THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

033/2A **BIOLOGY 2A**

(ACTUAL PRACTICAL A)

(For Both School and Private Candidates)

Time: 2:30 Hours **ANSWERS** **Year: 2022**

Instructions

1. This paper consists of two questions.

2. Answer all questions.

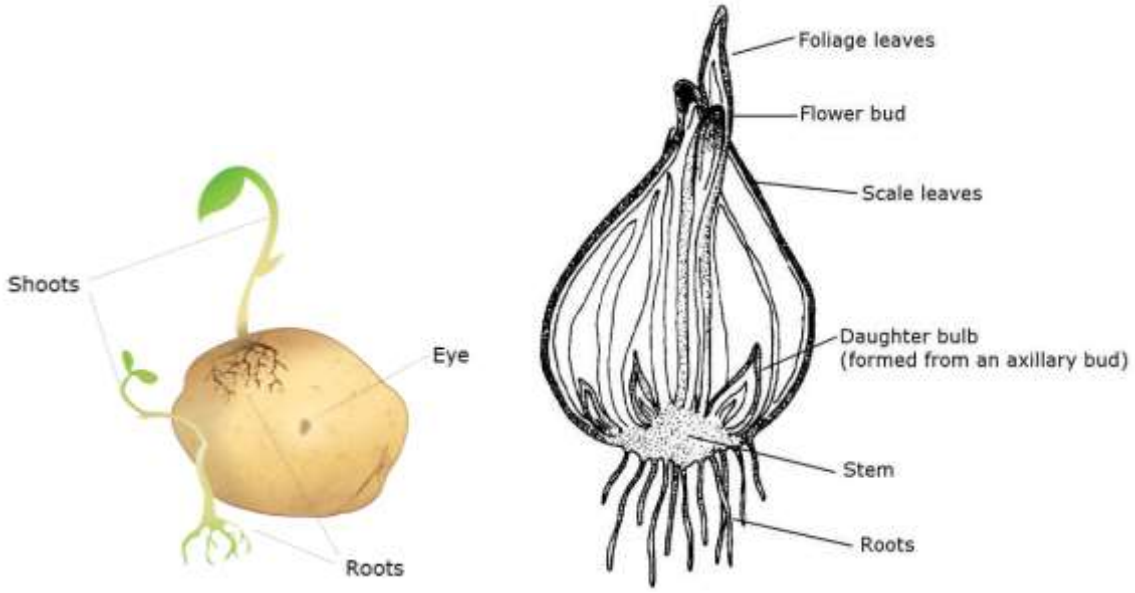
1. You have been provided with longitudinal sections of specimens T_1 and U. Study carefully the specimen T_1 and U with their cutting side facing upward and then answer the following questions:

(a) What is the type of reproduction exhibited by specimen T_1 and U?
The type of reproduction exhibited is vegetative (asexual) reproduction.

(b) Give two advantages and disadvantages of the types of reproduction exhibited by specimen T_1.
Advantages:
- Fast and does not require a mate.
- Offspring are genetically identical to the parent and retain desirable traits.

Disadvantages:
- Lack of genetic variation which can increase vulnerability to diseases.
- Limits adaptability to changing environments.

(c) Draw the diagrams of specimens T_1 and U and label their internal and external parts.



(d) Which process would not proceed normally if the internal part of specimens U and T_1 are totally removed from the live plants?
Growth and regeneration would not proceed normally, specifically vegetative propagation would be impaired.

(e) State two economic importance of the specimen T_1 in our daily life.
- Used as food due to its carbohydrate content (e.g., yam, potato).
- Used as planting material for crop production through vegetative propagation.

2. You have been provided with specimens L, M, N and P. Using a hand lens, carefully study the specimens and then answer the following questions:

(a) Why is it not recommended to place the specimens L, M and N in the same Kingdom? Give reasons.
They differ fundamentally in cell structure and mode of nutrition. For example, L might be a fungus (heterotrophic with chitin), while M and N could be plants (autotrophic with cellulose).

(b)(i) Classify specimens L, M and N to Class level.
- Specimen L: Kingdom Fungi, Class Zygomycota (if mold)
- Specimen M: Kingdom Plantae, Class Bryopsida (if moss)
- Specimen N: Kingdom Plantae, Class Pteridopsida (if fern)

(ii) State two reasons for placing the specimens M and N in their respective Classes in (b)(i).
- M lacks vascular tissues and has rhizoids instead of roots.
- N has vascular tissues, true roots, and reproduces via spores.

(iii) In what ways do the members of the Class in which specimen L belongs advantageous to other living organisms?
- Decompose organic matter and recycle nutrients.
- Used in biotechnology and food production.
- Produce antibiotics like penicillin.

(c)(i) Carefully observe the specimen P and then answer the following questions:
In which Phylum does the specimen P was taken? Give reason to support your answer.
Specimen P belongs to Phylum Arthropoda because it has jointed appendages and segmented body.

(ii) Name four organisms which can be placed in the same Phylum/Division of specimen P.
- Spider
- Millipede
- Grasshopper
- Crab

(iii) What are the advantages of specimen P in daily life? Give three points.
- Used in food chains to control pest populations.
- Some serve as food sources.
- Contribute to pollination and organic matter decomposition.