



Australian and New Zealand College of Veterinary Scientists

Fellowship Examination

June 2016

Small Animal Surgery Paper 1

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

Time allowed: **Three (3)** hours after perusal

Answer **ALL FOUR (4)** questions

All four questions are of equal value.

Answer **FOUR** questions each worth 45 markstotal 180 marks

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Paper 1: Small Animal Surgery

Answer all four (4) questions

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

- a) Regarding volatile anaesthetic agents, define minimal alveolar concentration (MAC) and list **six (6)** factors that are clinically significant in reducing MAC in small animals. *(6 marks)*
- b) Define and describe the 'Cushings reflex' and describe the pathophysiological events that lead to its clinical manifestation. *(11 marks)*
- c) Explain how intracranial pressure is normally regulated **and** briefly discuss the effects of changing blood concentrations of carbon dioxide and oxygen on cerebral blood flow and intracranial pressure. *(8 marks)*
- d) Discuss the anaesthetic considerations and recommendations for a two-year-old cross-breed dog undergoing surgical placement of a ventriculo-peritoneal shunt. Include in your answer a commentary on the effects of the intravenous and inhalational anaesthetic agents cited in your answer on cerebral blood flow and intracranial pressure. *(20 marks)*

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

- a) Define the terms biofilm and glycocalyx, and describe the stages of biofilm formation in the context of surgical implants. *(10 marks)*
- b) Describe how biofilms potentiate orthopaedic implant related infection and impede effective treatment. *(10 marks)*
- c) Compare and contrast modes of failure between locking and non-locking bone plate systems employed for diaphyseal fracture fixation in a non-load sharing situation. *(15 marks)*
- d) With reference to the literature, describe how plate length, screw selection and screw placement influence the biomechanics of locking plate-bone constructs in a non-load sharing situation. *(10 marks)*

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

- a) The local effect of a full thickness cutaneous burn injury may be classified on a zonal basis. Name and briefly describe the characteristics of **each** zone. *(5 marks)*
- b) Discuss the systemic pathophysiological effects of significant exposure to a domestic house fire resulting in full thickness burn injury to over 25% of body surface area. Restrict your answer to respiratory, cardiovascular, metabolic, haematopoietic, electrolytic and body fluid effects. *(22 marks)*
- c) Outline the initial management and treatment protocol for a patient presenting following exposure to a house fire with significant burn injuries. Restrict your answer to the first 48 hours following presentation. *(18 marks)*

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

- a) Define the 'sentinel lymph node' as applied to an oncologic patient. *(3 marks)*
- b) Briefly discuss the concept and principles of sentinel lymph node mapping in oncologic patients. *(10 marks)*
- c) Discuss **three (3)** methods of identifying sentinel lymph nodes in veterinary patients. *(12 marks)*
- d) Explain why additional information might be sought to clarify the prognosis for an incisional biopsy specimen for which a diagnosis of canine mast cell tumour (Patnaik grade II) is returned, and discuss with reference to the literature **three (3)** additional markers that may be of prognostic value. *(20 marks)*

End of paper



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Paper 2

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All four questions are of equal value.

Answer **FOUR** questions each worth 45 markstotal 180 marks

Paper 2: Small Animal Surgery

Answer all four (4) questions

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

- a) Discuss the clinical pathology and imaging options for diagnostic investigation of a patient with a suspected adrenal mass. Include in your answer tests that can be used to differentiate a cortisol secreting adrenal cortical tumour and a pheochromocytoma. *(15 marks)*
- b) Briefly contrast the typical biologic behaviour of canine cortisol secreting adrenal cortical tumours and pheochromocytoma. *(5 marks)*
- c) Discuss how the gross anatomy of the canine adrenal glands and surrounding structures, together with the biologic behaviour of adrenal tumours, can influence surgical resection. *(5 marks)*
- d) Describe the reported operative and perioperative complications and the anaesthetic management considerations for both a pheochromocytoma and a cortisol secreting adrenal cortical tumour treated via an open surgical approach. *(20 marks)*

2. Discuss, with reference to the literature where appropriate, **each** of the following:

- a) Clinicopathological and peritoneal fluid analysis findings in relation to the diagnosis and management of septic peritonitis in dogs and cats. *(19 marks)*
- b) Antibiotic use and selection in the management of septic peritonitis. *(8 marks)*
- c) Surgical options, following primary repair of the underlying lesion, to minimise morbidity and mortality in a patient with septic peritonitis secondary to a leaking intestine. *(13 marks)*
- d) Prognostic factors and prognosis for septic peritonitis in dogs and cats. *(5 marks)*

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

- a) Describe the pathogenesis and pathophysiologic changes that can occur with degenerative lumbosacral stenosis. *(15 marks)*
- b) Describe the abnormalities typically identified on neurological examination of a patient with degenerative lumbosacral stenosis. *(7 marks)*
- c) Describe how you would perform the 'lordosis test' and explain why this test is used in assessment of patients with degenerative lumbosacral disease. *(3 marks)*
- d) Computed tomography (CT) and magnetic resonance imaging (MRI) are commonly used for the evaluation of patients with degenerative lumbosacral stenosis. Briefly discuss the limitations of these imaging modalities with respect to diagnosis of this condition. *(5 marks)*
- e) With reference to the literature, discuss the treatment options, prognostic factors and reported outcomes for patients with degenerative lumbosacral stenosis. *(15 marks)*

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

- a) List the anatomic and patient risk factors reported to contribute to the pathogenesis of canine urethral sphincter mechanism incompetence and, with reference to the literature, discuss how **four (4)** of the listed factors are proposed to contribute to urinary incontinence. *(15 marks)*
- b) Describe the key components of the urethral pressure profile and how these relate to a diagnosis of canine urethral sphincter mechanism incompetence. *(5 marks)*
- c) With reference to the literature, briefly describe **four (4)** surgical treatment options for correction of urethral sphincter mechanism incompetence in bitches **and** discuss the expected outcomes and potential complications of **each** selected option. *(25 marks)*

End of paper