



Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2021

Veterinary Anaesthesia and Analgesia 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 markstotal 120 marks

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Paper 1: Veterinary Anaesthesia and Analgesia

Answer all four (4) questions

1. Breathing systems are broadly classified into two main categories - rebreathing and non-rebreathing.

Answer **all** parts of this question:

- a) Name **one (1)** type of breathing circuit in each category. (2 marks)
- b) Compare how non-rebreathing and rebreathing systems prevent the rebreathing of expired gas (particularly expired carbon dioxide). (15 marks)
- c) Explain how the rebreathing of expired carbon dioxide can be recognised. (8 marks)
- d) Draw a capnography trace which would be expected to be seen if rebreathing occurred. (5 marks)

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

- a) Discuss the advantages and disadvantages of premedication in veterinary patients. (12 marks)
- b) List **four (4)** patient factors that influence the choice of drug(s) used for premedication in a patient. (8 marks).
- c) Compare and contrast the following **two (2)** drugs for induction in canine patients. Include in your answer the route(s) of administration and effects on the cardiopulmonary system: (10 marks)
 - i. Propofol
 - ii. Alfaxalone.

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

- a) List and discuss **three (3)** common causes of hypoventilation under general anaesthesia. *(15 marks)*
- b) List the indications for IPPV for patients under anaesthesia. *(5 marks)*
- c) Discuss the advantages and disadvantages of IPPV in veterinary patients. *(10 marks)*

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

- a) Briefly discuss any potential short and long-term effects of occupational exposure to gaseous anaesthetics. *(5 marks)*
- b) List ways of minimising personnel exposure to inhalant anaesthesia gas. *(10 marks)*
- c) Define active and passive scavenging systems and explain the advantages and disadvantages of each. *(15 marks)*

End of paper



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Paper 2

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Paper 2: Veterinary Anaesthesia and Analgesia

Answer all four (4) questions

1. Multi-modal analgesia is an important concept in pain management.

Answer **all** parts of this question:

- a) Briefly define 'multi-modal analgesia'. (2 marks)

- b) Discuss perioperative clinical pain management options using this concept in the following scenarios. Include in your answer specific drugs and/or techniques you would use:
 - i. lateral thoracotomy in a dog (10 marks)

 - ii. femoral fracture in a cat. (10 marks)

- c) Describe briefly how you would assess pain in **both** scenarios of the previous question. (8 marks)

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2. A 12-month-old rabbit is to be anaesthetised for castration.

Answer **all** parts of this question:

- a) List and give details regarding **four (4)** patient-related anaesthetic considerations for this case. *(8 marks)*
 - b) Describe **three (3)** approaches to airway management for rabbits. *(9 marks)*
 - c) Briefly discuss your drug choices for anaesthesia for this patient and justify your decisions. *(9 marks)*
 - d) List **four (4)** considerations for recovery of this rabbit. *(4 marks)*
3. A three-year-old Thoroughbred stallion presents with a traumatic injury to the distal left foreleg. The horse requires general anaesthesia for exploration and debridement of the wound.

Answer **all** parts of this question:

- a) Describe an appropriate approach to premedication of this horse. *(6 marks)*
- b) List and briefly describe **four (4)** mechanisms of hypoxaemia in anaesthetised horses. *(8 marks)*
- c) Explain **two (2)** methods of monitoring blood oxygen levels in anaesthetised horses, providing **one (1)** advantage and disadvantage of each. *(6 marks)*
- d) Describe the methods that should be considered to prevent and manage hypoxaemia in anaesthetised horses. *(10 marks)*

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4. A 9-year-old, 20 kg, healthy crossbreed dog is undergoing a left tibial plateau levelling osteotomy (TPLO) procedure for a ruptured cruciate. The patient received acepromazine and methadone for premedication followed by induction of anaesthesia with intravenous alfaxalone maintenance with isoflurane in oxygen. The patient also received an epidural of preservative-free morphine and bupivacaine.

Answer **all** parts of this question:

- a) Define hypotension in dogs under general anaesthesia. *(4 marks)*
- b) List **three (3)** different methods of managing hypotension in this patient. *(6 marks)*
- c) Explain the mechanism by which each method outlined in 4 b) might improve blood pressure. *(20 marks)*

End of paper