Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2016

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 marks** ..........................total 120 marks
Paper 1: Avian Health (Poultry)

Answer all four (4) questions

1. Avian digestive system: anatomy and function

   Answer all parts of this question:

   a) Describe the gross anatomy of the digestive system of the domestic fowl.  
      \((18 \text{ marks})\)

   b) Describe the structure and function of the proventriculus. \((4 \text{ marks})\)

   c) Describe the structure and function of the pancreas in digestion. \((4 \text{ marks})\)

   d) Describe the structure and function of the caecae in digestion. \((4 \text{ marks})\)

2. Avian reproduction

   Answer all parts of this question:

   a) Briefly describe the anatomical features \((5 \text{ marks})\) and function \((6 \text{ marks})\) of the 
      ovary and oviduct of the domestic fowl.

   b) Briefly describe the anatomical features \((5 \text{ marks})\) and functions \((4 \text{ marks})\) of the 
      male reproductive system of the domestic fowl.

   c) Briefly explain how the interaction of light and hormones regulates the cessation 
      of egg laying in chickens. \((6 \text{ marks})\)

   d) Describe the routes by which microbial contamination of hatching eggs may 
      occur. \((4 \text{ marks})\)

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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) Describe how the effectiveness of drinking water vaccination application and the immunity it provides can be monitored. Ensure both on-farm and laboratory methods are described. (10 marks)

c) Name the disease for which vaccination is mandatory in all states and territories of Australia. (1 mark)

d) Provide an example of the:
   - route/s
   - age/s of administration
   - name of the vaccine,

   you would use to provide protection against this disease in a broiler flock. (2 marks)

e) Provide an example of the:
   - route/s
   - age/s of administration
   - name/s of the vaccine/s,

   you would use to provide protection against this disease in commercial laying pullets grown on litter. (3 marks)

f) Briefly discuss other considerations in the use of this vaccine. (2 marks)

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4. **Diseases: coccidiosis**

   Answer all parts of this question:

   a) Name four (4) pathogenic coccidia of the domestic fowl (2 marks) and the part of the intestinal tract in which each are found (2 marks).

   b) Describe the life cycle of the parasite. You may use a diagram if you wish. (12 marks)

   c) Disease severity associated with coccidiosis varies depending on host and parasite factors. List two (2) host (2 marks) and two (2) parasite (2 marks) factors that influence the severity of the disease expressed in an infected host.

   d) Describe measures to prevent this disease in commercial broilers. Ensure you describe the mode of action and potential side effects of any medications listed. (6 marks)

   e) Discuss how these measures compare to prevention strategies in commercial layers. (4 marks)

   **End of paper**
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Paper 2

Perusal time: Fifteen (15) minutes
Time allowed: Two (2) hours after perusal
Answer ALL FOUR (4) questions

Answer FOUR questions each worth 30 marks ................................total 120 marks
1. You have been asked to visit a commercial layer farm with the following history provided by the manager:
   - multi age layer facility, 50% free range and 50% caged production
   - in the last four days mortality in the youngest free range shed (10,000 hens at 26 weeks of age) has increased from 1/day to 150/day
   - egg production has dropped from 92% hen day to 60% hen day
   - some birds have been seen with respiratory signs, and occasionally swollen heads.

Answer all parts of this question:

   a) List three (3) differential diagnoses, including at least one (1) notifiable disease. (3 marks)

   b) Discuss the approach to confirm the most serious notifiable disease. Include pathological and histopathological examinations, laboratory procedures and other important parts of the investigation. (24 marks)

   c) Describe the process for notification of a notifiable disease in your area. (3 marks)

2. You have been employed by a broiler integration to review their contract broiler farm biosecurity program.

Answer both parts of this question:

   a) List the principal objectives of a broiler farm biosecurity plan. (4 marks)

   b) Describe in some detail the biosecurity program you would implement. (26 marks)
3. The incidence of human illness associated with consumption of raw egg products contaminated with *Salmonella typhimurium* in Australia continues to rise.

Answer all parts of this question:

a) Briefly explain the significance of *Salmonella typhimurium* for the commercial egg industry.  
(4 marks)

b) Describe and justify the on-farm practices you would recommend to reduce the load of this bacterium associated with eggs.  
(12 marks)

c) List the procedures to be implemented in an egg grading facility to reduce/eliminate the contamination of whole shell eggs with *Salmonella typhimurium*.  
(14 marks)

4. Australia and New Zealand poultry industries have agreed on guidelines for the use of antibiotics in poultry.

Answer all parts of this question:

a) List the two (2) main responsibilities of veterinarians who supply a prescription animal remedy (schedule four) antibiotic within the poultry industry.  
(2 marks)

b) Discuss both of these responsibilities.  
(12 marks)

c) Discuss in some detail conditions under which an unregistered antibiotic product can be used (off-label) for poultry.  
(16 marks)

End of paper