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

155/3 **FOOD AND HUMAN NUTRITION 3**

(Actual Practical)

(For Both School and Private Candidates)

Time: 3 Hours **Year: 2024**

Instructions

1. This paper consists of sections three questions.
2. Answer **all** questions.
3. Cellular phones and any unauthorised materials are **not** allowed in the examination room.
4. Write your **examination Number** on every page of your answer booklet(s).

1. You are provided with cereal flour. Your required to perform the experiment by following the given procedures I to VII.

Procedure I,

Place 25 g of flour and 15 ml of clean tap water in a small bowl and mix them.

Procedure II,

Knead the mixture by hand for 5 minutes. Add a bit more flour if you find the mixture is too wet and add a bit more water if you find it tough and crumbly. Observe the characteristic of the mixture and give explanations.

Procedure III,

Knead the mixture until a smooth ball of dough that springs back to the touch is obtained.

Procedure IV, the candidates were instructed to cover the dough with clean tap water and soak it for 10 minutes.

Procedure V,

Work on the dough through fingers. Serve some of the washing water in a clean beaker and allow it to stand for 15 minutes while observing. Write your observation and give explanations.

Procedure VI,

Replace with fresh water while discarding the washing water until substance **Q** that is more elastic is formed during the washing process. Strain the washing water to collect the scattered substance **Q** pieces. Observe the colour of the coming out water and give explanations.

Procedure VII, the candidates were instructed to place substance **Q** in a petri dish and identify the substance.

Questions:

(a) Briefly explain two other factors that could have resulted into the characteristic of the mixture observed in step (ii).

(b) Why was the dough soaked in water in step (iv)?

(c) Briefly explain:

(i) What happened when the cereal flour and water were mixed and kneaded?

(ii) The role of starch in the baking process.

(iii) The purpose of forming substance **Q** in the baking process.

2. You are provided with fresh milk, lemon juice, concentrated nitric acid (HNO_3), lime water, Ammonium solution, and red litmus paper.
Perform three experiments by following the procedures given under each experiment. Thereafter, observe, give explanations and answer to the questions that follow.

Procedure A,

(i) Place 20 ml of sample **R** into a clean and dry test tube.

(ii) Add 2 ml of sample **S** and allow the mixture to stand for 5 minutes.

Write observations and give explanations.

(iii) Separate the contents of the mixture.

Questions:

(a) Identify the components of sample **R** obtained after adding sample **S** and allow the mixture to stand for 5 minutes.

(b) Identify the nature of food sample **S**.

Procedure B,

Divide the fluid substance of the mixture obtained in procedure A into two equal portions, then:

(i) Heat one portion in a porcelain dish over a flame. Write your observations on the changes that occurred.

(ii) Evaporate the other portion almost to dryness in an evaporating dish placed in a water bath/aluminum cup/small size cooking pot containing boiling water. Leave it to cool. Observe the odour and taste the remainders. Record your observations.

Question: explain what procedure B demonstrates by giving two points.

Procedure C, the candidates were directed to:

Dry the thick substance obtained in procedure A on a filter paper and divide it into three equal portions, then:

(i) Place one portion on a porcelain dish and heat it on a flame. Observe the odour of the fumes produced and give explanations.

(ii) Place the second portion into a dry test tube, cover it with 10 percent lime water then gently warm it. Observe the odour of the fumes and test them with moist red litmus paper. Write your observations.

(iii) Place the third portion into a dry test tube; carefully cover it with concentrated nitric acid. Heat the mixture to boil while observing. Cool the mixture thoroughly under the tap water and slowly add ammonia solution while observing. Record the observations.

Question: Explain what steps (ii) and (iii) demonstrate.

3. You are provided with sample P (Irish potato), and iodine solution. Perform experiment by following procedure (i) to (v). You are supposed to record the observations and provide inferences of what you have observed and answer the question that follow.

   Procedures:

   (i) Peel, wash and cut the food sample into two equal pieces using a clean knife.

   (ii) Place one piece of the sample in a clean petri dish and cook the other piece in boiling water in a clean beaker for 15 minutes.

   (iii) Remove the piece of the sample from the boiling water and place it in another petri dish. Observe its odour. Record your observation and give explanations.

   (iv) Mash the two pieces of the sample by using a table spoon. Record your observations and give explanations.

   (v) Half-fill a test tube with the water that was used to boil the piece of sample **P** and add few drops of iodine solution. Record your observation and give explanations.