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 : 2000**

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).

SECTION A

1. State five dietary assessment methods that can be used to determine the nutritional status of adults in a community.

One method is the 24-hour dietary recall. In this method, an individual is asked to recall all the foods and drinks consumed during the past 24 hours. It helps in estimating daily nutrient intake, though it depends on memory and honesty of the respondent.

Another method is the food frequency questionnaire. This collects information on how often certain foods are consumed over a specified period, such as weekly or monthly. It provides insight into dietary patterns and long-term food habits.

A third method is the dietary record or food diary. Individuals record all foods and beverages consumed over several days, usually 3 to 7 days. This method gives accurate data but requires high cooperation and literacy levels.

A fourth method is the weighed food record. Here, foods are weighed before consumption and waste is also measured. It provides precise quantitative data but is time-consuming and less practical in community studies.

The fifth method is household food consumption surveys. This involves measuring food entering and leaving a household over a period. It gives an estimate of per capita food availability and intake at the household level.

2. Define food quality assurance systems and explain four activities involved in these systems.

Food quality assurance systems are organized procedures and guidelines designed to ensure that food products meet established safety, nutritional, and quality standards from production to consumption.

One activity is inspection and monitoring. This involves regular checks on raw materials, processing methods, and finished products to ensure compliance with standards.

Another activity is testing and analysis. Food samples are analyzed in laboratories to detect contaminants, nutrient levels, or adulteration, ensuring consumer safety.

A third activity is certification and labeling. Products that meet the required standards are certified and labeled to provide assurance to consumers about their safety and quality.

The fourth activity is training and education. Food handlers, processors, and inspectors are trained on proper hygiene, safety measures, and regulations to maintain consistent quality.

3. Mention four objectives of nutrition education programmes and describe two types of information to be provided in each programme component.

One objective is to improve knowledge and awareness about nutrition. This helps individuals make informed choices regarding food selection and preparation. Information provided may include nutrient functions and food sources.

A second objective is to promote healthy eating habits. This encourages communities to adopt balanced diets. Information may cover recommended dietary guidelines and portion control.

A third objective is to prevent and control nutrition-related diseases. Nutrition education helps reduce cases of malnutrition, obesity, and lifestyle diseases. Information may include risks of poor diet and preventive measures.

A fourth objective is to enhance food utilization at the household level. Communities learn better ways to prepare, preserve, and store food. Information may include food hygiene practices and low-cost preservation techniques.

4. Describe five conditions which favour growth and multiplication of bacteria in foods.

One condition is temperature. Most bacteria thrive in the danger zone of 5°C to 60°C, where food supports rapid multiplication.

Another condition is moisture. Foods with high water content, like milk or meat, provide the water bacteria need for growth.

A third condition is pH level. Neutral or slightly acidic foods are more favorable to bacterial growth than highly acidic foods.

A fourth condition is oxygen availability. Some bacteria require oxygen (aerobic), while others grow without it (anaerobic). The presence or absence of oxygen in foods influences bacterial multiplication.

The fifth condition is nutrient availability. Foods rich in proteins, carbohydrates, and fats provide nutrients that support bacterial metabolism and reproduction.

5. Identify six indicators and four control measures of marasmus in under-five children.

One indicator is severe wasting of muscles, where a child appears extremely thin with reduced muscle mass.

A second indicator is loss of subcutaneous fat, giving the child a skeletal appearance.

A third indicator is stunted growth, where the child's height is far below the standard for their age.

A fourth indicator is sunken eyes, which reflect energy depletion and poor nutrition.

A fifth indicator is irritability, where the child is restless and cries often due to hunger.

A sixth indicator is delayed development, both physically and mentally.

For control measures, one is promotion of exclusive breastfeeding during the first six months of life.

A second control measure is providing nutrient-dense complementary foods after six months.

A third control measure is nutrition education to mothers and caregivers on proper feeding practices.

