

**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 : 2011

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).

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SECTION A (60 Marks)

Answer all questions in this section

1. Define malnutrition and outline six socio-economic effects of malnutrition on a developing country.

Malnutrition is a condition that results from an imbalanced diet, where the body does not receive the right amounts of energy, proteins, vitamins, or minerals necessary for proper growth and functioning. It can manifest as undernutrition, overnutrition, or micronutrient deficiencies, all of which negatively affect individual health and productivity.

One socio-economic effect of malnutrition is reduced productivity in the workforce. When individuals are weak, frequently sick, or stunted due to malnutrition, they are unable to work efficiently, leading to lower economic output.

Another effect is increased health care costs. Governments and families spend large amounts of resources on treating diseases that could have been prevented by proper nutrition, such as anaemia, rickets, or stunting.

Malnutrition also contributes to poor educational outcomes. Children who are undernourished often have impaired cognitive development, leading to poor school performance and reduced chances of achieving higher education.

In addition, malnutrition perpetuates poverty. Families struggling with the health consequences of malnutrition spend most of their resources on medical bills and food, preventing them from investing in income-generating activities.

A further effect is slowed national development. A malnourished population reduces the pool of skilled and healthy citizens required to drive economic growth and technological innovation.

Lastly, malnutrition increases dependency ratios. High numbers of sick and weak people in a country create a burden on the healthy population, limiting the resources available for development projects and social advancement.

2. Describe five techniques of food preservation that can help reduce foodborne diseases.

One technique of food preservation is refrigeration. By keeping food at low temperatures, bacterial growth slows down significantly, thereby reducing the chances of foodborne illnesses.

Another technique is drying. Removing moisture from food prevents bacteria, yeasts, and molds from multiplying, since they need water to survive and grow.

Canning is also an important technique. Food is sealed in airtight containers and heated to kill microorganisms, which ensures safety and extends shelf life.

Pasteurization is commonly applied to milk and juices. The process involves heating the food to a specific temperature to destroy harmful microbes without affecting the nutritional quality.

Finally, chemical preservation helps extend food safety. Adding preservatives such as salt, vinegar, or sugar creates an environment where bacteria cannot grow, making foods like pickles and jams safe to consume.

3. State six benefits of breastfeeding for both mother and child.

One benefit of breastfeeding for the child is the provision of complete nutrition. Breast milk contains all the essential nutrients in the right proportions needed for growth and development.

Another benefit is the protection against infections. Breast milk contains antibodies that strengthen the baby's immune system, helping to fight off illnesses such as diarrhoea and respiratory infections.

For the mother, breastfeeding helps in postpartum recovery. It stimulates uterine contractions, which reduce bleeding and help the uterus return to its normal size more quickly.

Breastfeeding also lowers the risk of certain diseases in mothers. Research shows that women who breastfeed are less likely to develop breast and ovarian cancer.

For the child, breastfeeding enhances cognitive development. Nutrients such as essential fatty acids in breast milk support brain growth, which improves intelligence later in life.

Breastfeeding also promotes bonding between mother and child. The physical closeness and skin-to-skin contact foster emotional attachment and a sense of security.

4. Define foodborne diseases and explain four common causes in Tanzanian households.

Foodborne diseases are illnesses caused by consuming food contaminated with harmful bacteria, viruses, parasites, or chemical substances. These diseases often manifest as diarrhoea, vomiting, abdominal pain, or fever.

One common cause in Tanzanian households is poor food hygiene. Many homes lack proper handwashing practices and clean preparation surfaces, which leads to contamination.

Another cause is unsafe water. Households that use untreated water for cooking or drinking are at risk of introducing harmful microorganisms into food.

Improper food storage also contributes to foodborne diseases. Leaving perishable foods at room temperature allows bacteria to multiply quickly, especially in hot climates.

Lastly, cross-contamination is a frequent cause. Using the same utensils for raw and cooked food without washing them spreads bacteria such as Salmonella or E. coli.

5. Mention four objectives of catering services and explain three challenges in providing catering in schools.

One objective of catering services is to provide safe and hygienic food. This ensures that consumers receive meals that do not pose health risks.

Another objective is to satisfy nutritional needs. Catering services aim to supply balanced meals that contribute to health and wellbeing.

Catering also seeks to provide convenience. By offering ready-to-eat meals, catering services save time and effort for consumers.

An additional objective is to support social events and institutions. Catering plays a role in functions such as weddings, meetings, and school feeding programmes.

