



OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2019 /2020 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER REGULAR EXAMINATION

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

COURSE CODE: BOT 202E

**COURSE TITLE: DEVELOPMENTAL BIOLOGY AND
PHYSIOLOGY (PLANTS)**

DATE: 30TH OCTOBER, 2020 TIME: 2.00 PM – 5.00 PM

INSTRUCTIONS TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

REGULAR – MAIN EXAM

BOT 202E: DEVELOPMENTAL BIOLOGY AND PHYSIOLOGY (PLANTS)

STREAM: BED (SCIENCE)

DURATION: 3 Hours

INSTRUCTIONS TO CANDIDATES

- i. Answer **ALL** questions from section A and any **THREE** from section B.
 - ii. Diagrams should be used whenever they serve to illustrate the answer.
 - iii. Do not write on the question paper.
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SECTION A (24 MARKS)

Question One

- a) Outline THREE functions of each of the following cell structures
- i. Vacuoles (3 Marks)
 - ii) Micro tubules (3 Marks)
- b) Differentiate between
- i) Chloroplasts (2 Marks)
 - ii) Chromoplasts (2 Marks)
 - iii) Leucoplasts (2 Marks)

Question Two

- a) Describe the structure of the root apex (3 Marks)
- b) Explain the structural differences between the following vascular structures
- i Sieve cell and sieve tube member (2 Marks)
 - ii Tracheid and vessel element (2 Marks)
 - iii Fibres and sclereids (2 Marks)
- c) Explain THREE forces involved in transport of water from the roots up to the leaves (3 Marks)

SECTION B (36 MARKS)

Question Three

- a) Explain how water affects germination of seeds (4 Marks)
- b)
- i. Outline FOUR causes of seed dormancy (4 Marks)
- ii. Describe FOUR ways of breaking seed dormancy (4 Marks)

Question Four

Describe the characteristics of the following tissues

- a) Palisade tissue (4 Marks)
- b) Collenchyma tissue (4 Marks)
- c) Sclerenchyma tissue (4 Marks)

Question Five

Explain how the following hormones influence plant growth and development

- a) Auxins (4 Marks)
- b) Abscicic acid (4 Marks)
- c) Ethylene (4 Marks)

Question Six

- a) Distinguish between primary and secondary growth (2 Marks)
- b) Outline TWO characteristics of meristematic tissue (2 Marks)
- c) Describe secondary growth in dicot roots (8 Marks)

Question Seven

- a) Give an account double fertilization in flowering plants (6 Marks)
- b) Describe the formation of endosperm (6 Marks)
