

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL  
ADVANCED CERTIFICATE OF SECONDARY EDUCATION  
EXAMINATION**

**155/1**

**FOOD AND HUMAN NUTRITION 1**

(For Both School and Private Candidates)

**Time : 3 Hours**

**Year: 2017**

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**Instructions**

1. This paper consists of sections **A** and **B**.
2. Answer all questions in section **A** and only **three (3)** question from section **B**.
3. Non-programmable calculators may be used.
4. Communication devices and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

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### **SECTION A (40 Marks)**

Answer all questions in this section

1. Define vitamins and classify them into fat-soluble and water-soluble groups, giving one example of each.
2. Explain the difference between chronic and acute food insecurity.
3. Describe two traditional methods of preserving fish and how they prevent spoilage.
4. (a) Define dietary fiber.  
(b) Mention two health benefits of dietary fiber.
5. State three factors that influence energy expenditure in adults.
6. Explain the role of bicarbonate and baking powder in chemical leavening of baked foods.
7. Describe two natural compounds used to protect stored grains against insects.
8. Distinguish between food quality and food safety.
9. Explain the effect of drying on the moisture content and shelf-life of cereals.
10. State two limitations of underground storage of grains in tropical regions.

### **SECTION B (60 Marks)**

Answer only three questions from this section

11. A farmer blends 12 liters of milk with 3% fat and 18 liters with 1.5% fat. Calculate the fat content of the mixture. Discuss how milk blending can be used to meet different dietary requirements and commercial standards.
12. Discuss the bioavailability of minerals such as calcium and iron in cereals and legumes. Explain the effect of antinutritional factors and methods to improve absorption.

13. Explain the stages of wet milling in cereal processing. Discuss how each stage affects the quality of flour in terms of starch, protein, and functional properties for baking.
14. Discuss chemical, physical, and biological raising agents used in baking. Provide examples, and explain the advantages and disadvantages of each in food preparation.
15. Analyze how population growth, HIV/AIDS, and environmental degradation impact household and national food security. Suggest practical measures to enhance food security.