

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

034/2

AGRICULTURAL SCIENCE 2
(PRACTICAL)
(For Both School and Private Candidates)

Time: 2:30 Hours

Year: 2020

Instructions

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



1. (a) You are provided with sample of soil **A**, **B** and **C**. Carry out the following procedures and then answer the questions that follow:

Procedure

- (i) Weigh separately approximately 50 g of each soil type labeled **A**, **B** and **C**.
- (ii) Put/plug an equal amount of cotton wool into the neck of each of the filter funnels labeled **A**, **B** and **C**.
- (iii) Put filter paper into each of the filter funnels labeled.
- (iv) Take three measuring cylinders labeled **A**, **B** and **C**.
- (v) Put soil samples of the 50 g you have measured into the filter funnels as follows: soil sample **A** into filter funnel **A**, soil sample **B** into filter funnel **B** and soil sample **C** into filter funnel **C**.
- (vi) Place/mount the filter funnels with soil samples **A**, **B** and **C** onto measuring cylinders **A**, **B** and **C** respectively.
- (vii) By using 250 cm³ beaker, pour 100 cm³ of water into the filter funnels simultaneously.
- (viii) Wait for 15 minutes. Read and record the amount of water which has passed through in each soil samples in every measuring cylinder.

Questions

- (i) Which measuring cylinder collected more water than the other two? Give a reason. **(2 marks)**
 - (ii) Which measuring cylinder collected less amount of water than the others? Give a reason. **(2 marks)**
 - (iii) What conclusion can you draw from the experiment you have done? **(2 marks)**
 - (iv) Give the name of the soil sample which its measuring cylinder collected less amount of water? **(1 mark)**
 - (v) Propose one best way that can be used to improve the water retention ability of the soil sample from the funnel which its measuring cylinder collected more water. **(2 marks)**
 - (vi) What are the six characteristics of the soil sample from the measuring cylinder which collects less amount of water in relation to its workability in the field? **(6 marks)**
- (b) You are provided with specimens **W**, **X**, **Y** and **Z**. With the aid of a hand lens, observe the given specimens carefully and then count the number of teeth per centimeter in each specimen and then answer the questions that follow.

Questions

- (i) Fill in the following table by giving the number of teeth per centimeter and type of a file for each of the specimen **X**, **W**, **Y** and **Z**.

| Specimens | Number of Teeth per cm | Type of File |
|-----------|------------------------|--------------|
| W | | |
| X | | |
| Y | | |
| Z | | |

(4 marks)

(ii) In reference to the number of teeth obtained in each specimen, give the ideal function of each type of file identified in part (i). **(4 marks)**

(iii) How would you care and maintain the given specimens after use in a given work piece? Give two points. **(2 marks)**

2. You are provided with specimens **J₁**, **J₂** and **J₃**. Use hand lens to observe the given specimens in their faces and then answer the questions that follow:

Questions

- (a) From your observations, name the harmful organ(s) of each specimen. **(2.5 marks)**
- (b) Draw and label simple diagram of each specimen to show destructive organ(s) named in (a) above. **(5.5 marks)**
- (c) What are the function(s) of the organ(s) in each specimen named in (a)? **(5 marks)**
- (d) Suggest three observable symptoms which are likely to be shown by the animals attacked by each of the specimen. **(4.5 marks)**
- (e) Mention three harmful effects of each specimen to the host animal. **(4.5 marks)**
- (f) What are the two commonly farm animals affected by each specimen? **(3 marks)**