



**SOUTH EASTERN KENYA UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2016/2017**

**SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF  
SCIENCE IN BIOCHEMISTRY AND MOLECULAR BIOLOGY**

**BCH 305: ADVANCED PLANT PHYSIOLOGY AND BIOCHEMISTRY**

**DATE: 20<sup>TH</sup> APRIL, 2017    TIME: 1.30-3.30 P.M**

**INSTRUCTIONS TO CANDIDATES**

- (a) Answer ALL the Questions in Section A**  
**(b) Answer ANY TWO Questions in Section B**  
**(c) Illustrate your answers with well labeled diagrams where appropriate**
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**SECTION A (30 MARKS)**

1. Draw the structure of sucrose giving its alternative names. **(3 marks)**
2. State **one** similarity and **two** differences between starch and Fructans. **(3 marks)**
3. Outline **two** functions of myo-inositol. **(2 marks)**
4. Briefly describe the structure of Starch. **(3 marks)**
5. State **one** function of the following: (i) cellulose (ii) hemicellulose and (iii) pectin. **(3 marks)**
6. a. State the precursor of isoprenoid synthesis. **(1 mark)**  
b. The synthesis proceeds in higher plants and some groups of algae in two different ways: Name the precursors and the location of syntheses. **(3 marks)**
7. List the **three** enzymes required for labelling target proteins for degradation. **(3 marks)**
8. Briefly explain **three** ways in which nitrogen fixation occurs in the soil. **(3 marks)**
9. State the importance of plant alkaloids in pharmacological industry. **(3 marks)**

10. Give **three** advantages and disadvantages of phytoremediation. **(3 marks)**

**SECTION B (40 MARKS)**

11. Describe the biosynthesis of sucrose in plants. **(20 marks)**

12. Describe the degradation of starch. **(20 marks)**

13. Discuss metabolism and importance of cyanogenic glycosides in plants. **(20 marks)**

14. Describe the catabolism of myo-inositol. **(20 marks)**