

**“Do your best, not to be better than anyone but to be the best version of yourself”**



REPUBLIC OF RWANDA  
MINEDUC  
WESTERN PROVINCE  
RUSIZI DISTRICT  
NKOMBO SECTOR  
**G.S. SAINT PIERRE NKOMBO**

Tel: 0788664906/0722664906(Father Silas)

E-mail: gsnkombo@gmail.com

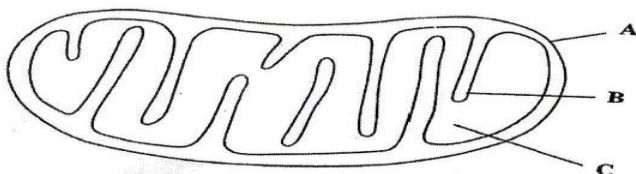


**BIOLOGY 1st TERM (2023-2024) HOLIDAY PACKAGE FOR S4**

- Q1. a)** Name the small units found in lipids  
**b)** What type of reaction is involved in the formation of glucose from starch?  
**c)** Use the type of reaction above to form glucose from sucrose molecule
- Q2.** You are provided with a tomato fruits; press it to get the juice. Use this juice to carry out the test for vitamin C (plot a table for the procedure, observation and conclusion).
- Q3.** Give one functional difference between the mitochondrion and the chloroplast and one structural difference between them
- Q4.** The Kingdom plantae is subdivided into four divisions. Name them and Give one characteristics for each of them.
- Q5.** Complete the table below:

Parts of microscope	Functions
Base	.....
.....	rotates to allow use of different power objectives
Coarse focus adjustment	.....
.....	focuses and magnifies light coming through the slide
Eye piece / ocular lens:	.....

- Q6.** Suggest the benefits of using the following sampling techniques:
- Quadrats
  - Transect
  - Mark-capture-recapture
  - Netting
- Q7. a)** Discuss the different types of epithelial tissues their location and their functions.  
**b)** Explain why muscle cells contain several mitochondria compared to fat storage cells
- Q8.** Use Simpson’s index to calculate the diversity of a habitat that contain the following organisms; 20 woodlice, 5 mice, 1 shrew, 32 Earthworms, 15 grasshoppers, 1owl.
- Q9. a)** cell is defined as the structural and functional unit of any living organism. Explain this?  
**b)** Describe the advantages for organisms in storing polysaccharides, such as glycogen rather than storing glucose?  
**c)** Give at least four differences between Eukaryotic and prokaryotic cells
- Q10) a)** Starch, Glycogen and cellulose are all polysaccharides. They are made from Monomers that are joined by covalent bonds. Discuss their properties, where they are found and their functions  
**b)** Explain why the triglyceride are lighter than glycogen in animals
- Q11)** Mitochondria are sites of cellular respiration in which carbon dioxide and water are produced. The diagram below shows the structure of a Mitochondrion.



- a) Use the label on the diagram to identify where the following substances are produced

Prepared by Teacher M. Gentil Theophile

**“Don’t wish it was easy, wish you were better”**

**“Do your best, not to be better than anyone but to be the best version of yourself”**

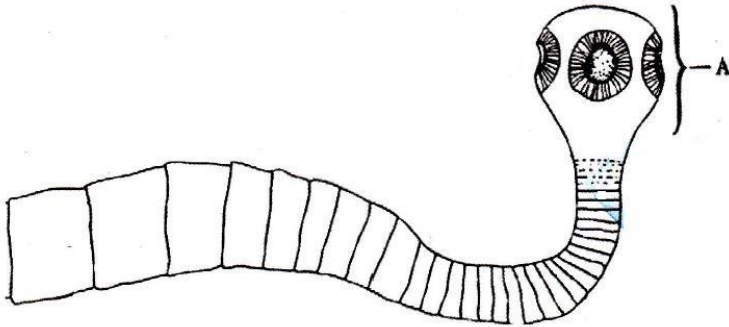
i) water            ii) water

b) Explain why muscle cells contain large numbers of Mitochondria.

c), Name the structure of    A, B, C

d), Mitochondria and chloroplasts contain small loops of DNA. they also contain Ribosomes that are the same size as prokaryotic ribosomes. Suggest an explanation for these features

Q12. The diagram below shows a part of the beef tapeworm *Taenia saginata*.



Explain the importance of the part labelled A in the life of the tapeworm.

Describe how the tapeworm obtains its nutrients.

c) How does the nutrition of rhizopus differ from that of the tapeworm?