THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

133/3A **BIOLOGY 3A**
(For Both School and Private Candidates)

Time: 3:20 Hours **Year: 2020**

Instructions

1. This paper consists of **three (3)** questions.
2. Answer **all** questions.
3. Question **one (1)** carries **20** marks and the other **two (2)**, carry 15 marks each.
4. All writing should be in blue or black ink, except diagrams which must be drawn in pencil.
5. Calculators, cellular phones and any unauthorised materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

1. You have been provided with specimen **J**. Dissect the specimen in a usual way to fully display the digestive system. Pin out the ileum to your right hand side.
   (a) Draw a large, neat diagram of your dissection and label nine parts.
   Leave your dissection properly displayed for assessment.

   (b) Use the hand lens to observe your dissection carefully.
      (i) What is the name of a transparent ovoid sac structure lying between the main lobes of the liver in the specimen **J**?
      (ii) State the role of the structure named in 1 (b) (i).
      (iii) Enumerate three main digestive juices secreted into the duodenum.

   (c) (i) Identify two structures in the specimen **J** which are responsible for the storage of the excess absorbed food and state the food type stored in each structure.
      (ii) What is the name of a ring muscle like the structure which is situated immediately between the far end of the stomach and the duodenum in specimen **J**?
      (iii) State the role of the structure named in (c) (ii).

2. You have been provided with solutions $\mathbf{S_2}$ and $\mathbf{S_3}$.
   (a) Identify the food substances present in solutions $\mathbf{S_2}$ and $\mathbf{S_3}$ by using the chemicals and reagents provided. Tabulate your work as shown in Table 1:
   Table 1

Food Tested	Procedure	Observation	Inference

   (b) Explain the basis of each test which produced positive results in 2(a).

   (c) An excess of one food substance identified in 2(a) is stored in the body.
      (i) Identify the food.
      (ii) Name the hormone which influences the conversion of food substance to a form that can be stored, and the organ which produces the hormone.
      (iii) State the form relevant for storage.

3. You have been provided with specimens **L**, **M**, **N** and **P**.
   (a) (i) State two adaptations shown by each of the specimens **L** and **M** to its habitat.
      (ii) Classify the specimens **L** and **M** to Class level.

   (b) Why scientists formalized the placement of specimens **L** and **N** in the same Kingdom? Give four points

   (c) Construct a bracketed key for identification of the specimens **L**, **M**, **N** and **P** using the following features:
      (i) Body differentiation
      (ii) Leaves with sori
      (iii) Leaves with veins.