INTRODUCTION

These Membership Guidelines should be read in conjunction with the Membership Candidate Handbook.

ELIGIBILITY

Refer to Section 2 of the Membership Candidate Handbook.

OBJECTIVES

To demonstrate that the candidate has sufficient knowledge of and experience in animal reproduction and to be able to give sound advice to colleagues on problems and procedures commonly encountered in this field of general veterinary practice.

LEARNING OUTCOMES

1. The candidate will have a sound\textsuperscript{1} knowledge of the comparative reproduction in domestic animal species. Domestic animal species is defined as: horse, cow, sheep, pig, goat, dog, cat and camelid.

\textsuperscript{1} Knowledge levels:

- **Detailed knowledge** — candidates must be able to demonstrate an in-depth knowledge of the topic including differing points of view and published literature. The highest level of knowledge.
- **Sound knowledge** — candidate must know all of the principles of the topic including some of the finer detail, and be able to identify areas where opinions may diverge. A middle level of knowledge.
- **Basic knowledge** — candidate must know the main points of the topic and the major literature.
Specific outcomes around this sound knowledge are that the candidate will be able to:

1.1 Describe the normal reproductive anatomy of males and females of the above domestic species, internal and external reproductive organs, gross and histological features of the normal organs.

1.2 Explain the general embryonic development of the reproductive system in male and female mammals, considering the influence of the main genes that drive sexual differentiation, and the development of gonads, ductal system and external genitalia.

1.3 Describe the origin, structure, target tissues and mode of action for the hormones from the hypothalamus, pituitary, gonads and reproductive tissues that act to coordinate and stimulate reproduction in males and females of the listed domestic species.

1.4 Explain the events leading to and the consequences of puberty.

1.5 Explain the normal female reproductive cycle including behavioural, endocrinological and structural changes during the cycle, detailing individual ovarian cycles, and the annual reproductive events in female domestic animals, such as seasonality, for all species listed above. This should include figures for cycle length and stages, oestrus display, time of ovulation, such that you can describe the most appropriate time of mating, by natural and artificial insemination, to result in pregnancy.

1.6 Describe the normal processes of male reproduction, including spermatogenesis and its specific stages; normal mating considering the anatomy and physiology of erection and ejaculation; and the processes of sperm maturation through to fertilisation.

1.7 Describe the embryonic development and uterine responses from fertilisation through to formation of a functional placenta, including details on the maternal recognition of pregnancy, and the different types of placentation in domestic species, and the implications of these variations.

1.8 Describe the normal hormonal events during pregnancy, such as maintenance of pregnancy, hormone production and pregnancy diagnosis.

1.9 Explain the processes and hormonal events leading to initiation and progression of normal parturition in domestic species.

1.10 Describe the anatomical position, presentation and posture of a fetus during parturition and/or dystocia.

1.11 List the common diseases of the reproductive system of male and female animals and describe the pathophysiology. Include disorders of embryological development (such as cryptorchidism, freemartinism, pseudo/hermaphroditism), infectious diseases of all parts of the reproductive tract, endocrinological disorders, degenerative changes.

1.12 List and explain the general causes of embryonic loss and abortion, and list the main diseases which result in loss of pregnancy in domestic animals.

1.13 Describe the process for gross examination of the fetal membranes, and the pathological processes that may affect the placenta of domestic species.
2. In the application of this sound knowledge the candidate will be able to do the following with **sound expertise**:

2.1 Describe the processes for breeding soundness examination of male and female domestic animals.

2.2 Interpret findings from breeding soundness examination of male and female domestic animals, with reference to the normal parameters and findings in the main species listed above.

2.3 Examine and interpret findings from a male or female animal with reproductive dysfunction, generating differential diagnoses, explain the processes of differentiation, and suggest management and treatment options.

2.4 Explain the processes for investigating loss of pregnancy and/or abortion with specific reference to the main causes in the above listed domestic species.

2.5 Explain the use of drugs and management to exert control over reproduction in the female domestic species, such as induction of oestrus, synchronisation of oestrus, manipulation and timing of ovulation, contraception, induction of pregnancy termination, and induction of parturition.

3. The candidate will have a **basic** knowledge of the following in the listed domestic species, to achieve these objectives:

3.1 Reproductive technology:

3.1.1 Describe the processes of artificial insemination with fresh, chilled and frozen semen as appropriate and commonly used for each domestic species. Include in this description information about equipment used for the procedure, technique for insemination, handling of the semen, and timing of insemination.

3.1.2 Describe the general processes for embryo transfer, including collection of in vivo generated embryos, and transfer to suitably prepared recipients.

