NAME----------ADM. NO----------

KIKUYU SUBCOUNTY JOINT END OF YEAR EXAMINATION 2017

OCTOBER
BIOLOGY FORM 1
TIME 1 ½ HRS
INSTRUCTIONS : ANSWER ALL THE QUESTIONS

1. a) Name the process by which (4 mks)
   i) organisms get rid of wastes from cells

   _____

   _____

   ii) organisms detect changes in their environment and respond appropriately

   _____

   _____

   iii) energy is released within cells

   _____

   _____

   iv) organisms change in complexity

   _____

   _____

   b) Name two apparatus used in the laboratory for magnification. (2 mks)

   _____

   _____

   c) Highlight at least two methods and how they are used in collecting insect specimens. (2 mks)

   _____

   _____

   d) Which chemical substance is used to preserve specimens in the laboratory? (1 mk)

   _____

2. a) List at least four importance of classification. (2 mks)

   _____

   _____

   _____

   _____

   b) The scientific name Lantana camara refers to a green herbaceous plant. Other related plants include; Lantana trifoliate and vitex rifoliate.
   i) From the list, identify the plants belonging to the same genus. (2 mks)

   _____

   _____

   ii) From the name Lantana camara, which name represents the: (2 mks)
   Genus name _____

Specific name _____

3. a) The following are various precautions taken when one is using a microscope, give a reason for each

i) A microscope should never be placed too close to the edge of the working bench. (1 mk)

_____

_____

ii) The microscope should not be allowed to get wet. (1 mk)

_____

iii) The microscope mirror and lenses should never be touched. (1 mk)

_____

b) State two functional disadvantages of an electron microscope. (2 mks)

_____

_____

c) If the actual length of a specimen is 10cm, calculate the magnification of the drawing if the length of the drawing is 5cm. (2 mks)

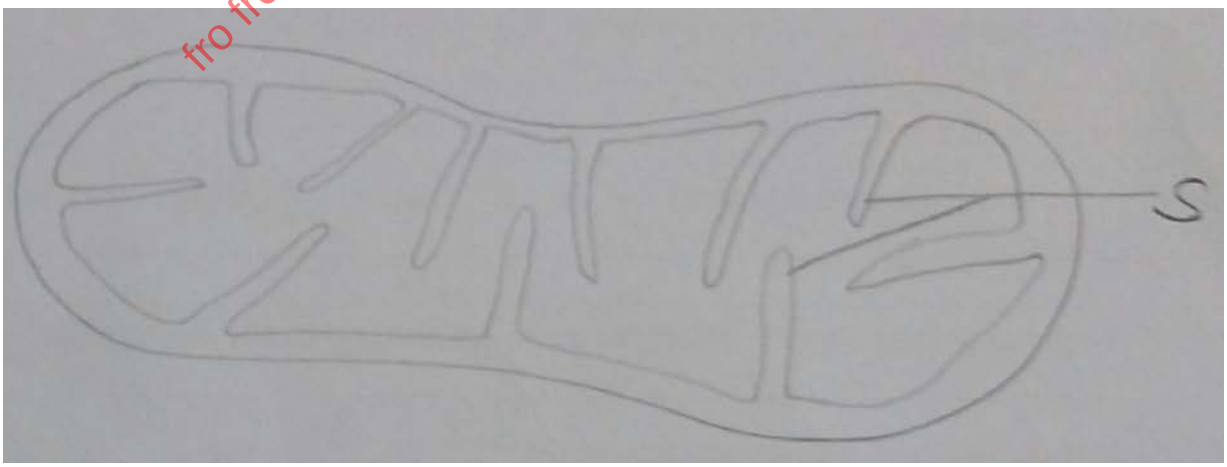
_____

_____

d. i) What organelle is abundant in cells that are involved in secretion of materials. (1 mk)

_____

ii) The figure below represents a cell organelle. Study it and answer the questions that follow.



