

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATION COUNCIL  
DIPLOMA IN SECONDARY EDUCATION EXAMINATION**

**733/2A**

**BIOLOGY 2A  
(ACTUAL PRACTICAL A)**

**Time: 3 Hour.**

**Tuesday 13/05/2003 a.m**

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**Instructions**

1. This paper has three papers.
2. Answer **all** questions.
3. Question **1** contains 30 marks while question 2 and 3 have 10 marks each.
4. Mobile phones are not allowed inside the examination room.
5. Write your Examination Number on every page of your answer booklet.

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1. Dissect the provided specimen **Z** in the usual way to expose the digestive and reproductive systems. Then, respond to the following:
  - (a) Draw a well labelled diagram of dissected specimen **Z** showing six parts of the digestive system and two reproductive parts.
  - (b) Identify three major parts of the alimentary canal visible in specimen **Z**.
  - (c) State the observable differences in reproductive system between male and female **Z**.
2. You are provided with specimen **X1** and **X2** and instructed to carry out the following experiment:
  - (i) Cut specimen **X1** into two halves using a scalpel.
  - (ii) Add 2 drops of iodine to one half and observe after 5 minutes.
  - (iii) To the second half, add 3 drops of Benedict's solution, heat gently and observe.
  - (iv) Peel specimen **X2** and rub it on a brown paper sheet, then heat it under flame and observe.

**Questions:**

- (a) What colour change was observed when iodine was added to specimen **X1**?
  - (b) Identify the food substances present in specimen **X1**.
  - (c) What was the chemical basis for the colour change observed with iodine?
  - (d) Name the enzymes responsible for digesting the food substances identified in **X1** and their end products.
  - (e) Mention four roles of the identified food substance in **X1** in plant metabolism.
  - (f) State two adaptive functions of the food substance in specimen **X2** to desert animals.
3. You are given specimens **F**, **G**, **H** and **I**. Observe them and answer:
  - (a) Mention five observable features that differentiate specimen **F** and **H**.
  - (b) Identify three shared features between specimens **G** and **I**.
  - (c) Draw specimen **G** and label five observable features.