



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**FACULTY OF AGRICULTURAL SCIENCES**  
 KM 4 Kaduna - Zaria Expressway Riga Chikun Kaduna  
**DEPARTMENT OF CROP AND SOIL SCIENCES**  
**SEPTEMBER, 2020\_1**

**COURSE CODE: CRP 502**

**COURSE TITLE: PLANT GROWTH AND DEVELOPMENT**

**TOTAL CREDIT UNIT: 2 CU**

**INSTRUCTIONS:** Answer four questions in all. Question one is compulsory and it carries 25 marks. Any three is 15 marks each.

**TIME ALLOWED:** 2.30 hours

- 1) (a) Describe the process of seed germination (10 marks)
- (b) Explain the effects of cloud on solar radiation (5 marks)
- (c) In the table below, categorize these plant nutrients as macro-nutrient, primary macro-nutrient, secondary and tertiary macro-nutrient and micro-nutrients (10 marks)

| Name of nutrient                                                                                                                                    | Category |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Carbon<br>Hydrogen<br>Oxygen                                                                                                                        |          |
| Nitrogen<br>Phosphorus<br>Potassium                                                                                                                 |          |
| Sulphur<br>Calcium<br>Magnesium                                                                                                                     |          |
| Iron<br>Molybdenum<br>Boron<br>Copper<br>Manganese<br>Sodium<br>Zinc<br>Nickel<br>Chlorine<br>Cobalt<br>Aluminum<br>Silicon<br>Vanadium<br>selenium |          |

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- 2) (a) List ten factors influencing the rate of respiration in plants (10 marks)  
(b) Briefly explain the influence of type and age of plant tissues in respiration (5 marks)
- 3) (a) State the functions of Boron (B) in plants (10 marks)  
(b) Mention two deficiency symptoms of Boron (5 marks)
- 4) (a) List ten growth and yield components of rice (10 marks)  
(b) List five growth components of maize (5 marks)
- 5) (a) Classify plant growth hormones based on their action (5 marks)  
(b) What are the effects of Auxins on plants (10 marks)
- 6) (a) Match the plant growth regulator and the scientist associated with. (5 marks)

**Plant Growth Regulator**

**Scientist**

1. Gibberellins
2. Auxins
3. Absciscic acid
4. Cytokinins

- (b) Outline the importance/application of Ethylene in fruits and vegetables (10 marks)