



**UNIVERSITY OF SWAZILAND**  
**2<sup>nd</sup> SEM. 2017/2018**  
**FINAL EXAMINATION PAPER**

**PROGRAMME:** B.Sc. AGRICULTURAL EDUCATION YEAR 4  
B.Sc. ANIMAL SCIENCE YEAR 4  
B.Sc. AGRICULTURAL & BIOSYSTEMS ENGINEERING  
YEAR 4

**COURSE CODE:** AS 401

**TITLE OF PAPER:** APICULTURE

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

**INSTRUCTIONS:** ANSWER ANY FOUR (4) QUESTIONS

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY  
THE CHIEF INVIGILATOR**

**QUESTION 1**

- a) Sketch the hind leg of the worker bee and label it. **(7 Marks)**
- b) Using your sketch in a), describe how pollen is collected, transported back to the hive and stored. **(6 Marks)**
- c) What makes a honeybee an effective pollinator? **(12 Marks)**

**QUESTION 2**

Hölldobler and Wilson state in their book titled "The Superorganism" that, "A superorganism is a colony of individuals self-organised by division of labour and united by a closed system of communication". Fully explain this statement in relation to the honey bee colony. **(25 Marks)**

**QUESTION 3**

Discuss inspection of a beehive, and include the hive features and their indication. **(25 Marks)**

**QUESTION 4**

- a) Describe the signs of queenless-ness in a colony and how the presence or absence of the queen can be confirmed. **(15 Marks)**
- b) What is the contribution of the other beehive products apart from honey, beeswax, propolis and bee venom to apitherapy? **(10 Marks)**

**QUESTION 5**

- (a) List three main brood diseases of honey bees. **(6 Marks)**
- (b) Give a full account of Nosema and its effects on the beekeeping practices of today. **(19 Marks)**