



**"Investing in Africa's future"**

**COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES**

**NACP 503: WEED ECOLOGY AND MANAGEMENT**

**END OF SECOND SEMESTER FINAL EXAMINATIONS**

**APRIL 2023**

**LECTURER: W. MANYANGARIRWA**

**DURATION: 3 HOURS**

## INSTRUCTION

### SECTION A: WEED ECOLOGY

#### ANSWER ANY TWO QUESTIONS IN THIS SECTION

1. a) The upright starbur (*Acanthospermum hispidum*) was described by Chivinge (1988), as the most troublesome and difficult weed to control in the communal areas of Zimbabwe. Give an outline of the eco-physiological factors which enable this weed to be dominant. [15]  
  
b) Explain the reasons why *Striga* spp. as a weed is called the “Witch weed” in cereal agro-ecosystems of Africa. [10]
2. a) Distinguish the different types of allelopathy. [5]  
b) With the use of relevant examples, outline how allelopathy contributes to the dominance of certain weed species in agro-ecosystems. [20]
3. With the use of appropriate examples, discuss the benefits of weedy plant species. [25]
4. In a trial where you are evaluating yield losses ( $Y_L$ ) on maize due to weed infestation.
  - a) Describe the types of species competition taking place. [8]
  - b) Cite appropriate models that you can use to generate your data. [8]
  - c) What are the shortcomings of the models in b above?. [9]

### SECTION B: WEED MANAGEMENT

#### ANSWER ANY TWO QUESTIONS IN THIS SECTION

5. Discuss how herbicide selectivity is achieved through a combination of the physiological aspects of the crop, the target weeds as well as the managerial skills of the crop manager. [25]
6. Discuss the concept of Integrated Weed Management and outline its advantages over conventional chemical weed control. [25]

7. With the use of appropriate examples, give a detailed outline of measures used to manage the water hyacinth weed (*Eichhornia crassipes*) in aquatic ecosystems of Sub-Saharan Africa. [25]
8. With the use of relevant examples, discuss the practical applications of Herbicide Tolerant Crops (HTCs). In your answer discuss the merits and drawbacks of using HTCs and suggest ways in which the drawbacks can be minimized. [25]

**End of Examination Paper**