THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

155/3 **FOOD AND HUMAN NUTRITION 3**

(For Both School and Private Candidates)

Time : 3 Hours **Year: 2012**

Instructions

1. This paper consists of sections **three (3)** questions.
2. Answer all questions.
3. Question **one (1)** carries **twenty (20)** marks and question **two (2)** and **three (3)** carries **fifteen (15)** marks each.
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).

1. You are provided with sample A and solutions B and C. Carry out the following experiment:

   (i) Put 10 ml of sample A in a boiling tube and add 2 ml of solution B. Heat gently in a water bath and record your observations.

   (ii) To another 10 ml of sample A, add 2 ml of solution C and shake. Leave for 5 minutes and observe.

   (iii) Pour 10 ml of sample A into a beaker and heat strongly until boiling. Stir and note the changes.

   Questions

   (a) Identify sample A.

   (b) What nutrient is being tested in procedure (i)?

   (c) What does the change observed in procedure (ii) demonstrate?

   (d) Explain scientifically what occurred in procedure (iii).

   (e) State two nutritional values of the main nutrient present in sample A.

2. You are provided with sample D (fresh potato). Using a sharp knife, cut thin slices and perform the following:

   (i) Leave one slice untreated on a plate.

   (ii) Dip the second slice in iodine solution for 2 minutes.

   (iii) Soak the third slice in hot water (80 °C) for 5 minutes, then add iodine solution.

   (iv) Dry the fourth slice and expose it to air for 20 minutes. Record your observations in each case.

   Questions

   (a) What nutrient is present in sample D?

   (b) Why did the slice in (ii) show a strong colour?

(c) Why was there a difference between (ii) and (iii)?

(d) State two industrial uses of the nutrient tested.

3. You are provided with samples E, F, G, H and I. Perform the following:

(i) Weigh 10 g of sample E into a flask.

(ii) Add 20 ml of solution F and stir thoroughly.

(iii) Add 2 ml of solution G, shake, and warm in a water bath at 60 °C.

(iv) Add solution H drop by drop while stirring until a colour change is observed.

(v) Titrate the mixture against solution I while hot.

Questions

(a) Identify solution H and explain its role in the titration.

(b) Calculate the peroxide value of sample E.

(c) State the significance of peroxide value in food analysis.

(d) Give two limitations of peroxide value determination.