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

BIOLOGY 2B
(ACTUAL PRACTICAL B)

733/2B

Time: 3 Hours

Wednesday, 15th May 2013 a.m.

Instructions

This paper consists of **three (3)** questions.

Answer **all** questions.

Question number 1 carries 40 marks and the rest carry 30 marks each.

Cellular phones are **not** allowed in the examination room.

Write your **Examination Number** on every page of your answer booklet(s).

1. You have been provided with specimen **Z**. Dissect the specimen in the usual way to display the nervous system.

   (a) Draw a well labeled diagram of your dissection.

   (b) Which of the labeled nerve in (a) above supplies information to;
   (i) Eyes
   (ii) Maxillae and Mandibles.

   (c) Name the class of specimen **Z**.

   (d) Explain three economic importance of specimen **Z**.

   (e) Give two adaptation features which made specimen **Z** successive specie among members of the animal kingdom.

   (f) **Leave your dissection properly displayed for assessment.**

2. You have been provided with 1% starch solution, dilute hydrochloric acid, water bath and 10% Iodine solution.

   (i) Rinse out the mouth with about 5 ml of distilled water.

   (ii) Swill 10 ml of distilled water round the mouth for 1 minute and then collect this liquid in a small beaker to obtain amylase solution.

   (ii) Place a single drop of iodine solution in three depressions of the white tile (one drop per depression).

   (iii) Set up test tubes labeled 1, 2 and 3.

   (iv) To test tube labeled 1, add 10 ml of starch solution, followed by 1 ml of salivary amylase solution and shake.

   (v) To test tube labeled 2, add 10 ml of starch solution followed by three drops of dilute hydrochloric acid (HCl).

   (vi) To test tube labeled 3, add 10 ml of starch solution only.

   (vii) Place the three test tubes in the water bath maintained at a temperature of 37°C and wait for 15 minutes.

   (viii) At the end of 15 minutes, withdraw a drop of each solution and add it to a drop of iodine placed on a white tile.

Questions:

(a) What did you observe when a drop of solution from each test tube was added to a dro of iodine solution on a white tile? Give explanations for each case.

(b) What changes should be made in volume of amylase and starch if:
(i) The reaction is too fast?
(ii) The reaction is too slow in test tube labeled 1?

(c) Identify the changes in amylase actions which would occur when the temperature is:
(i) Lowered to $10^{o}C$.
(ii) Increased to above $40^{o}C$.

(d) Briefly explain five properties of amylase as an enzyme.

3. You are provided with specimen $\mathbf{M_1}$, $\mathbf{M_2}$, $\mathbf{M_3}$ and $\mathbf{M_4}$.

(a) (i) Draw a well labeled diagram of specimen $\mathbf{M_4}$.
(ii) Classify specimen $\mathbf{M_4}$ down to class level.
(iii) Give four reasons for putting specimen $\mathbf{M_4}$ to such class level.
(iv) State four economic importance of the specimen.

(b) Study specimen $\mathbf{M_2}$ and $\mathbf{M_3}$ carefully, and answer the following questions, based on the observable morphological structures:
(i) Give three differences between specimen $\mathbf{M_2}$ and $\mathbf{M_3}$.
(ii) Give two similarities between specimen $\mathbf{M_2}$ and $\mathbf{M_3}$.

(c) (i) Identify the phylum of specimen $\mathbf{M_1}$.
(ii) Analyze four adaptive features of specimen $\mathbf{M_1}$.