3.1.3 Describe how to collect semen from the domestic species, how to evaluate the semen and process for fresh or chilled insemination. In general terms explain the processes required for freezing of semen and use of frozen semen.

3.2 Describe the development of the mammary gland and the physiology of lactogenesis.

3.3 Describe the techniques for common surgeries involving the reproductive system, including caesarean, ovarietomy/ovariohysterectomy, castration, Caslicks’ procedure.

3.4 Describe the principles and common techniques for neonatal resuscitation and monitoring.

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2 **Skill levels:**

**Detailed expertise** — the candidate must be able to perform the technique with a high degree of skill, and have extensive experience in its application. The highest level of proficiency.

**Sound expertise** — the candidate must be able to perform the technique with a moderate degree of skill, and have moderate experience in its application. A middle level of proficiency.

**Basic expertise** — the candidate must be able to perform the technique competently in uncomplicated circumstances.
3.5. Dystocia:

3.5.1. Describe the principles of diagnosing and managing dystocia.

3.5.2. Identify commonly used obstetrical equipment and explain its use.

EXAMINATIONS

For information on both the standard and the format of the Written and Oral examinations, candidates are referred to the Membership Candidates Handbook.

The Membership examination has **two separate, autonomous components**:

1. **Written Examination (Component 1)**
   - **Written Paper 1** (two hours): Principles of the Subject
   - **Written Paper 2** (two hours): Applied Aspects of the Subject

2. **Oral Examination (Component 2)**
   - **Oral** (one hour)

The written examination will comprise of two separate two-hour written papers taken on the same day. There will be an additional 15 minutes perusal time for each paper, during which no writing in an answer booklet is permitted. In each paper you are provided with four (4) questions to answer, worth 30 marks each, giving a total of 120 marks per paper. There is no choice of questions. Questions may be long essay type or a series of shorter answer sub-questions. Marks allocated to each question and to each subsection of questions will be clearly indicated on the written paper.

**Written Paper 1:**
This paper is designed to test the candidate’s knowledge of the principles of animal reproduction as described in the Learning Outcomes using essay-style, short answer and note-point formats. Answers may cite specific examples where general principles apply, but should primarily address the theoretical basis underlying each example.

**Written Paper 2:**
This paper is designed to (a) test the candidate’s ability to apply the principles of animal reproduction to particular cases/problems or tasks and (b) test the candidate’s familiarity with the current practices and issues that arise from activities within the discipline of animal reproduction in Australia and New Zealand. This paper assesses knowledge of applied reproduction.
Oral Examination:
This examination requires the candidate to demonstrate achievement of the above mentioned Learning Outcomes. Discussion will be predominantly based on case material. The duration of this examination is approximately one (1) hour. Clinical and clinicopathologic images, laboratory test results, radiographs and basic ultrasound images are likely to be used during this examination. Six (6) cases are presented with supporting questions asked verbally in a face-to-face setting. The oral examination has a total of 60 marks with each case allocated 10 marks.

RECOMMENDED READING MATERIAL (Highly recommended material marked with *)

The candidate is expected to read widely within the discipline, paying particular attention to areas not part of their normal work experiences. This list of books and journals is intended to guide the candidate to some references and other source material. Candidates also should be guided by their mentors. The list is not comprehensive and is not intended as an indicator of the content of the examination.

BOOKS


Also as an e book


Australian Veterinary Association Special Interest Group Publications:

Pregnancy Diagnosis in Cattle – Australian Cattle Veterinarians

Evaluating and Reporting Bull Fertility – Australian Cattle Veterinarians

Veterinary Bull Breeding Soundness Examination – Australian Cattle Veterinarians

**JOURNALS**

Candidates should be aware of journal articles, with the following journals recommended for coverage of the topic:

*Theriogenology*
*Reproduction in Domestic Animals*
*Animal Reproduction Science*
*Reproduction (www.reproduction-online.org)*
*Clinical Theriogenology (http://st.omnibooksonline.com/)*
*Proceedings: Society For Theriogenology (SFT). (www.therio.org)*
*Journal of Animal Science*

**Web Resources:**

www.ivis.org
Access to a wide variety of books, journals and proceedings.
Library of reproduction images: lorimainsection.blogspot.ca
www.drostproject.org
http://www.animalandrology.org/ - Association for Applied Animal Andrology
http://www.therio.org/ - Society for Theriogenology
International Embryo Transfer Society: http://www.iets.org/
The InCalf Project: www.incalf.com.au
LSU – theriogenology course VETMED 5361
www.lsu.edu
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