

Australian College of Veterinary Scientists
Membership Examination

June 2010

Veterinary Pharmacology

Paper 1

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

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

Part A: Answer the **one (1)** compulsory question

Part B: Answer **three (3)** from the four questions **only**

All questions are of equal value.

Subsections of questions are of equal value unless stated otherwise.

Paper 1: Veterinary Pharmacology

PART A:

You must answer this compulsory question.

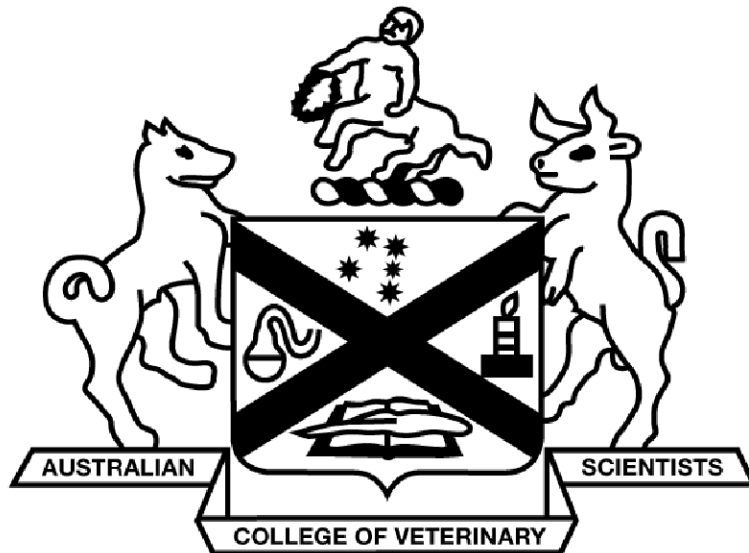
1. Answer **three (3)** of the following:
 - a) Outline the impact of inflammation and fever on absorption and distribution of an orally administered drug.
 - b) Describe the mechanisms of resistance to beta lactam antibiotics.
 - c) Explain the meaning of extraction ratios with respect to hepatic clearance.
 - d) Outline the mechanisms of action of vaccine adjuvants.
 - e) Explain type 1 and type 2 errors in statistical significance and factors influencing the occurrence of these errors.
 - f) Discuss the complications of anti-cancer chemotherapy.

PART B:

Answer **three (3)** of the following four questions:

2. Discuss the patterns of use, mode of action and active constituents of local anaesthetic agents. Include reference to use of other active constituents to modify the efficacy and safety of local anaesthetics for particular applications.
3. Discuss the principles of Good Clinical Practice Guidelines for the conduct of trials to provide data supporting the target animal safety and efficacy in the registration of a new veterinary medicine.
4. Using log concentration (X axis) vs. effect (Y axis) curves for a hypothetical drug, discuss **each** of the following:
 - a) potency
 - b) antagonism: competitive and non-competitive
 - c) partial agonists.In **each** case provide clinical examples to further illustrate your answers.
5. Discuss the factors that can influence variability in efficacy and toxicity between species or between breeds within a species. Illustrate your answer with clinical examples where appropriate.

End of paper



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Paper 2

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

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

Part A: Answer the **one (1)** compulsory question

Part B: Answer **three (3)** from the four questions **only**

All questions are of equal value.

Subsections of questions are of equal value unless stated otherwise.

Paper 2: Veterinary Pharmacology

PART A:

You must answer this compulsory question.

1. Answer **three (3)** of the following:
 - a) Outline strategies to overcome the challenges in provision of immunity to neonatal animals.
 - b) Discuss the clinical application of glucocorticoids in respiratory disease.
 - c) Discuss the use of a loading dose to achieve a desired concentration and factors influencing steady state concentration.
 - d) Explain the advice you would give a veterinarian regarding the prescribing of an unregistered veterinary medicine (answer considering the point of view of your local regulatory authority - please state which authority that is).
 - e) Discuss the factors you would consider in the design of a study to demonstrate bioequivalence in the registration of a new veterinary medicine.
 - f) Describe the use of macrocyclic lactone parasiticides with reference to their mode of action, spectrum and toxicity.

PART B:

Answer **three (3)** of the following four questions:

2. A veterinarian reports lack of success of therapy with an antibiotic despite the bacteria isolated from the patient being described by the lab as being 'sensitive' on a Kirby Bauer disk diffusion assay. Discuss the factors that could influence the success of this therapy in **either** a cat with respiratory disease **or** a cow with mastitis treated with a systemic (injectable) antibiotic.
3. A colleague asks for advice on creating a kit to be maintained in their practice for dealing with poisonings in companion animals. Discuss what you might include in the kit for the purposes of prevention of further absorption of toxins and enhancement of elimination. Also to be included in the kit are specific antidotes. List specific antidotes for **three (3)** toxicoses and give a brief description of the mode of action of these antidotes.

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4. Discuss options for therapy **of three (3)** of the following conditions:
- a) staphylococcal pyoderma in a dog
 - b) pyometra (significant amounts of purulent material in the uterus and the presence of a corpus luteum on one ovary) in a dairy cow three weeks postpartum
 - c) acute, severe salmonellosis in a thoroughbred mare
 - d) osteoarthritis in a labrador retriever
 - e) hypertrophic cardiomyopathy in a cat.
5. A veterinarian asks you for assistance in designing a protocol for vaccine use in their practice. Using **either cats or cattle or horses** as an example, discuss the factors you would take into consideration in designing a protocol. Explain what other advice you would give to the veterinarian to ensure maximal efficacy of the vaccine.

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