



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2022/2023

SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF  
BACHELOR OF SCIENCE IN BIOCHEMISTRY, BACHELOR OF SCIENCE IN  
BIOTECHNOLOGY, BACHELOR OF EDUCATION SCIENCE

AND

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR  
OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION AND BACHELOR OF  
SCIENCE IN AGRICULTURE

### SBA 3250: PLANT BIOCHEMISTRY AND PHYSIOLOGY

DATE: APRIL 2023

TIME: 2 HOURS

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INSTRUCTIONS: Answer question *one* and any other *two* questions

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#### QUESTION ONE (30 MARKS)

- a) Outline the functions of carbohydrates (2 marks)
  - b) Illustrate the general structure of amino acids (3 marks)
  - c) Outline the peptide of physiological importance (4 marks)
  - d) Describe the two photosystem in photosynthesis (4 marks)
  - e) Illustrate the pathway of noncyclic electron transport from water to NADPH (4 marks)
  - f) Outline the major features unique to CAM plants (3 marks)
  - g) Explain the physiological effects of auxins (4 marks)
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- h) Describe photorespiration (4 marks)
- i) Outline the steps in Hatch and slack cycle (2 marks)

**QUESTION TWO (20 MARKS)**

Discuss nitrogen cycle (20 marks)

**QUESTION THREE (20 MARKS)**

Discuss the natural occurrence, biosynthesis and physiological effects of cytokinins (20 marks)

**QUESTION FOUR (20 MARKS)**

discuss the calvin cycle or C<sub>3</sub> (20 marks)