One challenge of providing catering in schools is limited resources. Many schools lack adequate funds to purchase quality ingredients and maintain high food standards.

Another challenge is poor infrastructure. Schools may not have proper kitchens, storage facilities, or clean water supply, which makes it difficult to ensure safe meal preparation.

A third challenge is lack of trained staff. Many school food handlers do not have proper training in hygiene and nutrition, which compromises the quality of meals.

6. Discuss five factors that influence menu planning in hotels and restaurants.

One factor that influences menu planning is the type of customers. Hotels and restaurants design menus based on customer preferences, cultural practices, and purchasing power.

Another factor is the availability of ingredients. Menus are often based on what is locally available, seasonal, or affordable in order to maintain cost efficiency.

Nutritional considerations also play a role. Hotels aim to provide meals that are not only appealing but also balanced to meet dietary needs of different guests.

Cost of production is another important factor. Menu planners must balance quality with affordability to ensure the restaurant remains profitable while satisfying customers.

Lastly, the skills of the staff influence menu planning. The range and complexity of dishes offered depend on the expertise of chefs and kitchen workers.

SECTION B (40 Marks)

Answer only two questions from this section

7. Examine six practical solutions that can reduce micronutrient deficiencies in vulnerable groups in Tanzania.

One practical solution is food fortification. Adding nutrients such as iodine to salt or vitamin A to cooking oil ensures that the population receives essential micronutrients without changing dietary habits.

Another solution is supplementation programmes. Vulnerable groups, especially children and pregnant women, can be provided with supplements like vitamin A capsules or iron tablets to prevent deficiencies.

Agricultural diversification is also critical. Encouraging communities to grow a variety of crops such as legumes, vegetables, and fruits improves access to micronutrient-rich foods.

Nutrition education helps people understand the importance of consuming diverse diets. Educating mothers about feeding practices ensures children receive adequate vitamins and minerals.

Improved health services contribute to reducing deficiencies. Regular health check-ups and deworming programmes help maintain nutrient absorption and utilization in the body.

Poverty alleviation strategies also play a role. Economic empowerment allows vulnerable families to afford nutritious foods, thereby lowering the risk of deficiencies.

8. Critically discuss the role of community participation in the success of nutrition intervention programmes, giving six examples.

Community participation ensures ownership of nutrition programmes. When community members are actively involved, they are more likely to accept and support the interventions.

It enhances sustainability. Programmes designed with local input are better maintained even after external support is withdrawn.

Community involvement improves relevance. Local people provide knowledge about their food habits, cultural practices, and needs, making interventions more practical.

Participation encourages accountability. When communities monitor the programmes themselves, resources are used responsibly, reducing corruption and misuse.

It also strengthens communication. Local leaders and community groups help spread nutrition messages more effectively than external agencies.

Lastly, participation builds capacity. By involving community members in training, they gain skills that help them continue nutrition promotion and problem-solving independently.

9. Evaluate six factors that contribute to the failure of food safety regulations in food industries.

One factor is weak enforcement. Even when regulations exist, lack of monitoring allows industries to ignore safety standards.

Another factor is corruption. Some food producers bypass regulations by bribing inspectors, leading to unsafe food on the market.

Inadequate infrastructure also contributes. Many industries lack proper storage, transportation, and processing facilities, which makes compliance difficult.

Lack of trained personnel is another challenge. Without skilled food inspectors and laboratory staff, enforcing safety standards becomes ineffective.

Public ignorance is also a factor. Many consumers are unaware of food safety standards, so they do not demand accountability from producers.

Finally, limited funding for regulatory bodies makes it difficult to conduct regular inspections, laboratory tests, and public awareness campaigns.

10. Propose six strategies to strengthen breastfeeding promotion campaigns in developing countries.

One strategy is public education campaigns. Governments and NGOs should use media, schools, and community gatherings to promote the benefits of breastfeeding.

Another strategy is workplace support. Employers should provide maternity leave, lactation rooms, and flexible schedules to support working mothers.

Health worker training is also essential. Nurses, midwives, and doctors should be equipped to counsel mothers on breastfeeding practices.

Strict regulation of infant formula marketing helps. Governments should enforce policies that limit aggressive promotion of formula that discourages breastfeeding.

Peer support groups can also strengthen campaigns. Mothers who have successfully breastfed can mentor and encourage others in their communities.

Lastly, community involvement is key. Local leaders and traditional birth attendants should be engaged in promoting breastfeeding as a cultural and health practice.