

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

**155/1**

**FOOD AND HUMAN NUTRITION 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**Year: 2024**

---

**Instructions**

1. This paper consists of sections **A** and **B**.
2. Answer **all** questions in section **A** and only **Two (2)** questions from section **B**.
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).

### **SECTION A (60 Marks)**

1. Some types of food contain toxic substances which can cause health hazards to people when consumed in large quantities. Identify five examples of such types of food. In each type, give the toxin it contains and state the health hazard it may cause.
2. The denaturation of proteins depends on the effects of different conditions which give rise to definite changes in their properties". Justify this statement in five points.
3. You are invited as an expert in bread making to advise a Mama Lishe group on how to improve their bread production to satisfy their consumers' needs. Briefly describe to them:
  - (a) three factors which affect the baking quality of wheat flour.
  - (b) the guidelines they would follow in using the yeast as rising agent for the production of quality bread. Give seven points.
4. Differentiate perishable and non-perishable types of food by using five points.
5. Your neighbour is seriously sick and you were consulted to plan meals for him/her. What things would you consider in planning for his/her meals? Give ten points.
6. A reasonably stable food supply throughout the year is a necessary condition for food and nutrition security in the household. Suggest five ways of ensuring food stability at this level.

### **SECTION B (40 Marks)**

Answer only two questions from this section.

7. You have been invited to a seminar to address on "balanced meals and meal planning." The specific agenda in the second day of the seminar was "why should people become strict vegetarians?" Suggest six key points that you will address for the second agenda.
8. The Amana village farmers who opted to store their food grains by using chemicals realised that, they lacked knowledge on the types and actions of pesticides. Assist them by analysing four organic pesticides and five inorganic pesticides they could use. Give the mode of action of each type.
9. Along with advances in the field of food processing, the convenient measures of packaging should be applied to meet the criteria of a package and enhance consumers' acceptability. In view of this statement, describe:
  - (a) three necessities for food packaging.
  - (b) six characteristic features of good food packaging materials.

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

**155/2**

**FOOD AND HUMAN NUTRITION 2**

(For Both School and Private Candidates)

**Time: 3 Hours**

**Year: 2024**

---

**Instructions**

1. This paper consists of sections **A** and **B**.
2. Answer **all** questions in section **A** and only **Two (2)** questions from section **B**.
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).

## **SECTION A (60 Marks)**

1. (a) What are the objectives of Food and Nutrition Policy for Tanzania? Give seven points.  
(b) The Ministry of Trade and Industry have great roles to play in making the Food and Nutrition Policy for Tanzania a success. Argue for this statement by giving three points.
2. Mr. Robertson who is a food processing manager failed to use temperature to control microbial growth due to lack of knowledge on their growth temperature ranges. Using the knowledge, you have in growth and survival of microorganisms in foods, assist him to effectively produce safe foods by:
  - (a) classifying microorganisms basing on the temperature ranges at which they can grow.
  - (b) stating what will happen to the microorganisms if the food product in which they are found is kept:
    - (i) below their minimum growth temperature.
    - (ii) above their maximum growth temperature.
3. You have been appointed to assess the nutritional status of people living in your community so as to develop health care programmes. What five dietary assessment methods would you opt to use to determine the nutritional status of the adult population in your community?
4. You have been consulted by a new businessman who is unaware of the departments for a proper management of his tourist hotel. Assist him by categorising five main departments of a tourist hotel.
5. Marasmus is one of the severe forms of Protein – Energy Malnutrition affecting most under-five children in developing countries; yet many people are not able to detect the problem for immediate control. Identify six indicators and four control measures of the condition.
6. Identify two groups of menu and three types of common restaurant menus from which you can select the best menus for your restaurant so as to attract more customers.

## **SECTION B**

Answer two questions from this section

7. “The causes of undernutrition are multisectoral embracing food, health and caring practices.” Support this statement by analyzing the immediate, underlying and basic causes of undernutrition among children under five years. Use the conceptual framework on the causes of undernutrition to show diagrammatically how each level of factors contributes to undernutrition.
8. It has been observed that most community nutrition programmes are not doing well in some of the Tanzanian districts. Elaborate six important factors the District Nutrition Programme Practitioners have to consider for successful community nutrition programmes.

9. Food handlers can be a good source of food contamination and facilitators of cross-contamination in food preparation and processing. Support this statement by describing:
- (a) three ways through which food handlers can contaminate food.
  - (b) six ways of preventing food contamination by food handlers.

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA  
ADVANCED CERTIFICATE OF SECONDARY EDUCATION  
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. You 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 ( $\text{HNO}_3$ ), 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.