



# Australian and New Zealand College of Veterinary Scientists

## **Membership Examination**

June 2021

## **Medicine of Dairy Cattle**

## **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

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# Paper 1: Medicine of Dairy Cattle

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**Answer all four (4) questions**

1. Acute laminitis.

Answer **all** parts of this question:

- a) Explain the pathophysiology and describe the clinical presentation of acute laminitis in cattle. *(15 marks)*
- b) Outline how to manage/treat a cow with laminitis. *(8 marks)*
- c) Describe the implications of laminitis for hoof health and strategies to mitigate the consequences for affected cows. *(7 marks)*

2. Several diseases can occur in cattle grazing summer crops such as brassicas and sorghum. Detail the pathogenesis of the following diseases:

- a) photosensitisation *(3 marks)*
- b) polioencephalomalacia *(3 marks)*
- c) bloat *(3 marks)*
- d) nitrate/nitrite poisoning *(3 marks)*
- e) cyanide poisoning *(3 marks)*
- f) Discuss the generic dairy herd management strategies that may be utilised to mitigate the risk of disease when feeding forage crops, and outline specific strategies for the prevention of the diseases listed in 2 a)-e) where available. *(15 marks)*

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3. Answer **all** parts of this question relating to bronchopneumonia in calves:
- a) Outline the pathogenesis and risk factors. *(10 marks)*
  - b) Outline the diagnostic options for identifying calves with pneumonia. Your response should include discussion of sampling and diagnostic tests. *(6 marks)*
  - c) Discuss treatment options and their supporting evidence. *(8 marks)*
  - d) List key preventive management strategies and indicate how they mitigate risk. *(6 marks)*
4. The climate is projected to get hotter over the next 20 years, increasing the risk and potentially the frequency of heat stress in cows.

Answer **all** parts of this question:

- a) Identify and briefly discuss variables that influence the thermoneutral temperature range for cattle and state the temperature that is considered the upper limit of the thermoneutral temperature range of milking dairy cows. *(5 marks)*
- b) Identify factors that contribute to a cow's heat load. *(4 marks)*
- c) Outline the physiological responses of cows to heat stress. *(6 marks)*
- d) Explain how heat stress impacts dairy production. *(5 marks)*
- e) Identify the common management procedure most likely to exacerbate heat stress if heat stress mitigation strategies are not implemented. *(2 marks)*
- f) Outline different options for mitigating heat stress and outline how they work. *(8 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: Medicine of Dairy Cattle

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**Answer all four (4) questions**

1. Prepare a draft article for your clinic newsletter on colostrum management for dairy farms calving in summer. Detail in your article the importance of colostrum and how a dairy farmer could monitor the success of their management program. *(30 marks)*
2. A farmer is worried about a high rate of stillborn calves in their Holstein Friesian heifers. The heifers were bred with sexed semen.

Answer **both** parts of this question:

- a) List potential causes of stillbirth (infectious and non-infectious). Outline the history and concurrent clinical signs that would support each of the differential diagnoses. *(15 marks)*
  - b) The farmer would like to know if pestivirus (BVDV) is playing a role. Describe how to investigate the potential role of pestivirus in this problem and describe how the risk could be reduced in the future. *(15 marks)*
3. Following the death of two cows from post-operative peritonitis, a recent graduate seeks your advice regarding caesarean sections. Describe and discuss how to perform a caesarean section in the field providing insights as to how to mitigate the risk of adverse complications and promote the health and welfare of the patient. *(30 marks)*

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4. A local dairy milking 300 cows calls for assistance with a down cow. The milking cows are grazing a lush ryegrass pasture and fed supplementary grain in the dairy. The affected cow is 45 days in milk. The weather has been cold and windy over the last couple of days. The dairy owner reports the herd was agitated at the morning milking and is concerned that there may be a toxin present in the latest batch of grain that was delivered yesterday. Upon arrival at the dairy the herdsman advises the down cow is aggressive. When you go out to the paddock you find it dead. You suspect hypomagnesaemia.

Answer **both** parts of this question:

- a) Outline the differential diagnoses that should be considered, gross pathology that may be observed, samples that should be collected, tests conducted and findings that would rule in or out your differential diagnoses. *(12 marks)*
- b) Explain why, or why not, hypomagnesaemia is likely in this case and discuss the pathogenesis of the hypomagnesaemia, preventive strategies and any risks that may be associated with implementation of these strategies. *(18 marks)*

**End of paper**