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

Signature.....

553/1

BIOLOGY.

S.2

C.B.C exam.

July/Aug-2022

1 ½ hours.

BIOLOGY DEPARTMENT.

I.Q.I.S.S.B

Competency based curriculum end of term examination 2022

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

Instructions.

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

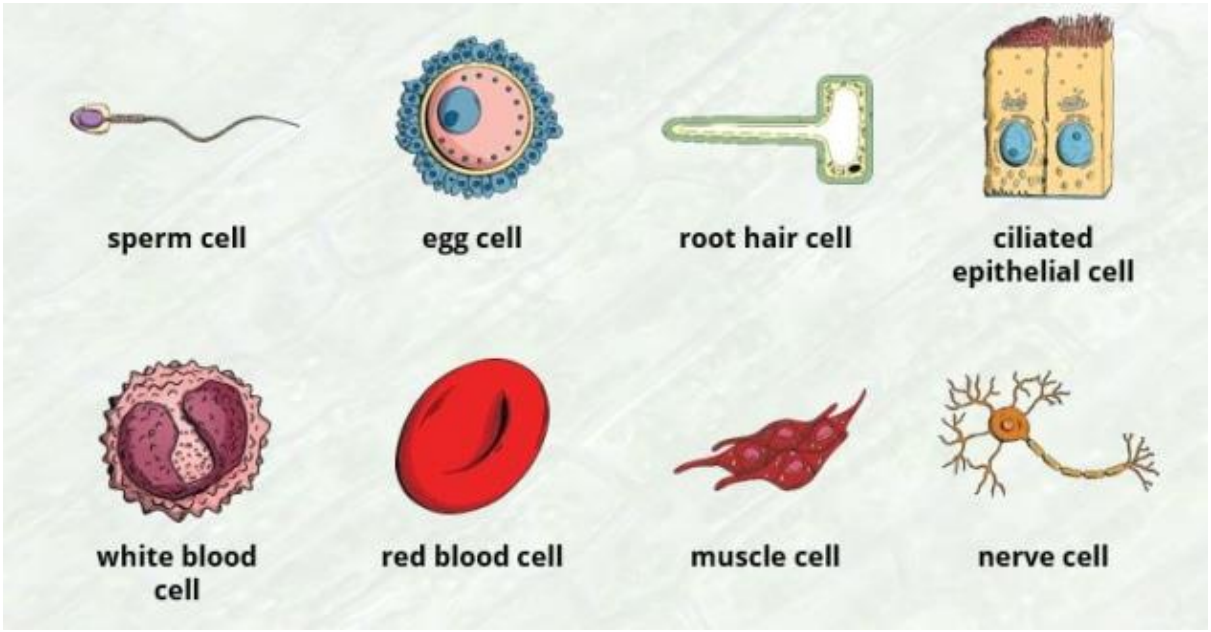
For Examiners use only

Question	Marks.	Comment
1		
2		
3		
4		
5		

SECTION A.

Attempt all the questions in this section

1. (a)Cells in multicellular organisms have ***unique structures*** which enable them to perform a specific role/function. Below are different structures of specialised cells in man. Use them and answer the questions that follow



(i)Given the following adaptations of different cells whose structures are given above. Fill in the spaces provided . (08 marks)

.....has biconcave shape and lack nucleus; which increases its surface area for absorption and carriage of oxygen in the body.

.....is elongated ; to increase the surface area for absorption of materials such as water and mineral salts.

.....has tiny hair like structures; which sweep mucus and bacteria away from air along the respiratory tract.

.....has large volume of cytoplasm; which increases its surface area making it easier for the development of embryo within and storage of food.

