FORM ONE CLASS

BIOLOGY PAPER

END OF THE YEAR EXAMINATION 2017

NAME……

CLASS……DATE……

SECTION A (40 marks) Attempt all questions

1. State the two main branches studied in biology. (2mks)

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2. Identify three characteristics of living things. (3mks)

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3. Which apparatus is used for catching flying insects (1mk)

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4. List three uses of energy obtained through the process of respiration (3mks)

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5. Name any two apparatus that can be used for magnifying a specimen (2mks)

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6. (i)what is classification (1mk)

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(ii) Identify any two external features that can be used in classifying a living thing (2mks)

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7. Which name is given to a scientist who practices the art of classification (1mk)

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8. State two functions of the cell membrane (2mks)

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9. Arrange the following in order of increasing complexity. (1mk)

Organism, Organelles, organ systems, cells, tissues, cells.

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10. The cotton grass is scientifically called *Digitaria brownii* .To which taxonomic unit does the name *brownii* refers to? (1mk)

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11. State one function of the cristae projections that form the inner membrane of the mitochondria. (1mk)

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13. State two activities that are controlled by the nucleus (2mks)

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14. What is the significance of the principle of surface area to the volume ratio in living things (2mks)

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15. Soil pollution with chemicals such as cyanides leads to the death of plants. Explain (2mks)

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16. (i) What name is given to the movement of food along the oesophagus? (1mk)

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(ii) What is the meaning of the term assimilation (1mk)

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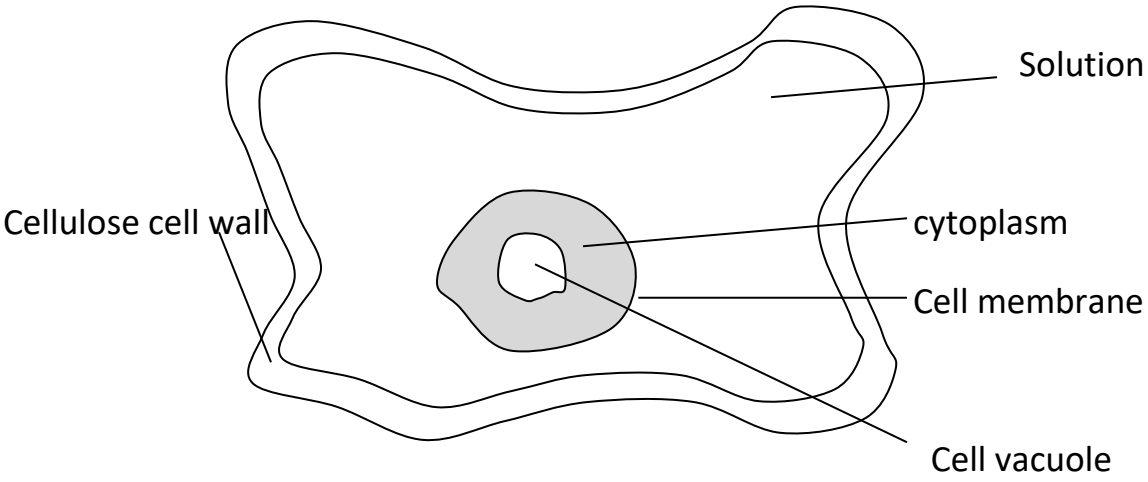
17. The diagram below shows what happens to a plant cell when placed in a certain solution.



(i) Which is the name given to the process that has taken place in the cell above (1mk)

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(ii) What is the disadvantage of the process you have named to the terrestrial plants (1mk)

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18. (i) Define the term photosynthesis (1mk)

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(ii) State any two requirements for photosynthesis (2mks)

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19. A certain animal has the following dental formula

$$i\ \frac{0}{4}\ c\ \frac{0}{0}\ pm\ \frac{3}{3}\ m\ \frac{2}{3} = 30$$

Identify the mode of feeding of the animal whose dental formula is given above. Give a reason for your answer (2mks)

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20. Differentiate between parasitism and symbiosis (2mks)

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21. State one structural function of proteins (1mk)

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22. State two functions of the cuticle (2mks)

