### FIRST OPPORTUNITY

Examiner: Dr Chimwamurombe PM (University of Namibia)

Moderator: Prof B Wingfield (University of Pretoria)

---

This question paper consists of 3 pages including this face page

---

**Instructions**

1. Carefully read all the instructions.
2. There are two sections in this paper.
3. Remember to include illustrative drawings where possible
4. Answer all questions in Section A and choose any two questions in Section B

---

UNIVERSITY OF NAMIBIA EXAMINATIONS
Section A

This section is worth 60 marks. Answer all questions

1. Describe the importance of meristematic growth in plant growth & development. (6 marks)

2. Explain the role of expansins in plant cell growth. (6 marks)

3. Explain the Cholodny-Went hypothesis in phototropism (6 marks)

4. Describe the concept of “loss-of-function” mutants in mutagenic studies to explain mechanisms of plant cell growth. (6 marks)

5. Compare and contrast the main plant photoreceptors. (6 marks)

6. Explain the response of shoots to gravity (6 marks)

7. Describe the nature of the photoreceptor involved in phototropism. (6 marks)

8. Explain the significance of the critical day length in SDP’s and LDP’s. (6 marks)

9. Explain how the ABC model of floral patterning is used to predict the pattern of organs in various flowering mutants. (6 marks)

10. Explain the role of florigen in flowering. (6 marks)

11. Describe the changes in the level of plant hormones during seed and seedling development. (6 marks)
12. Critically discuss water uptake as the driving force for plant growth. (6 marks)

13. Describe signalling of the vernalisation signal in plants. (6 marks)

14. Explain the interdependency between genetics, hormones and the environment in controlling plant growth and development. (6 marks)

15. Describe the role of starch on gravitropism. (6 marks)

Section B: Essays Section

This section is worth 60 marks; Answer any two questions in this section.

1. Write a concise overview of the role of various hormones and plant growth regulators in plant growth and development. (30 marks)

2. In detail, describe totipotency in plants and its application in agriculture. (30 marks)

3. “Plants can smell and see”. Discuss this statement in line with the use of smoke and fire in seed germination (30 marks)

4. Write an essay of control the flowering process. (30 marks)