



# RWENZORI REGION SEEMAT

## S.3 BIOLOGY

### END OF YEAR ASSESSMENT 2023

TIME..... 2 HRS

Name.....Stream.....Signature.....

#### Instructions:

- This paper consists of two sections **A** and **B**
- Section A has Five(5) short response items. Attempt all items.
- Section B has 6(six) extended response items. Choose only (4) Four items.

#### FOR EXAMINER USE ONLY

Items	1	2	3	4	5	6	7	8	9	10	11
Maximum Score											
Actual Scores											

## SECTION A

1. Jonan, a senior one student in one of the Schools in Rwenzori region, has been complaining of not being able to clearly see what is written on the black board unless he moves close. He also claims that at times he feels congestion in his ears which make it difficult for him to hear.

(a) What is wrong with Jonan?

**(2scores)**

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(b) If you had an opportunity to meet Jonan how would you explain to him the cause of his failure to see well the words on the Black board?**(2scores)**

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(c) Suggest to Jonan how his two conditions can be rectified. **(4scores)**

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2. James a senior one student was asked to help his biology teacher in collecting specimens to be used in classifying leaves. The teacher wanted Maize leaf, Cassia Leaf, Bean leaf and Mango leaf. In the process of collecting the leaves he found another leaf from a certain plant that he failed to identify but picked a leaf and took it to the class.



- (a) Which special features could have encouraged James to take this leaf to the class? **(2scores)**

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- (b) Suggest two ways how the features you have stated in (a) above enable that leaf to perform special functions that are not performed by the leaves he was sent for? **(2scores)**

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- (c) What is the ecological importance of leaves?**(1score)**

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3. Kabarole and other districts neighbouring Kabarole have worryingly high rates of stunted growth among the children, inspite of the fact that the region has very good climate and productive soils.

One method that can be used to determine whether individuals are well nourished or not is by working out their body mass index (BMI) using the chart shown below:

BMI	Weight description
Less than 18.5	Under weight
18.6 – 18.5	Ideal weight
25.0 – 29.9	Over Weight
30 – 39.9	Obese
40 and above	Clinically obese

- (a) Which parameters of a person are used to determine his/her BMI? **(1score)**



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(b) To what extent do the BMI's of individuals in the community throw light on malnutrition. **(2scores)**

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(c) How can the BMI; of growing children be used to fight the problem of stunted growth in Kabarole and neighbouring districts. **(2 scores)**

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(d)What advise would you give, regarding individuals with BMI of

(i) less than 18.5? **(1score)**

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(ii) More than 40? **(1score)**

4. S.2 Students carried out an experiment to investigate one of the factors that affect the rate of photosynthesis. The Students set up a test tube in which a water weed, Sodium hydrogen carbonate and water were placed. The students varied the distance of the test tube from the bulb (source of light) by an interval of 5cm. The number of bubbles produced per minute were recorded. The following data was obtained from the experiment.

Number of bubbles per minute	30	20	10	8	4	2
Distance of the test tube from source of light	5	10	20	30	40	50

(a) What was being investigated by S.2 the Students in this experiment?  
(1score)

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(b) Plot a graph to represent the data in the table above. (5scores)

(c) Analyse the relationship between the rate of photosynthesis and light intensity?  
(2scores)

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(c) What was the role of sodium hydrogen carbonate in this experiment?

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5. A certain person went to the regional referral hospital in his areas because he had noticed some pain in the lower abdominal region of his body.  
On the advice of the medical personnel, he underwent a urinalysis (analysis of urine) which revealed that there were some proteins and also glucose in his urine.

(a) What do these results indicate about the person's Kidneys? (2scores)

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(b) How did these substances get in to the person's urine? (2 scores)

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(c) Do these results indicate clearly whether one or both kidneys have a problem? Elaborate. (2 scores)

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(d) What would happen to this person if both kidneys failed totally to perform their functions? **(2scores)**

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(e) How can a person whose both kidneys have totally failed be saved?  
**(1 score)**

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**SECTION B(60 SCORES)**

6. Ann, a middle aged lady has swollen thyroid gland and has also been diagnosed with diabetes mellitus. Those conditions have made her life quite difficult and insecure.

