



# Australian and New Zealand College of Veterinary Scientists

## Membership Examination

June 2021

## Animal Nutrition (Ruminant)

## 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: Animal Nutrition (Ruminant)

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Answer all four (4) questions

1. Answer **both** parts of this question:

- a) Discuss the biochemical processes involved in the generation of surplus ammonia in the rumen and in excretion of surplus ammonia as urinary urea. *(20 marks)*
- b) List nutritional strategies that reduce loss of surplus dietary nitrogen as urinary urea. *(10 marks)*

2. Answer **all** parts of this questions:

- a) Discuss the use of biotin as a nutritional supplement for lactating dairy cows. *(10 marks)*
- b) Discuss the influence of dry matter percentage (DM%) of ensiled forage on the nutritional quality of stack or bunker silage. *(10 marks)*
- c) Outline the toxic principle/s and clinical presentation of perennial ryegrass staggers in pasture-fed lambs *(5 marks)*, and farm management practices that reduce risk of intoxication *(5 marks)*.

3. Answer **both** parts of this question:

- a) Discuss risk factors for copper deficiency in beef cattle. *(15 marks)*
- b) Compare and contrast the diagnostic value of soil, feed, blood and liver tests when quantifying risk of copper deficiency in beef cattle. *(15 marks)*

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4. Compare and contrast the use of colostrum, liquid whole milk or calf milk replacer (CMR) as liquid feed options for seven-day-old dairy heifer calves. *(30 marks)*

**End of paper**



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Answer **ALL FOUR (4)** questions

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## Paper 2: Animal Nutrition (Ruminant)

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Answer all four (4) questions

1. A dairy farmer client has asked you for help with a retained foetal membrane (RFM) problem with his spring calving, Holstein-Friesian herd. Almost 10% of calving cows are retaining membranes for greater than 24 hours following calving.

Answer **all** parts of this question:

- a) List **ten (10)** factors that increase risk of RFM in dairy cattle. Your answer should address nutritional and non-nutritional factors. *(5 marks)*
  - b) Outline a rational approach to the investigation of causes responsible for RFM in dairy cattle. *(20 marks)*
  - c) Laboratory results reveal inadequate serum selenium levels for nine out of ten cows sampled. List various options available to improve the selenium status of this herd. *(5 marks)*
2. Briefly discuss the strengths and weaknesses of the following supplementary feeds for ruminants, including concerns, if any, when each is offered to ruminants:
- i. whole cottonseed *(7.5 marks)*
  - ii. feed grade cane molasses *(7.5 marks)*
  - iii. summer tankard bulb turnips *(7.5 marks)*
  - iv. urea. *(7.5 marks)*

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3. A beef farmer client has reported that five of her lucerne-fed, 10-month-old Angus steers have died overnight. Frothy bloat is suspected as the likely cause of death.

Answer **both** parts of this question:

- a) Describe a rational approach to confirming a likely diagnosis of frothy bloat. *(15 marks)*
- b) Outline appropriate recommendations to minimise future risk of frothy bloat in lucerne-fed steers. *(15 marks)*

4. Periparturient ketosis occurs in both ewes and dairy cows, however aspects of clinical presentation differ between species.

Answer **all** parts of this question:

- a) Briefly compare and contrast clinical signs associated with periparturient ketosis in ewes and cows. *(10 marks)*

Answer the remaining parts of this question with respect to **either** periparturient ewes **or** periparturient cows. Please identify the species to which your answer pertains.

- b) Outline factors that increase the risk of periparturient ketosis in **either** periparturient ewes **or** periparturient cows. *(10 marks)*
- c) Discuss nutritional management strategies to reduce the incidence of ketosis in **either** periparturient dairy cows **or** periparturient ewes. *(10 marks)*

**End of paper**