

**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)

**Time : 3 Hours**

**ANSWERS**

**Year : 2006**

---

**Instructions**

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

maktaba.tetea.org



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

Answer all questions in this section

### **1. Define nutrition education and state three major components of nutrition education.**

Nutrition education is the process of teaching individuals and communities about food, nutrition, and healthy eating practices to promote good health and prevent diseases. It equips people with knowledge, skills, and attitudes that enable them to make informed decisions about what they eat and how they manage their diets.

The first component of nutrition education is information provision. This involves giving accurate knowledge about nutrients, food groups, meal planning, and dietary needs. It helps individuals to understand the relationship between diet and health.

The second component is behaviour change communication. This focuses on encouraging people to adopt healthy eating practices through counselling, demonstrations, and positive reinforcement. It is not just about giving knowledge but also ensuring practical changes occur in everyday life.

The third component is skills development. This includes teaching people how to cook balanced meals, read food labels, preserve food safely, and manage available resources effectively. It ensures that people are not only aware of what to do but also have the skills to do it.

### **2. Explain five conditions necessary for multiplication of bacteria in food.**

The first condition is moisture. Bacteria thrive in moist environments, and foods with high water content such as meat, milk, and fruits provide ideal conditions for their growth.

The second condition is temperature. Most bacteria multiply rapidly between 5°C and 60°C, known as the danger zone. Improper storage of food in this range encourages bacterial growth.

The third condition is nutrients. Bacteria require nutrients such as proteins, carbohydrates, and fats. Foods like eggs, dairy products, and cooked rice provide a rich nutrient medium.

The fourth condition is pH level. Bacteria grow best in neutral to slightly acidic conditions, around pH 4.6 to 7. Foods like cooked vegetables and meats fall in this range.

The fifth condition is oxygen availability. Some bacteria need oxygen (aerobic), while others grow without it (anaerobic). For example, *Clostridium botulinum* grows in canned foods where oxygen is absent.

### **3. Describe six health practices which should be addressed when educating mothers with undernourished children.**

The first practice is exclusive breastfeeding. Mothers should be encouraged to breastfeed their children for the first six months without introducing other foods or water.

The second practice is proper weaning. Mothers should learn how to introduce complementary foods at six months, ensuring meals are balanced and given in appropriate quantities.

The third practice is hygiene and sanitation. Mothers should be taught the importance of handwashing, safe water use, and clean utensils to prevent infections that worsen malnutrition.

The fourth practice is immunization. Children should receive all recommended vaccines to protect against diseases that may lead to undernutrition.

The fifth practice is regular health check-ups. Mothers should take their children for growth monitoring and seek medical help when children show signs of illness.

The sixth practice is proper feeding frequency. Mothers should provide small, frequent meals rather than large meals, as this helps children with poor appetites to consume enough nutrients.

### **4. Define the term “standard recipe” and explain five items included in it.**

A standard recipe is a written set of instructions for preparing a specific dish in a consistent way, including details of ingredients, quantities, methods, and presentation. It ensures uniformity in quality, taste, and portion sizes.

The first item included is the name of the dish. This identifies the recipe clearly for cooks and service staff.

The second item is the list of ingredients. This specifies what is needed, including exact quantities to ensure accuracy.

The third item is the method of preparation. This gives step-by-step instructions on how to prepare, cook, and present the dish.

The fourth item is portion size and yield. This shows how many servings the recipe will produce, ensuring consistency in service.

The fifth item is cooking time and temperature. This helps maintain food safety and quality by ensuring the dish is properly cooked.

### **5. Mention five dietary survey methods and explain their importance in community health planning.**

The first method is the 24-hour recall. Individuals recall all foods and drinks consumed in the past 24 hours. It helps assess short-term dietary intake in a community.

The second method is the food frequency questionnaire. Respondents indicate how often they consume specific foods over a given period. It helps to identify patterns of diet.

The third method is the weighed food record. Foods are weighed before consumption and leftovers are measured. It provides very accurate intake data.

The fourth method is household consumption surveys. These measure the food available and consumed at household level. It is important for planning interventions where food insecurity exists.

