



“Investing in Africa’s future”

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

NACP 405: PLANT BREEDING METHODS AND BIOTECHNOLOGY

END OF FIRST SEMESTER FINAL EXAMINATIONS

NOVEMBER 2021

LECTURER: MR. TABARIRA J.

DURATION: 5 HRS.

INSTRUCTIONS

Download the Question paper from the Moodle platform and work offline

Choose and Answer **One** question

DO NOT repeat material

Question One

- a. Discuss emerging plant breeding technologies in your country, under the following sub-headings:
 - i. Brief description of the technologies. [20]
 - ii. Key advantages of these technologies. [10]
 - iii. Challenges for the full implementation of the technologies. [10]
- b. Provide a balanced view to inform developing economies on the importance of adopting GMO technology in agriculture. [30]
- c. Discuss in support of the perception that plant breeding offers permanent solutions to global food security challenges. [30]

Question Two

- a. Discuss Johansson's pureline theory and the application of his key findings in plant breeding. [25]
- b. Provide a strong justification why inbreeding is a common practice in plant breeding despite its negative effects in breeding populations. [15]
- c. Suppose upon completion of your studies, you get employment to initiate a new pumpkin breeding program:
 - i. State and support the sources of germplasm for your program. [20]
 - ii. How will you choose a breeding method for this new program. [25]
 - iii. Justify the type of cultivars you will develop. [15]

Question Three

- a. Write explanatory notes on the following:
 - i. The roles farmers play in a participatory plant breeding program. [20]
 - ii. Major differences between pedigree and single seed descent selection procedures. [15]

- iii. Challenges and opportunities associated with the emerging plant breeding technologies in my country. [25]
- iv. GMO technology is far from addressing global food security challenges. [30]
- v. Marker assisted selection is an indirect selection procedure. [10]

END OF EXAMINATION PAPER