



**1<sup>ST</sup> SEM. 2013/2014**

**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER**

**PROGRAMME: B. Sc. ANIMAL SCIENCE,  
DAIRY OPTION III**

**COURSE CODE: ASD 302**

**TITLE OF PAPER: PRINCIPLES OF DAIRY  
BIOTECHNOLOGY**

**TIME ALLOWED: TWO (2) HOURS**

**INSTRUCTIONS: ANSWER ANY 4 QUESTIONS.**

**THIS PAPER SHOULD NOT BE OPENED UNTIL THE CHIEF  
INVIGILATOR HAS GRANTED PERMISSION.**

**QUESTION 1**

Discuss the advantages and disadvantages of artificial insemination in dairy production.

**(25 Marks)**

**QUESTION 2**

Discuss the regulation of modern biotechnology in Swaziland.

**(25 Marks)**

**QUESTION 3**

List and discuss any five major groups of commercially important fermentations.

**(25 Marks)**

**QUESTION 4**

Briefly discuss the following:

- a. Biosafety
- b. Super-ovulation in cows
- c. Stem cell culture technique

**(10 Marks)**

**(5 Marks)**

**(10 Marks)**

**QUESTION 5**

Briefly discuss the following:

- a. Conventional biotechnology
- b. Elective-Single Embryo transfer
- c. Culture Growth phases during fermentation
- d. Animal cloning

**(4 Marks)**

**(4 Marks)**

**(10 Marks)**

**(7 Marks)**