

UNIVERSITY OF FORT HARE

BOT 221

SUPPLEMENTARY EXAMINATIONS

JANUARY 2019

TIME: 3HOURS

MARKS: 75

SUBJECT: BOTANY 221

**PAPER: GENETICS, TAXONOMY, ECOLOGY AND WHOLE
PLANT PHYSIOLOGY**

This paper consists of THREE pages including the cover page

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ANSWER ONE QUESTION FROM EACH SECTION

**Illustrate your answers, wherever possible with carefully labelled drawings
or diagrams**

SECTION A

Question 1

A. In another experiment involving a cross between parent plants of unknown genotype, the offspring shown below were obtained. Determine the genotype and phenotype of the parents.

	3/8 full, round	
Offspring	3/8 full, wrinkled	
	1/8 constricted wrinkled	
	1/8 constricted, round	(10)

B. Describe Watson and Crick model of DNA replication showing the required steps of replication. (15) [25]

SECTION B (ANSWER ONE QUESTION)

Question 2

- What is Taxonomy? (02)
- Common names are of limited value for scientific purpose. Give five advantages and disadvantages of using common names (10)
- Discuss any five type specimens (10)
- Give an example of a plant scientific name (03)

[25]

OR

Question 2

- Discuss four fundamental components of taxonomy (12)
- What are the phases of Plant systematics (8)
- Classification of plants was first based on different functions, name five functions and give example of each (5)

[25]

SECTION C (ANSWER ONE QUESTION)

Question 3

List the various macro elements in the soil (10) and discuss why each is considered an essential mineral to the plants (15)

[25]

OR

Question 3

- a) Enumerate and discuss the various forms of transpiration (5)
- b) Discuss the various internal and external factors that affect the rate of transpiration (20)

[25]

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