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

733/2B **BIOLOGY 2B**

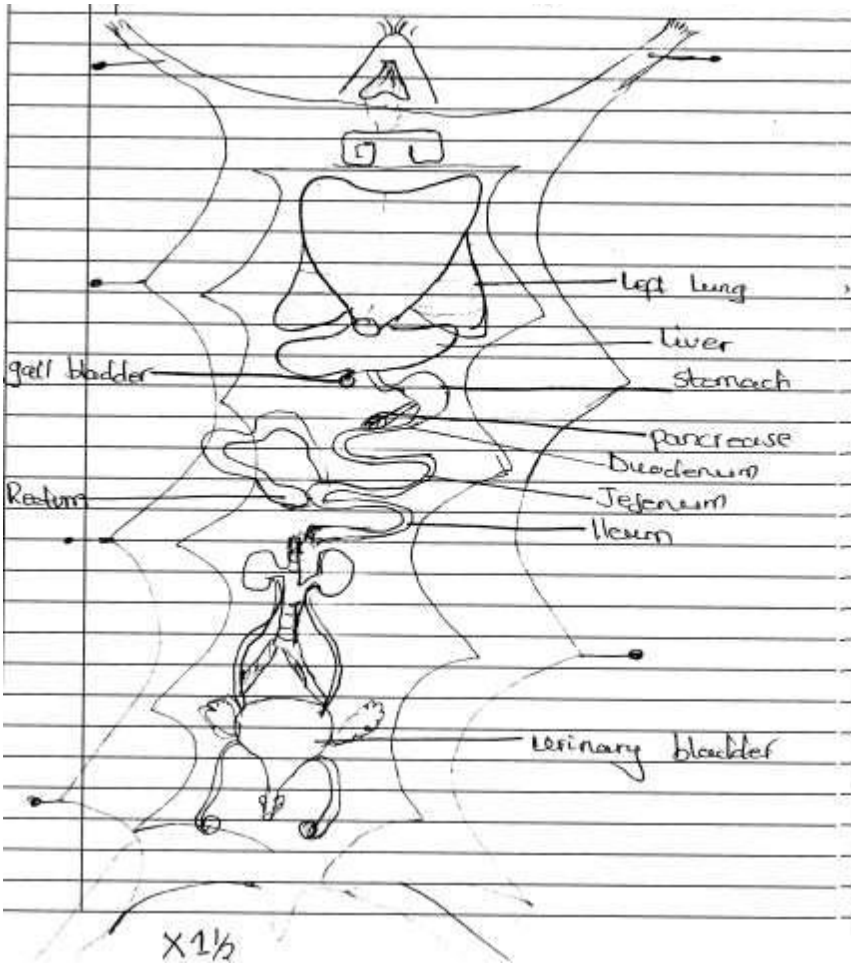
Time: 3 Hours **ANSWERS** **Year: 2021**

Instructions.

1. This paper consists of three questions.
2. Answer **all** questions.
3. Cellular phones are **note** allowed in the examination room.
4. Write your **examination Number** on every page of your answer booklet(s).

1. Dissect the provided specimen Y (a male or female Rat/Guinea pig) in the usual way to display the viscera in-situ system and respond to the following questions:

(a) Draw a large, neat, well labelled diagram, indicating ten organs observed in your dissection.



(b) Classify specimen Y to the Class level.

Class: Mammalia.

(c) Which organ observed in specimen Y is responsible for blood sugar regulation in the human body?

Pancreas.

(d) Identify the organ(s) responsible for protein digestion in specimen Y.

Stomach and Small intestine.

(e) What three observable features were used to classify specimen Y to its particular class?

- Presence of mammary glands for feeding young ones.
- Presence of fur or hair covering the body.
- Presence of external ears (pinnae).

2. You are provided solutions R1 and R2, carry out biochemical test, and then answer the following questions:

(a) Using the reagents provided, carry out experiments to identify food substance(s) contained in solutions R1 and R2. Tabulate your report, as shown in the following table:

Test For	Procedure	Observation	Inference
Starch	Add iodine solution to R1	Blue-black colour appears	Starch present in R1
Reducing sugars	Add Benedict's solution to R2 and heat in water bath	Green/yellow/orange/red precipitate	Reducing sugars present in R2

(b) Name the end product of each food substance(s) identified from solutions R1 and R2 after digestion.

- Starch is digested to glucose.
- Reducing sugars like maltose are further broken down into glucose.

3. You are provided with specimens G1 (Bread mould), G2 (Crab) and G3 (Butterfly). They were required to observe the specimens carefully and then answer the following questions:

(a) Identify each of the specimens G1, G2 and G3 by its common name.

G1: Bread mould.
G2: Crab.
G3: Butterfly.

(b) Classify each of the specimens G1, G2 and G3 to the class level.

G1: Zygomycota (in Kingdom Fungi).
G2: Crustacea.
G3: Insecta.

(c) Draw a well labelled diagram of specimen G1.

(d) Explain three advantages of specimen G3 to the ecosystem.

Butterflies act as pollinators, helping in the reproduction of flowering plants.

They serve as food for other animals such as birds and small mammals.

They contribute to the beauty and aesthetic value of the environment, attracting eco-tourism.

(e) State three observable features which were used to classify specimen G2 to its respective class.

- Presence of a hard exoskeleton made of chitin.
- Body divided into cephalothorax and abdomen.
- Possession of two pairs of antennae.