UNIVERSITY OF FORT HARE

BOT 221

SUPPLEMENTARY EXAMINATIONS

JANUARY 2019

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TIME: 3 HOURS

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

a) What is Taxonomy? (02)  
b) Common names are of limited value for scientific purpose. Give five advantages and disadvantages of using common names (10)  
c) Discuss any five type specimens (10)  
d) Give an example of a plant scientific name (03) [25]

OR

Question 2

a) Discuss four fundamental components of taxonomy (12)  
b) What are the phases of Plant systematics (8)  
c) 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]