



# Australian and New Zealand College of Veterinary Scientists

## Membership Examination

June 2017

## Small Animal Surgery 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: Small Animal Surgery

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## Answer all four (4) questions

1. Answer **all** parts of this question:
  - a) Briefly describe **four (4)** biopsy methods used to collect tissue for diagnosis of a solid skin or subcutaneous tumour. *(8 marks)*
  - b) List **four (4)** sampling techniques for diagnosis of a primary bone tumour. List an advantage **and** disadvantage of **each** technique. *(8 marks)*
  - c) Solid tumours can be removed along with different margins/amount of the surrounding tissue. List and briefly describe **four (4)** levels of surgical aggressiveness (or surgical dose) that can be applied to the removal of a solid tumour. *(8 marks)*
  - d) State which surgical resection (extent or dose of treatment) technique is appropriate for curative-intent tumour resection? *(2 marks)*
  - e) Tumour margins are three-dimensional. Explain the term 'surgical margins'. Briefly describe the minimum surgical margins that are recommended for removal of a mast cell tumour **and** soft tissue sarcoma in a dog, (you can use a diagram to explain the tumour margin). *(4 marks)*

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2. Answer **all** parts of this question:
- a) List and briefly describe the **four (4)** classifications of surgical wounds, in terms of their level of contamination. *(8 marks)*
  - b) In a clean orthopaedic surgical procedure, what genus of bacteria is the primary consideration for antibiotic use? *(2 marks)*
  - c) What type of bacteria is of most concern when operating in the large intestine? *(2 marks)*
  - d) List **two (2)** antibiotics or antibiotic combinations that would have suitable spectrum of activity for procedures involving the large intestine. *(4 marks)*
  - e) Describe an appropriate prophylactic antibiotic regime for an elective orthopaedic procedure (e.g. tibial-plateau-levelling osteotomy - TPLO). Your answer should include: *(6 marks)*
    - the name of the antibiotic
    - route of administration
    - dose
    - timing of the initial dose
    - frequency and duration of administration.
  - f) Provide a rationale for the timing described in question 2 e). *(2 marks)*
  - g) List the factors reported to significantly increase the risk of surgical site infection. *(6 marks)*

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

- a) Give a brief definition for the following modes of bone plate application, and, describe a clinical scenario for **each** in which it may be used. You may provide diagrams if you wish:
- i. neutralisation plating (3 marks)
  - ii. bridge plating (3 marks)
  - iii. buttress plating. (3 marks)
- b) Briefly describe the mechanism for how a bone screw may lock into a plate. (1 mark)
- c) Discuss the mechanism of load transfer for both a locking plate system and a conventional non-locking plate system. You may use a diagram if you wish. (12 marks)
- d) Compare the advantages **and** disadvantages of locking plate systems and conventional non-locking plate systems. (8 marks)

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

- a) Use a diagram to illustrate the anatomy of the liver lobes, gall bladder and important vasculature of the hepatobiliary tract. (5 marks)
- b) Use a diagram to illustrate the anatomy of the extrahepatic biliary system in the dog. (5 marks)
- c) Briefly describe the main anatomical difference of the biliary and pancreatic ductal anatomy between the cat **and** the dog. (3 marks)
- d) List **three (3)** conditions that can lead to bile peritonitis. (3 marks)
- e) Describe the pathophysiology of bile peritonitis. In your answer include the factors that influence prognosis or morbidity. (14 marks)

**End of paper**



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## Paper 2

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Answer **ALL FOUR (4)** questions

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# Paper 2: Small Animal Surgery

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Answer all four (4) questions

1. An eight-year-old entire German shepherd dog presented with a history of straining to urinate. On presentation, the dog is depressed, has pale mucous membranes, capillary refill time (CRT) is delayed and the peripheral pulses are weak. A swelling can be palpated in the right perineal region.

Perineal hernia is a possible differential diagnosis in this case.

