SECTION A

INSTRUCTIONS: Answer **Question 1** and **ONE (1) other** question in this Section.

QUESTION 1

a) List three properties of living things. **[3 Marks]**

b) What name is given to the following: **[5 Marks]**

1) A molecule composed of a carbohydrate and a lipid
2) A molecule composed of a pentose sugar and a phosphate group
3) The bond between two amino acid residues
4) The bong between two glucose residues
5) A bond linking two nucleotides

c) Copy and complete the following table which is based on the movement of molecules across the nuclear membrane. **[6 Marks]**

Molecules imported	Molecules exported

d) Name three types of interactions that maintain the tertiary structure of a protein. **[3 Marks]**

e) List three types of molecules that might be found on the surface of the plasma membrane. **[3 Marks]**

f) Name three groups of amino acids based on their behaviour in water. **[3 Marks]**

g) Name the process by which solid substances are taken into the cell. **[1 Mark]**

h) Name the process by which dissolved substances are taken into the cell. **[1 Mark]**

[TOTAL 25 MARKS]

QUESTION 2

a. State five properties of enzymes known to you. **[5 Marks]**
b. Briefly explain how enzymes are named as well as how they are classified giving at least one example in each case. **[8 Marks]**
c. With the aid of large, clearly labeled diagrams, explain what factors may affect enzyme action. **[12 Marks]**

[TOTAL 25 MARKS]

QUESTION 3

a. Compare and contrast between prokaryotic and Eukaryotic cells. **[5 Marks]**
b. With the aid of large, clearly labeled diagrams, discuss fully, the structure of a typical animal cell with emphasis on the structure and function of each organelle. **[16 Marks]**
c. Briefly explain how the cell you have drawn would differ from a typical plant cell. **[4 Marks]**

SECTION B

INSTRUCTIONS: ANSWER ANY TWO (2) QUESTIONS FROM THIS SECTION.

QUESTION 4

a) Name the divisions of fungi and the sexual spores produced by these divisions. **[5 marks]**

b) Explain the following:

(i) asexual spores in basidiomycetes. **[3 marks]**

(ii) vegetative forms in basidiomycetes. **[3 marks]**

(iii) sporocarps in ascomycetes. **[6 marks]**

c) Define the following

(i) a monokaryon **[2 marks]**

(ii) a dikaryon **[2 marks]**

(iii) a heterokaryon **[2 marks]**

(iv) a homokaryon **[2 marks]**

[Total marks = 25]

QUESTION 5

a) What is a virus? **[5 marks]**

b) Explain the following:

(i) viral replication **[5 marks]**

(ii) effects of virus infection on cells **[5 marks]**

(iii) viral transmission **[5 marks]**

(iv) bacteriophages **[5 marks]**

[Total marks = 25]

QUESTION 6

a) Draw a well-labelled diagram of a bacterium. **[5 marks]**

b) How do bacteria reproduce sexually? Elaborate. **[3 marks]**

c) Classify bacteria according to their temperature requirements. **[6 marks]**

d) Distinguish between the following:

(i) aerobes and anaerobes **[2 marks]**

(ii) autotrophic bacteria and heterotrophic bacteria **[5 marks]**

e) Draw and explain a typical growth curve of *E. coli.* **[5 marks]**

[Total Marks = 25]

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER 2005

TITLE OF PAPER: INTRODUCTORY BOTANY

COURSE CODE: B 111

TIME ALLOWED: THREE HOURS

INSTRUCTIONS:
1. ANSWER QUESTION 1 AND ONE OTHER QUESTION FROM SECTION A.
2. ANSWER ANY TWO QUESTIONS FROM SECTION B
3. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS
4. ANSWER EACH SECTION IN A SEPARATE BOOKLET
5. ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE

SPECIAL REQUIREMENTS:

NONE

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATORS