



**FACULTY OF SCIENCE**

**DEPARTMENT OF BOTANY and PLANT BIOTECHNOLOGY**

**MODULE**                      **PLANT TAXONOMY**  
**BOT03B3**

**CAMPUS**                      **APK**

**EXAMINATION**              **JANUARY 2020**

**DATE**  
**/January/2020**

**SESSION**  
**08:30 – 11:30**

**EXAMINER**

**PROF M VAN DER BANK**

**INTERNAL MODERATOR**

**PROF A. MOTEETEE**

**EXTERNAL EXAMINER**

**DR. L. JOUBERT**

**DURATION: 3 HOURS**

**MARKS: 100**

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**NUMBER OF PAGES:    4 PAGES**

**INSTRUCTIONS:    ANSWER ALL THE QUESTIONS**

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**QUESTION 1**

**[20]**

1.1 List the six Floral Kingdoms of the world.

**[6]**

1.2 Which two criteria must be met for a region to qualify as a biodiversity hotspot?

**[2]**

1.3 Discuss the Savanna Biome with reference to the following aspects:

- a) Characteristics of the vegetation structure
- b) Environmental factors influencing the vegetation structure
- c) Importance of fire
- d) Economic uses

[8]

1.4 Critically discuss the role of fire in the Fynbos Biome.

[4]

**QUESTION 2**

**[20]**

2.1 List and discuss six factors that affect fire behaviour.

[6]

2.2 In 2014, a set of regulations was promulgated in terms of the National Environmental Management: Biodiversity Act (NEM:BA, Act 10 of 2004) which address the import of new alien species, place existing alien species into several categories, and specify how these species are to be controlled or managed. Name and Define each of the resulting NEM:BA categories.

[10]

2.3 Name four of the management option currently employed in South Africa against invasive species pre- and post-introduction.

[4]

**QUESTION 3**

**[15]**

3.1 Give an overview of the 6th phase in botanical history known as “Phylogenetic Classification Systems”.

[8]

3.2 What are the main differences between phenetics and cladistics?

[2]

3.3 List five basic principles of a phenetic classification system.

[5]

**QUESTION 4**

**[15]**

4.1 How did the following people influence the botanical exploration in South Africa?

- a) Carl Thunberg
- b) William John Burchell
- c) William Henry Harvey

[3]

4.2 List the four types of herbaria that exist. Give a short description to explain the function and include an example of each type of herbarium.

[8]

4.3 List four main functions of modern botanical gardens.

[4]

**QUESTION 5**

**[20]**

5.1 Who first consistently used binominals? What does a binomial name consist of and what is the function of each part?

[2]

5.2 What are the principles of Plant Nomenclature?

[6]

5.3 What are the advantages of using scientific names over common names?

[5]

5.4 Name two reasons why it might be necessary for a name change.

[2]

5.5 What are the main criteria of valid nomenclature publication?

[5]

**QUESTION 6**

**[10]**

Critically discuss the taxonomic impediment. What are the challenges associated with it and what strategies would you propose to overcome these?

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