

Australian College of Veterinary Scientists
Membership Examination

June 2010

Medicine of Zoo Animals

Paper 1

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

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

Answer **four (4)** from the six questions **only**.

All questions are of equal value.

Subsections of questions are of equal value unless stated otherwise.

Paper 1: Medicine of Zoo Animals

Answer four (4) from the six questions only.

1. Sedation and anaesthesia are frequently required to perform even minor procedures in some captive wild animals. Discuss the advantages, disadvantages, basic pharmacology and the indications and contraindications in the zoological setting of **three (3)** of the following anaesthetic/sedative drugs:
 - a) medetomidine hydrochloride
 - b) ketamine hydrochloride
 - c) alfaxalone
 - d) etorphine hydrochloride
 - e) tiletamine hydrochloride/zolazepam hydrochloride.

2. Effective quarantine represents the cornerstone of a sound preventative medicine program in the zoological setting. Outline a post-arrival quarantine program for **three (3)** of the following scenarios. Include in your answer information on duration of quarantine, diseases of concern, disease screening and interpretation of results and any preventative health treatments to be administered while in quarantine.
 - a) a mixed-sex group of six adult green-winged macaws
 - b) a single adult male chimpanzee
 - c) two sub-adult female New Zealand fur seals
 - d) three sub-adult reticulated pythons of unknown sex
 - e) a mixed-sex group of ten adult green tree frogs.

3. Compare and contrast the major anatomical and physiological differences between the renal systems of mammals, birds, reptiles and amphibians.

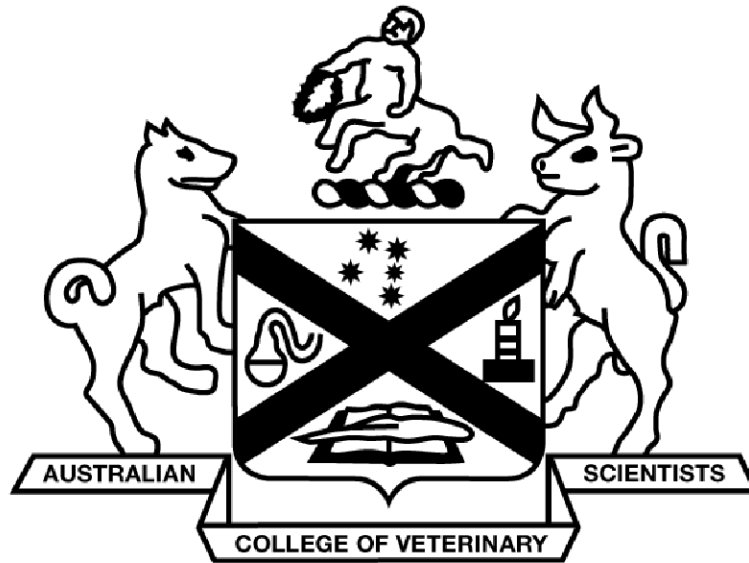
4. Discuss the available options for achieving contraception in zoo animals. Include in your answer pharmacological, surgical and physical means for achieving contraception and discuss the relative merits of **each**.

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5. Zoo veterinarians work with a diverse array of species and consequently are exposed to a potentially wide array of zoonotic diseases. Select **three (3)** zoonotic diseases associated with captive non-domestic animals. Discuss their epidemiology and the development of a preventative health program for staff.

6. Appropriate nutrition is vital to the successful maintenance of captive populations of wild animals. Discuss the role of the zoo veterinarian in the formulation of animal diets and their presentation to animals. Include in your answer **three (3)** species of animals that have specific nutritional requirements in captivity, and how these requirements can be met and problems avoided.

End of paper



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Paper 2

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Paper 2: Medicine of Zoo Animals

Answer four (4) from the six questions only.

1. Write notes on **four (4)** of the following:
 - a) clinical signs, pathology, diagnosis and prevention of mycobacteriosis in freshwater aquarium fish
 - b) clinical signs, pathology, diagnosis and prevention of hypovitaminosis A in captive anurans
 - c) clinical signs, pathology, diagnosis, treatment and prevention of *Chrysosporium* anamorph of *Nannizziopsis vriesii* (CANV) infection in lizards
 - d) nutrition of giant land tortoises
 - e) pathogenesis, clinical signs, pathology, treatment and prevention of bacterial stomatitis in captive snakes
 - f) transmission, clinical signs, pathology, diagnosis, treatment and prevention of chlamydiosis in captive crocodilians.

2. Write notes on **four (4)** of the following:
 - a) diagnosis and treatment of chlamydiosis in koalas
 - b) transmission, clinical signs, pathology, diagnosis, treatment and prevention of canine distemper in large felids
 - c) anaesthesia of pinnipeds
 - d) asymmetric reproductive aging in captive rhinoceros species
 - e) surveillance, treatment and control of gastrointestinal nematodiasis in captive artiodactyls
 - f) cardiovascular disease in captive gorillas.

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3. Write notes on **four (4)** of the following:
- transmission, clinical signs, pathology, diagnosis, prevention and significance of psittacid herpesviruses
 - provision of analgesia in avian patients
 - transmission, clinical signs, pathology, diagnosis, prevention and significance of West Nile virus infection in birds
 - common diseases of captive kiwis, their clinical signs, pathology, treatment and prevention
 - diagnosis of psittacine beak and feather disease virus
 - clinical signs, pathology, diagnosis, treatment and prevention of erysipelas in non-domestic birds.
4. Artificial insemination has become an invaluable tool in the attempt to establish self-maintaining captive elephant populations. Describe the steps required to achieve a successful birth, via artificial insemination, in a captive elephant.
- Your answer should include a discussion of **all** of the following:
- selection criteria for suitable candidates
 - the assisted reproductive technologies utilised
 - semen collection
 - timing of and approaches to insemination
 - management and monitoring of the dam through pregnancy and parturition
 - management of the neonate in the immediate period post parturition
 - potential complications.
5. Outline your approach to developing a plan for responding to the incursion of highly pathogenic avian influenza into a zoological collection containing birds of the orders *Psittaciformes*, *Gruiformes*, *Anseriformes*, *Falconiformes*, *Strigiformes* and *Passeriformes*. Your answer should include reference to the relevant authorities and legislation that would be considered in developing such a plan.
6. A zoo maintains a colony of 30 *Hamadryas* baboons of mixed age and sex. The animals have access to an outdoor exhibit with an earth substrate during the day and are housed in concrete-floored dens overnight. Describe your approach to the investigation, treatment and implementation of a disease prevention program following an outbreak of diarrhoea in this group.

End of paper