

1. The equation below represents a physiological process that occur in plants.



(a) Name the process and state two conditions necessary for the process to occur (3mks)

Process - Photosynthesis

Conditions - Light and Chlorophyll.

(b) Identify two adaptations of the leaf for the process indicated by the equation above. (2mks)

✓ The leaf has a broad flat lamina which provides a large surface area for absorption of sunlight and carbon (iv) oxide.

✓ The leaf is thin reducing distance for diffusion of carbon (iv) oxide

(✓ Any other adaptation)

2 (a) Identify the function following parts of a microscope (3marks)

(i) Diaphragm

* Regulates amount of light passing through the condenser to illuminate the specimen.

(ii) Condenser

* Concentrates light on the stage.

(iii) Fine adjustment knob

* Moves the body tube slowly bringing the image into sharper focus.

(b) Differentiate the term resolution and magnification as used in microscopy (2mark)

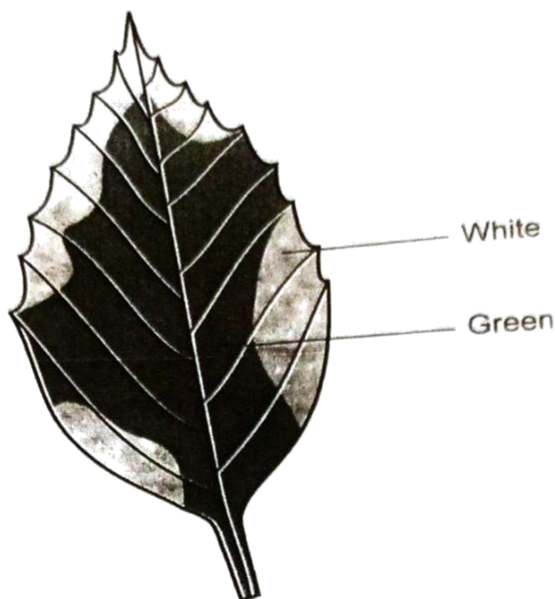
* Resolution - ability of a microscope to distinguish two close structures

* Magnification - ability of a microscope to enlarge the image of a specimen

or
The ratio of an object's image to its real size.

BIOLOGY FORM 2 MARKING SCHEME

3. The diagram shown below shows a leaf that was used to study photosynthesis. After the experiment, drops of Iodine solution were placed on the processed leaf



a) Which food substance was being tested for? (1mark)

* Starch

b) Fill in the table below to show the colors observed in the following regions (2marks)

Region	Color
White	Brown colour
Green	Blue-Black

c) Account for observation made on white part of the leaf (2marks)

The white part has no chlorophyll therefore does not photosynthesise. NO starch is found in the white part.

4. A solution of sugar cane was boiled with hydrochloric acid and sodium hydrogen carbonate was added to the solution, which was then boiled with Benedict's solution. An orange precipitate was formed.

a) Why was the solution boiled with hydrochloric acid and sodium hydrogen carbonate added (2mks)

* Boiling in hydrochloric acid → to hydrolyse the disaccharide (non-reducing) to monosaccharide (reducing sugar)

* Addition of sodium hydrogen carbonate - neutralize the acid.

BIOLOGY FORM 2 MARKING SCHEME

b) To which class of carbohydrates does sugar cane belong to (1mk)

* Disaccharides

c) State the form in which carbohydrates are;

(i) Stored in plants (1mk)

Starch

(ii) Stored in animals (1mk)

Glycogen

5. (a) A cell was found to have the following under a light microscope; cell membrane, irregular in shape and small vacuoles. Identify the type of the cell above (1mk)

* Animal cell

(b) Name the organelle that performs the following functions;

(i) Osmoregulation in amoeba (1mk)

Contractile vacuole

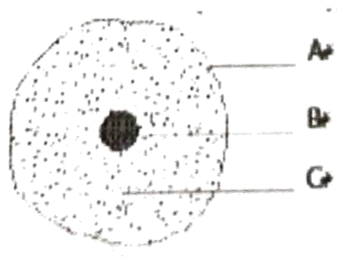
(ii) Digestion and destruction of worn out cells (1mk)

Lysosomes

(iii) Transport of packaged glycoproteins. (1mk)

Golgi apparatus

6. The diagram alongside was drawn by a student after observing a human cheek cell under a microscope.



(a) Suggest the type of microscope the student used. Give a reason. (2 marks)

Light microscope

(b) Name the parts labelled A, B and C. (3 marks)

A - Cell membrane

B - Nucleus

C - cytoplasm

BIOLOGY FORM 2 MARKING SCHEME

(c) State the functions of parts A, B and C. (3 marks)

A - Encloses the cell contents
- regulates movement of materials in & out of the cell.

B - controls all activities of the cell.

C - Site for a chemical reactions

(d) State two features which make this cell different from a plant cell (2 marks)

(i) Centrally placed nucleus.

(ii) Absence of a cell wall

7. Differentiate between hemolysis and crenation (2marks)

* Haemolysis - bursting of an animal cell when placed in a hypotonic solution.

* Crenation - shrinking of an animal cell when placed in a hypertonic soln.

8. State the importance of the following processes in preparation of temporary slides (2mks)

(a) Staining

⇒ To make the cells more distinct

(b) Making thin sections

⇒ To allow light to pass through.

9. State the functions of the following parts of a microscope (2marks)

a) Condenser

⇒ Concentrates light on the stage.

b) Diaphragm

⇒ Regulates amount of light passing through the condenser. to illuminate

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