Identify the organelle (1 mk)

_____

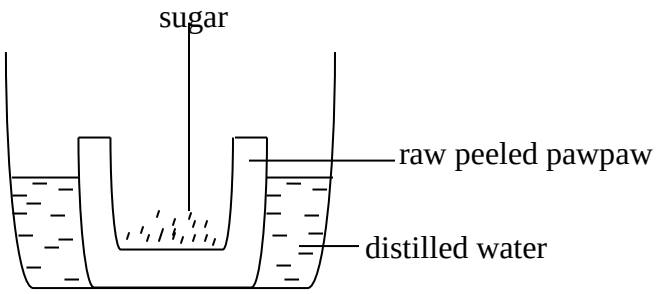
iii) Give the function of the organelle. (1 mk)

_____

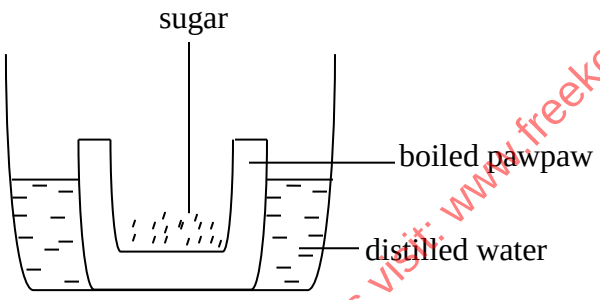
iv) What is the importance of the part labeled S. (1 mk)

_____

4. Kamau, a Form one student, set-up an experiment as shown below using unripe peeled pawpaw pieces. One of the pieces of pawpaw was boiled while the other was raw.



Set-up A



Set-up B

a) State and explain the observation made by the student in: (2 mks)

i) Set-up A

_____

_____

ii) Set-up B

_____

_____

b) What would be the results if the raw pawpaw piece was not peeled? (1 mk)

_____

_____

c) If the sugar crystals were placed in the petridish and the pawpaw pieces placed on it, what would be the expected results using raw pawpaw and boiled pawpaw. (2 mks)

_____

_____

5. a) Explain the reason for the following steps when preparing sections meant for microscopy.

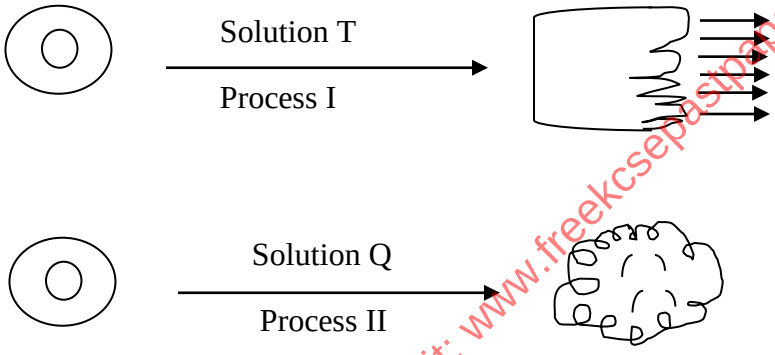
i) Cutting very thin sections (1 mk)

ii) Using a sharp razor blade during cutting (1 mk)

iii) Placing the sections in water (1 mk)

iv) Staining the section with a suitable stain before observing (1 mk)

b) Some red blood cells were placed in two different solutions. After sometime the following observations were made.



i) Name process I and II (2 mks)

ii) Give the nature of solution T and Q in relation to the cytoplasm of the red bold cells. (2 mks)
Solution T

Solution Q

iii) Give reasons for observations made in process I and II (4 mks)
I

II

6. a) Name cell organelle that perform the following functions (4 mks)

i) synthesizing proteins

ii) photosynthesis

iii) controlling all processes in the cell

iv) controlling materials entering and leaving the cell

b) i) Name two constituent molecules of a cell membrane. (2 mks)

ii) State two organelles present in plant cells but absent in animal cells. (2 mks)

c) State factors that affect the rate of active transport. (4 mks)

d) State two conditions that must be present for active transport to take place. (2 mks)

