

**UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DISCIPLINE OF ANIMAL & POULTRY SCI
MAIN EXAMINATION: 13 NOVEMBER 2013
SUBJECT, COURSE & CODE: ANSI 370**

DURATION: 3 HOURS

TOTAL MARKS: 100

External Examiner: Dr Marion Young

Internal Examiner: SW. FOMUM

This examination consists of five pages

Question 1 (Total 10 marks)

Explain any five causes of delayed sexual maturity in any farm animal species of your choice. (10 mks)

Question 2 (Total 18 marks)

a) Name the glands which produce the following hormones:

- I. GnRH
- II. LH
- III. FSH
- IV. $PGF_{2\alpha}$
- V. Progesterone
- VI. Oxytocin
- VII. Oestrogen
- VIII. Inhibin (4mks)

b) Describe the role of hormones that are involved in the growth of follicles, maturation, ovulation, fertilization, implantation and sustenance of pregnancy. (12mks)

c) State two possible causes of failure of the Graafian follicle to rupture. (2mks)

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Question 3 (Total 16 marks)

Oestrus synchronization is economical to adopt in management of breeding stock than the use of various techniques to observe and detect it.

- a) List five advantages of oestrus synchronization relative to spontaneous natural oestrus. (5mks)
- b) Explain how each advantage to oestrus synchronization enhances breeding stock management. (10mks)
- c) When is a farmer advised against the administration of PGF_{2α} to an animal? (1mk)

Question 4 (Total 7 marks)

- a) When does active follicular dominance prevail in the reproductive life of a farm animal and the potential outcome? (2mks)
- b) When does passive follicular dominance prevail in the same farm animal species. (2mks)
- c) In which animal species is this phenomenon common? (1mk)
- d) Which reproductive technologies can be adopted to reduce follicular waste in mono-ovulatory farm animals of high pedigree? (2mks)

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Question 5 (Total 20 marks)

A farm animal species has an average gestation period of 290 days and is left to recover and reconceive in 90 days, lactational anoestrus inclusive.

- a) What is the inter-calving period? (1mk)
- b) How many calves will be produced in six years? (1mk)
- c) List 4 factors that can affect the inter-calving period. (2mks)
- d) Explain how each of the factors listed above will affect the inter-calving period. (8mks)
- e) Write a detailed explanation of one of the following types of anoestrus: (8mks)
 - i. Lactational anoestrus
 - ii. Nutritional anoestrus
 - iii. Pathological anoestrus

Question 6 (Total 8 marks)

Progesterone in a particular sheep that lambed twins remained high postpartum:

- a) Where will progesterone be produced in the sheep? (1mk)
- b) What is the potential effect of a high level of progesterone on reproduction postpartum? (3mks)
- c) Describe what you would expect to see and state how you will confirm this condition? (4mks)

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Question 7 (Total 6 marks)

The following is an excerpt from a scientific paper:

“Differences in reproductive characteristics between Angus (temperate *Bos taurus*) and Brahman (tropical *Bos indicus*) cattle include longer gestation length and shorter and less intense oestrus in Brahman relative to Angus females. In addition, puberty occurs at an older age and twinning rate is much lower in *Bos indicus* cattle.”

Explain if, and how, any of the **above mentioned factors** could be manipulated to improve the reproductive characteristics of *Bos indicus* cattle.

(6 mks)

Question 8 (Total 9 marks)

From the picture of the cow below:

- a) Body condition score the cow and motivate your answer. (2mks)
- b) Suggest what the cow could be suffering from, and state the measures that you will take to resolve suggested problem. (3mks)
- c) What is the body condition score that must be achieved for it to be serviced or inseminated? (1mk)

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Question 9 (Total 9 marks)

Are the following statements true or false? Provide an explanation.

- a) Increasing the amplitude of the LH pulse will result in a higher frequency multiple births in sheep. (2 mks)
- b) The amount of prostaglandin required for luteolysis is much less if injected into the vaginal epithelium than if injected intramuscularly. (2 mks)
- c) Poor oestrus detection efficiency can falsely inflate the non-return rate. (2 mks)

