

Australian and New Zealand College of  
Veterinary Scientists

**Veterinary Ophthalmology**  
**Sample Examination Questions**

## **EXAM QUESTION SAMPLES FOR CANDIDATES**

Questions may be of factual recall type or high order questions and may be based on images (clinical photographs of different parts of the eye, images from diagnostics procedures such as optical coherence tomography, advanced imaging, ultrasonography and advanced imaging, confocal microscopy, histopathology, cytology etc...) and/ or diagrams. For histopathology and cytology images and high magnification insert may be provided to help image interpretation if deemed necessary.

Short or long answer questions may be singular or divided into subparts and may vary in allocation of marks.

Questions are based on the current reading list including textbooks and journal articles

Questions may be on techniques that advance veterinary ophthalmology and are within the reading list.

**\*\*Sample questions given in this document might be from the literature outside of the current reading list.\*\***

# Paper 1

## Answer all multiple choice questions in this section

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Each question is worth one (1) mark. There is no negative marking.

1. What is the first step of the rod phototransduction cascade in response to a light stimulus?
  - a. Photoisomerization of 11-cis-retinaldehyde into all-trans-retinal
  - b. Depolarization of the photoreceptors in response to the bleaching process
  - c. Phosphorylation of light-adapted rhodopsin by rhodopsin kinase
  - d. Activation of cytoplasmic cGMP by phosphodiesterase
2. By which mechanism does the domestic cat accommodate?
  - a. Change in corneal curvature
  - b. Changing the distance between the cornea and the retina
  - c. Change in lens position
  - d. Having two or more separate optical pathways of different refractive power
3. What ocular structures can be highlighted using periodic acid-Schiff (PAS)?
  - a. Lens fibres and Descemet's membrane
  - b. Lens capsule and Descemet's membrane
  - c. Lens fibres and corneal endothelium
  - d. Lens capsule and corneal endothelium
4. Which of the following describes the activity of the antimicrobial enzyme, lysozyme?
  - a. Binds reversibly with iron, which is required for microbial metabolism and growth
  - b. Scavenges bacterial products
  - c. Binds to the outer membrane of bacteria, creating a pore that leads to cell death
  - d. Inhibits iron uptake by microorganisms by blocking the microbial iron transport mechanisms

5. In the normal dog, what is the typical IOP diurnal variation?

- a. 5-7 mmHg
- b. 2-4 mmHg
- c. 8-10 mmHg
- d. 11-12 mmHg

## Short answer questions

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1.a. Identify the stain in this image and what it binds to. State the ocular tissue targeted by the stain in this image. (Image not provided here) *(1 mark)*

1.b. Describe **two (2)** main abnormalities in this image. *(2 marks)*

1.c. State the most likely histologic diagnosis in this image. *(1 mark)*

## Long answer questions

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1. Describe the histologic features of cataractogenesis in subcapsular, cortical and hypermature cataracts. *(10 marks)*

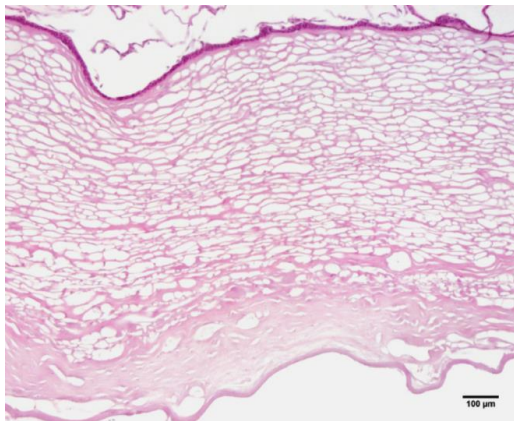
## Paper 2

### Answer all multiple choice questions in this section

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Each question is worth one (1) mark. There is no negative marking.

1. The histology image below is taken from a canine cornea cryopreserved for three years (according to Costa et al, 2017). What is the main histologic change seen in this sample?



- a. Corneal bubbles
  - b. Keratocyte apoptosis
  - c. Disorganised collagen
  - d. Descemet's membrane detachment
2. Which is the most appropriate surgical technique to correct eyelid defects in the dog in the image below?



- a. Stades blepharoplasty of the upper eyelid
- b. Celsus Hotz blepharoplasty
- c. Medial canthoplasty
- d. Lower wedge excision

3. According to Grosas et al (Veterinary Ophthalmology, 2017), what is the estimated frequency of NHEJ1 mutation in Norwegian border collie puppies?
- a. 8.7%
  - b. 3.5%
  - c. 6.3%
  - d. 2.6%
4. According to Ledbetter et al (Veterinary Ophthalmology, 2017), which of the following are the most frequently cultured pathogens in the disease process shown in the image?



- a. *Aspergillus* and *Fusarium* spp.
  - b. *Pseudomonas* and *Enterobacter* spp.
  - c. *Staphylococcus* and *Streptococcus* spp.
  - d. *Corynebacterium* and *Klebsiella* spp.
5. According to Violette et al (Veterinary Ophthalmology, 2017), which breed was overrepresented for development of intrastromal corneal haemorrhage?
- a. Bichon frise
  - b. Shi-tzu
  - c. Boston terrier
  - d. Boxer

## Short answer questions

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- 1.a. List the **two (2)** subtypes of cryptococcus. (*2 marks*)
- 1.b. Describe **two (2)** ophthalmic clinical signs within the posterior segment that can be seen with cryptococcus infection in dogs and cats. (*2 marks*)
- 1.c. Identify the most accurate test to confirm a diagnosis of cryptococcal infection. (*1 mark*)

## Long answer questions

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1. Describe in detail **four (4)** properties of viscoelastic agents. (*10 marks*)