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: 2002**

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 cassava slices, lemon juice, hot water, and iodine solution. Perform the experiment as follows:

   (i) Boil one cassava slice for 5 minutes, cool it, and place in a petri dish.

   (ii) Leave another slice raw at room temperature.

   (iii) Add a few drops of iodine to both slices. Record observations.

   Questions:

   (a) What is being tested in this experiment?

   (b) Explain the difference in the results between boiled and raw cassava.

   (c) State the significance of this test in food analysis.

2. You are provided with fresh egg white, dilute hydrochloric acid, and dilute sodium hydroxide. Perform the following:

   (i) Place 2 ml of egg white in a test tube, add 2 ml of dilute HCl, shake gently, and warm slightly. Record observations.

   (ii) Place another 2 ml of egg white in a test tube, add 2 ml of dilute NaOH, and warm. Record observations.

   (iii) Leave both mixtures to stand for 10 minutes. Record any changes.

   Questions:

   (a) What do the observations in step (i) and (ii) demonstrate?

   (b) Explain the nature of changes observed in proteins during these reactions.

   (c) State two applications of protein denaturation in food preparation.

3. You are provided with baker's yeast, sugar solution, and lime water. Perform the following:

   (i) Place 10 ml of sugar solution in a test tube. Add a pinch of yeast.

   (ii) Fit the test tube with a rubber stopper connected to a delivery tube leading into lime water.

   (iii) Leave the setup for 20 minutes in a warm place and observe changes.

Questions:

(a) State the gas produced and confirm with the lime water test.

(b) Explain the role of yeast in this process.

(c) State two industrial applications of this process.