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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

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)

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