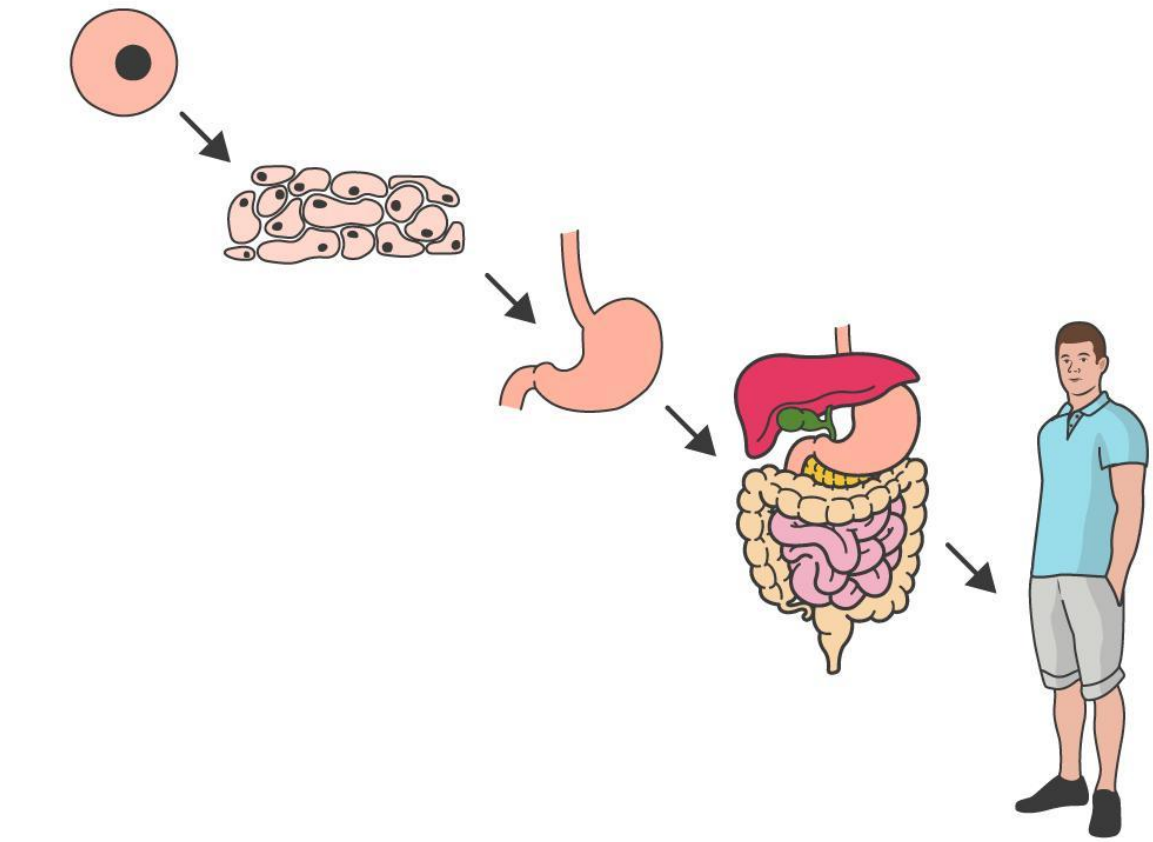
.....has long fibre; which carry signals up and down the body over long distances.

.....contains protein fibres; which contract when energy is available to aid in movement.

.....has a tail; which it uses to propel towards the ovum to fertilize it.

.....has an irregular shape so can change shape; which makes it possible to engulf bacterial and other germs and destroy them.

(b)The life processes of human body are maintained at several levels of structural organisation. Below are different structures of organisation in man. Use them and answer the questions that follow.

