

BOT1501

October/November 2015

PLANT STRUCTURE: CYTOLOGY, MORPHOLOGY AND ANATOMY

Duration 2 Hours

100 Marks

EXAMINERS

FIRST

SECOND

MR AR MUDAU

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Closed book examination

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This paper consists of THREE (3) pages.

ANSWER ALL THE QUESTIONS IN THE EXAMINATION ANSWER BOOK PROVIDED.

[TURN OVER]

QUESTION 1

Complete the following statements.

- 1 1 Mutually beneficial relationships between fungi and the roots of vascular plants are illustrated by _____
- 1 2 Horizontal, above-ground stems are called runners or _____
- 1 3 Thorns are modified _____
- 1 4 Horizontal underground stems are called _____
- 1 5 Thin, coiled structures that attach some plants to supports are called _____
- 1 6 Stacks of thylakoids in a chloroplast are called are called _____
- 1 7 Collectively, the petals of a flower are called the _____
- 1 8 In plants, photosynthesis occurs in organelles called _____
- 1 9 Double fertilisation in plants produces a food source for the developing embryo, called the _____
- 1 10 Regulation of movement of substances between the cortex and the vascular cylinder, is performed by the _____

[10 × ½ = 5]

QUESTION 2

Distinguish or explain the difference between the following

- 2 1 Primary and secondary growth (4)
- 2 2 Autotrophic and heterotrophic organisms (4)
- 2 3 Heartwood and sapwood (4)
- 2 4 Phonetic approach and cladistics approach (4)
- 2 5 Bottleneck effect and genetic (4)

[20]

[TURN OVER]

QUESTION 3

- 3.1 Name the different types of meristems and their derivatives in plants (9)
- 3.2 Name the three basic types of cells in plants. Where are they located and what functions do they perform? (12)
- 3.3 Name at least five different types of modified stems and give the function of each (5)
- [26]**

QUESTION 4

- 4.1 Briefly describe five different methods of seed dispersal (10)
- 4.2 Use a table to differentiate between simple and multiple fruits. Give an example for each (4)
- [14]**

QUESTION 5

- 5.1 Describe the five factors that, according to the Hardy-Weinberg equilibrium, cause the frequency of alleles to remain constant in a population (10)
- 5.2 Explain the contribution that Carolus Linnaeus made to binomial nomenclature (6)
- 5.3 List two disadvantages of using common names (4)
- [20]**

QUESTION 6

- Use a table to compare the different phases of mitosis and meiosis (15)

TOTAL · 100 marks