NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF AGRICULTURAL SCIENCES
DEPARTMENT OF CROP AND SOIL SCIENCES

SEPTEMBER, 2020_1

EXAMINATION: SECOND SEMESTER POP EXAMINATION
COURSE TITLE: ANALYTICAL TECHNIQUES IN AGRICULTURE (2CU)
COURSE CODE: AGR503
TOTAL SCORE: 70 MARKS
TIME ALLOWED: 1hour 30minutes

INSTRUCTIONS: Answer four questions in all
Question 1 is compulsory (25marks) and any three questions (15marks each)

Q1

a) Why is safety a very important consideration in a soil science laboratory? (8marks)

b) What are the four techniques involved in Quality Control levels of operation? (10marks)

c) State how calibration graph can be obtained. (7marks)

Q2

a. In a tabular form mention any six (6) parameters related to sampling measurements and describe briefly their laboratory procedures. (12marks)

b. Define Sampling error as given by FAO. (3marks)

Q3

a. state 10 steps to be   taken to minimise sampling error in animal feed analysis. (10marks)

b. What do you understand by soil sampling? (5marks)

Q4

a. Briefly explain the term "microscopy" and state its use. (9marks)

b. What are the functions of any three different parts of an optic microscope? (6marks)

Q5

a. What do you understand by Photometer? State three types of photometers you studied. (9marks)

b. In a tabular form give five (3) differences between Classical column chromatography and High-performance liquid chromatography (HPLC) (6marks)

Q6

   a. Discuss briefly, the following components of Gas chromatography (GC)
   1.   Auto samplers
   2.   Inlets
   3.   Detectors

b.   Discuss exhaustively, the concept of cryopreservation or Cryoconservation. (15marks)