

## **C –VC.1**

**TITLE:           CARDIOVASCULAR ANATOMY, PHYSIOLOGY AND PATHOLOGY**

**VALUE: 10 CREDITS**

**NOTIONAL STUDY HOURS: 100**

Completion of this module, together with C-VC.2 Diagnostic techniques and therapeutics and C-VC.3 Small and Large Animal Cardiology, and the compulsory modules A-PKS.1 Professional Key Skills and B-CKS.0 Clinical Key Skills, is necessary for candidates who are aiming to achieve the Cardiology designated Certificate in Advanced Veterinary Practice.

### **GENERAL GUIDANCE NOTES**

The following applies to all C modules.

Before embarking on this, or other modules, candidates must fulfil the following criteria:

- a) Be a member of RCVS
- b) Have at least one year's postgraduate experience working as a veterinary surgeon
- c) Be enrolled with RCVS if intending to take the Certificate in Advanced Veterinary Practice (enrolment will be valid for 10 years)
- d) It is also recommended that candidates will have already declared themselves competent in their 'Year One Competencies', by completing the Professional Development Phase (PDP) before enrolling for any modules.
- e) For candidates intending to obtain a Certificate in Advanced Veterinary Practice – Cardiology – CertAVP (Cardiology), this module will be mandatory.

### **LEARNING OBJECTIVES AND ASSESSMENT STRATEGY**

The candidate will be expected to demonstrate an understanding of the relevance and application of this basic science in anatomy, physiology and pathology in relation to cardiovascular medicine and surgery in veterinary practice.

This module is intended to cover the anatomy, physiology and general pathology of the heart, cardiovascular and respiratory systems, with application to all major species of veterinary concern. The practical application of theoretical knowledge to clinical practice, pharmacology and comparative medicine will be emphasised. This module is compulsory for candidates wishing to achieve the Certificate in Advanced Veterinary Practice (Veterinary Cardiology) qualification.

### **ASSESSMENT STRATEGY FOR THIS MODULE**

- A series of written answers to short questions (2 hour exam; 10 questions, 12 minutes each)
- Anatomy/physiology/pathology spot tests in a "steeplechase" format (1.5 hour exam; 15 questions, 6 minutes each)

### **MODULE CONTENT**

On successfully completing this module, candidates would be expected to have knowledge of, and understand the clinical relevance of:

#### **Anatomy:**

- The gross anatomy of the mammalian heart, pericardium, and great vessels
- The microscopic anatomy of the myocardium and the myocyte
- The cardiac pacemaker, conduction system and autonomic nerves supplying the heart.
- The gross anatomy of the upper and lower respiratory tract including the nasal chambers, nasopharynx, larynx, trachea, bronchi, alveoli, thoracic cavity, pulmonary parenchyma and pulmonary vessels.

- The organisation of the circulation *in utero*, before birth, and the changes that occur after birth.
- Characteristic congenital abnormalities of the heart and circulation such as patent ductus arteriosus, pulmonic stenosis, ventricular septal defect, aortic stenosis, vascular 'ring' abnormalities and Tetralogy of Fallot.
- Familiarity with congenital abnormalities which are common in certain species and certain breeds.
- Comparative anatomy covering species of major veterinary interest.

**Physiology:**

- The cardiac cycle.
- Myocardial function
- Impulse conduction
- Vascular microanatomy and physiology
- Central/neural control of the heart and circulation
- Blood pressure control
- Cardiovascular response to exercise
- Cardiovascular effects of trauma
- The physiology of the pericardium
- Anaesthesia and the cardiovascular system
- Fluid balance
- Pregnancy
- Age and the cardiovascular system
- The physiology of the airways
- Gas exchange in the lungs
- Blood gases and acid-base balance
- Electrolyte physiology and the circulation
- Integrative physiology: CNS, CVS, respiratory and renal function

**Pathology:**

- Shock and circulatory failure
- Blood clotting and clotting defects
- Hypertension and hypotension
- Heart failure
- Arteriosclerosis and atherosclerosis
- Tachycardia and bradycardia
- Pre-load and afterload
- Valvular incompetence
- Dilated cardiomyopathy
- Hypertrophic cardiomyopathy
- Neoplasia and the heart
- Pericardial disease
- Comparative aspects of cardiovascular disease
- Rhinitis, nasal and nasopharyngeal disease
- Laryngeal, tracheal and bronchial diseases
- Asthma, COPD and small airway diseases
- Pulmonary parasitology
- Pneumonia
- Respiratory failure
- Disorders of the pleural space / thorax
- Systemic disease and the CVS / respiratory system
- Comparative pathology of the CVS and respiratory systems