NAME:……SIGN……

553/2

BIOLOGY

THEORY

Paper 1

2 hours

COMPREHENSIVE BIOLOGY TRANSFORMATION INITIATIVE

Uganda Lower Secondary Certificate of Education

END OF YEAR EXAMINATION 2023

SENIOR TWO

BIOLOGY

Paper one

TIME: 2 HOURS

INSTRUCTIONS

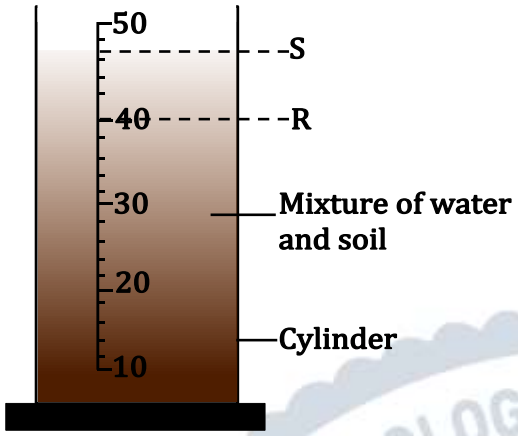
- This paper consists of two questions.
- Attempt all questions in this paper.
- Present your answers precisely in the spaces provided.
- No extra answer shall be provided for rough work.

FOR EXAMINER'S USE ONLY

	Question 1			Question 2		
	a)	b)		a)	b)	
		RELEVANCY			RELEVANCY	
		ACCURACY			ACCURACY	
		COHERENCY			COHERENCY	
		EXCELLENCE			EXCELLENCE	
TOTAL						

Question 1.

a) ***Fig.1.*** **shows the apparatus used to determine the percentage of air in a soil sample in which 30cm^3 of water were used. The measuring cylinder is graduated in cm^3. Use it to answer questions that follow.**



S – *Level of mixture immediately after addition of water.*
R – *Level of mixture after settling.*

Fig.1.

a) Determine the percentage of air in the soil sample. **(04marks)**
b) Would you regard this soil to be, give reasons for each case:
(i) Well aerated? **(01mark)**
(ii) Sandy soil? **(01mark)**
c) Explain how soil aeration vary among soil types. **(05marks)**
d) How best would you improve the soil with poor aeration? **(03marks)**

b) Mr. Emma attended an agricultural study trip from where he was told to stock the materials in ***fig.2.*** to be used before he plants crops for the next season. But since it was a short study trip, Mr. Emma did not thoroughly learn the application of some materials in the investigation of certain soil chemical and physical properties.

Fig.2.

A ***B*** ***C*** ***D***

Through illustrations and setups, help Mr. Emma to appropriately use these materials to determine a particular physical property of soil. Explain the role of each material in the processes.

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Question 2

a) A medical student tested two different sources of carbohydrates to see how they affected her blood glucose levels. On the first day she ate some sugary sweets for breakfast. The next day she had a bowl of starchy cereal. She measured her blood sugar levels every 30 minutes after eating each food and the results obtained were plotted on the graph in ***fig.3***.

(i) Which variable did the student test? **(01mark)**

(ii) Suggest why she started each experiment first thing in the morning. **(01mark)**

(iii) Suggest one other variable she should control, which could also affect blood glucose level. **(01mark)**

(iv) Use the graph to describe the main differences the student found and suggest a reason for these differences. **(07marks)**

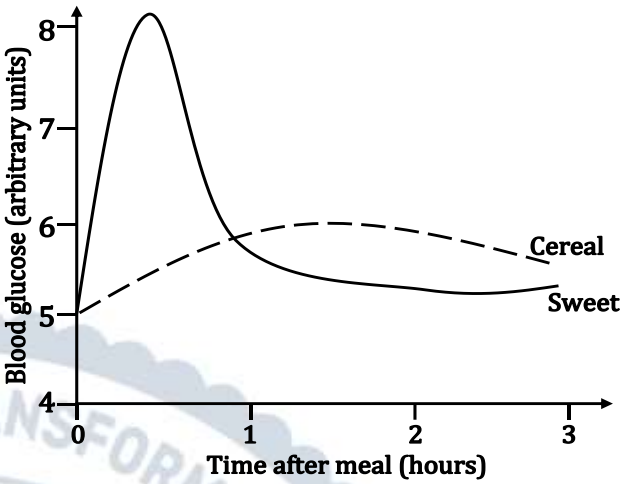

Fig.3

b) At a given home in the village, a family has members shown in ***fig.4***. and Musoke who is a senior two student and football player at the school team. This family has the elder brother son abroad who sent some money to buy foods such as sugar, maize flour, beans, bread, milk, salt and a tray of eggs to be used at home. Musoke was told to always prepare some of these foods specially to the home people and himself.

Fig.4.

However, Musoke knows the nutrients and how to test for them but is not sure which ones are contained in some foods like oranges, milk and sugar since they are not labeled, so he decided to test them using the chemical reagents he collected from school.

After testing the foods, he started preparing the food materials appropriately to the home members. The members grew very healthy and happy with their diets.

(i) As an S.2 student, how did the chemicals that Musoke obtained from school enable him to identify the food nutrients in the foods.

(ii) Explain which food substances does Musoke feed the home members and himself and what would happen if Musoke was not feeding the home members? appropriately.

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END

Adopt to the 21st century biology pedagogical approaches