

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

**155/1**

**FOOD AND HUMAN NUTRITION 1**

(For Both School and Private Candidates)

**Time : 3 Hours**

**ANSWERS**

**Year : 2008**

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**Instructions**

1. This paper consists of sections **A** and **B**.
2. Answer all questions in section **A** and only **three (3)** question from section **B**.
3. Non-programmable calculators may be used.
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).

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## **SECTION A (40 Marks)**

*Answer all questions in this section*

1. (a) Define the term balanced diet.

A balanced diet is a type of diet that contains all the essential nutrients such as carbohydrates, proteins, fats, vitamins, minerals, water, and dietary fiber in the right proportions required by the body for growth, repair, energy, and maintenance of good health.

- (b) Mention four deficiency diseases and their causative nutrients.

Kwashiorkor is caused by deficiency of proteins.

Rickets is caused by deficiency of vitamin D.

Scurvy is caused by deficiency of vitamin C.

Goiter is caused by deficiency of iodine.

2. (a) State two differences between water-soluble and fat-soluble vitamins.

Water-soluble vitamins dissolve in water, while fat-soluble vitamins dissolve in fats and oils.

Water-soluble vitamins are not stored in the body in large amounts and excess is excreted in urine, while fat-soluble vitamins are stored in the liver and fatty tissues.

- (b) Give two examples of water-soluble vitamins and two examples of fat-soluble vitamins.

Examples of water-soluble vitamins are Vitamin C and Vitamin B complex.

Examples of fat-soluble vitamins are Vitamin A and Vitamin D.

- (c) State one deficiency disease for each of the vitamins mentioned in (b).

Vitamin C deficiency leads to scurvy.

Vitamin B deficiency leads to beriberi.

Vitamin A deficiency leads to night blindness.

Vitamin D deficiency leads to rickets.

3. (a) List three sources of dietary fiber.

Fruits such as oranges and apples.

Vegetables such as cabbage and spinach.

Whole grains such as maize, brown rice, and wheat.

(b) Explain three functions of dietary fiber in the human body.

Dietary fiber helps in preventing constipation by aiding in smooth bowel movements.

It helps in controlling blood sugar levels by slowing down the absorption of sugar.

It reduces the risk of heart disease by lowering cholesterol levels.

4. (a) Differentiate between food spoilage and food poisoning.

Food spoilage is the deterioration of food quality due to microbial activity, chemical reactions, or physical changes, making it undesirable for consumption.

Food poisoning is an illness caused by consuming contaminated food containing harmful microorganisms or toxins.

(b) State four causes of food spoilage.

Microorganisms such as bacteria, molds, and yeasts.

Enzymatic reactions in food.

Poor storage conditions such as high humidity and temperature.

Insect infestation.

5. (a) Mention four traditional methods of food preservation.

Drying.

Smoking.

Salting.

Fermentation.

(b) Outline two disadvantages of traditional methods of food preservation.

Traditional methods may reduce the nutritional quality of food.

They often have a short shelf life compared to modern preservation methods.

6. (a) Explain the meaning of food fortification.

Food fortification is the process of adding essential nutrients such as vitamins and minerals to food products to improve their nutritional value and prevent deficiencies in the population.

(b) Give three examples of fortified foods consumed in Tanzania.

Iodized salt.

Fortified wheat flour.

Fortified cooking oil.

7. (a) Define complementary feeding.

Complementary feeding is the introduction of appropriate solid and semi-solid foods to an infant's diet alongside continued breastfeeding, usually starting at six months of age.

(b) State two principles of complementary feeding.

Foods should be clean, safe, and prepared under hygienic conditions.

Meals should be given in adequate amounts, with increased frequency as the child grows.

(c) Mention two problems associated with poor complementary feeding practices.

Malnutrition such as underweight and stunted growth.

Increased susceptibility to infections due to weak immunity.

8. (a) List three sources of iron in the human diet.

Red meat such as beef and liver.

Green leafy vegetables such as spinach.

Legumes such as beans and lentils.

(b) State three consequences of iron deficiency.

Iron deficiency causes anemia.

It leads to fatigue and general body weakness.

It reduces mental concentration and learning ability.

## **SECTION B (60 Marks)**

*Answer only three questions from this section*

9. Discuss the effects of rapid population growth on food production and nutrition in developing countries.

Rapid population growth increases the demand for food, which often exceeds the capacity of agricultural production in developing countries, leading to food shortages.

It causes pressure on available land, resulting in overcultivation, deforestation, and soil degradation, which reduce agricultural productivity.

Population growth strains social services, making it difficult to provide adequate nutrition programs, health care, and education on balanced diets.

It increases poverty levels, as families have more dependents and fewer resources, which reduces their ability to access quality and nutritious food.

Rapid population growth contributes to urbanization, which reduces arable land and makes food prices higher due to increased demand.

10. Analyse the contribution of women in promoting household food and nutrition security in Tanzania.

Women play a major role in food production since they participate actively in farming activities, from planting to harvesting.

They are responsible for food preparation and ensure that family members receive meals daily, which contributes directly to nutrition security.

Women engage in small-scale food processing and preservation, helping to reduce post-harvest losses and ensuring food availability throughout the year.

They contribute to household income through farming, petty trade, and other economic activities, which enables families to buy additional nutritious food items.

Women are key in promoting nutrition education by applying their knowledge in feeding practices, breastfeeding, and complementary feeding for children.

11. Explain the role of nutrition education in improving public health, giving five detailed points.

Nutrition education creates awareness about the importance of consuming a balanced diet, which helps prevent malnutrition.

It equips individuals with knowledge about food safety, thereby reducing the risks of food poisoning and related illnesses.

Nutrition education encourages healthy eating habits such as reduced sugar and fat intake, which helps prevent lifestyle diseases like diabetes and obesity.

It promotes breastfeeding and proper complementary feeding, which improves child growth and reduces infant mortality rates.

Nutrition education empowers communities to utilize locally available foods effectively, thus improving food security and dietary diversity.

12. Discuss six effects of climate change on food security in Sub-Saharan Africa.

Climate change leads to prolonged droughts, which reduce water availability for irrigation and livestock.

It increases the frequency of floods, which destroy crops, infrastructure, and stored food.

Climate change causes rising temperatures, which reduce crop yields due to heat stress.

It leads to changes in rainfall patterns, making farming less predictable and reducing harvests.

Pests and diseases affecting crops and animals increase due to favorable conditions created by climate change.

It contributes to food price fluctuations, making it harder for low-income families to afford nutritious food.

13. Evaluate government efforts in promoting food production and nutrition in Tanzania.

The government promotes food production by supporting farmers through subsidies for seeds, fertilizers, and farm inputs.

It has encouraged irrigation schemes to reduce dependence on unreliable rainfall and improve crop yields.

The government has implemented nutrition programs such as promoting fortified foods to reduce micronutrient deficiencies.

It provides extension services that educate farmers on modern farming techniques and nutrition practices.

The government collaborates with international organizations and NGOs to support food security initiatives and combat hunger.

It has also established food reserves to stabilize food supply during periods of scarcity.