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)

Duration: 3 Hours **Year: 2025**

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).

SECTION A (60 Marks)

Answer **all** questions from this section.

1. Food adequacy can differ from one person to another based on sex, age and physiological status. Identify five components that constitute this concept.

2. Propose three foodstuffs with their main nutrient contents that would help to prevent each of the following problems:
   (a) Premature birth

   (b) Unstoppable bleeding of the mother after giving birth

   (c) Poor development of the brain and nervous system for the infant

   (d) Anaemia

3. The manager of Utalii Soft Drink Industry disregards establishing the quality assurance system. If you were to advise him, analyse five benefits of the system you would make him aware of.

4. (a) In the areas where modern storage structures are not available, farmers are recommended to use traditional storage structures to keep their produce safe. Explain the two main types of the traditional storage structures that can be used.
   (b) Large farmers preferred modern to traditional storage structures in storing their food grains. Support this statement using six reasons.

5. Your neighbour baked sweet rice bread using bakers' yeast. However, the bread did not rise. Analyse two possible causes and two possible solutions for the problem.

6. Your ill-looking sister went to hospital where diagnosis revealed that she was suffering from osteomalacia. She then asked for nutritional advice from you:
   (a) Explain four kinds of food you would recommend to be consumed.
   (b) Outline four functions of the minerals obtained from the food suggested in part 6(a).
   (c) Describe the effect of excess consumption of the minerals mentioned in 6(a).

SECTION B (40 Marks)

Answer any **two (2)** questions from this section.

7. (a) Describe the following terms as used in energy balance:
   (i) Specific Dynamic Action (SDA)
   (ii) Basal Metabolic Rate (BMR)
   (iii) Energy for physical activity

   (b) Three persons, namely Mcheshi, a man aged 38 years and weighing 60 kg; Mpole, a woman aged 40 years and weighing 65 kg; and Mkali a woman aged 40 years and weighing 70 kg, performed different physical activities. The activities for each person are presented in three different tables as follows:

Mcheshi.

Physical Activities	Time (Minutes)	Energy expenditure per activity (Kcal/Kg/min)
Sleeping	480	1.0833
Bathing	30	2.6667

Ironing	30	2.6667
Cleaning room	10	4.0000
Riding bike	15	2.6667

Mpole

Physical Activities	**Time (Minutes)**	**Energy expenditure per activity (Kcal/Kg/min)**
Climbing stairs	15	7.000
Attending lectures	240	2.6667
Sitting and chatting	60	1.6667
Attending Practicals	180	2.6667
Walking	50	2.6667

Mkali

Physical Activities	**Time (Minutes)**	**Energy expenditure per activity (Kcal/Kg/min)**
Having meal	120	1.6667
Watching Television	120	1.6667
Physical exercises	30	8.3333
Standing	60	1.6667
dressing	10	1.8333

Use the factorial approach to calculate the total energy expenditure for each person. Compare the energy expenditure by Mcheshi, Mpole and Mkali.

8. Evaluate nine limitations that hinder successful food fortification programme.

9. (a) Assume that you are invited by the agricultural officer of Makutano village to educate farmers on spray pesticide formulation. Recommend seven forms of formulations you would present to the farmers.

   (b) Determine the two purposes of pesticide formulation.