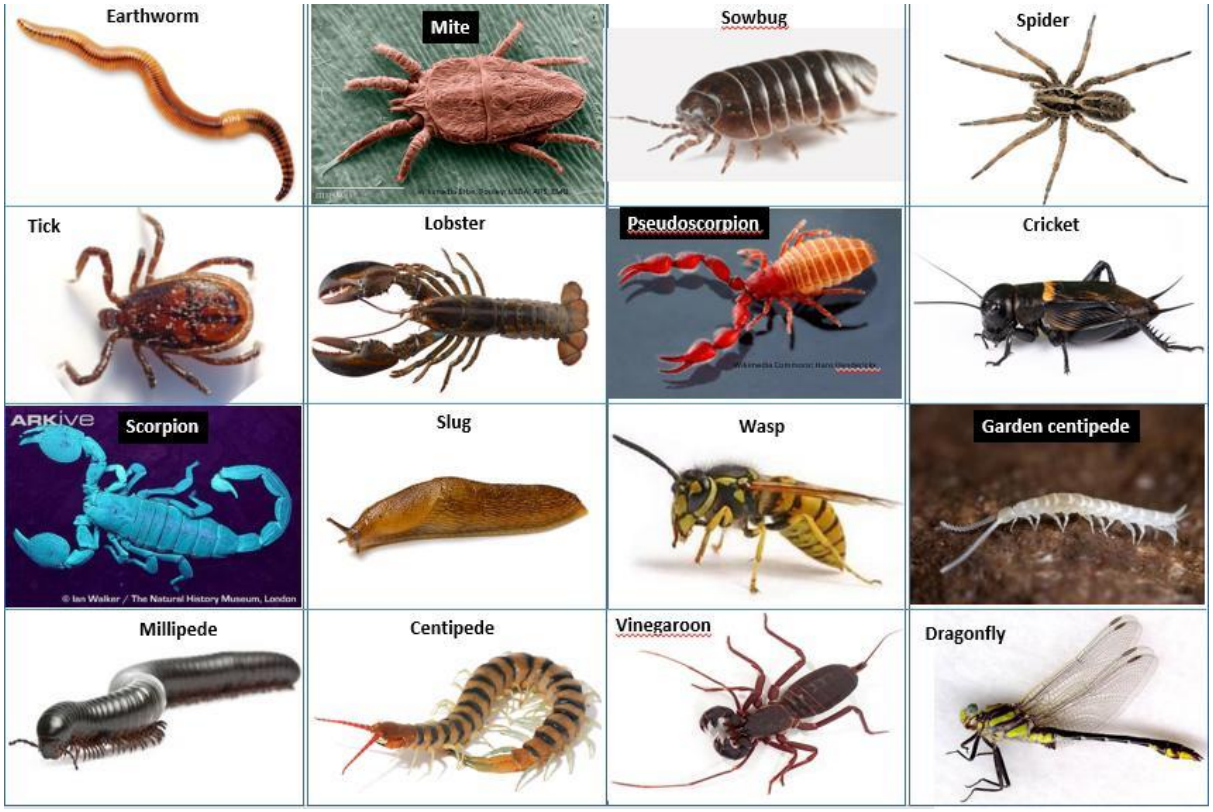


(i)State the levels of structural organisation in man shown above. (state them in order from smallest to highest level) (04 marks)

……, ……, ……, ……, ……

(ii)Label on each structure above the levels of structural organisation stated in (a) (i) (02 marks)

2. While studying about ***classification*** of organisms, several charts were displayed with several organisms. The charts enable students to process content and make connections and differences about organisms more easily. Below is one chart with different organisms. Use it and answer the questions that follow.



(a)State the Kingdom to which the all the organisms above belongs.(01 mark)

……

(b)From the chart above; which organism(s) belong(s) to,

(i). Phylum mollusca, (01 mark)

……

(ii). Phylum annelida. (01 mark)

.....

(c).State the phylum to which the rest of organisms belongs apart from those in (b) (01 mark)

.....

(d)Using observable features;

(i) State the differences between spider and wasp. (04 marks)

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.....

(ii) similarities between millipede and tick. (03 marks)

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.....

(e)Given the classes of classification below.

Class insecta	***Class custacea***	***Class arachnida***	***Class Chilopda***

State the class of classification to which the following organisms belong.

(i). Tick. (01 mark)

.....

(ii). Centipede. (01 mark)

.....

(iii).Dragon fly. (01 mark)

.....

(iv). Lobster. (01 mark)

.....

(f)Why is there a need to classify organisms? (01 mark)

.....

.....

(3)(a)The structure and function of a whole or part of a leaf can be modified over the course of evolution as the plant adopts to the particular environment. These are called ***modified leaves*** which perform specialised function other than the ***usual primary functions.*** Study the structure below and answer the questions that follow.

(i)Name the leaf modification shown by the garden pea. (01 mar)

.....

(ii)State the adaptation of the leaf modification named above to function its function (02 marks)

.....
....

(iii)State any two leaf modifications and their functions apart from the one shown in figure. (04 marks)

.....

.....

.....

(iv)State any one ***primary function*** of leaves. (01 mark)

.....

.....

(b)A group of S.2 students obtained different kinds of leaves from their school garden and observed their structural features. Below is table showing the observable features of the leaves recorded by S.2 student.

