withdrawal response and nociception, including how these differences are recognised during neurological evaluation. *(2 marks)*

d) Briefly describe the modified Frankel grading system for dogs with spinal cord injury. *(2 marks)*

e) Explain why the loss of deep pain perception in dogs with intervertebral disk disease (IVDD) is associated with a poor prognosis. *(3 marks)*

f) Briefly describe **one (1)** proposed aetiopathogenesis of fibrocartilaginous embolism (FCE). *(2 marks)*

g) Briefly describe the most common signalment and clinical presentation for a dog with a FCE. *(6 marks)*

h) List **two (2)** poor prognostic indicators for dogs diagnosed with FCE. *(2 marks)*

i) Name **one (1)** syndrome in dogs that closely mirrors FCE in its clinical presentation. *(1 mark)*

**Continued over page**

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

a) Describe how the extent and severity of burns are classified. *(6 marks)*

b) Name and describe the defined zones of a thermal burn. *(4 marks)*

c) Describe the local inflammatory response to severe thermal burns and the systemic implications of this response. *(20 marks)*

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

a) Elbow dysplasia is a common inherited condition causing forelimb lameness in dogs. List the **five (5)** developmental abnormalities commonly associated with elbow dysplasia. In your answer, indicate which is the most common disease process. *(3 marks)*

b) Identify **one (1)** other developmental condition of the canine elbow that has not been included in the previous answer and state a breed commonly thought to be susceptible. *(1 mark)*

c) Draw a transverse, cross-sectional line drawing of the radius and ulna at the level of the distal articular surface of the elbow joint. Label in your drawing the following: *(4 marks)*

- medial and lateral orientation
- medial coronoid process
- lateral coronoid process
- the articulation of the ulna with the radius
- the radial incisure
- the position of the biceps tendon.

d) Describe the proposed aetiopathogenesis and pathophysiology of medial coronoid process disease *(10 marks)* and the concurrent changes that can be seen on the medial humeral condyle *(4 marks)*.

**Question 4 continued over page**

e) Name the grading system for the arthroscopic evaluation of cartilage pathology and briefly describe the grades. *(4 marks)*

f) List **eight (8)** surgical techniques that are used for management of medial elbow compartment disease. For each surgical technique, state whether it is likely to be used in the early (young dog) or late stage (older dog), or both. *(4 marks)*

**End of paper**

# Australian and New Zealand College of Veterinary Scientists

# Membership Examination

June 2019

# Small Animal Surgery

# Paper 2

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

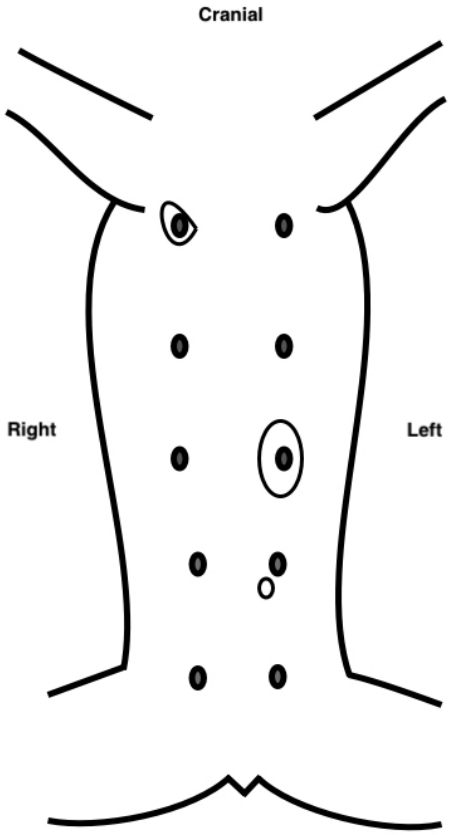
Answer **ALL <u>FOUR (4)</u>** questions

Answer **<u>FOUR (4)</u>** questions, each worth 30 marks..... Total: 120 marks

# Paper 2: Small Animal Surgery

**Answer all four (4) questions**

1. An 11-year-old, entire female English setter presents for evaluation of a 6 cm mass associated with the left third mammary gland (left cranial abdominal). On physical examination, a 1 cm mass in the left caudal abdominal mammary gland and a 2 cm centrally located mass in the right cranial thoracic mammary gland, were also identified. The masses are shown in the diagram below.




