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

733/2B **BIOLOGY 2**

(PRACTICAL 2B)

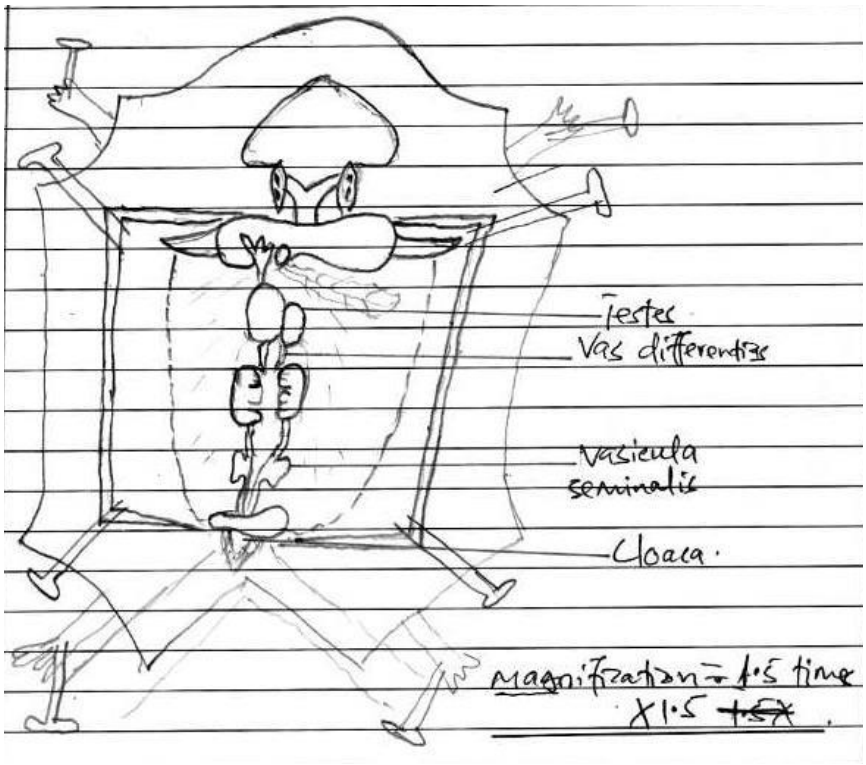
Time: 3 Hours **ANSWERS** **Year: 2024**

Instructions.

1. This paper consists of sections **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 L in the usual way to display the reproductive system. Cut off and completely remove the digestive system and respond to the following questions:

(a) Draw a diagram of the dissected specimen L (Toad/Frog) showing the reproductive system and label four parts



(b) Carefully observe the specimen and identify the organ responsible for carrying out each of the following functions

(i) **Production of gametes** — **Testis** in male or **Ovary** in female.
(ii) **Temporarily storage of gametes** — **Cloaca** serves as a temporary storage before gametes are released.
(iii) **Transportation of gametes** — **Vas efferentia** (in males) transports sperm from the testis to the kidney then via urino-genital duct to cloaca. In females, **Oviduct** transports eggs to the cloaca.

(c) What will happen if the anterior abdominal vein is accidentally punctured?
If the anterior abdominal vein is accidentally punctured, there will be excessive bleeding inside the body cavity. This will obscure visibility, interfere with the observation of internal organs, and may lead to the death of the specimen if it were alive.

(d) Why is it important to flood the specimen with water after opening it? Give two points.
It keeps the internal organs moist, preventing them from drying out and shrinking, which could distort their appearance and position.
It clears off blood and other body fluids, providing a clear view of the internal organs for easier identification and observation during dissection.

2. (a) Using the provided reagents carry out the biochemical test to identify Food substances contained in the solution D. tabulate your result as shown in the following table.

Food Test	Procedure	Observation	Inference
Starch	To $2cm^3$ of solutions D in the test tubes, two (2) drops of Iodine solution were added and the content was gently shaken.	Solution D turned into blue/Black colour.	Starch was present in solution D.
Reducing sugar	To 2 cm^3 of solutions D in the test tubes, $2cm^3$ of Benedict's solution was added and the content was boiled.	Solution D retained the blue colour of the reagent.	Reducing sugar was Absent in solution D.
Non Reducing sugar	To 2 cm^3 of solutions D in the test tubes, $2cm^3$ of dilute HCl was added and the content were boiled then cooled. After cooling 2 cm^3 of dilute NaOH was added followed by $2cm^3$ of Benedict's solution then re - boiled.	Solution D tube turned into a series of colour from blue, green, yellow, orange to brick red.	Non Reducing sugar was present in solution D.
Protein	To $2cm^3$ of solutions D in the test tubes, $2cm^3$ of dilute NaOH solution was added followed by 2 drops of 1% $CuSO_4$ solution while shaking.	Solution D in the test tube retained with blue colour.	Protein was absent in solution D.

(b) Name the two natural food staffs from which solution D could have been extracted.

(c) State the first site of digestion, digestive juice and the end product of digestion of the food substances identified in the solution D.

3. Your provided with specimens A, B, C, D and E. Your required to carefully observe each specimen and answer the following questions:

(a) Differentiate the following specimens using four observable features

(i) Specimen A (Spider) and Specimen B (Housefly)

The spider has **eight legs**, while the housefly has **six legs**. This is a basic distinguishing feature of arachnids and insects.

The spider has a body divided into **two main parts**: the cephalothorax and abdomen. In contrast, the housefly's body is divided into **three main parts**: head, thorax, and abdomen.

The spider lacks **antennae**, whereas the housefly has **a pair of antennae** which it uses for sensing its environment.

The spider does not possess **wings**, while the housefly has **one pair of wings** used for flying.

(ii) Specimen D (Maize plant) and Specimen E (Bean plant)

The maize plant has **parallel leaf venation**, where the veins run side by side along the length of the leaf. On the other hand, the bean plant shows **reticulate venation**, where the veins form a network.

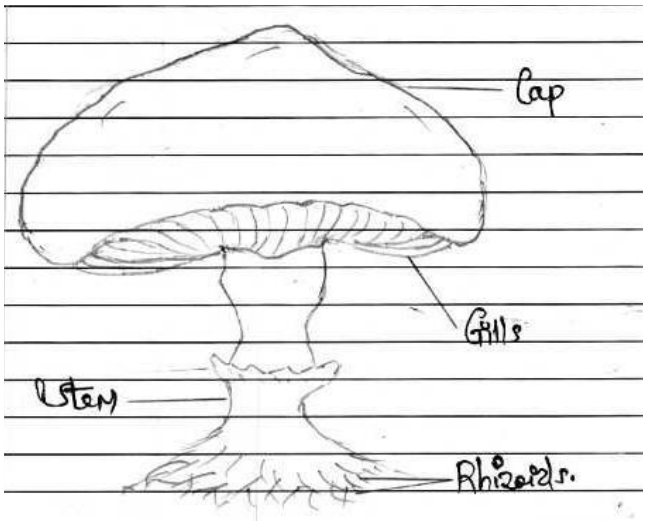
The maize plant produces **fibrous roots**, while the bean plant produces a **tap root system**.

Maize seeds are **monocotyledonous**, meaning they have one seed leaf, while bean seeds are **dicotyledonous** with two seed leaves.

The maize plant's stem is usually **hollow and unbranched**, whereas the bean plant's stem is **solid and branched**.

(b) Draw the diagram of specimen C (Mushroom) and label four parts

Below is a clear text-based diagram of a mushroom:



Labels:

1. Cap (Pileus)
2. Gills
3. Stipe (Stalk)
4. Rhizoid (Mycelium)