JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCTION SCIENCE WITH IT

4th YEAR FIRST SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE:	**SBT 401**
COURSE TITLE:	**Plant Biochemistry And Physiology**
EXAM VENUE:	**STREAM: (BED SC)**
DATE:	**EXAM SESSION:**

TIME: 2 HOURS

Instructions:

1. **Answer ALL questions in Section A and Any two questions in Section B**
2. **Candidates are advised not to write on question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. Briefly explain the differences between photosystem 1 and photosystem 2. (3marks)
2. Giving examples outline roles of secondary metabolites in plants. (3 marks)
3. a). Explain the cooperation that exists between the light and dark stages of photosynthesis. (2 marks)
   b). Name the location where the light and dark stages of photosynthesis. (1 mark)
4. Describe the metabolic fates of amino acids in plants (3 marks)
5. Describe in brief the reductive amination reactions for synthesis of amino acids in plants (3 marks)
6. Giving examples outline functions lipids in plants. (3 marks)
7. Detailing the enzymes involved, describe the reduction of nitrates absorbed by plants to ammonia. (3 marks)
8. Explain why sucrose is one of the major organic transport materials in plants. (3marks)
9. Describe how Phosphofructokinase (PFK) activity is regulated during glycolysis. (3marks)
10. Explain the meaning of the following terms
    a). Nucloeside
    b). Nucleotide
    c.) Oligomer (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11a). Describe the two alternative mechanisms of carbon fixation that plants in hot, arid climates have evolved to ensure they carry out photosynthesis without getting dehydrated. (14 marks)

b). Explain the advantages of the mechanisms in (a) above to the plant (6 marks)

12. Discuss the glyoxylate cycle. (20 marks)

13.a). Discuss the factors that affect the rate of respiration in plants. (16 marks)

b). Explain the differences between photosynthesis and respiration. (4 marks)

14. Describe the four levels of protein organization. (20 marks)