



**UNIVERSITY OF SWAZILAND**  
**2<sup>nd</sup> SEM. 2015/2016**  
**SUPPLEMENTARY 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**

Give a detailed account of honey. Your account should include its chemical constituents; how it is produced by bees; the methods employed in the collection of honey; and possible uses of honey in the field of medicine.

**(25 Marks)**

**QUESTION 2**

Describe

- a) How you would re-queen a colony that has developed laying workers. **(15 Marks)**
- b) The signs of queenless-ness in a colony and how the presence or absence of the queen can be confirmed. **(10 Marks)**

**QUESTION 3**

- a) Give a full account of the importance of pollen in a honey bee colony. Your account should include a description of the effects on the colony of pollen shortages. **(15 Marks)**
- b) Describe those situations in which early protein feeding of honey bee colonies may be essential; and how colonies may be provided with protein nutrients in an area which has limited and spasmodic supply of natural pollen. **(10 Marks)**

**QUESTION 4**

- a) Various deductions can be made from observations of activities or phenomena in the vicinity of the hive. Describe such observations, the deductions that can be made and the actions, if any, to be taken. **(13 Marks)**
- b) On opening a hive, there are questions that the beekeeper should be able to provide answers to. List them and for each one, describe carefully what type of actions may be necessary. **(12 Marks)**

**QUESTION 5**

- a) All meaningful scientific discoveries about bees and beekeeping have been made since the 1950s. Discuss this statement, illustrating your answer with relevant information. **(10 Marks)**
- b) Draw a honey comb and label it. **(15 Marks)**