



**NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF AGRICULTURAL SCIENCES
DEPARTMENT OF CROP AND SOIL SCIENCE
2025_2 EXAMINATIONS**

COURSE TITLE: ANALYTICAL TECHNIQUES IN AGRICULTURE (3 CU)

COURSE CODE: AGR 503

TOTAL SCORE: 70 MARKS

INSTRUCTION: Answer 4 questions in all

Question 1 is compulsory (25 marks) and any other THREE questions (15 marks each)

TIME ALLOWED: 2 ½ Hours

- 1a. As a crucial factor in any soil or plant laboratory, talk about safety principles. (6 marks)
- 1b. Name four (4) crucial pieces of information regarding safety in a laboratory setting. (4 marks)
- 1c. Give a brief explanation of the three (3) organizational levels of principle that produce quality. (15 marks)
- 2a. Briefly describe vitrification. (9 marks)
- 2b. Explain the steps involved in three (3) organisms' natural cryopreservation. (3 marks)
- 2c. What does cryopreservation entail? (3 marks)
- 3a. Explain what a calibration graph is. (5 marks)
- 3b. Write a brief note on each of the five (5) HPLC parameters. (5 marks)
- 3c. List the five (5) crucial factors to take into account when choosing suitable sampling plans that adhere to pertinent feed industry standards. (5 marks)
- 4a. Give a summary of the first ten (10) soil sampling procedures. (5 marks)
- 4b. What does "Thin-layer chromatography (TLC)" mean?" (4 marks)
- 4c. What are the gas chromatography (GC) analytical procedures? (6 marks)
- 5a. Attempt the definition of Gel electrophoresis (5 marks)
- 5b. List six (6) states where PCR is used. (6 marks)
- 5c. List the eight (8) categories in which safety is required. (4 marks)