UNIVERSITY OF FORT HARE

BOT 322

DEGREE EXAMINATIONS

NOVEMBER 2016

TIME: 1½ Hours **MARKS: 50**

SUBJECT: BOTANY 322

PAPER: PLANT BIOCHEMISTRY

This paper consists of two pages including the cover page

EXAMINERS: Prof AJ Afolayan **External Examiner:Dr Y Naidoo**

ANSWER ANY TWO QUESTIONS

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

ANSWER ANY TWO QUESTIONS

QUESTION 1

a) What is the primary function of photosynthesis? (4)
b) Name a gas released as by-product of the light dependent reactions of photosynthesis (1)
c) Name the molecule that is the source of this gas (2)
d) With the aid of annotated diagrams, describe the anatomical differences between C_3 and C_4 leaves (6)
e) List two advantages which C_4 appears to have over C_3 photosynthesis (6)
f) List an advantage and a disadvantage of CAM metabolism in those plants that utilize this photosynthetic pathway. (6)

[25]

QUESTION 2

a) Using annotated diagram(s), discuss the essential features of the global nitrogen cycle. Explain the sources and fate of the key nitrogen compounds.

[25]

QUESTION 3

a) What are enzymes? (3) Give two examples of enzymes. (2)
b) Explain the importance of enzymes in biological reactions. (4)
c) Discuss what happens when enzymes react with substrates. *Illustrate your answer with diagrams where appropriate.* (10)
d) Discuss the factors affecting the rate of enzymatic reactions. (6)

[25]

SECTION 3

NB: Choose ONE question from this section

QUESTION 5: PEOPLE'S EDUCATION

Analyze the concept of People's Education and the response of the state to the idea and evaluate the manifestation the principles of Peoples Education in the post 1994 education system. (25)

OR

QUESTION 6: POST 1994 EDUCATION DEVELOPMENTS

Identify key and specific problematic areas in the post 1994 education system and propose strategies and possible options to overcome them. (25)

[25]

END OF EXAM PAPER