THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

ADVANCED CERTIFICATE OF SECONDARY EDUCATION

EXAMINATION

134/3 **AGRICULTURE 3**

(For Both School and Private candidates)

Time: 3 Hours **Year: 2021**

Instructions

1. This paper consists of **three (3)** questions..
2. Answer **two (2)** questions.
3. Question **one (1)** carries **twenty (20)** marks and question **two (2)** and **three (3)** carry **fifteen (15)** marks each.
4. Non-programmable calculators may be used.
5. Write your **Examination Number** on every page of your answer booklet (s)

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1. You are provided with the following specimens and materials: **L_1, L_2,** carton box, 2 battery capacity torch and a dark environment. Perform the following procedures:
   (i) Hold specimen **L_1** between the thumb and fore finger
   (ii) Using a torch, light a spotlight inside the carton box to the direction of a hole
   (iii) Candle specimen **L_1** by placing it with its large end facing the hole outside the carton box (iv) Tilt specimen **L_1** slightly to one side and rotate until you get the best view by looking through it to the light
   (v) Repeat the same procedures for specimen **L_2**.

   Questions:

   (a) Give the aim of the experiment
   (b) Briefly describe the process involved in the experiment
   (c) Comment on the status of each of the specimen **L_1** and **L_2**, giving two signs in each case to justify the status of the specimens.
   (d) Give three factors to be considered for the specimen that has passed the test not to suit the purpose of the experiment
   (e) Briefly explain why yolkers and quitters cannot be winner specimens in the experiment.
   (f) Account for the five necessary conditions for artificially developing the winner specimens in the experiment.

2. You are provided with the following specimens and materials: **S1**, **S2**, pH colour chart, pH colour indicator/dye, barium sulphate powder, test tubes, test tube rack, corks, dropper, spatula, beaker, distilled water, weighing balance and a wall clock. Perform the following procedures and answer the questions that follow:
   i) Measure about 5g for each of specimen **S1** and specimen **S2**.
   ii) Put the measured specimen **S1** and specimen S2 into separate test tubes
   iii) Using spatula, add barium sulphate powder and mix it well with both specimen **S1** and specimen **S2**

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iv) Add distilled water and few drops of pH colour indicator/ dyer to the mixture of both specimen **S1** and specimen **S2**.

v) Cork the test tubes and shake the mixture vigorously to ensure thorough mixing.

vi) Allow the content to stand for 45 minutes.

vii) Observed the clear area formed in the middle of the test tubes.

viii) Match the colour of the solution with that of colour chat and record the pH value.

Questions;

a) Give the values and names of the pH range in each of the specimen **S1** and **S2**.

b) Assess the significance of conducting the experimental test in crop production,

c) Suggest one common crop in Tanzania suitable to be grown in the soil sample of specimen **S1** with regard to its pH value.

d) Give reason why the barium sulphate powder was added to the specimens during the experiment,

e) Give comments and advice to farmers who want to grow maize in the soil of specimen **S2**.

f) Briefly explain three importance of advice given in part (e).

3. Ypu are provided with specimen **C** as a sample brought to the plant clinic by a farmer. Carefully examine the specimen as plant pathologists and inform the farmer on the following:

(a) Name of the disease affecting specimen **C.**

(b) Causative agent of the disease by its common and scientific names.

(c) Three modes of transmission of the disease.

(d) Three observable symptoms that exhibit the presence of the disease.

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(e) One measure that can be employed to restore the health of the infected plant.

(f) Six points to suggest ways to maintain health of the plant against the disease.

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