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: 2016**

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 maize flour (sample Y) and reagents. Perform the following experiment:

   (i) Mix sample Y with water to make a thick paste. Spread a thin layer on a petri dish.

   (ii) Add 5 drops of iodine solution on one portion.

   (iii) Heat another portion at 120 °C for 15 minutes and repeat the iodine test.

   Questions

   (a) Record and explain the observations in steps (ii) and (iii).

   (b) State the principle behind the iodine test.

   (c) Explain the nutritional importance of the product formed in step (iii).

2. You are provided with raw egg yolk (sample Z). Carry out the following:

   (i) Place a drop of sample Z on a filter paper and leave for 5 minutes.

   (ii) Hold the filter paper against light and describe what you see.

   (iii) Place another 2 ml of sample Z in a test tube, add 2 ml of chloroform and 2 drops of Sudan III stain. Record observations.

   Questions

   (a) State what is demonstrated in step (i).

   (b) Identify the nutrient tested in step (iii).

   (c) Explain the principle of the Sudan III test.

   (d) State two nutritional roles of this nutrient.

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

   (i) Add yeast to 50 ml of sugar solution in a conical flask. Fit the flask with a delivery tube into lime water.

   (ii) Leave for 15 minutes and record changes in the lime water.

   (iii) Compare the smell of the solution before and after 15 minutes.

Questions

(a) Identify the gas evolved in step (ii).

(b) Write a balanced equation for the reaction.

(c) Explain the change in smell observed in step (iii).

(d) State the importance of this experiment in baking.