



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**FIRST YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR THE DEGREE  
OF MASTER OF SCIENCE IN FOOD SECURITY AND SUSTAINABLE  
AGRICULTURE**

**2020/2021 ACADEMIC YEAR**

**REGULAR**

---

**COURSE CODE: AFB 5114**

**COURSE TITLE: Sustainable Agriculture and Food Security**

**EXAM VENUE: STREAM: MSc. Food Security and Sustainable  
Agriculture**

**DATE:16/2/21 EXAM SESSION:3-6 PM**

**TIME: 3 HOURS**

---

**Instructions:**

- 1. Answer question ONE and ANY other 2 Questions**
- 2. Candidates are advised to write on the text editor provided, or to write on a foolscap, scan and upload alongside the question**
- 3. Candidates must ensure they submit their work by clicking "finish and submit attempt" button at the end.**

## **Question 1**

Questions 1.1 – 1.11 consist of four (4) different answers each. Write down the question number and indicate the correct answer against it.

1.1 Availability of food at the household level depends on: **(1 mark)**

- a) Local production and local consumption
- b) Global production and global consumption
- a) Regional production and regional consumption
- d) National production and national consumption.

1.2 The three parameters that are commonly used to measure hunger are: **(1 mark)**

- a) Per capita availability of food; inequality of energy intakes; and country energy requirements
- b) National availability of food; inequality of energy intake; and country energy requirements
- c) Per capita availability of food; inequality of energy intakes; and country energy requirements by sex and age groups
- d) National food security index.

1.3 Access is considered to be the more difficult dimension to measure because: **(1 mark)**

- a) It is a theoretical concept
- b) It interacts with other dimensions
- c) It has many different aspects
- d) It is expensive to measure

1.4 In the context of food security, utilization refers to: **(1 mark)**

- a) The quality and safety of food as well as its preparation
- b) The quantity of food utilized by the household annually
- c) Per capita daily energy intake
- d) The nutritive quality of food consumed daily by the household

1.5 Biological utilization, as an aspect of food utilization, relates to: **(1 marks)**

- a) Use of daily energy intake for physical activities
- b) Food availability to the body
- c) Bio-conversion of food ingested
- d) Ability of the human body to absorb food and convert it.

- 1.6 Stability occurs when: **(1 mark)**
- a) Household food supply does not vary much throughout the year and in the long term
  - b) There is a linear relationship between accessibility and utilization
  - c) Food prices are low
  - d) Prices of inputs are low.

- 1.7 Adopting organic farming usually leads to: **(1 mark)**
- a) Uncertain future
  - b) A sharp drop in yields
  - c) Increase on organic matter
  - d) None of the above.

- 1.8 The increases in agricultural yields in recent decades have been possible because of: **(1 mark)**
- a) Seed subsidies
  - b) Increased reliance irrigation
  - c) Use of mineral fertilizers
  - d) Use of organic fertilizers.

- 1.9 Agricultural biodiversity: **(1 mark)**
- a) Includes species , varieties and breeds that are used or available for food and agriculture
  - b) Is synonymous with the term food security
  - c) Cannot save the world from hunger
  - d) None of the above.

- 1.10 Integrated pest management **(1 mark)**
- a) Can effectively control all pests in smallholder farms
  - b) Is used to reduce or minimize risks to human health and the environment
  - c) Promotes use chemical pest control
  - d) Means careful consideration of all available pest control techniques to control pests to economically manageable levels.

- 1.11 The relationship between agriculture and climate change is that: **(1 mark)**
- a) Agriculture is not adversely affected by climate change
  - b) Crop yield level can, at times, be an indicator of climate change
  - c) Agriculture is both a victim and a precursor of climate change
  - d) Intensives livestock systems mitigate the effects of climate change.

1.12 Why do farmers in developing countries prefer their own indigenous crop seeds and livestock breeds and other propagating material. **(1 marks)**

1.13 Briefly explain the following in context of global food security: **(3 marks)**

- a) The problem
- b) The challenge
- c) The solution.

1.14 Present and explain a schematic framework illustrating the relationships among the physical and temporal determinants of food security. **(2 marks)**

1.15 Match the following three (3) components for food security: 1) Availability; 2) Accessibility; and 3) Use and Utilization. **(3 marks)**

Group 1: Income, prices, markets, transfer, infrastructure, food distribution within households and gender issue.

Group 2: Food and nutrition knowledge, food preparation and nutrition behavior, cultural tradition, knowledge, standards, health status, hygiene, and care opportunities.

Group 3: Crop production, efficient water use, stocks and trade.

## **Question 2**

Identify and discuss any three (3) methods that are commonly used to measure food security. **(20 marks)**

## **Question 3**

Discuss:

- a) Main causes of food insecurity. **(10 marks)**
- b) Main strategies being applied to achieve food security. **(10 marks)**

## **Question 4**

Organic and climate smart agriculture are among the major dimensions of sustainable agriculture. Discuss. **(20 marks)**