

NAME:.....SIGN:.....

SCHOOL:.....STREAM:.....



COMPREHENSIVE BIOLOGY TRANSFORMATION INITIATIVE

LOWER SECONDARY CERTIFICATE OF EDUCATION

COMPETENCE BASED EXAMINATION TERM 1 2023

BIOLOGY PAPER 1

SENIOR ONE

TIME: 2 HOURS

INSTRUCTIONS

- ✓ *This paper consists of five structured questions.*
- ✓ *Attempt all questions in this paper.*
- ✓ *Write answers in the spaces provided.*
- ✓ *No extra answer sheet shall be provided for rough work.*
- ✓ *Use a neat hand-writing to present your answers precisely and carefully.*

FOR EXAMINER'S USE ONLY

NUMBER	MARKS
1.	
2.	
3.	
4.	
5.	
TOTAL	

1. a) Living things in biology are called **organisms**. These are things that have life but no single statement can be written to summarize the meaning of life. However, we describe an organism living, if only when it can exhibit the seven life processes.

Look for these life processes, vertically, horizontally and diagonally in the puzzle below.

(07marks)



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N S I C Z U T W S O P Y W M F A O
L O M V M C L K Y T G H C Z Y K E
O D I W V H R D X W N E X S R M T
C P N T A W Z E D O X A Z L G O X
R O P G C R P E S C H C L Q Y V E
M X K X V U H Q R P V L S P U E X
D M S L Y K D E G U I N H E U M E
X J A Y R T T O G B L R J I L E B
L O L D A I I N R X M T A J C N S
A Y P M O N J V Z P C E N T U T M
K C O N F I P S I J E E I T I W S
Z O U Z K M R A N T R R R T B O I
S E F G R O W T H G I I K U W U N
A N I M A L S P S Z T S T P M S A
T F X L G B N R X I W I N Q L V G
G R K F B U M L O T G B Z E V V R
G W A Q X V D N U T R Y L H S H O
  
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- b) List in the table below, **ONLY** the life processes you managed to find from the puzzle above and state the function of each life process mentioned to organisms. (07marks)

<i>Life process</i>	<i>Function of the life process</i>

c) Suggest the ways in which the following life processes are manifested in plants and animals. (06marks)

<i>Life process</i>	<i>Animal</i>	<i>Plants</i>
Movement		
Sensitivity		
Feeding		

2. a) A colleague wants to do biology but he claims that drawings may fail him because he does not know how to make good biology drawings. Guide your friend about 5 does and don'ts he should follow when drawing in biology.

Do's (05marks)

.....

.....

.....

.....

.....

Don'ts (05marks)

.....

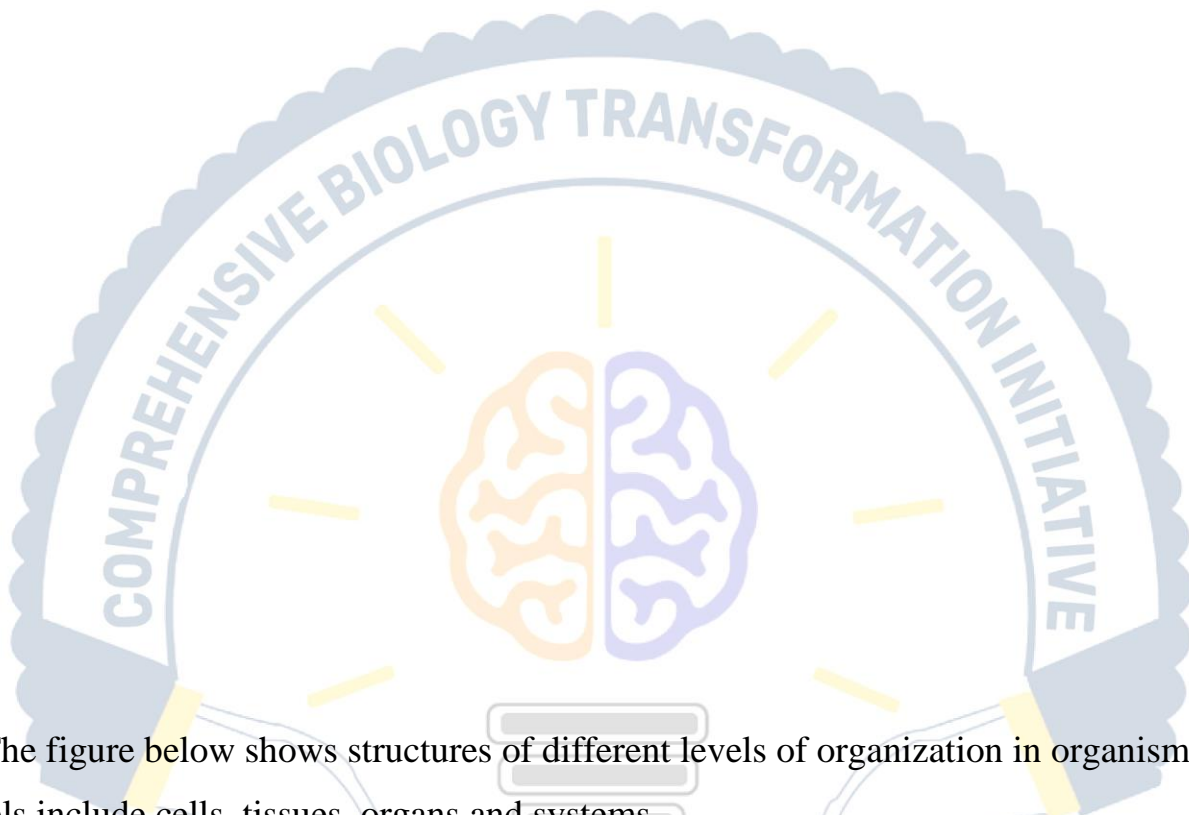
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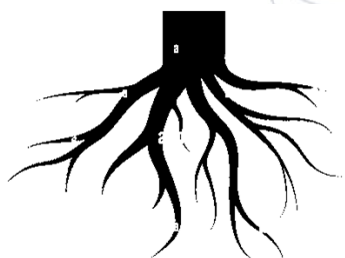
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b) A friend still needs help on how the information you provided above can be observed. Use the leaf provided to draw, showing only external features for your friend to use it know more on the does and don'ts you gave him. In the space provided aside, use it to show your friend how you can calculate for the magnification of your drawing. **(03marks)**



