

BOT 300E



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

BOT 300E

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. (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. (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)

Question Seven

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