

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

155/2

**FOOD AND HUMAN NUTRITION 2**

(For Both School and Private Candidates)

**Duration: 3 Hours**

**ANSWERS**

**Year: 2025**

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**Instructions**

1. This paper consists of sections A and B with a total of **nine (9)** questions.
2. Answer **all** questions in section **A** and choose any **two (2)** questions from section **B**.
3. Section A carries **sixty (60)** marks and section B carries **forty (40)** marks.
4. All writing must be in **black or blue** ink.
5. Communication devices and any unauthorised materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).



1. Most of the people with inadequate nutritional education consume mineral deficiency foods. Identify five types of nutritional disorders they are likely to suffer from.

One of the disorders is anaemia, which results from iron deficiency and causes weakness, pale skin, and fatigue due to low haemoglobin production.

The second disorder is goitre, caused by a deficiency of iodine, leading to swelling of the thyroid gland and impaired metabolism.

The third disorder is rickets, which occurs in children due to lack of calcium and vitamin D, resulting in weak and deformed bones.

The fourth disorder is osteoporosis, a condition of brittle bones in adults caused by calcium deficiency.

The fifth disorder is dental caries, resulting from a lack of fluoride which weakens teeth enamel and increases susceptibility to tooth decay.

2. Waste management aims at ensuring proper health of people in the community.

- (a) Describe the waste management process.

The waste management process begins with waste generation, where materials like food remains, plastics, and papers are produced from homes and industries.

The second stage is waste collection, where waste is gathered from different sources and transported to disposal or treatment sites.

The third stage is waste segregation, where waste is separated into biodegradable and non-biodegradable components for easier handling.

The fourth stage is waste treatment, which involves methods like composting, recycling, or incineration to reduce waste volume and toxicity.

The final stage is waste disposal, where treated waste is safely buried or burned in designated sites like landfills to prevent pollution and health risks.

(b) Identify four benefits of waste management to the community.

Proper waste management prevents the spread of diseases caused by pests and bacteria.

It helps to protect the environment by reducing land, air, and water pollution.

It conserves natural resources through recycling and reuse of materials.

It enhances the beauty and cleanliness of the community, improving the quality of life.

3. The global increase in fuel and food prices affect the economies of developing countries; some of which end up with malnutrition crisis. Briefly explain this situation based on the conceptual framework of malnutrition.

When fuel and food prices rise, households in developing countries struggle to afford balanced diets, leading to inadequate food intake and nutrient deficiency.

High fuel prices increase production and transportation costs, making food more expensive and scarce in local markets.

Reduced food availability causes undernutrition, particularly among children and women, who are most vulnerable.

The crisis affects health services and sanitation as governments spend more on imports than on health infrastructure, worsening malnutrition.

Eventually, the situation leads to a cycle of poverty and ill health, where low income limits food access and poor nutrition reduces productivity.

4. It is difficult to care for infants whose mothers have died during childbirth. Briefly explain four alternative methods and challenges of feeding those infants and four challenges they are likely to face when applying the methods.

One alternative method is the use of wet nursing, where another lactating woman breastfeeds the infant. This method ensures breast milk supply but may risk disease transmission if not properly screened.

Another method is feeding with formula milk prepared to mimic breast milk, though it is expensive and may cause digestive issues if mixed incorrectly.

Cow's milk diluted with water can also be used, but it lacks certain essential nutrients found in breast milk.

Feeding using expressed breast milk from donors in milk banks is also possible, but it requires careful pasteurization and availability of facilities.

Challenges faced include lack of hygiene in milk preparation, high cost of formula milk, contamination due to poor water quality, and lack of proper feeding equipment.

5. Most of the street food vendors do not adhere to hygienic practices when handling food. If you were to intervene, briefly explain five hygienic practices you would advise them to abide to.

Food vendors should always wash their hands thoroughly with clean water and soap before handling food.

They should wear clean protective clothing such as aprons and head covers to avoid contamination.

Cooking utensils and surfaces should be cleaned regularly to prevent the spread of bacteria.

Food should be covered properly to protect it from dust, insects, and smoke.

Waste disposal should be done appropriately in covered bins to avoid attracting pests.

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

Food poisoning is an illness caused by eating food contaminated with harmful microorganisms, toxins, or chemicals leading to symptoms like vomiting, diarrhoea, and stomach pain.

(b) Examine how the following bacterial agents cause food poisoning.

(i) *Salmonella* causes food poisoning when contaminated meat, eggs, or dairy products are consumed. It multiplies in the intestines, producing toxins that cause fever, diarrhoea, and abdominal cramps.

(ii) *Staphylococcus aureus* produces heat-stable toxins in food, especially dairy and meat products, which cause nausea and vomiting within a few hours of consumption.

(iii) *Clostridium botulinum* releases a deadly neurotoxin in improperly canned foods, leading to paralysis, difficulty in breathing, and sometimes death.

(iv) *Clostridium perfringens* multiplies rapidly in cooked food kept at warm temperatures, and its toxins cause abdominal cramps and diarrhoea.

7. You are designing a menu which will be displayed using varieties of menu cards for a class party that will be held after the completion of the Form Six examination.

(a) Analyse four things you should be familiar with before designing a particular menu.

You should know the type of guests attending to plan foods that match their preferences and cultural background.

You should understand the available budget to select ingredients and dishes that fit within cost limits.

You need to know the available kitchen facilities and equipment to prepare meals efficiently.

You should consider the number of guests to ensure that food quantity and serving arrangements are adequate.

(b) Suggest five features of a good menu card.

A good menu card should be attractive and neatly designed to appeal to users.

It should clearly list all available dishes and beverages with proper categorization.

The menu should have readable font and simple language.

Prices should be clearly indicated beside each item.

The menu card should reflect the event's theme, such as colours or decorations suitable for a class party.

8. The Changamoto village leader is planning a nutrition intervention programme to eradicate the problem of iron deficiency in the village. Describe six factors he has to consider for the successful programme.

He should assess the prevalence of iron deficiency among different age and gender groups to target the right population.

He needs to ensure availability and accessibility of iron-rich foods in the local markets.

He should include nutrition education to teach villagers the importance of consuming iron-rich foods.

He must consider cultural and dietary habits that may affect acceptance of fortified foods.

He should ensure health centres are involved in monitoring and supplement distribution.

He needs to secure adequate funding and collaboration with local authorities for sustainability.

9. Explain three causes of food intoxication and three measures to control it.

One cause is microbial contamination, where bacteria such as *Staphylococcus aureus* produce toxins in food.

Another cause is chemical contamination from pesticides or cleaning agents left on food.

A third cause is natural toxins found in certain foods like poisonous mushrooms or cassava with cyanide.

To control it, food should be properly cooked and stored at safe temperatures.

Chemical residues must be removed by washing and peeling fruits and vegetables before consumption.

Public education on safe food handling and preparation should be promoted to prevent intoxication.