



(Knowledge for Development)

KIBABII UNIVERSITY
UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR

THIRD YEAR 1ST SEMESTER
MAIN EXAMINATION

**FOR THE DEGREE OF BACHELOR OF SCIENCE AGRICULTURE AND
BIOTECHNOLOGY**

COURSE CODE: SAB 333

COURSE TITLE: CROP PHYSIOLOGY

DATE: 11TH JANUARY 2018

TIME: 2 – 4 PM

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other TWO Questions.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over

KIBU observes ZERO tolerance to examination cheating



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1. (a) Explain the significance of the Soil-Plant-Atmosphere Continuum (SPAC) in plant water relations. (2 marks)
- (b) What role does water play in plant growth? (4 marks)
- (c) In which ways does wind affect plant growth? (4 marks)
- (d) What is seed vigour? (2 marks)
- (e) State the necessary tests for measuring this phenomenon. (8 marks)
- (f) State the difference between plant macro and micronutrients. (2 marks)
- (i) Identify and briefly explain four essential macro and four micro nutrients and explain their role in plant physiology. (8 marks)

2. (a) State the plant and environmental factors that affect the rate of photosynthesis. Explain. (10 marks)
- (b) Describe the salient physiological features that differentiate C-3 and C-4 plants. (10 marks)

3. (a) State and fully discuss the external stimuli responsible for floral induction. (10 marks)
- (b) Schematically show and describe the complete 'cycle' of bud development up to the floral stages and finally into seed. (10 marks)

4. (a) Describe the types of dormancy exhibited by seed in order to survive in their own environments. (15 marks)
- (b) Stating the ecological significance in each case, explain the mechanisms by which dormancy is regulated by the following factors:
 - (i) Seed coat
 - (ii) Pigment phytochrome
 - (iii) Cold temperature treatment(5 marks)