THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

033/2C **BIOLOGY 2C**

(ACTUAL PRACTICAL C)

(For Both School and Private Candidates)

Time: 2:30 Hours **ANSWERS** **Year: 2016**

Instructions

1. This paper consists of two questions.

2. Answer all questions.

1. You are provided with specimen J.

(a)(i) Prepare a solution from specimen J and label it as solution S_1.
- Peel specimen J and cut it into small pieces
- Crush using mortar and pestle
- Add small amount of distilled water and stir
- Filter using muslin cloth or sieve to obtain clear solution S_1

(ii) Outline procedures you used to prepare the solution S_1.
Same as above steps

(iii) Carry out experiments to identify the carbohydrates present in the solution. Record your experimental work as shown in Table 1.

Table 1

Food tested	procedure	observation	inference
starch	Iodine solution was added to the sample	The solution turned blue-black	Starch was present
Reducing sugar	Benedict's solution was added into the sample and together were warmed	Solutions turned brick-red	Reducing sugar was present

(b) For each food substance identified in 1(a)(iii), name:

(i) The sites of digestion.
- Starch: mouth and small intestine
- Reducing sugar: small intestine

(ii) Glands present in each site of digestion named in (b)(i).
- Mouth: salivary glands
- Small intestine: pancreas and intestinal glands

(iii) Secretions produced by each of the glands named in (b)(ii).
- Salivary glands: saliva
- Pancreas: pancreatic juice
- Intestinal glands: intestinal juice

(iv) Enzyme contained in each of the secretions named in (b)(iii).
- Saliva: salivary amylase
- Pancreatic juice: pancreatic amylase
- Intestinal juice: maltase

(c) State three natural sources of each food substance identified in solution S_1.
- Starch: maize, potatoes, yam
- Reducing sugar: honey, ripe bananas, mangoes

2. You are provided with specimens A, B, C, D and E.

(a)(i) State the common name for each specimen.
- A: Bean seed
- B: Earthworm
- C: Fish
- D: Groundnut
- E: Mushroom

(ii) Classify each specimen B, C and E to the Class level.

Specimen B:
- Kingdom: Animalia
- Phylum: Annelida
- Class: Oligochaeta

Specimen C:
- Kingdom: Animalia
- Phylum: Chordata
- Class: Osteichthyes

Specimen E:
- Kingdom: Fungi
- Division: Basidiomycota
- Class: Agaricomycetes

(iii) State two observable features which have enabled you to place specimens B, C and E in their respective Classes.
Specimen B: segmented body, moist skin
Specimen C: fins, gills
Specimen E: fruiting body, lack of chlorophyll

(b)(i) State the habitat of specimen C.
Water (aquatic environments such as lakes, rivers, or oceans)

(ii) Explain two adaptations shown by specimen C to its environment.
- Has gills for breathing in water

- Streamlined body and fins for swimming

(c) Name the lowest classification rank under which specimen A and D can be grouped together.
Species or Genus (depending on specifics; both may be legumes)

(d) Using examples, explain two advantages of the Kingdom in which specimen E belongs.
- Fungi such as yeast are used in baking and brewing
- Mushrooms are used as food and a source of income