THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

033/2B **BIOLOGY 2B**

(ACTUAL PRACTICAL 2B)

Time : 3 Hours **ANSWERS** **Year : 2022**

Instructions

1. This paper consists of **two (2)** questions. Answer all questions.
2. Each question carries **twenty five (25)** marks.
3. Communication devices and any unauthorised materials are **not** allowed in the examination room.
4. Write your **Examination Number** on every page of your answer booklet(s).

1. You are provided with specimens A, B and specimen C.

(a) Observe carefully the displayed reproductive system in the specimen A, then draw a well labelled diagram of the reproductive system only.
The diagram should show the male or female reproductive system depending on specimen A. A labelled drawing would include organs such as testes, sperm ducts, penis, and urethra for male, or ovaries, fallopian tubes, uterus, cervix and vagina for female.

(b) Carefully remove the sepals, petals and completely peel off the stamen tube to fully display carpel of specimen B, then draw a well labelled diagram of the carpel.
The drawing of the carpel should include stigma, style, ovary, and ovules.

(c) State four similar functions performed by reproductive system in diagram 1(a) and the carpel in 1(b). Present your work under criteria shown in the following table:

S/N	Criteria	Reproductive system in 1(a)	Carpel in 1(b)
(i)	Reception of gametes	Receives male or female gametes for fertilization	Receives pollen grains on the stigma
(ii)	Production of gametes	Produces sperms in testes or eggs in ovaries	Produces ovules inside the ovary
(iii)	Fertilization site	Fertilization occurs in fallopian tubes or reproductive tract	Fertilization occurs inside the ovary
(iv)	Zygote development	Zygote develops into embryo in the uterus	Zygote develops into seed within the ovary

(d) What is the type of reproduction exhibited by the plant which specimen C was taken? Give a reason to support your answer.
The type of reproduction is asexual reproduction. This is because specimen C propagates without gametes, using vegetative structures such as corms, bulbs, or rhizomes.

(e) Briefly explain how the specimen C is propagated for reproduction of new plant.
Specimen C propagates through vegetative structures. New shoots grow from buds or nodes of the storage organ such as tubers, bulbs, or rhizomes, giving rise to new plants identical to the parent.

(f) In what ways the products from the specimen C is useful to human being. Give three points.
The products provide food as a source of carbohydrates for energy.
They are used as planting materials for future crop production.
They are sold to provide income for farmers and contribute to economic development.

2. You are provided with specimens Q, R, S and T.

(a) (i) Classify each of the specimens R, S and T to class level.
Specimen R belongs to Class Insecta.
Specimen S belongs to Class Arachnida.
Specimen T belongs to Class Crustacea.

(ii) State three reasons for placing the specimen S to its respective class in 2(a)(i).
It has two body parts, cephalothorax and abdomen.
It has four pairs of legs.
It has simple eyes and lacks antennae.

(b) Why is it important to understand the type of classification system used to place specimens R, S and T in their respective groups? Give one reason.
It is important because classification helps in understanding evolutionary relationships and similarities or differences between organisms, making study and communication easier.

(c) State three advantages of the members which have been placed together with specimen R in the same Class.
They assist in pollination of flowering plants, aiding reproduction.
They serve as food for other animals, contributing to the food chain.
Some act as biological control agents by preying on harmful insects.

(d) Why specimen Q is placed in the Division Bryophyta? Give two reasons.
It lacks vascular tissues such as xylem and phloem.
It reproduces using spores instead of seeds and shows alternation of generations with a dominant gametophyte stage.

(e) Draw a well labelled diagram of specimen Q.
The diagram should include parts such as rhizoids, stem-like structure, leaf-like structure, and spore