7. a) Name two laboratory chemicals used to stain cells in biology laboratory. (2 mks)

b) State the functions of the following parts of a light microscope (2 mks)

i) Eye piece

ii) Diaphragm

8. a) Give the difference between phototrophic nutrition and chemotrophic nutrition. (2 mks)

b) Define the term photosynthesis (2 mks)

_____

_____

c) Name the two stages of photosynthesis (2 mks)

_____

_____

d) State the site of photolysis in a plant cell (1 mk)

_____

e) State the role played by light energy during photolysis. (2 mks)

_____

_____

9. a) Name the building blocks of the following foods: (3 mks)

i) Carbohydrates

_____

ii) Proteins

_____

iii) Lipids

_____

b) Study the processes below then name substances R, S and T

i) Sucrose $\xrightarrow[(H_2O)]{\text{hydrolysis}}$ R + fructose

ii) Lactose $\xrightarrow[(H_2O)]{\text{hydrolysis}}$ Galactose + S

iii) T $\xrightarrow[(H_2O)]{\text{hydrolysis}}$ Glucose + Glucose

(3 mks)

R _____

S _____

T _____

c) Distinguish between a condensation reaction and a hydrolysis reaction. (2 mks)

_____

_____

d) Other than carbon, hydrogen and oxygen, name other molecules that form a protein molecule. (2 mks)

_____

_____

e) Name the forms in which carbohydrates are stored in:

i) Plant cells

_____

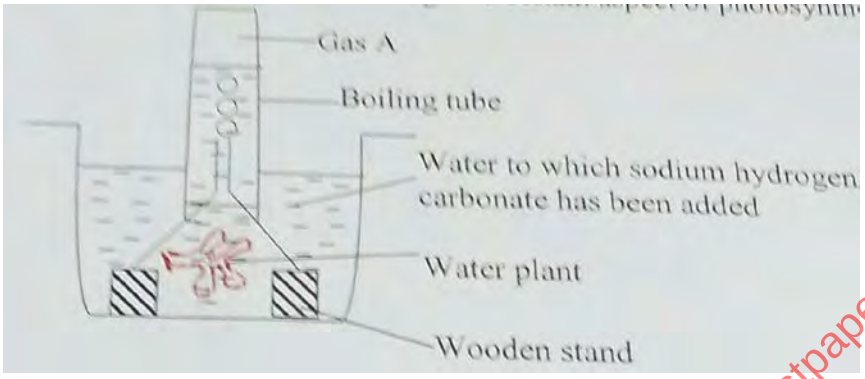
_____

ii) Animal cells (2 mks)

_____

_____

10. a) The diagram below shows an experiment to investigate a certain aspect of photosynthesis.



i) What was the aim of the experiment? (1 mk)

_____

ii) Why was sodium hydrogen carbonate added? (1 mk)

_____

iii) What is the importance of the wooded stands? (1 mk)

_____

iv) Name other aspects of photosynthesis that can be investigated using this set-up. (1 mk)

_____

v) What can be varied to effect change in amount of gas produced? (1 mk)

_____

vi) How can the gas produced be confirmed? (1mk)

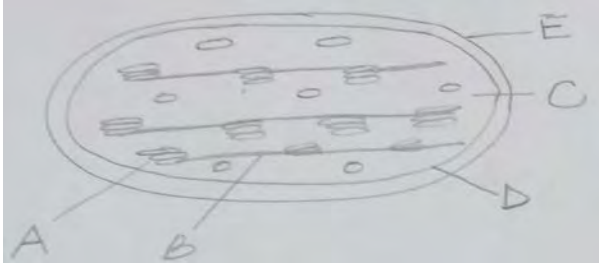
_____

vii) In testing for starch in a leaf why do we boil the leaf for sometimes? (2 mks)

_____

_____

b) The organelle below is important in the process of photosynthesis.



i) Identify the organelle (1 mk)

_____

ii) Name the parts labeled A – E (5 mks)

A _____

B _____

C _____

D _____

E _____