NATIONAL OPEN UNIVERSITY OF NIGERIA

PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESS WAY, JABI, ABUJA

FACULTY OF SCIENCES

2021_1 EXAMINATION

**COURSE CODE:** DAM462

**COURSE TITLE:** AGRICULTURAL DATA SYSTEMS

**CREDIT:** 2

**TIME ALLOWED:** 2HOURS

**INSTRUCTION:** Answer Question One (1) and any other three (3) Questions

**QUESTION ONE (25 MARKS)**

a. List the three scales of complexity in which business and Information Technology development are modeled. **(3 Marks)**
b. Differentiate between open and closed agricultural systems. **(2 Marks)**
c. Describe briefly, the "Operational Systems" in Agricultural Systems. **(3 Marks)**
d. Outline the aim of the following Agricultural Systems
   i. Purposeful or non-purposeful **(1 Mark)** ii. Abstract or Concrete **(1 Mark)**
e. Differentiate between farm system and farming system. **(2 Marks)**
f. State briefly any 2 usefulness of optimization models when applied for agricultural systems. **(4 Marks)**
g. What are the challenges that will emanate as a result of new demands for Computerized agricultural models. **(3 Marks)**
h. List four (4) major technical areas for selection when planning agricultural science and technology databases. **(4 Marks)**
i. State the two unique features of expert system for diagnosing Soya beans diseases. **(2 Marks)**

**QUESTION TWO (15 MARKS)**

a. Define Simulation Modeling. **(2 Marks)**
b. Itemize the three basic strengths of mathematical models of agricultural systems **(3 Marks)**. State the three (3) general techniques used in modeling agricultural systems mathematically **(3 Marks)**
c. Explain the benefits of using indirect tools of Information Technology to farmers. **(7Marks)**

**QUESTION THREE (15 MARKS)**

a. Elaborate on the petroglyph age of Information Technology. **(6 Marks)**

b. Itemize the four main sections of digital computing with the aim of bringing out their inventions and breakthroughs. **(7 marks)**
c. In the context of agriculture, state the two potential tools in which Information Technology can be assessed. **(2 marks)**

**QUESTION FOUR (15 MARKS)**

a. Distinguish between explicit and implicit farming. **(5 Marks)**
b. Discuss briefly, the secondary; but often important reason for modeling agricultural systems. **(4 Marks)**
c. Differentiate between "Descriptive models" and "Predictive Models". **(4 Marks)**
d. Discuss the "product quality of control" issues needed for better information to optimize agricultural systems. **(2 Marks)**

**QUESTION FIVE (15 MARKS)**

a. Discuss the roles non-optimizing dynamic simulation models serve for both scientist and decision makers. **(6 Marks)**
b. Explain the significance of computer models for farm management with respect to "Record Keeping". **(4 Marks)**
c. Discuss the three (3) stages in which agricultural science and technology databases have evolved. **( 5 Marks)**