



FACULTY	AGRICULTURE, ENGINEERING AND NATURAL SCIENCES		
DEPARTMENT	ENVIRONMENTAL SCIENCE		
MODULE	DEVELOPMENTAL BIOLOGY		
MODULE CODE	MIC3872		
DATE	NOVEMBER/DECEMBER 2021		
DURATION	3 Hours	MARKS	120

SUPPLEMENTARY EXAMINATION

Examiners: Dr E.G. Kwembeya (University of Namibia) & Ms S. Kanyemba (University of Namibia)

Moderator: Prof. R. Mavenyengwa (University of Zimbabwe)

This question paper consists of 3 pages (including the front page)

Instructions

- 1. Carefully read all the instructions.**
- 2. There are two sections in this paper.**
- 3. 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.

QUESTION 1

- (a) Explain the formation of the cell plate and cell wall during cytokinesis. (10)
- (b) Briefly discuss the concept of redifferentiation in plants and name an example. (4)

QUESTION 2

Briefly discuss the concepts of signal perception and transduction in plant development. (8)

QUESTION 3

- (a) Explain how gibberellins, cytokinins, ABA and brassinosteroids are related biosynthetically. (4)
- (b) Explain any four agronomical applications of gibberellins and cytokinins. (4)

QUESTION 4

Discuss the three different means by which animal offspring are produced through internal fertilization. (12)

QUESTION 5

Explain the process of spawning and its importance in ensuring species survival in hostile environment. (8)

QUESTION 6

During organogenesis, the ectoderm forms the neural cells and the epidermal cells. How do the ectoderm cells determine which type of cells to form? (4)

QUESTION 7

In aquatic environments where sperm and eggs of different animals are released into the water, what ensures that only sperm from the same species can fertilize the egg? (6)

Section B: Essays Section

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

QUESTION 1

Discuss hormonal control of apical dominance.

(30 marks)

QUESTION 2

Discuss the various events that take place to prevent polyspermy of the egg during the process of fertilisation.

(30 marks)

QUESTION 3

Discuss the technique of assisted reproductive technology.

(30 marks)

-----**END OF EXAMINATION**-----