Leaf	Venation	Margin	Lamina	Stalk
P	Network	Entire	Smooth	Petiole
Q	Parallel	Entire	Rough	Sheath
R	Parallel	Serrated	Smooth	Sheath
S	Network	Serrated	Rough	Petiole

Use the observable features shown in the table above and construct a dichotomous key to classify the leaves. (03 marks)

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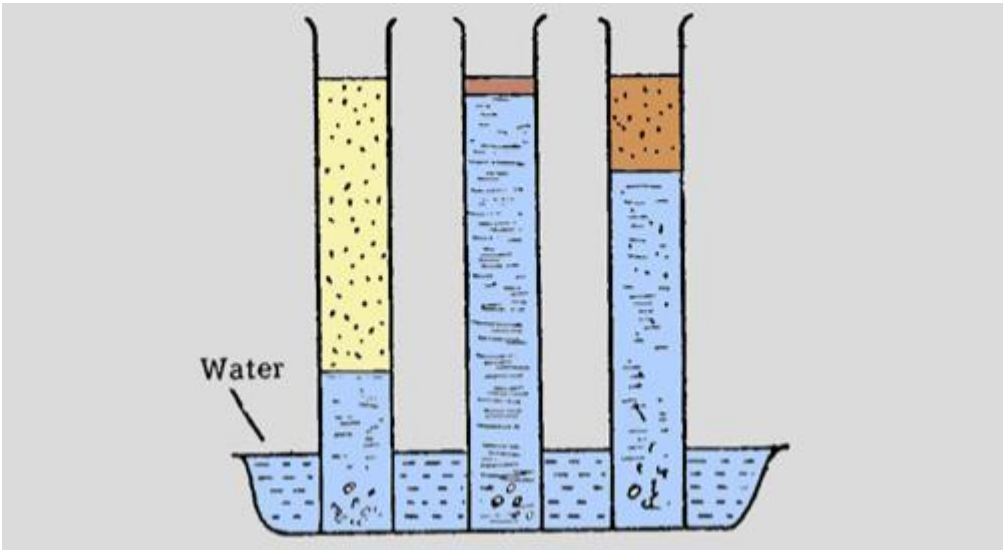
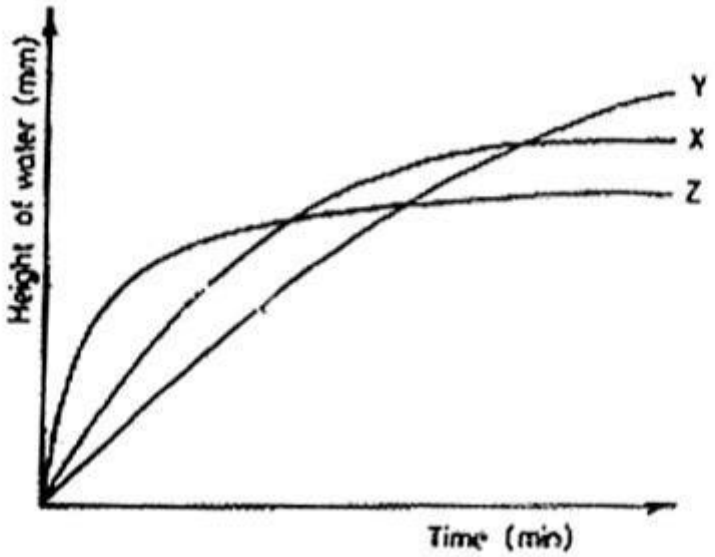
4.Three samples of soil **X**, **Y** and **X** were obtained by a group of S.2 and carried out an experiment as the set up below. They measured equal amount of soil and placed each soil sample **X, Y** and **X** in each capillary tube and dipped the tubes into a trough of water. The set up below shows the ***end*** of

Soil Z Soil Y Soil X



During the time of experiment up to the end of experiment ,the height of water rise in each soil sample along each tube was measured and recorded at regular intervals. A graph of water rise against time was plotted as below.



(a)As a S.2 student who has studied about the properties of soils, state the aim of the experiment. (01 mark)

.....

.....

(c)Using the graph; compare and explain the water rise in each soil sample **X: Y** and **Z** with time. (08 marks)

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(d)State which of soil sample **X** , **Y** and **Z** is,

(i)Loam soil. (01 mark)

.....

(ii)Sand soil. (01 mark)

.....

(iii)Clay soil. (01 mark)

.....

