

KIYALA HIGH SCHOOL
MID-TERM TWO ASSESSMENT TEST 2024

BIOLOGY

S.4

Time: 2 Hours

INSTRUCTIONS:

- *This paper consists of **four items**.*
- *Answer **all** the items.*

Item 1

Botanists and zoologists claim that plants and animals depend on each other. Zoologists noted that animals depend on food made by plants but botanists did not explain how plants depend on animals. As a senior three students; explain briefly how;

- (i) Plants obtain energy for making their own food.
- (ii) Plants depend on animals for their survival.

(b). Apart from the food which animals obtain from plants, describe different ways how the process by

which plants make their own food is important in nature.

Item 2

A learner put a spatula end full of soil in a clean test tube, and then Added water to just cover the soil, the student then added 5 drops of universal indicator and had to shake thoroughly and filtered the mixture into test tube. The procedure was repeated with other more two soil samples.

- a) Identify the property of the soil being investigated?
- b) Suggest how the student used the filtrates to determine the property of the soil mentioned in (a) above
- c) What is the importance of testing the property of the soil to a farmer?

Item 3



Task

- a) Determine the surface area to volume ratios of a cube of size 2 cm representing an amoeba and that of another cube size 8 cm representing an elephant.
- b) How would the surface area to volume ratio of an elephant compare to that of the amoeba?
- c) *i*) how would an amoeba benefit from the calculated surface area to volume ratio in (a) above
ii) of what disadvantage is the value of the calculated surface area to volume ratio to the elephant.
iii) how can an elephant overcome the challenges it faces as a result of the above calculated surface areas to volume ratio.

Item 4

Organisms require gasses to run some processes. For animals they require oxygen initially obtained from their environment. Man uses the respiratory system to take in this air that contains the oxygen needed from the atmosphere.

Through answering the items below, you will learn more about the process of breathing and gas exchange.

Tasks

- a) mention any four organs that make up the respiratory system of man.
- b) *i*) From the organs mentioned above, state the exact organ or structures through which gasses are exchanged.
ii) What is the difference between a function of the nose and the lungs.

- iii)* What do plants use for breathing.
- c)* During breathing, the following processes occur in the body so as air can enter man. The volume of the chest increases, air rich in oxygen enters through the nose and travels through the lungs. Intercostal muscles of the ribcage contract. Pressure of the chest decreases below atmospheric pressure. The rib cage moves up words and out words. The above process is not in its order. You are required to assort and organize the above processes in its normal flow for breathing to occur.
- d)* Explain why breathing is important to animals.

GOODLUCK