



Australian and New Zealand College of Veterinary Scientists

Fellowship Examination

June 2012

Veterinary Anatomical Pathology

Paper 1

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

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

Section A: Answer your choice of any **FOUR (4)** questions from the five questions **ONLY**

Section B: Answer your choice of any **FOUR (4)** questions from the six questions **ONLY**

Within each section, all questions are of equal value

Section A: Essay style: Answer **FOUR** questions each worth 30 marks.....total 120 marks

Section B: Short Answer: Answer **FOUR** questions each worth 15 markstotal 60 marks

Paper 1: Veterinary Anatomical Pathology

SECTION A:

Essay style questions (30 minutes each)

Answer four (4) from the five questions only.

1. List the factors that trigger the induction of apoptosis and discuss the mechanisms by which these factors lead to cell death. *(30 marks)*

2. The morphology of neoplastic cells does not always allow prediction of their biological behaviour. Taking account of this statement:
 - a) Discuss the molecular mechanisms involved in the relationship between cell morphology and neoplastic behaviour. *(15 marks)*

 - b) List **five (5)** tumours in dogs that have an unpredictable biological behaviour based on cell morphology using routine histological evaluation *(5 marks)* and list additional diagnostic tests that could improve diagnostic accuracy. *(10 marks)*

3. Briefly describe endothelial cell function in the healthy individual and the role of endothelial cells in disease. *(30 marks)*

4. Briefly describe the circumstances that lead to both deficiency and excess for **each** of the fat-soluble vitamins A, D, E and K. For **each** vitamin, briefly describe the pathologic changes and the mechanisms that lead to the development of lesions when both a deficiency and an excess occur. *(30 marks)*

5. Describe and discuss the different mechanisms by which the body detects the presence of pathogens. Your answer should include information on both the innate and adaptive immune systems and should include some discussion of the molecular mechanisms involved for each pathway. *(30 marks)*

End of Section A

SECTION B:

Short Answer Questions (15 minutes each)

Answer four (4) from the six questions only.

1. Briefly describe the distinctive mechanisms, clinical, histological and ultrastructural features of the inherited mitochondrial diseases. *(15 marks)*

2. List the components of the complement system and briefly describe the biological functions of each of these components. *(15 marks)*

3. List the various forms of amyloid deposition in tissues and briefly describe their causes and pathogenesis. *(15 marks)*

4. Define 'cytokine'. Briefly describe the major roles of cytokines and their known integrated pathways. *(15 marks)*

5. Briefly describe the major growth factors involved in tissue repair, and how control is exerted over each of these during the repair process. *(15 marks)*

6. Define 'paraneoplastic syndromes'. List **six (6)** paraneoplastic syndromes and for each of these describe the mechanisms that lead to their development. *(15 marks)*

End of paper



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Paper 2

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

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

Section A: Answer your choice of any **TWO (2)** questions from the three questions **ONLY**

Section B: Answer your choice of any **FOUR (4)** questions from the six questions **ONLY**

Section C: Answer your choice of any **SIX (6)** questions from the eight questions **ONLY**

Within each section, all questions are of equal value

Section A: Answer **TWO** questions each worth 30 marks.....total 60 marks

Section B: Answer **FOUR** questions each worth 15 markstotal 60 marks

Section C: Answer **SIX** questions each worth 10 markstotal 60 marks

Paper 2: Veterinary Anatomical Pathology

SECTION A:

Essay Style Questions (30 minutes each)

Answer two (2) from the three questions only.

1. Excessive circulating hormones induce lesions in both endocrine and non-endocrine tissue. In the light of this statement:
 - a) Discuss the general causes and the effects of elevated hormone concentrations. *(7 marks)*
 - b) Discuss the resultant gross and histologic lesions in both endocrine and non-endocrine tissues in each of the following four feline diseases: hyperthyroidism, hyperparathyroidism, hyperadrenocorticism and hypersomatotropism. *(23 marks)*
2. Hepatotoxins induce both stereotypic/generic lesions and lesions specific for individual classes of toxin. Discuss this statement in the context of the aetiologies and differential microscopic features of chronic hepatotoxicities of cattle. *(30 marks)*
3. Recognition of the lesion at the histological level is a critical step in establishing an appropriate diagnosis. Illustrate the range of morphological changes exhibited by resident central nervous system (CNS) cell populations, drawing on examples from small ruminant diseases, and describe the pathogenesis of these changes. *(30 marks)*

End of Section A

SECTION B:

Short Answer Questions (15 minutes each)

Answer four (4) from the six questions only.

1. Compare and contrast the pathogenesis, gross and histological findings of the porphyrias of Limousin cattle and cats. *(15 marks)*

2. Compare and contrast the pathogenesis, gross and histological findings of canine X-linked muscular dystrophy and ruminant nutritional myopathy, and briefly specify ancillary tests to confirm the diagnosis of **each**. *(15 marks)*

3. Discuss the pathogenesis, gross and histological findings of osteochondrosis with reference to **three (3)** domestic animal species in which this condition commonly occurs. *(15 marks)*

4. Discuss the aetiology, pathogenesis, gross and histological findings of ovine bluetongue. *(15 marks)*

5. Discuss the routine haematological and biochemical changes associated with canine hyperadrenocorticism and the pathological basis for these changes. *(15 marks)*

6. Answer **both** subparts of this question, subparts are of equal value. *(15 marks)*
 - a) Describe the gross and histological findings of ophidian paramyxovirus infection

and
 - b) Compare these lesions to those caused by other paramyxoviral infections of veterinary importance.

End of Section B

SECTION C:

Short answer questions (10 minutes each)

Answer six (6) from the eight questions only.

1. Discuss the aetiology, pathogenesis and histopathological features of:
 - a) murine eosinophilic crystalline pneumonia *and* (5 marks)
 - b) murine ectromelia. (5 marks)

2. Compare and contrast the aetiology, pathogenesis, gross and histological features of cutaneous lesions of porcine erysipelas and porcine dermatopathy and nephropathy syndrome. Briefly mention ancillary diagnostic procedures in addition to histopathologic evaluation that enable distinction between these two diseases. (10 marks)

3. Discuss the sequential development of gross and histological lesions of the cloacal bursa in infectious bursal disease of chickens, and its gross and histological differentiation from physiological bursal involution. (10 marks)

4. Discuss the occurrence of clinical bovine theileriosis in Australia and its aetiology, pathogenesis, gross and haematological findings. List **three (3)** differential diagnoses, based on the typical gross features of theileriosis. (10 marks)

5. Discuss the pathogenesis and gross findings of persistent mullerian duct syndrome, and illustrate your answer using an example from a single species. (10 marks)

6. Compare and contrast the histopathological findings and laboratory diagnosis of intestinal lymphoma and inflammatory bowel disease. (10 marks)

7. Compare and contrast the pathogenesis and histological findings in dendritic cell proliferative diseases of canine skin. (10 marks)

8. Briefly discuss the pathogenesis, gross and histological findings of:
 - a) equine proliferative enteritis *and* (5 marks)
 - b) equine *Clostridium difficile* infection. (5 marks)

End of paper