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: 2004**

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).

1. You are provided with beans, water, and iodine solution. Perform the following:

   (i) Soak beans in water for 6 hours.

   (ii) Boil the soaked beans for 15 minutes.

   (iii) Mash the beans and test a portion with iodine solution. Record observations.

   Questions:

   (a) What nutrient is being tested in step (iii)?

   (b) Explain why boiling changes the test result.

   (c) State the significance of boiling beans before eating.

2. You are provided with fresh milk, dilute acetic acid, and dilute sodium hydroxide. Perform the following:

   (i) Add 5 ml of acetic acid to 20 ml of milk. Record observations.

   (ii) Filter the mixture and retain the residue.

   (iii) Wash the residue with water and then dissolve it in dilute sodium hydroxide. Record observations.

   Questions:

   (a) Identify the residue in step (ii).

   (b) What property of protein is demonstrated in step (iii)?

   (c) State two food applications of this property.

3. You are provided with sugar solution, yeast, bicarbonate of soda, and lime water. Perform the following:

   (i) Place 10 ml of sugar solution and yeast in a test tube. Stopper and connect to lime water through a delivery tube. Leave for 15 minutes in warm conditions.

   (ii) In another test tube, add 2 g of bicarbonate of soda and heat gently. Connect the gas to lime water. Record observations for both setups.

Questions:

(a) Identify the gas produced in both experiments.

(b) Write the chemical equation for the reaction in step (ii).

(c) State the importance of step (i) in bread making.