

BOT 300E



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COLLEGE
Bastion of Knowledge...

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OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2021 /2022 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER REGULAR EXAMINATION

**FOR THE DEGREE OF BACHELOR OF
EDUCATION SCIENCE**

COURSE CODE: BOT 300E

COURSE TITLE: PLANT PHYSIOLOGY AND BIOCHEMISTRY

DATE: 26TH JANUARY 2022

TIME: 09.00AM – 12.00PM

INSTRUCTIONS TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

REGULAR – MAIN EXAM

BOT 300E: PLANT PHYSIOLOGY AND BIOCHEMISTRY

STREAM: BED (SCIENCE)

DURATION: 3 Hours

INSTRUCTIONS TO CANDIDATES

- i. Answer **ALL** questions from section A and any **FOUR** from section B.
- ii. Diagrams should be used whenever they serve to illustrate the answer.
- iii. Do not write on the question paper.

SECTION A (30 MARKS)

Question One

- a) Define an enzyme. (1 Mark)
- b) Highlight the six main classes of enzymes. *Enzymes* (6 Marks)
- c) Outline the four main characteristics of enzymes. (4 Marks)
- d) Describe the lock and key hypothesis in a substrate-enzyme interaction. (2 Marks)
- e) Explain how substrate concentration affects enzyme activity. (2 Marks)

Question Two

- a) Explain phytohormones. (2 Marks)
- b) Describe phototropism. (3 Marks)
- c) Explain;
 - i) Phytochrome system (2 Marks)
 - ii) Vanalization process. (2 Marks)
- d) Outline the physiological effects of ethylene hormone, in plants. *ethylene synthesis* (3 Marks)
- e) Highlight the biosynthesis of Indole Acetic Acid (IAA). (3 Marks)

SECTION B (40 MARKS)

✓ **Question Three**

- a) Discuss the events that occur during the process of photosynthesis. (6 Marks)
- b) Distinguish between plants in the C3 and those in the C4 pathways of photosynthesis. (4 Marks)

✓ **Question Four**

- a). State the importance of Nitrogen in plants. (2 Marks)
- * b). Describe the Nitrogen cycle. (8 Marks)

✓ **Question Five**

- a). Explain how a phase contrast microscope functions. (5 Marks)
- b). Describe how you would observe plant cells under a simple compound microscope. (5 Marks)

✓ **Question Six**

- a). State the various classes of co-enzymes. (4 Marks)
- b). Describe the functions of;
 - i. Vitamin E. (2 Marks)
 - ii. Vitamin K. (2 Marks)
 - iii. Vitamin A. (2 Marks)

X **Question Seven**

- a) Describe the various forms of carbohydrates. (2 Marks)
- b) Describe the different classes of proteins. (6 Marks)