A fourth control measure is improving food security through household farming and social support programmes.

6. (a) Differentiate between active and passive immunization.

Active immunization occurs when the body's immune system is stimulated to produce antibodies and memory cells after exposure to antigens, such as through vaccines.

Passive immunization occurs when ready-made antibodies are transferred into the body, such as from mother to child through breast milk or by injection of antiserum.

(b) Explain two advantages of passive immunization.

One advantage is that it provides immediate protection, which is important in emergency cases like snake bites or rabies exposure.

Another advantage is that it can be used for individuals who cannot produce their own immune response, such as newborns or immunocompromised patients.

(c) State four benefits of vaccines.

One benefit is prevention of infectious diseases by stimulating immunity.

A second benefit is reduction of disease outbreaks and epidemics.

A third benefit is long-term protection due to memory cell formation.

A fourth benefit is contribution to community immunity, reducing transmission among populations.

SECTION B

7. Discuss the immediate, underlying and basic causes of undernutrition among children under five years, using the conceptual framework of malnutrition.

Immediate causes include inadequate dietary intake and disease. Children may not receive enough nutrients due to poor feeding practices or limited food availability, while diseases like diarrhea and malaria reduce nutrient absorption.

Underlying causes include household food insecurity. Families may lack sufficient resources to buy or produce food. Another underlying cause is inadequate maternal and childcare practices, such as early weaning or poor hygiene. Insufficient health services and unhealthy environments also contribute to undernutrition.

Basic causes include poverty, which limits access to food, healthcare, and education. Political instability and poor governance can lead to weak health systems and inadequate social support. Cultural beliefs and practices may also hinder optimal child feeding.

8. Food handlers play a major role in food safety. Explain three ways through which food handlers may contaminate food and suggest six preventive measures against contamination.

One way is poor personal hygiene. Food handlers who do not wash hands after using the toilet may transfer harmful microbes to food.

Another way is cross-contamination. Using the same cutting board or utensils for raw and cooked food can spread pathogens.

A third way is working while ill. Food handlers suffering from diseases like typhoid or flu may shed pathogens into food.

Preventive measures include regular handwashing with soap before handling food. Another is proper training on food hygiene and safety. Third is using separate utensils for raw and cooked foods. Fourth is medical screening of food handlers. Fifth is ensuring proper storage of food at safe temperatures. Sixth is enforcing strict policies to keep ill food handlers away from the workplace.

9. "Breastfeeding is the best feeding practice for infants." Support this statement by suggesting four alternatives working mothers can use to ensure their infants are fed with breast milk during working hours and by describing six measures to control the promotion of infant formulae.

Alternatives include expressing breast milk and storing it in clean containers for later feeding. Another alternative is using breast milk banks where available. A third is flexible working schedules to allow breastfeeding breaks. A fourth is enlisting family members or caregivers to feed expressed milk to infants during work hours.

Measures to control infant formula promotion include enforcing strict regulations on advertisement of formula. Another is banning free distribution of formula samples to mothers. Third is health facilities avoiding the promotion of formula as equal to breast milk. Fourth is training health workers to promote breastfeeding over formula. Fifth is including strong breastfeeding messages on formula packaging. Sixth is monitoring and penalizing companies that violate marketing codes.

10. Identify and explain six important factors that District Nutrition Programme Practitioners should consider to ensure success of community nutrition programmes.

One factor is community participation. Engaging local people ensures programmes are accepted and sustainable.

A second factor is availability of resources, such as funds, materials, and trained personnel, to implement nutrition activities effectively.

A third factor is cultural acceptability. Programmes should respect local beliefs and traditions to gain trust.

A fourth factor is government and policy support, which ensures integration of nutrition programmes into national development agendas.

A fifth factor is effective monitoring and evaluation to measure progress and make improvements.

A sixth factor is coordination with other sectors, such as agriculture, health, and education, since nutrition is multi-dimensional.