Answer **all** parts of this question:

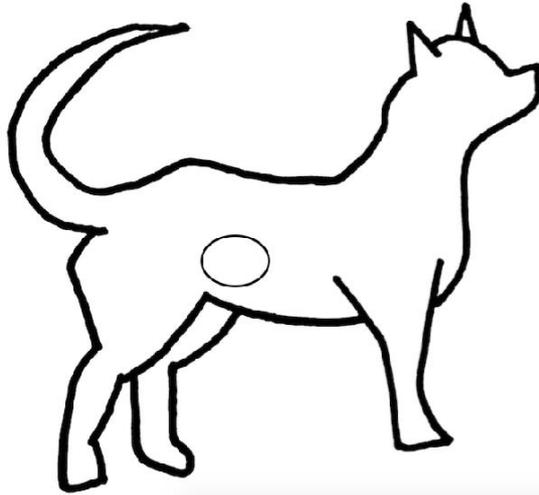
- a) List **three (3)** other possible differential diagnoses for straining to urinate. *(3 marks)*
- b) This particular patient has a perineal hernia with bladder retroflexion. Describe (in point form) your immediate approach to emergency stabilisation for this patient. *(6 marks)*
- c) List **two (2)** proposed aetiologies for perineal hernia in the dog. For **each** aetiology, briefly describe how it may lead to perineal herniation. *(6 marks)*
- d) List **five (5)** surgical techniques that have been employed for the treatment of perineal hernia in dogs. *(5 marks)*
- e) List **five (5)** possible complications of perineal hernia repair. For **each** complication, discuss briefly how you could minimise the risk of this complication. *(10 marks)*

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2. Large traumatic wounds are common in small animal practice and sometimes these wounds are able to be closed primarily.

Answer **all** parts of this question:

- a) If primary closure is considered a good option, describe **two (2)** techniques you could use to eliminate dead space. (8 marks)
- b) Briefly describe **two (2)** surgical techniques that could be used to relieve tension on a suture line. (6 marks)
- c) A four-year-old Maltese terrier presents to you post dog-attack, with a large traumatic wound over his caudal lateral abdomen, as shown in the diagram. There is no involvement with the abdominal cavity. Primary closure is not an option in this case due to the size of the defect.



Answer **all** sub-parts of question 1 c):

- i. Name an axial pattern flap that could be used to repair this defect **and** describe the anatomical landmarks of the flap base. (2 marks)
- ii. List **two (2)** advantages of axial pattern flaps over other types of wound closure. (2 marks)
- iii. Outline **four (4)** reasons why axial pattern flap necrosis can occur. (8 marks)
- iv. Briefly describe how the delay phenomenon can be utilised to increase the viability of axial pattern flaps. (4 marks)

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3. You are presented with a male four-year-old working Border collie dog that has a closed mid-diaphysis comminuted fracture of the right femur. The injury was sustained jumping down from the back of a utility vehicle. Physical and radiographic examinations reveal no other injuries. You elect to stabilise the fracture with an intramedullary (IM) pin and bone plate.

Answer **all** parts of this question:

- a) Discuss possible advantages **and** disadvantages to using an IM pin and plate combination in this case. *(10 marks)*
- b) Describe the difference between normograde and retrograde application of IM pins. With reference to this case, describe which method you would select **and** justify your answer. *(5 marks)*
- c) When using a combined IM pin and plate fixation method, what percentage of the intramedullary cavity can the pin accommodate? *(2 marks)*
- d) You compliment your fracture fixation with an autogenous cancellous bone graft. Discuss the biological functions of a cancellous bone graft in fracture repair. *(10 marks)*
- e) Give **three (3)** examples of locations the bone graft may be harvested from in this case. *(3 marks)*

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4. A five-year-old Burmese cat is presented to your clinic with open mouth breathing. On thoracic auscultation the heart and lung sounds are muffled. Thoracic radiography reveals a bilateral pleural effusion.

Answer **all** parts of this question:

- a) In table form, list the types of pleural effusion, then for **each** type briefly describe the effusion characteristics and provide **one (1)** potential differential diagnosis. *(16 marks)*
- b) Nominate **and** briefly describe the most appropriate diagnostic test that should be performed next in this case. *(2 marks)*
- c) Your diagnostic test identifies the effusion as an exudate containing predominantly neutrophils. Based on this information state the **most** likely diagnosis for this cat. *(1 mark)*
- d) Part of your treatment plan involves placing a unilateral chest drain. Describe the technique for surgical placement of a chest drain. *(9 marks)*
- e) When managing pyothorax, give **two (2)** examples when further surgical intervention is indicated. *(2 marks)*

**End of paper**