



Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2021

Medicine of Zoo Animals

Paper 1

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

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

Answer **ALL FOUR (4)** questions

Answer **FOUR (4)** questions, each worth 30 marks.....total 120 marks

© 2021 Australian and New Zealand College of Veterinary Scientists ABN 00 50 000894 208 This publication is copyright. Other than for the purposes of and subject to the conditions prescribed under the Copyright Act, no part of it may in any form or by any means (electronic, mechanical, microcopying, photocopying, recording or otherwise) be reproduced, stored in a retrieval system or transmitted without prior written permission. Enquiries should be addressed to the Australian and New Zealand College of Veterinary Scientists.

Paper 1: Medicine of Zoo Animals

Answer all four (4) questions

1. During a particularly hot summer, your state government environment department expresses concern that forecast heatwave conditions are likely to cause a heat stress event in the local, endangered, flying fox population. Your native fauna park has been asked to assist the government department in developing an action plan to protect this population.

Answer **all** parts of this question:

- a) Briefly describe the clinical signs of heat stress of flying foxes, including the temperatures which trigger a heat stress response. *(5 marks)*
 - b) Describe your approach to the treatment of a single, heat affected flying fox which presents to your clinic. *(5 marks)*
 - c) Describe the risk to human health that is associated with contact with flying foxes and briefly discuss the appropriate management of this risk (including exposure, prevention and first aid). *(5 marks)*
 - d) Provide appropriate advice to the government department on the prevention of heat stress in flying foxes during high heat conditions, at a population level, including the management of the health of people involved in the response. *(15 marks)*
2. For **all** of the following conditions, explain the clinical signs, pathophysiology, diagnosis and treatment:
- i. hypovitaminosis A in an aviary psittacine *(10 marks)*
 - ii. metabolic bone disease in a nocturnal amphibian *(10 marks)*
 - iii. iron storage disease in lemurs. *(10 marks)*

Continued over page

3. Answer **all** parts of this question:
- a) Name the aetiological agent responsible for psittacosis in birds and describe the clinical signs and diagnosis in birds, and considerations for humans exposed to this agent. (10 marks)
 - b) Describe an appropriate method of euthanasia of an aged captive Asian elephant (*Elephas maximus*), and describe **four (4)** logistical considerations in the planning of euthanasia and necropsy of the elephant. (10 marks)
 - c) Provide a list of **four (4)** differential diagnoses for an acute onset of lethargy, increased respiratory effort and coelomic distension in a captive Great hornbill (*Buceros bicornis*) and briefly outline your clinical approach to investigating the cause of clinical signs in this bird. (10 marks)
4. Compare and contrast the renal system of members of the Columbidae and Ursidae families. Include in your answer the basic anatomy of the renal system of each family, laboratory tests used to assess the system, and clinical signs of renal dysfunction. (30 marks)

End of paper



Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2021

Medicine of Zoo Animals

Paper 2

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

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

Answer **ALL FOUR (4)** questions

Answer **FOUR (4)** questions, each worth 30 marks.....total 120 marks

© 2021 Australian and New Zealand College of Veterinary Scientists ABN 00 50 000894 208 This publication is copyright. Other than for the purposes of and subject to the conditions prescribed under the Copyright Act, no part of it may in any form or by any means (electronic, mechanical, microcopying, photocopying, recording or otherwise) be reproduced, stored in a retrieval system or transmitted without prior written permission. Enquiries should be addressed to the Australian and New Zealand College of Veterinary Scientists.

Paper 2: Medicine of Zoo Animals

Answer all four (4) questions

1. A fire threatens your isolated zoological facility. The zoo contains a herd of hoofstock housed in open-range style exhibits, endangered native aviary birds, a small bachelor herd of Asian elephants, a pair of chimpanzees and ten hand-raised koalas.

Answer **all** parts of this question:

- a) List **five (5)** factors to consider when planning animal evacuation. (5 marks)

- b) Describe a plan of action for each species/group listed and outline the steps required to achieve this plan. Include in your plan the capture and restraint of these animals, as well as the equipment and personnel you may need to use. (15 marks)

- c) Discuss ethical considerations that may arise related to the evacuation plans presented in this situation. (10 marks)

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

- a) Describe the similarities and differences in the diagnostic investigation of neurological disease in a 20-week-old parent-raised Sumatran tiger cub (*Panthera tigris sumatrae*) and an adult North Island brown kiwi (*Apteryx mantelli*). Details of an investigation should include differentials, handling approaches, anaesthetic approaches as well as any diagnostics that you wish to include. (25 marks)

- b) Discuss how the administration of therapeutic agents may differ between these two species. (5 marks)

Continued over page

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

a) With respect to the provision of analgesia in reptiles:

i. list **three (3)** general considerations (3 marks)

ii. discuss the efficacy, mechanism of action and potential adverse effects of opioids. (12 marks)

b) Describe the assessment and treatment options for a fractured carnassial in a cheetah (*Acinonyx jubatus*). (15 marks)

4. Your zoo has had a group of female black-and-white ruffed lemurs (*Varecia variegata*) on display since last year when the breeding male was euthanased due to age related issues. The curator would like to import a new breeding male from a zoo in Paris, and has asked you to manage all the health and biosecurity aspects of the import of this new animal. The Department of Agriculture has requested you perform an in-house disease risk analysis (DRA) to help inform your decision making on this importation.

Answer **all** parts of this question:

a) Describe the main aim of a DRA for any zoo animal importation, and briefly outline **four (4)** of the steps involved. (10 marks)

b) Explain why the implementation of a DRA would be useful in this situation. (5 marks)

c) Outline **five (5)** recommendations for managing biosecurity and assessing the health and welfare of the imported lemurs and the resident lemur group from the pre-export evaluation to post-introduction monitoring. (15 marks)

End of paper