



Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2014

Avian Health (Poultry) 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: Avian Health (Poultry)

Answer all four (4) questions

1. Avian immune system: anatomy and function

Answer **all** parts of this question:

- a) The bird's immune system includes both primary and secondary lymphoid tissues. List the primary lymphoid organs/tissues in birds. Briefly describe their gross and microscopic features, and their development through the bird's life. *(10 marks)*
- b) Describe the types of cells that are mainly produced by **each** of the primary lymphoid tissues. Briefly discuss the impact that damage to these organs/tissues might have on birds' health. *(10 marks)*
- c) Name and describe the anatomical features of **four (4)** secondary lymphoid organs/tissues in birds. *(8 marks)*
- d) Name **two (2)** non-infectious agents or factors that can adversely affect the bird's immune system leading to immunosuppression. *(2 marks)*

2. Avian reproduction

Answer **all** parts of this question:

- a) The female reproductive system in the domestic fowl consists of the ovary and oviduct. Briefly describe the anatomical features *(4 marks)*, function *(8 marks)* and the development after hatching *(4 marks)* of the ovary and oviduct in chickens.
- b) Briefly explain how interaction of light and hormones regulates the maturation of the ovary and oviduct *(4 marks)* and egg laying *(8 marks)* in chickens.
- c) List the approximate ages that commercial layer chickens start to lay eggs **and** reach the peak of their production. *(2 marks)*

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3. **Vaccination**

Answer **all** parts of this question:

- a) Describe the common routes of vaccine administration in commercial chickens. Discuss the advantages and disadvantages for **each** route. (12 marks)
- b) Vaccination programs in commercial chickens vary according to the type of operation (broilers, layers or breeders). Discuss differences in objectives for vaccination in broilers (2 marks), layers (2 marks) and breeders (6 marks).
- c) Name the disease for which vaccination is **most** commonly used in commercial broilers in Australia. Discuss the route and age of administration, and other considerations you might take for the use of this vaccine. (8 marks)

4. **Diseases: Inclusion body hepatitis (IBH)**

Answer **all** parts of this question:

- a) Name the aetiological agent of IBH (2 marks). Discuss the transmission of the agent (2 marks) and explain if other factors are involved in the occurrence of the disease (3 marks). Describe the classification of the agent (4 marks), indicating the main type(s) shown to occur in Australia or New Zealand (3 marks).
- b) Describe the age chickens are commonly affected by this condition, and indicate the range and pattern of mortality observed. (6 marks)
- c) Describe the preferred method of diagnosis of this condition. (4 marks)
- d) Explain the measures taken to prevent this disease in Australia. Compare these measures with those commonly taken in other countries. (6 marks)

End of paper



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Paper 2

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Answer **ALL FOUR (4)** questions

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Paper 2: Avian Health (Poultry)

Answer all four (4) questions

1. Yolk sac infection and omphalitis have become significant issues in several broiler farms. Bacteriological examination of the affected chicks reveals that *E. coli* is responsible for 95% of the cases while *Proteus*, *Pseudomonas* and *Enterococcus* have also been isolated from some cases. Discuss the likely source(s) of these conditions, and describe and justify the management procedures you would recommend to reduce occurrence of this condition. (30 marks)
2. You have received several 29-day-old commercial broilers with the following history provided by the serviceman:

Some birds are overtly under the standard size, the problem became obvious about seven days ago, about 5–10% of the birds seem to have been affected, some wet litter is evident, birds have received Newcastle disease virus (NDV) and infectious bronchitis virus (IBV) vaccines at the hatchery and have been medicated with amoxycillin for five days since day 14 and subsequently with oxytetracycline (OTC) for three days to control various infections such as peritonitis and tenosynovitis. Preliminary post-mortem examination reveals small thymus in some birds.

Answer **both** parts of this question:

- a) State the most likely diagnosis. Discuss the approach to confirm the diagnosis. Please include pathological and histopathological examinations, laboratory procedures, etc. (20 marks)
- b) Describe other condition(s) that may cause non uniform flock. Discuss the approach for these differential diagnoses. (10 marks)

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3. *Campylobacter* continues to pose risk to the poultry industry in many countries around the globe:
- a) Briefly explain the significance of this condition for the commercial poultry industry. (10 marks)
 - b) Describe and justify the pre-harvest practices you would recommend to reduce the load of this bacterium in chickens to be slaughtered. (10 marks)
 - c) Discuss the implementation of hazard analysis and critical control point (HACCP) in a processing plant to reduce/eliminate contamination of poultry carcasses with *Campylobacter*. (10 marks)
4. Australian and New Zealand poultry industries have agreed on guidelines for the use of antibiotics in poultry.

Answer **both** parts of this question:

- a) Discuss the **two (2)** main responsibilities of veterinarians in supply of a prescription animal remedy (schedule four) antibiotic within the poultry industry. (15 marks)
- b) Describe the conditions under which an unregistered product can be used (off-label) for poultry. (15 marks)

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