

UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DISCIPLINE OF ANIMAL & POULTRY SCI
EXAMINATION: NOVEMBER 2012
SUBJECT, COURSE & CODE: ANSI370

DURATION: 3 HOURS

TOTAL MARKS: 100

External Examiner: Dr Marion Young
Internal Examiner: Dr Nicola Tyler

NOTE: THIS PAPERS CONSISTS OF FOUR (4) PAGES, PLEASE SEE THAT YOU HAVE THEM ALL.

Question 1 (total 9 marks)

The introduction of various reproductive technologies has impacted positively on the efficiency of animal breeding. Give 3 examples of such technologies, with a description of how they have improved animal breeding in farm species. [9]

Question 2 (total 10 marks)

The following diagram is a picture of the maternal projection for placental attachment on the uterine lining:



- i. Which farm species could this picture be from? [2]
- ii. What would be the placental classification (by shape)? [1]
- iii. What would the foetal adaptation be called? [1]
- iv. Describe the role of the placenta as an endocrine gland [1]
- v. What is a “retained placenta”? [2]
- vi. What are the likely causes of a retained placenta? [2]
- vii. How would you treat such an animal? [1]

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Question 3 (total 11 marks)

A dairy farmer in KZN has decided that he would like to change his breeding program to become a seasonal breeder to maximise pasture usage and cut the cost of feeding.

- i. Describe 2 other advantages of a seasonal breeding system. [2]
- ii. Describe 2 possible drawbacks of this system. [2]
- iii. The farmer would like to have a high percentage of his cows calve at the beginning of the calving season. What else, apart from a high submission rate, will contribute favourably to this? [1]
- iv. Out of 580 cows inseminated the farmer has 489 cows calve, 5 of them with twins. What is the calving rate? [2]
- v. If he used 1232 straws to get those 489 cows pregnant, and 1358 straws of semen altogether in the breeding season, what are the true, and apparent, services per conception? [4]

Question 4 (total 4 marks)

Define the “male effect” and discuss how it can be utilised in sheep and pig breeding. [4]

Question 5 (total 18 marks)

Are the following statements true or false? **Provide an explanation**
(You will not be given a mark for saying true or false – but the marks will be awarded for the explanation)

- i. It is possible to have an ovulatory-sized follicle on the ovary at the same time as a functional corpus luteum. [3]
- ii. A beef cow that has lost her calf, but is allowing a fostered calf to suckle, will not show lactational anoestrus. [3]
- iii. Increasing the amplitude of the LH pulse will result in a higher frequency multiple births in sheep. [3]
- iv. The amount of prostaglandin required for luteolysis is much less if injected into the vaginal epithelium than if injected intramuscularly. [3]
- v. The way in which the foetus signals its presence for maternal recognition differs between species. [3]

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- vi. High melatonin levels increase the sensitivity of the hypothalamus to the negative feedback of progesterone in horses. [3]

Question 6 (total 6 marks)

A new drug to treat a respiratory disease has been developed for use in cattle, but one of its side-effects is that it blocks oxytocin receptors in the endometrium of the uterus. What effect will this have on cyclicity? Explain your reasoning. [6]

Question 7 (total 15 marks)

The control of reproduction is very dependent on the correct functioning of the gonads which is often dependent on the endocrine profile.

- i. Describe the endocrine profile in a cyclic cow. [6]
- ii. What are the similarities of the endocrine profile of the cow to that of a breeding bull? [3]
- iii. How do the processes of oogenesis and spermatogenesis rely on the endocrine profile? [4]
- iv. What are some of the differences between the processes of oogenesis and spermatogenesis? [2]

Question 8 (total 10 marks)

A dairy farmer in KZN hasn't been away for Christmas for the last 10 years, and has been invited by his family to spend 2 weeks away (20 to 30 Dec). His neighbour is a beef farmer that runs his herd with a bull, and he is always on the lookout to prevent the possibility of the bull jumping the fences and serving his dairy cows, and it is his biggest concern about going away.

What advice could you give him to **prevent** his cows coming into oestrus while he is away, so that he doesn't need to worry about this? Provide a programme for him to follow, including dates. [10]

Question 9 (total 10 marks)

The horse racing industry is a multi-million dollar industry , which relies heavily on the breeding of new stock through stud operations.

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Give an explanation of how all aspects of breeding are managed in such an operation to ensure success. [10]

Question 10 (total 7 marks)



Picture from: <http://futurebeef.com.au>

The above cow is not showing signs of oestrus activity.

- i. Give a description of the likely endocrine profile and the state of folliculogenesis. [5]
- ii. What body condition score would need to be achieved before this cow would cycle again? [2]