



Australian and New Zealand College of
Veterinary Scientists

Membership Examination

June 2022

**Medicine and Management of Aquaculture
Species**

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

Paper 1: Medicine and Management of Aquaculture Species

Answer all four (4) questions

1. Describe the kidney of the normal freshwater finfish. Include in your answer the following:
 - a. Function
 - b. Gross and microscopic anatomy
 - c. Composition of urine
 - d. Formation of urine

(30marks)

2. Discuss the clinical signs, pathogenesis and management of toxic conditions that could occur in shrimp ponds, including acid sulphate soils, toxic algae and pesticides
(30 marks)

3. Discuss the main concepts surrounding the provision of a balanced and sustainable diet to farmed finfish under the headings of: *(30 marks)*
 - Protein
 - Lipids
 - Carbohydrates
 - Sustainability

4. Discuss the main features of a typical crustacean vascular system with particular emphasis on the immune response. *(30 marks)*

End of paper



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Paper 2

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

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Answer **ALL FOUR (4)** questions

Answer **FOUR** questions, each worth 30 markstotal 120 marks

Paper 2: Medicine and Management of Aquaculture Species

Answer all four (4) questions

1. Exotic diseases of importance to Australia in shellfish production are listed by the OIE. Surveillance programs are critical to managing biosecurity risks from these pathogens. Describe the key practical elements of a surveillance program and the risk basis on which you would develop for the following pathogens in Australia shellfish growing areas :
 - a. *Perkinsus marinus*, the cause of Dermo Disease in *Crassostrea virginica* (10 marks)
 - b. *Xenohaliotis californiensis* the cause of Withering Syndrome in abalones (10 marks)
 - c. *Marteilia refringens*, the cause of mortalities in *Ostrea edulis* (10 marks)

2. You are tasked with providing a lecture program for Australian undergraduate veterinary students in the medical treatment of aquatic animal diseases.
 - a. Describe the topics important to the discussion (10 marks)
 - b. Present a practical example of effective medication protocol to treat a bacterial disease (10 marks)
 - c. Present a practical example of effective medication protocol to treat a fungal disease (10 marks)

3. Disease in aquacultured fish can be influenced by interaction with wild fish or site location.
 - a. Discuss how pilchards (*Sardinops* sp), have affected the Tasmanian Atlantic salmon industry (15 marks)

 - b. Discuss the basic epidemiology, management, and pathogenesis of sanguinicolid fluke infection in southern bluefin tuna ranched off South Australia (15 marks)

4. Infection with Infectious Hypodermal and Haematopoietic Necrosis virus is a significant penaeid disease in Australia. Briefly outline the key features of this infection with regards to:
 - a. Epidemiology
 - b. Diagnosis
 - c. Management and prevention

(Total 30 marks)

End of paper