Answer **all** parts of this question:

a) List and briefly justify appropriate pre-operative diagnostic investigations of a dog with a mammary tumour. *(5 marks)*

b) Describe the lymphatic drainage of the canine mammary glands. *(4 marks)*

**Question 1 continued over page**

c) List the clinical features that would suggest the mammary tumour is malignant. *(2 marks)*

d) List **five (5)** common, **distant** metastatic sites for mammary neoplasia. *(2 marks)*

e) Briefly discuss hormonal influences on mammary tumour development. *(4 marks)*

f) List the surgical procedures available for resection of mammary tumours. *(2 marks)*

g) State the most appropriate surgical procedure for management of the **left cranial abdominal** mammary gland mass in this patient. Provide justification for your answer. *(4 marks)*

h) State the most appropriate surgical procedure for management of the **right cranial thoracic** mammary gland mass in this patient. Provide justification for your answer. *(2 marks)*

i) List the prognostic factors known to affect the outcome for malignant mammary tumours in dogs. Also list the factors that have been shown **not** to affect the prognosis. *(4 marks)*

j) Name **one (1)** mammary tumour for which surgery is contraindicated. *(1 mark)*

**Continued over page**

2. A three-year-old, male neutered Kelpie presents with a non-weight-bearing lameness of the right thoracic limb. The patient is of normal mentation with normal general physical examination findings and is haemodynamically stable. Orthopaedic examination reveals suspected right elbow luxation.

Answer **all** parts of this question:

a) Describe the pathophysiology of traumatic elbow luxation in dogs. Your answer should reference the functional anatomy of the elbow and its relation to the frequency of occurrence and the direction of the luxation. *(4 marks)*

b) Describe typical physical examination and radiographic findings of traumatic elbow luxation associated with the most common direction of elbow luxation state. *(6 marks)*

c) Discuss, in detail, all available options for the management of traumatic elbow luxation, including aftercare. *(14 marks)*

d) Identify relevant prognostic factors and discuss the prognosis for return to normal function in patients with traumatic elbow luxation. *(3 marks)*

e) Briefly describe a Monteggia fracture and how it is most often treated. Discussion of specific fracture classification is **not** required in this response. *(3 marks)*

**Continued over page**

3. A four-year-old female desexed Doberman presents to your practice with a several-week-history of leaking urine when relaxed or sleeping. The owners report otherwise-normal urination and the remainder of her full clinical history reveals no abnormalities. The patient's water consumption is normal.

Answer **all** parts of this question:

a) List all differential diagnoses for this presentation. *(4 marks)*

b) List the further, specific clinical examination and diagnostic investigations indicated in this case, and indicate how each test would assist in reaching a final diagnosis. Assume complete haematology and serum biochemistry are normal. *(9 marks)*

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

i. Briefly describe the anatomic and functional abnormalities proposed to be involved with urethral sphincter mechanism incompetence (USMI). *(2 marks)*

ii. List **two (2)** medications commonly used in treatment of USMI and state their mechanism of action. *(1 mark)*

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

i. List **four (4)** surgical procedures described in the treatment of urethral sphincter mechanism incompetence. *(2 marks)*

ii. Select **one (1)** procedure from the list in d i) to discuss in detail. In your discussion, make reference to: *(12 marks)*

- important surgical and anatomic considerations
- the mechanism by which the technique improves clinical signs
- potential complications
- prognosis.

**Continued over page**

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

a) A three-year-old Labrador is presented immediately following a road traffic accident. Radiographs reveal that the patient has sustained a mid-diaphyseal, closed, minimally comminuted single large butterfly fragment, caudally displaced left femoral fracture. In relation to this fracture:

i. List the forces acting across this fracture that must be neutralised during surgical repair. *(2 marks)*

ii. Define interfragmentary strain. *(2 marks)*

iii. For each of the fracture repair planning approaches: 'open anatomic reconstruction' and 'biological osteosynthesis', state the intended effect on both fracture gap and interfragmentary strain. *(4 marks)*

iv. Provide **two (2)** questions specifically relating to this fracture configuration that should be considered to determine whether to plan the repair as an 'open anatomic reconstruction' procedure, or a 'biological osteosynthesis' procedure. *(2 marks)*

v. List **three (3)** appropriate internal fixation techniques for repair of this fracture. For each technique, state whether this is a planned 'biological osteosynthesis' procedure or an 'open anatomic reconstruction' procedure. *(6 marks)*

vi. List the **two (2)** general causes of delayed fracture healing or non-unions and provide **two (2)** specific examples of each. *(4 marks)*

b) A 10-year-old Border collie is presented for persistent hindlimb lameness after undergoing a right femoral fracture repair 16 weeks ago. Radiographs show reduced radiopacity of bone proximal and distal to the previous short-oblique fracture. The fracture appears to have been repaired with a lateral dynamic compression plate and a single cerclage wire applied at the level of the fracture. At this point, you are concerned about the development of a dystrophic or early atrophic non-union.

Discuss a specific surgical plan, including each technique to be performed during surgery that would maximise the chance of attaining bone union in this patient. Justify each technique by discussing its intended effect on promoting bone healing. *(10 marks)*

**End of paper**