# BINDURA UNIVERSITY OF SCIENCE EDUCATION

## FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

**AGC 221**

**Department of Crop Science**
**BSc Agricultural Science (Honours) Part II Examination**
**Crop Ecology and Physiology**

5

**3 HOURS (100 Marks)**



**INSTRUCTIONS**

Answer any ***FOUR*** questions. Each question carries **25 marks**.

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1. (a) Differentiate between crop growth and crop development. **[5 marks]**

   (b) Use a graph to describe the process of dry matter accumulation throughout the entire maize (*Zea mays*) crop growth cycle. **[20 marks]**

2. Discuss the merits and demerits of the classical crop growth analysis. **[25 marks]**

3. (a) Write short notes on the following growth parameters:
   i. Leaf area index (LAI) **[5 marks]**
   ii. Net assimilation rate (NAR) **[5 marks]**
   iii. Harvest index **[5 marks]**

   (b) Outline the key differences between the C4 and C3 crop species. **[10 marks]**

4. Discuss the factors that affect the interception of photosynthetically active radiation (PAR) in a common/field pea (*Pisum sativum*) crop. **[25 marks]**

5. Using soybean (*Glycine max*) as a case study, discuss several factors that affect the radiation use efficiency (RUE) throughout the crop`s growth cycle. **[25 marks]**

6. Using the Zadok`s scale, fully describe the ten wheat (*Triticum aestivum*) crop growth stages. **[25 marks]**

**End of Exam Paper**