

COURSE CODE: B 111 (S) 2005

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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

*JB.*

**SECTION A**

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

**QUESTION 1**

- a) State any two differences between fats and oils. **[2 Marks]**
- b) State **other** types of lipids known to you. **[3 Marks]**
- c) State three roles that cholesterol may play in the body. **[3 Marks]**
- d) Name three types of proteins that may be found on the plasma membrane. **[3 Marks]**
- e) Name three molecules that are coded for by sequences located in the nucleolar organizers. **[2 Marks]**
- f) Copy and complete the following table: **[5 Marks]**

Organelle	Function
	Site of respiration
	Processing and packaging plant
Ribosomes	
Lysosomes	
	Control centre of the cell

- g) Define the following terms: **[4 Marks]**
  - i. Diffusion
  - ii. Osmosis
  - iii. Endocytosis
  - iv. Condensation
- h) Give an examples of the following types of molecules. **[3 Marks]**
  - 1) A pyrimidine
  - 2) A purine
  - 3) A hexose sugar

**[TOTAL 25 MARKS]**

**QUESTION 2**

- a. Describe in detail, the structure of the plasma membrane using **large, clearly labeled** diagrams to illustrate your answer where necessary **[12 Marks]**
- b. With the aid of large, clearly labeled diagrams, explain how substances can be moved across the plasma membrane. **[13 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) Write short notes on the following:
- (i) asexual spores in basidiomycetes. **[3 marks]**
  - (ii) vegetative forms in basidiomycetes. **[3 marks]**
  - (iii) sporocarps in ascomycetes. **[6 marks]**
- (c) Name and elaborate on the types of hyphae that are produced when compatible hyphae fuse without their nuclei fusing. **[8 marks]**

**[TOTAL MARKS = 25]**

**QUESTION 5**

- (a) Give a brief explanation of the phases of the cell cycle in somatic cells. [5 marks]
- (b) Why must cells divide? [5 marks]
- (c) Draw an animal cell at metaphase and telophase stages of mitosis. [3 marks]
- (d) Given the number of chromosomes pairs to be three (3), what is the number of possible chromosome combination at meiosis? [3 marks]
- (e) Outline the genetic significance of mitosis and meiosis. [9 marks]

**[TOTAL MARKS = 25]****QUESTION 6**

- (a) Explain the types of life cycles in plants. [6 marks]
- (b) Give an outline of the characteristics of non vascular plants. [4 marks]
- (c) What is a gametophyte? What is a sporophyte? How is the gametophyte specialized in plants? [5 marks]
- (d) Draw a well labelled diagram of the following:
- (i) *Pellia* spp. [3 marks]
  - (ii) *Funaria* spp. [2 marks]
  - (iii) *Dryopteris* spp. [2 marks]
  - (iv) Longitudinal section through an archegonium of *Anthoceros* spp. [3 marks]

**[TOTAL MARKS = 25]**