Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2012

Animal Reproduction

Paper 1

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

Answer all **FIVE (5)** questions

All questions are of equal value

Answer **FIVE** questions each worth 20 marks...total 100 marks

Paper 1: Animal Reproduction

Answer all FIVE (5) questions

1. Answer **both** subparts of this question.

    a) Describe the process of sexual differentiation during embryological development, resulting in the chromosomal, gonadal and phenotypic features of the **male** eutherian mammal.

    Your answer should address the following headings:

        i. chromosomal sex   *(2 marks)*

        ii. gonadal sex   *(5 marks)*

        iii. phenotypic sex   *(5 marks)*

        iv. karyotype.   *(4 marks)*

    b) List **two (2)** examples of aberrations of either gonadal or phenotypic sex in male or female animals. For **each** of the examples you list, provide a brief (one to two sentences) description of the condition.   *(4 marks)*

2. Describe the development of spermatozoa from the basement membrane of the seminiferous tubule to release into the rete tubules. Be sure to clearly identify specific phases in the process.   *(20 marks)*

3. Puberty is an important stage of reproductive development. Describe puberty in <u>**either**</u> the bovine **or** the canine utilising the following instructions:

    a) Define puberty in both the male and female.   *(4 marks)*

    b) Describe the reproductive events leading to, and during, puberty.   *(12 marks)*

    c) List factors affecting the onset of puberty and provide a brief indication (one to two sentences) of their relative importance.   *(4 marks)*

Continued over page

4. With regard to the cow, describe in detail the oestrous cycle using the following headings:

    a) Hormonal activity during the oestrous cycle.   *(9 marks)*

    b) Behavioural changes during the oestrous cycle.   *(3 marks)*

    c) Follicular dynamics during the oestrous cycle.   *(8 marks)*

5. The placentae of domestic animals may be classified in a number of different ways. With regard to placentation, answer the following questions.

    a) For the cow, mare **and** bitch; provide a full description of placentation based on the type of maternal attachment and histological characteristics.
    (15 marks)

    b) Describe the origin of bovine pregnancy-specific protein B and outline its role in pregnancy diagnosis of cattle.   *(5 marks)*

End of paper

Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2012

Animal Reproduction

Paper 2

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

Answer all **FIVE (5)** questions

All questions are of equal value.

Answer **FIVE** questions each worth 20 marks ....total 100 marks

Paper 2: Animal Reproduction

Answer all FIVE (5) questions

1.   Outline, in point form, the aetiology, diagnosis, treatment and prognosis of **each** of the following **five (5)** conditions.

     a) Ovarian remnant syndrome in the bitch.   *(4 marks)*

     b) Cystic ovarian disease in a dairy cow.   *(4 marks)*

     c) A mare that shows signs of oestrus every few days for three weeks in September.
(4 marks)

     d) Enlarged mammary glands of a 3-year-old entire non pregnant queen.
(4 marks)

     e) Penile fibropapilloma in a 2-year-old Poll Hereford bull.   *(4 marks)*

2.   The accurate timing of ovulation is critical to obtaining pregnancies in the bitch associated with frozen-thawed semen insemination. With regard to breeding bitches with frozen-thawed semen:

     a) List factors that are considered useful for the timing of ovulation in the bitch.
(5 marks)

     b) For **each** factor that you list, describe the assessment criteria and how they relate to ovulation.   *(8 marks)*

     c) Outline how the assessment of the factors may be integrated to improve ovulation and insemination timing.   *(7 marks)*

Continued over page

3. Describe methods used for the induction of abortion in any **three (3)** of the following: the bitch, mare, cow, or ewe. For **each** technique described, outline the pregnancy duration timing of the treatment, advantages and disadvantages.

(20 marks)

4. Discuss pregnancy diagnosis under the following headings for any **three (3)** of the following species: the bitch, cow, mare or ewe: *(20 marks)*

   For **each** of the **three (3)** species you select:

   a) List techniques for pregnancy diagnosis.   *(3 marks)*

   b) State the duration of gestation during which pregnancy diagnosis is effective for each technique listed in 4a) above.   *(3 marks)*

   c) Discuss the advantages and disadvantages of pregnancy diagnosis for each technique listed in 4a) above.   *(14 marks)*

5. Answer **all** subparts of this question.

   a) Using cattle as the example species, define the term abortion.   *(1 mark)*

   b) List **six (6)** causes of abortion in cattle in Australia or New Zealand.   *(3 marks)*

   c) In September you are called to a farm of 100 stud beef cows that started calving three weeks ago. Of the last **ten (10)** deliveries, there have been three still-born, and five late-term aborted fetuses.

      i. Describe your diagnostic protocol to determine the cause.   *(10 marks)*

      ii. Describe your management protocol to prevent or decrease the number of abortions.   *(6 marks)*

End of paper