The fifth method is dietary history. This involves asking individuals about their usual eating habits over a long period. It helps to link diet with chronic conditions.

These methods are important in community health planning because they provide data that helps identify nutritional deficiencies, monitor food availability, and design nutrition programmes suited to specific needs.

**6. Explain the role of the Ministry of Trade and Industry in ensuring the success of the National Food and Nutrition Policy, giving four points.**

The first role is regulation of food standards. The ministry ensures that food products meet safety and quality standards before reaching the market.

The second role is promotion of local food industries. By supporting local producers, the ministry helps increase the availability of nutritious foods.

The third role is price regulation and market monitoring. This ensures that essential food items remain affordable to all citizens, reducing the risk of malnutrition.

The fourth role is facilitating trade and distribution. The ministry supports efficient transport and storage systems to ensure food is available across all regions of the country.

**SECTION B (40 Marks)**

Answer only two questions from this section

**7. Give seven reasons for controlling resources in the catering industry and explain two techniques of resource control.**

The first reason is cost reduction. Resource control helps minimize unnecessary expenses in food, labour, and utilities.

The second reason is prevention of wastage. By monitoring resources, managers ensure that food and materials are used efficiently.

The third reason is quality consistency. Controlled resources maintain the same standard of food and service for customers.

The fourth reason is customer satisfaction. Efficient use of resources ensures timely service and good meals, which improve customer experience.

The fifth reason is profitability. Reducing losses and maximizing efficiency increases profits for catering businesses.

The sixth reason is sustainability. Controlling resources ensures long-term survival of the catering industry by balancing consumption and availability.

The seventh reason is accountability. Resource control makes it easy to track inputs and outputs, preventing misuse or theft.

The first technique of resource control is budgeting. Preparing budgets allows managers to allocate funds appropriately and track expenditure.

The second technique is inventory control. Keeping stock records and conducting regular audits ensures that raw materials are available and used responsibly.

#### **8. Discuss six features of successful nutrition intervention programmes.**

The first feature is clear objectives. Programmes must have well-defined goals that are measurable and achievable.

The second feature is community involvement. Successful programmes engage community members in planning and implementation to ensure acceptance.

The third feature is sustainability. Programmes should be designed to continue even after external support ends.

The fourth feature is multi-sectoral collaboration. Nutrition interventions require cooperation among health, agriculture, education, and trade sectors.

The fifth feature is monitoring and evaluation. Regular tracking of progress ensures problems are identified early and corrected.

The sixth feature is cultural sensitivity. Programmes must respect local food habits and traditions to be effective.

**9. Food handlers play a role in contamination. Explain three contamination pathways and suggest five preventive measures.**

The first pathway is poor personal hygiene. Food handlers with unwashed hands, long nails, or illnesses can transfer germs to food.

The second pathway is cross-contamination. Using the same cutting boards, knives, or surfaces for raw and cooked foods spreads bacteria.

The third pathway is poor food storage. Leaving food in unsafe conditions allows bacteria to grow and contaminate it.

The first preventive measure is regular handwashing with soap before handling food.

The second measure is wearing clean protective clothing such as aprons, gloves, and hairnets.

The third measure is proper cleaning and sanitization of equipment and surfaces.

The fourth measure is proper food storage at safe temperatures to prevent bacterial growth.

The fifth measure is conducting regular health checks for food handlers to ensure they are fit to work.

**10. Using practical examples, describe six solutions to nutritional problems in developing countries.**

The first solution is food fortification. For example, adding iodine to salt has helped reduce goitre in many countries.

The second solution is nutrition education. Teaching communities about balanced diets encourages better use of available foods.

The third solution is agricultural development. Promoting crop diversification, such as growing both maize and legumes, increases food variety.

The fourth solution is poverty alleviation programmes. Providing income-generating activities helps families afford nutritious food.

The fifth solution is supplementation. Giving vitamin A capsules to children reduces deficiency-related blindness.

The sixth solution is improved health services. Ensuring access to clinics and immunizations helps reduce disease-related malnutrition.