



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2023/2024

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

FIRST YEAR SECOND SEMESTER BACHELOR OF AGRICULTURE AND BACHELOR
OF AGRICULTURAL EDUCATION AND EXTENSION

SBA 3250: PLANT BIOCHEMISTRY AND PHYSIOLOGY

DATE: APRIL 2024

TIME: 2 HOURS

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

QUESTION ONE (30 MARKS)

- a) Describe the following terms
 - i. Photorespiration (3 marks)
 - ii. Phosphoration (3 marks)
 - iii. Electron transport chain (3 marks)
- b) Explain the role of different photosynthetic pigments in the process of photosynthesis (3 marks)
- c) Describe the constituents of chloroplast in relation to sites of photosystem II, I and ATP synthesis (6 marks)
- d) Distinguish competitive and non-competitive enzyme inhibition (4 marks)
- e) Outline the 5 steps in protein synthesis (5 marks)

QUESTION TWO (20 MARKS)

Explain the process through which plants break down glucose into pyruvate (glycolysis)

QUESTION THREE (20 MARKS)

Explain and distinguish among the following mechanisms through which plants fix atmospheric carbon into 3c (sugars) molecules

C₄, C₃, CAM

QUESTION FOUR (20 MARKS)

Discuss the mechanisms of plants absorption of water and minerals from roots hairs and transport to the photosynthetic setups