

Name.....personal no...../...../.....

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553/1

BIOLOGY.

S.2

Aug-2023

2 hours.

LAROO SECONDARY SCHOOL

BIOLOGY EXAMINATIONS

Competency based curriculum end of term examination 2023

Uganda Lower secondary certificate of education. (U.L.S.C.E)

Instructions.

- Attempt ***all*** the questions in section **A** and section **B**
- Diagrams where necessary must be drawn using a sharpened pencil.

For Examiners use only

Question	Marks.	Comment
1		
2		
3		
4		
5		
6		
7		
8		

SECTION A.

Attempt all the questions in this section

1. (a) Plant leaves are of different types with different kind of features. Below are structures of different kind of leaves.



Leaf P

Leaf Q

- (i) State the type of leaves shown above. (01 mark)

.....

- (ii) Give reason for your type of leaves shown above. (01 mark)

.....

- (iii) Name leaf, (02 marks)

P

Q

- (b) A group of S.2 students collected different kinds of leaves, which they examined; and recorded their observable features as in table below

Leaf	Lamina	Venation	Margin	Stalk
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R	Undivided.	Network	Serrated	Petiole
S	Divided	Network	Serrated	Petiole
T	Undivided	Pallarel	Entire	Sheath
W	Undivided	Network	Entire	Petiole

- (i) Construct a dichotomous key to classify all the leaf specimens
In the table. **(03 marks)**

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- (ii) State any two primary functions of leaves to plants. **(02 marks)**

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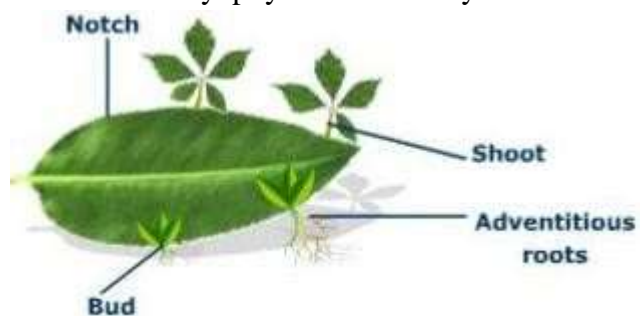
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- (c) Below is a structure of a bryophyllum leaf. Study it and answer the Questions that follow.



(i) State the function of the bryophyllum leaf as shown above. **(01 mark)**

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.....

(ii) From the structure above; give a reason to support your answer in (i)
(02marks)

.....

.....

2. While studying features of some insects; a group of S.2 students downloaded the diagram of a cockroach and printed it out; which they used to identify the features of external parts of a cockroach. Study the diagram and answer the questions that follow.



(a) From the diagram; briefly describe the,

(i) Antenna of the cockroach. **(02 marks)**

.....

.....

(ii)Fore limbs of the cockroach. **(02 marks)**

.....

.....

- (b) Using observable features; suggest why cockroaches live a successful life.
(03 marks)

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.....

- (c) State one way in each case how cockroaches are useful and harmful in life.

- (i) How they are useful. (01 mark)

.....

.....

- (ii)How they are harmful. (01 mark)

.....

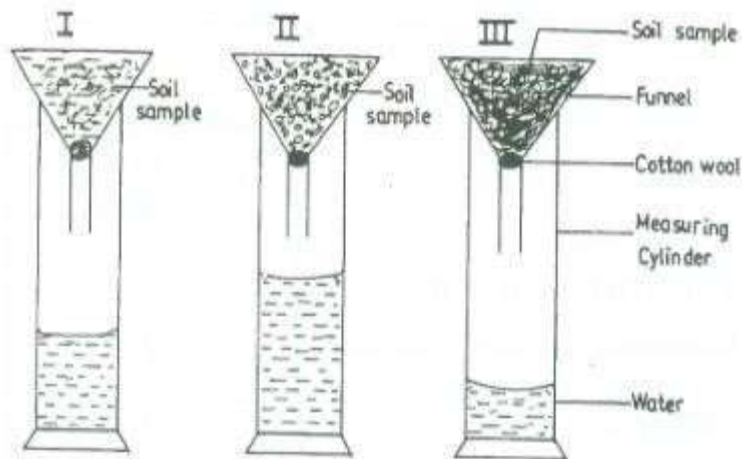
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- (d) Suggest one way how the dangers of cockroaches can be controlled in our homes. (01 mark)

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3. In an experiment to determine the properties of different types of soil samples; the sets of apparatus were arranged. 250 cm³ of water was poured into each funnel containing a soil sample; The following observations were made at the end of the experiment and the amount of water that collects in each measuring cylinder is noted. Study them and answer the questions that follow.



