



1ST SEM. 2017/2018

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 FOUR (4) QUESTIONS.**

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

QUESTION 1

Discuss how biotechnology can be used to manipulate the dairy cow performance.

(25 Marks)

QUESTION 2

Explain the following terms used in conventional biotechnology:

- a. Artificial insemination (4 Marks)
 - b. Fermentation (3 Marks)
 - c. Embryo transfer (3 Marks)
 - d. Superovulation (3 Marks)
 - e. Conventional biotechnology (3 Marks)
 - f. Embryo cryopreservation (2 Marks)
 - g. Secondary metabolites (2 Marks)
 - h. Crossbreeding (2 Marks)
 - i. *In vitro* fertilization (3 Marks)
- (25 Marks)

QUESTION 3

Discuss the five (5) major groups of commercially important fermentations.

(25 Marks)

QUESTION 4

Artificial insemination is an important device used for genetic improvement in a dairy herd. Discuss the following:

- a. Semen extension and storage. (15 Marks)
 - b. Timing of artificial insemination. (10 Marks)
- (25 Marks)

QUESTION 5

For fermentation to be efficient, the media and culture must be carefully chosen. Briefly explain the following:

- a. Complex and synthetic media. (15 Marks)
 - b. Conditions of the media for fermentation. (10 Marks)
- (25 Marks)