3. a) The figure below shows structures of different levels of organization in organisms, the levels include cells, tissues, organs and systems.



A



B



C

- (i) Name the picture that represents a cell, an organ and a system. Also state the specific name of the structures. In the same table, state the function of each structure on the organism it exists. **(09marks)**

<i>Picture</i>	<i>Structure</i>	<i>Name of the structure</i>	<i>Function of the structure to the organism</i>
<i>A.</i>			
<i>B.</i>			
<i>C.</i>			

b) Read the passage below and use it to answer questions that follow.

CELLS

Cells are the smallest basic functional and structural units of life because all the structures or organs are formed from them and all chemical reactions occur in cells respectively. All these reactions are called **metabolism**. As you can see a school having special areas like HM's office, toilets, kitchen, stores and the school compound, cells have **organelles**. These organelles have special functions and are separated by elaborate membranes from the rest of other parts of the cell. Among them include mitochondria which act as machines that produce and store energy for the cell during the process of respiration. Cells are very organized structures that they don't dump in them waste products from different organelles, they store everything they have in excess in the cell or sap vacuole. Such that they can be later deposited outside. In the cell, there is also the cytoplasm. The cytoplasm provides a wide region for where the mentioned and yet to be learned about organelles can be placed for them to perform better their functions. On addition to that, the cytoplasm also has a central structure called the nucleus. This is so crucial in the cell that it controls metabolism. It is the one that commands for what to enter and leave the cell. This entry and exit the materials is regulated by the cell membrane which only allows the required materials to enter or to exit the cell. All of these structures are surrounded by the cell wall in some cells which is so tough and strong so that the above components do not pour out like water through a cloth!!!!

Question

(i) What is the difference between a cell and an organelle?

(02marks)

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.....

.....

(ii) Why do you think a cell is considered to be the basic functional unit of life? (01mark)

.....

.....

(iii) From the passage above, which region of the school is similar to the following parts of the cell. (06marks)

Cytoplasm.....	Cell wall.....
Nucleus.....	Sap vacuole.....
Mitochondrion.....	Cell membrane.....

(iv) Use the above information to explain what would happen if the cell lacked the following structures. (02marks)

Nucleus

.....

.....

Cell membrane.

.....

.....

4. a) Biology is a broad branch of science dealing with the distribution, anatomy, origin, behavior and physiology of organisms. Biologists decided to break it down into various branches or fields which deal with specific objectives or areas of study.

State and define any **three** branches of biology.

(06marks)

b) Through the study of biology, people acquire knowledge that will enable them achieve a lot of activities or jobs which will improve on their income. Among some include the following shown in the figure below.



1



2



3

(i) Identify the careers opportunities shown above.

(03marks)

- 1.....2.....
3.....

(ii) State the importance of the above persons in the community.

(03marks)

- 1.....
2.....
3.....

(iii) How is the study of Biology important in the following fields of the community?

Health.

(03marks)

Agriculture.

(02marks)

Adapt to the 21st century pedagogical skills.

0702791830

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.....
Environment.

(03marks)
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.....

5. a) Among the tools used throughout studies and experiments in biology is a biological report. This helps to summarize what we conducted in the lab, field work or any experiment to the relevant personnels for record keeping and enhancement of learning. A report has specific components as shown below. You are required to match the components with their correct contents given on the right hand side. (07marks)

Introduction

A guess about what is expected to be observed in the experiment, starting with “I think.....”

Problem

A paragraph that discusses the background information that relates to the laboratory concepts.

Hypothesis

All information collected in the form of charts, tables, drawings, diagram and graphs to explain the observations made in the lab.

Procedures and materials

A place to mention what happened, what was learnt, and any errors that occurred during the experiment.

Data and observation

Statement written in form of a question that shall be based on during the experiment.

Results

Contains the answers to the lab questions or statements of what was observed and recorded.

Conclusion

Defines comprehensively what was done in the laboratory include all the materials used for the experiment.

- b) On addition to that, one of the methods of representing information during biological studies is using a pie chart. In an investigation by senior one students to determine the number of organisms and their relationships, the following data was obtained.

<i>Organisms</i>	<i>Number in the compound</i>
Cows	30
Jack fruit trees	3
Mushrooms	10
Grasshoppers	120

- (i) Represent the above data on a pie chart. Indicate the radius of the pie chart. Show your working in the space provided. (07marks)

Calculation

Pie chart

Radius.....

- (ii) Why do you think there are:

very few jack fruit trees

(01mark)

.....

.....

Many grasshoppers in the compound?

(01mark)

.....
.....
(iii) State two materials that Jack fruit trees needed to survive. Give the importance of each material. (04marks)

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