SECTION B.

Attempt ***any 1 question. All questions carry equal marks.***

5.One S.2 student; lukayiyah lost a key for her suit case one day after school visitation. Her parents visited her and among package was a loaf of tip top sweet bread. After a week; she broke the suit case only to find her bread appearing as in diagram below. Use the diagram to answer the questions that follow.

(a)What specific name is given to the organism that developed on lukayiya's bread.

(01 mark)

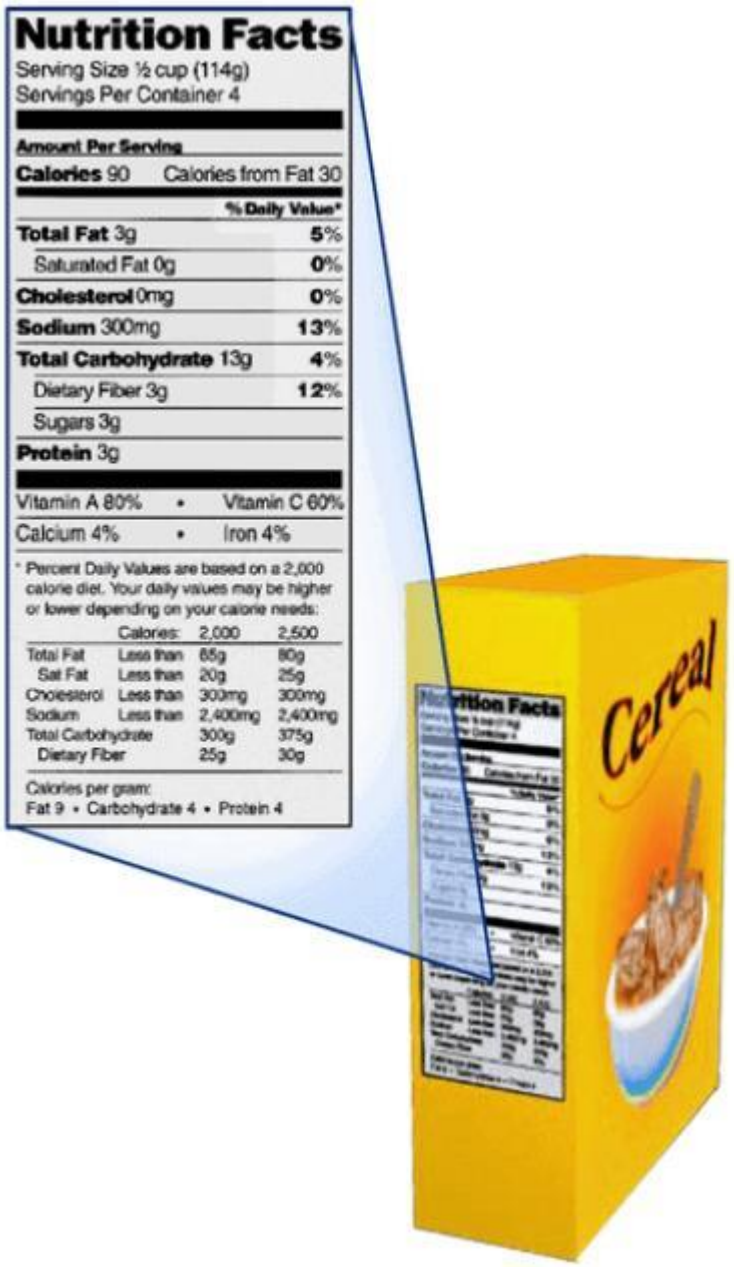
(b)State the ***group*** of organisms to which the organism named in (a) belongs.

(01 marks)

(b)Covering the breadth of fundamental and applied research involving the above organisms stated in (b) above, the ***advancement in biotechnology involving such organisms has greatly benefited man much as some***

organisms are also harmful to man "As a S.2 student who has studied the above organisms ; justify the above statement (08marks)

5.Nutrition is a critical point of health and better nutrition is related to improved infant, child and maternal healthy, stronger immune systems, safer pregnancy and child health, lower risks of diseases and longevity. Using nutritional content given on this product; use it to teach the people in your village why every child must be given this product at home as a dietary supplement. (10 marks)



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@Ssemogerere Hasems-2022