

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS 2018/2019**

**YEAR 2 SPECIAL/SUPPLIMENTARY EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL HORTICULTURE**

**HBB 2108: PLANT BIOCHEMISTRY**

**DATE: JUNE 2019 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

QUESTION ONE (30 MARKS)

Use diagrams as much as possible

a) Describe a reaction centre (5 marks)

b) Explain photosystem II (5 marks)

c) Explain the structure of chlorophyll a and b (5 marks)

d) Describe the meaning of RUBISCO (5 marks)

e) Explain photorespiration (5 marks)

f) Explain the structure of an amino acid (3 marks)

g) Describe the nitrogenase reaction (2 marks)

QUESTION TWO (20 MARKS)

a) Explain the Calvin cycle

b) Describe the C4 photosynthetic pathway

QUESTION THREE (20 MARKS)

a) Describe the structure and functions of a chloroplast (10 marks)

b) Explain a laboratory test for photosynthetic pigments (10 marks)

QUESTION FOUR (20 MARKS)

Describe the functions of carbohydrates (10 marks)

Describe the structure and functions of four lipids (10 marks)