



“Investing in Africa’s future”
**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL
SCIENCES**

NACP 112: AGRICULTURAL BOTANY AND PLANT PHYSIOLOGY

END OF SECOND SEMESTER FINAL EXAMINATIONS

APRIL 2022

LECTURER: MR. MTAITA T. A.

DURATION: 3 HOURS

INSTRUCTION

Choose and Answer Four Questions

Question One

- a) Discuss the primary functions of the main plant organs **[10]**
- b) Identify at least five silent features of the International Code of Binomial Nomenclature **[5]**

- c) For each of the following systems of pollination control, explain how it encourages or enforces cross-or self-pollination; **[5]**
1. Cleistogamy,
 2. Dichogamy,
 3. Chasmogamy,
 4. Homomorphic, sporophytic incompatibility
 5. Monoecy, in anemophilous species
- d) Examine the differences between monocots and dicots. **[5]**

Question Two

- a) Give the importance of each of the following modified organs in ONE NAMED (by common and scientific names) crop plant. **[5]**
- i) Stem tuber
 - ii) Root nodule
 - iii) Leaf tendril
 - iv) Stolon
- b) What are the five characteristics of a good bioassay? **[5]**
- c) Clarify the applications of the five groups of phyto-hormones in agriculture. **[15]**

Question Three

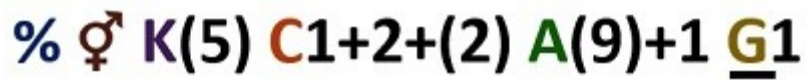
- d) Clearly examine the process of photosynthesis and clarify the factors influencing the process. **[15]**
- e) Give a detailed botanical or physiological explanation for each of the following observations; **[10]**
- i) Auxins promote shoot and root growth but synthetic auxins are commonly used as herbicides in agriculture,
 - ii) A foliar spray of cycocel (ccc) reduces plant height in cereal crops,
 - iii) Mature green bananas are treated with ethrel about five days before marketing,
 - iv) *Sphaceloma manihoticola* cause 'super-elongation' disease in cassava,
 - v) Water is necessary for fertilization in Bryophytes,
 - vi) A mango seed can produce more than one seedling,
 - vii) Farmers in tropical and sub-tropical countries (e.g., Zimbabwe) grow spring wheat instead of winter wheat cultivars, during the winter season,
 - viii) Banana plants grow up to three meters tall while the stem is still underground,
 - ix) Horticulturists normally use sphagnum moss,
 - x) Gibberellins are used in the malting industry.

Question Four

- a) Write about vernalisation and indicate its importance in Agriculture. [10]
- b) Discuss the plant modified organs and their importance in agriculture. [15]

Question Five

- a) Interpret the following floral formula. [5]



- b) Write about pollination in agriculture. [10]
- c) Examine the concept of classification in agriculture. [10]

Question Six

- a). What are the five advantages of vegetative propagation? [5]
- b) Analyze why transpiration is considered to be a necessary evil. [5]
- c) Examine the concept of photosynthesis. [5]
- d) Analyze the concept of photoperiodism. [10]

End of Examination Paper