



# Australian and New Zealand College of Veterinary Scientists

## Membership Examination

June 2014

## Veterinary Radiology (Large Animal) 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: Veterinary Radiology (Large Animal)

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Answer all four (4) questions

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

a) List the radiographic projections required for a complete study in the following clinical situations, and briefly describe the patient positioning and radiographic technique required for **each** projection:

- i. suspected osteochondrosis of the stifle in a three-year-old Warmblood horse (5 marks)
- ii. angular forelimb deformity in an alpaca cria (5 marks)
- iii. suspected third carpal bone fracture in a three-year-old Thoroughbred horse. (5 marks)

b) Answer **both** of the following:

- i. Assessment of radiographic image quality is an important step in a radiographic examination. Describe in detail the features to be assessed when evaluating image quality of film/screen radiographs, and the way in which radiographic technique has an impact on **each** of these features. (10 marks)
- ii. Discuss the ways in which these features differ when evaluating quality of digital radiographs. (5 marks)

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

a) Describe in detail the **three (3)** major ways in which x-ray photons interact with matter in the diagnostic imaging energy range and discuss the contribution these interactions make to the formation of the radiographic image. *(15 marks)*

b) Answer **both** of the following:

i. Describe the function and purpose of the time gain control on a diagnostic ultrasound machine. *(7.5 marks)*

ii. Define edge shadowing artifact and give an example in large animal diagnostic ultrasound in which it is important to recognise, and why it is important. *(7.5 marks)*

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

a) Describe the principles of radiation safety and how you would implement them when obtaining radiographs of a group of Thoroughbred yearlings prior to sale. *(15 marks)*

b) List **three (3)** types of ultrasound transducer. For **each** type, list its applications in large animal veterinary diagnostic imaging and the features that make it appropriate for **each** application. *(15 marks)*

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

a) Describe in detail the use of imaging to evaluate an acute penetrating nail injury to the heel of a horse. *(15 marks)*

b) Describe in detail the use of imaging to evaluate a ruptured urinary bladder in a three-day-old foal. *(15 marks)*

**End of paper**



# Australian and New Zealand College of Veterinary Scientists

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June 2014

## Veterinary Radiology (Large Animal) 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

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## Paper 2: Veterinary Radiology (Large Animal)

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Answer all four (4) questions

1. List the radiographic projections required for a complete evaluation of the navicular bone in a show-jumping horse with forelimb lameness suspected to be related to navicular syndrome. Describe in detail a technique for acquiring the study and for **each** projection list the radiographic changes that might be expected. (30 marks)
2. Describe in detail the radiographic investigation of a horse with a unilateral purulent nasal discharge (15 marks). Give **two (2)** differential diagnoses and the expected radiographic signs with **each** of these conditions (15 marks).
3. You are presented with a stud foal with coughing and fever.

Answer **both** parts of this question:

- a) Discuss the use of both radiography and ultrasound to investigate this foal. Your answer should include a description of the technique for applying these modalities. (15 marks)
- b) Give **two (2)** differential diagnoses and the radiographic and sonographic signs of **each** of these conditions. (15 marks)

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

a) Briefly describe the radiographic features seen with the following conditions:

- i. Vitamin D deficiency in alpacas. *(7.5 marks)*
- ii. Equine cervical vertebral malformation (Wobbler syndrome). Describe plain radiographic features only. *(7.5 marks)*

b) Briefly describe the sonographic features of the following conditions:

- i. Avulsion of the origin of the suspensory ligament in a Standardbred horse. *(7.5 marks)*
- ii. Small intestinal obstruction in a foal. *(7.5 marks)*

**End of paper**