THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

034/2 **AGRICULTURAL SCIENCE 2**

(ACTUAL PRACTICAL 2)

(For Both School and Private candidates)

Time: 3 Hours **Year: 2021**

Instructions

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

1. You are provided with the following specimen, apparatti and materials: **A, B, C, D, Q**, A test tube rack, test tubes, a spatula, a marker pen, masking tape, blue litmus paper, red litmus paper and a stop watch/wall clock. Perform the following procedures and answer the questions that follow.

Procedure:

(i) Observe each of samples **A**, **B**, **C**, and **D** and record their colour and shape.

(ii) Using a spatula, place a small quantity of each sample in the different test tubes provided and label the test tubes as **A, B, C** and **D** as per the sample placed respectively

(iii) Add Specimen labelled **Q** in each sample in the test tube and shake the mixtures vigorously.

(iv) Place the strip of red and blue litmus paper in the solution made from dissolved samples made in (iii) simultaneously. Wait for 30 seconds and then observe the pieces of papers.

(v) Record your observations and find out the pH of the samples.

Questions

(a) Tabulate the result of the experiments based on the observation

Sample	**Color**	**Formulation**	**Action to litmus paper**	**pH**
A				
B				
C				
D				

(b) What will happen if sample **A, B** and **C** are repeatedly applied in the same piece of land?

(c) Why a farmer frequently applies samples **A, B** and **C** in the field?

(d) Suggest with a reason the best chemical to be applied in a soil having more of sample **A** and **C** for optimum growth of plant.

(e) Suggest six suitable benefits from pH results that will favour plant growth in the field when applying sample **D** and

(f) Give three precautions farmers need to consider when working with chemicals **A, B** and **C** in the field environment.

2. (a) You are provided with the following specimens and chemicals: **P , U, T , I** , Glyphosate and Paraquat. As plant doctors, observe carefully the given specimens and then answer the questions that follow:

(i)Why was it difficult to manage specimen **P, U, T** and **I** in the crop field?

(ii) Which herbicide is suitable for eradicating specimen **P, U, T** and **I**? Give a reason

(iii) why the other choice of herbicide is not recommended other than the one you have chosen in (ii)?

(iv) Recommend the most appropriate growth stage of specimens **P, U, T** and **I** for maximum effectiveness of the proposed herbicides.

(b) The candidates were provided with the following material, specimen and tool. **Z**, specimen **W** , **X**, spanner number 12 and 13. Carry out the following procedures and then answer the questions that followed:

Experiment 1

Procedures

(i) Use spanner number 12 and 13 to connect one end of each piece of material **Z** into positive and negative terminals of specimen **W**.

(ii) Connect the other ends of pieces of material **Z** into positive and negative terminals of specimen **X**: Positive to positive and negative to negative terminals.

(iii) Record what have you observed.

(iv) Proceed with Experiment 2

Experiment 2

Procedures

(i) Disconnect the two ends of material **Z** from specimen **X.**

(ii) Make contact of two ends of disconnected material **Z** from specimen **X.**

(iii) Record what you have observed.

(iv) After finishing the experiment, loosen and remove material **Z** using spanner number 12 and 13 from specimen **W.**

Questions

(i)What have you observed in both experiments?

(ii) What was the aim of the two experiments?

(iii) How will you care and maintain specimen **W** to make sure that the aim of the two experiments in (ii) are met? Give five points to support your answer and

(iv) Give the name and function of each specimen **W** and **X.**