(a) Reflect on the possible causes of Anne's health problems and the effects of these conditions on the body metabolism. **(10scores)**

(b) Advise Anne on what she ought to do to reduce the risks to her health.  
**(5scores)**

7. A sample of soil was obtained from the school garden and on analysing it, it was found to contain water and some living organisms.

The health prefect of the School advised the school administrators to buy chemicals to apply on the school garden to kill all organisms in the soil so that they do not cause diseases to students working in the school garden.

He further advised them to ensure that school garden soil is dried to prevent multiplication of living organisms in the soil.

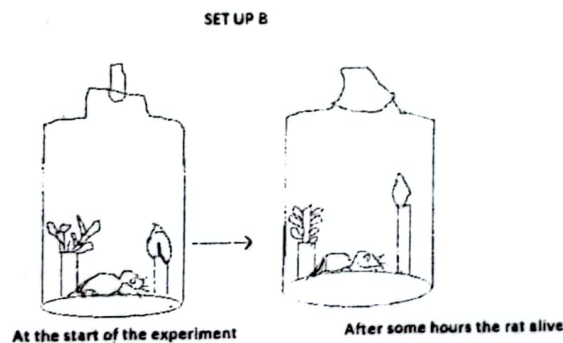
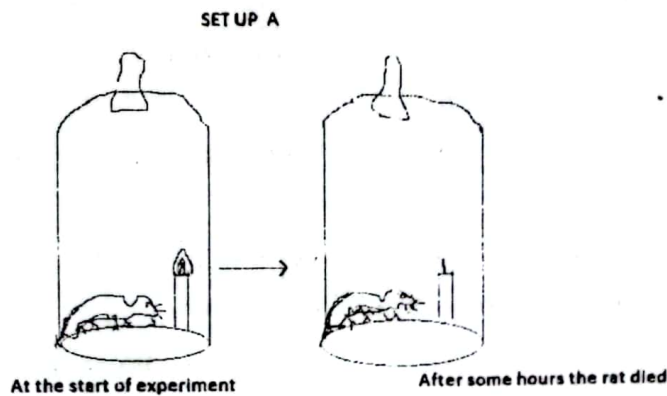


Using your biology knowledge of soil composition, design a poster protesting the advice given by the health prefect of the school.

**(15 scores)**

8. The diagram below shows an experiment that was conducted by a scientist called Joseph Priestly in 1772.

In this experiment, it was assumed that heat had no effect on organisms.



- (a) Analyse the experiment and explain the observations.

**(13scores)**

- (b) What logical conclusion do you make from the observation in set up A and B? **(2 scores)**

9. Baguma's wife was unable to give birth normally and her doctor carried out an operation on her to save the baby's and mother's lives. During the operation, Baguma's wife lost a lot of blood. Due to shortage of

blood packs in the hospital, the doctor advised Baguma to look for a friend who could help donate blood for transfusion.

But Baguma's wife expressed fear for blood-transfusion due to the misconceptions and some scientific facts.

(a) Suggest the possible causes for Mrs. Baguma's fears for blood transfusion. **(5scores)**

(b) Help Mrs. Baguma's wife develop positive attitude on blood transfusion. **(5scores)**

(c) Advise Mr. Baguma on factors to consider when selecting a person to help donate blood to his wife. **(5scores)**

10. Community members in Kamwenge district are complaining about the harm caused by honey bees in their villages.

Some of their leaders have been convinced that actions should be taken to destroy the bees.

Write a letter to one of the community leaders requesting him to drop the idea of destroying bees but to use them for their benefits.

**(15scores)**

11. Tiny bodied organisms such as Amoeba and very thin, flatted ones like the tape worm do not need specialised gaseous exchange organs but larger more bulky organisms, such as mammals, need specialised organs such as lungs.

(a) Reflect on why the larger organisms often-need specialised organs of gaseous exchange while the tiny thin and flattened ones do not.

(b) How are plant leaves adapted for efficient gaseous exchange?

**(15scores)**

**END**