



## **NATIONAL OPEN UNIVERSITY OF NIGERIA**

**University Village, Plot 91, Cadastral Zone, Nnamdi Azikiwe Express Way, Jabi, Abuja**

**FACULTY OF SCIENCES**

**DEPARTMENT OF COMPUTER SCIENCE**

**2020\_2 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 (25MARKS) COMPULSORY**

- a. Define the terms “Agricultural system” and “Artificial system”. **3 MARKS**
- b. State the two areas where knowledge of farming is sparse or missing during modeling agricultural systems. **2 MARKS**
- c. Identify the four primary purposes of system models and briefly describe any one. **3 MARKS**
- d. In a single sentence each, state the basic meaning of the first 3 levels in farm level systems and their interpretations. **3 MARKS**
- e. Briefly explain both the Simulation and Optimization techniques of mathematical modeling of agricultural systems. **3 MARKS**
- f. Define Decision Support System (DSS). **2 MARKS**
- g. Itemize four (4) benefits of applying DSS in Agricultural Systems. **2 MARKS**
- h. Define an expert system. **1 MARK**
- i. Mention four means of information dissemination in agricultural extension and explain any one. **3 MARKS**
- j. Explain the various series of activities in agricultural science and technology database from Requirement to Physical Design Phase. **3 MARKS**

### **QUESTION TWO (15 MARKS)**

- a. Explain any three (3) significant roles of IT in Educational sector during this pandemic. **6 MARKS**

- b. Information Technology has been around for a long time. Formulate a table depicting the various IT ages, Means of Information Technology (IT), examples of invention. **5 MARKS**
- c. Discuss the potential of Information Technology as a tool for “direct contribution to agriculture”. **4 MARKS**

**QUESTION THREE (15 MARKS)**

- a. Describe “Design method” and “Modular design method” as conceptual IT modeling framework. **6 MARKS**
- b. Discuss the “explicit or implicit” concept of agricultural systems. **4 MARKS**
- c. What actually is “Descriptive Agricultural Systems”? **5 MARKS**

**QUESTION FOUR (15 MARKS)**

- a. List five important trends that have become necessary for Database Development and Management in Agriculture in Nigeria. **5 MARKS**
- b. As an Information System Analyst, explain to a group of farmers on the need of experts for technical information transfer in agriculture. **6 MARKS**
- c. Briefly discuss any three (3) basic information transfer problems in agriculture in using traditional systems. **4 MARKS**

**QUESTION FIVE (15 MARKS)**

- a. Give an example each on how knowledge based expert system has been applied in solving the following agricultural problems.
  - i. Diagnosis of Soyabean disease **2 MARKS**
  - ii. Apple Orchid Management **2 MARKS**
  - iii. Cotton crop Management **2 MARKS**
- b. Distinguish between the first generation and second generation expert systems methodologies. **5 MARKS**
- c. In modeling expert systems in agriculture, explain two (2) principles that emerged in AI. **4 MARKS**