

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

155/3

FOOD AND HUMAN NUTRITION 3

(For Both School and Private Candidates)

Time : 3 Hours

Year: 2003

Instructions

1. This paper consists of sections **three (3)** questions.
2. Answer all questions.
3. Question **one (1)** carries **twenty (20)** marks and question **two (2)** and **three (3)** carries **fifteen (15)** marks each.
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).

maktaba.tetea.org



1. You are provided with potato cubes, hydrogen peroxide solution, and boiling water. Perform the experiment as follows:
 - (i) Place one cube in boiling water for 5 minutes, then cool.
 - (ii) Place another raw cube in a test tube and add 10 ml of hydrogen peroxide. Record observations.
 - (iii) Place the boiled cube in a separate test tube with hydrogen peroxide. Record observations.

Questions:

- (a) What reaction is demonstrated by the raw cube in step (ii)?
 - (b) Why was there a difference between raw and boiled cubes?
 - (c) State two applications of this reaction in food science.
2. You are provided with cooking oil, ethanol, and concentrated nitric acid. Perform the following:
 - (i) Place 5 ml of cooking oil in a test tube, add 5 ml of ethanol, and shake.
 - (ii) Add 2 ml of concentrated nitric acid and heat gently in a water bath. Record observations.

Questions:

- (a) Identify the type of reaction taking place.
 - (b) State two uses of this reaction in the food industry.
 - (c) Why is ethanol added in step (i)?
3. You are provided with maize flour and iodine solution. Carry out the following:
 - (i) Mix 20 g of maize flour with cold water to form a paste.
 - (ii) Add boiling water while stirring to form porridge.
 - (iii) Test a small sample of the porridge with iodine solution. Record observations.

Questions:

- (a) Explain the observation in step (iii).

- (b) State the significance of this property in porridge preparation.
- (c) Give two health benefits of consuming maize porridge.