(a) State the aim of the experiment. (01 mark)

.....

.....

(b) With reasons; state the type of the soil sample used in,

(i) Experiment 1 (03 marks)

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.....

(ii)Experiment 2. (03 marks)

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(iii)Experiment 3. (03 marks)

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4. The president of the Republic of Uganda has on several occasions been quoted emphasizing the relevance of scientists in the growth and development of our country;

and general well-being of Ugandans at large. As a BIOLOGIST, state if each of the following statements are **TRUE** or **FALSE** (08 marks)

- (a) Biology is the study of living and non-living things
.....
- (b) COVID-19 is mainly spread through air
.....
- (c) Nomenclature is a sub-set of Taxonomy
.....
- (d) Microorganisms which cause diseases are all parasites
.....
- (e) All bacteria are pathogens
.....
- (f) Plant cells also contain Mitochondria
.....
- (g) *Mimosa pudica* belongs to the genus Pudica
.....
- (h) Xylem Vessels are specialized plant cells that transport manufactured food
.....
- (i) The cell membrane allows free entry and exit of all materials in and out of the cell
.....
- (j) Veins and arteries are organs
.....

5. (a) Atim was seeking an admission in S.2 at Laroo Secondary School. She was assigned to match the **pathogens** in set A to their respective **diseases** in set B. Given that Atim scored full marks in the test, show how she worked out the assignment. (*Use a pencil*) (05 marks)

SET A

Malaria

Measles

AIDS

SET B

Virus

Anopheles Mosquito

Bacteria

COVID-19

Plasmodium

Cassava Mosaic

HIV

Fungus

Corona Virus

(b) The health minister was addressing the school about the spread of the Corona Virus in human populations. After greeting the assembly, she went ahead to elaborate the ways through which the virus spreads. Using the space below summarise the key points of the minister's speech for the day scholars who missed the assembly. **(05 marks)**

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SECTION B

Attempt all questions

6. One S.2 student; Joshua lost a key for his suit case one day after school visitation. His parents visited him and among packages was a loaf of tip top sweet bread. After a week; he broke the suit case only to find his bread appearing as in diagram below. Use the diagram to answer the questions that follow.



- (i) What name is given to the organism that developed on Joshua's bread. **(01 mark)**
- (ii) State the kingdom to which the organism named in (i) belongs. **(01 mark)**
- (iii) State **any two** general features of all organisms belonging to the kingdom stated in (ii) above. **(02 marks)**
- (iv) Draw a well labelled structure of the organism named in (i) above. **(03 marks)**
- (v) Name other two organisms that belong to the same kingdom as the organism named in (i) above **(02 marks)**
- (vi) State other ways how some organisms belonging to the kingdom stated in (ii) are harmful to man. **(02 mark)**
- (b) Covering the breadth of fundamental and applied research involving unicellular and multicellular fungi, “fungal **biology and** biotechnology **provides platform for industrial development which has greatly benefited man.** “As a S.1 2student who has studied fungal biology; in four ways, justify the above statement **(04 mark)**

7. Soil is a complex mixture of organic and inorganic materials that forms the basis for plant growth and provides important ecosystem services such as nutrient cycling, water storage, and carbon sequestration. The physical and chemical properties of soil play a crucial role in determining its suitability for different types of plants and the overall health and productivity of ecosystems.

(a) Describe the physical characteristics of each soil type. (**6 marks**)

(b) Describe the importance of each soil component. (**9 marks**)

8. Soil erosion has become a major problem to people living in mountainous areas.

(a) what is soil erosion? (**1 mark**)

(b) Give the dangers of soil erosion. (**5 marks**)

(c) Describe any three types of soil erosion that you know. (**6 marks**)

(d) Outline ways how soil erosion can be controlled in mountainous areas. (**3 marks**)

END