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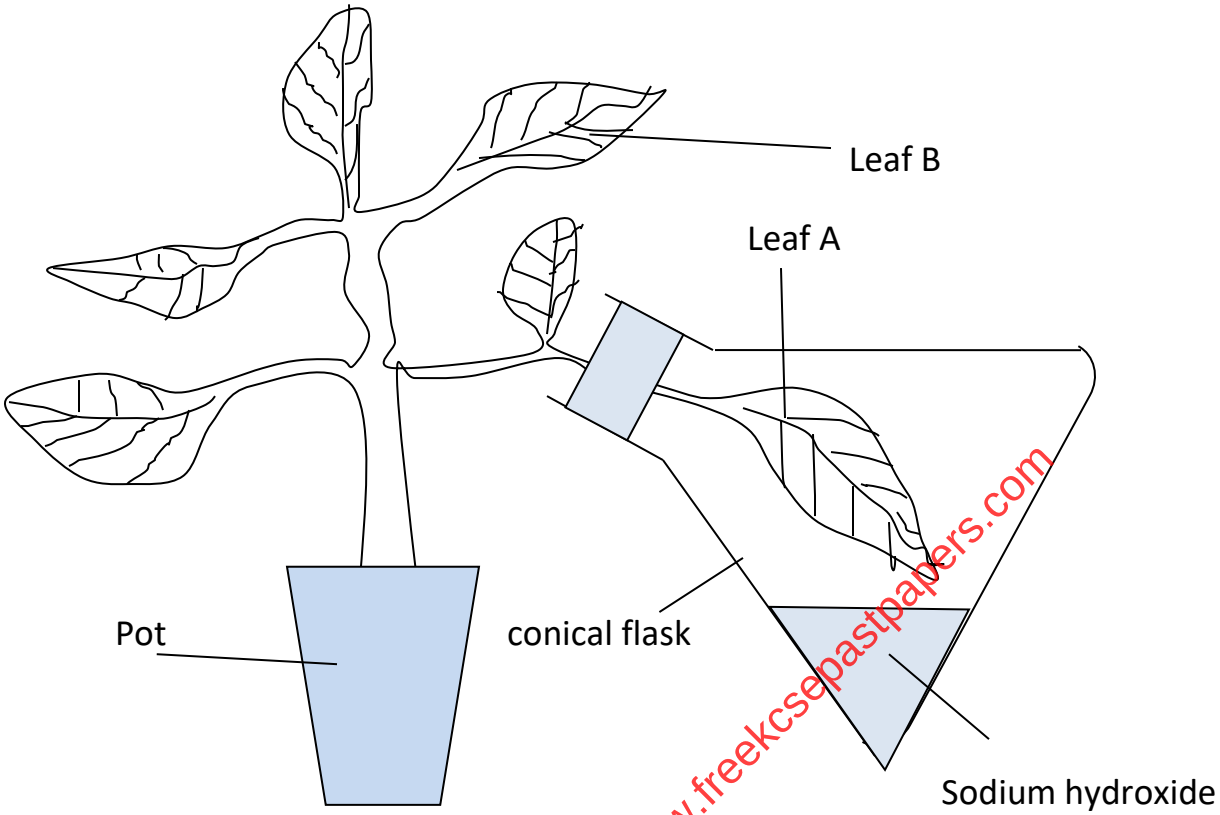
SECTION B (40 MARKS)

23. The following diagram represents a set up that can used to investigate a plant process.



(i)What is the function of sodium hydroxide used in the experiment (1mk)

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(ii) Other than sodium hydroxide what else can be used in its place (1mk)

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(iii) Test for starch was carried on leaf A and B.

What is the name given to the test for starch (1mk)

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(b) State and explain the observations that were made on leaf A and B during the test you have mentioned

Leaf A (1mk)

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Leaf B (1mk)

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24. It is said that as an object increases in size its surface area to the volume ratio Decreases. Prove this relationship mathematically with a diagram for a cube using the following data for two cubes (2mks)

Cube I: Length=2.0cm^3, windth=2.0cm^3, height=2.0cm^3

Cube II: Length =6.0cm^3, width=6.0cm^3, height=6.0cm^3

(ii) Which of the two cubes has a large surface area to the volume ratios (1mk)

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(ii) How are your above calculations important in explaining the rate of diffusion? (1mk)

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(iii) (a) osmosis is a special case of diffusion justify this statement.(1mks)

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(b) What is the relevance of osmosis to?

(i)The liver cells. (1mk)

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(ii) Root hair cell (1mk)

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25. Account for the following.

(i) The absence of chloroplasts in the upper epidermis (1mk)

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(ii)The fact the palisade cells have more chloroplasts than the spongy mesophyll (1mk)

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(iii) The light stage of photosynthesis happens in the granum (1mk)

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(iv) write down the equation of what happens in the light stage of photosynthesis (1mk

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26. (i)Which are the two molecular components of fats and oils (1mks)

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(ii) Differentiate between essential and non essential fatty acids (2mks)

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(iii) State three functions of essential fatty acids (3mks)

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27. (i) Which are two molecular groups that distinguishes proteins from carbohydrates (2mks)

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(ii) State one property of proteins (1mk)

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28. Enzymes are very essential components in both plants and animal systems.

(i) What are enzymes (1mk)

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(ii) Fill the table below (2mks)

substrate	Enzyme involved
Maltose	
	Lipase
Amylose	
	carbohydrase

(iii) State any two factors that affect the enzymes reactions (1mks)

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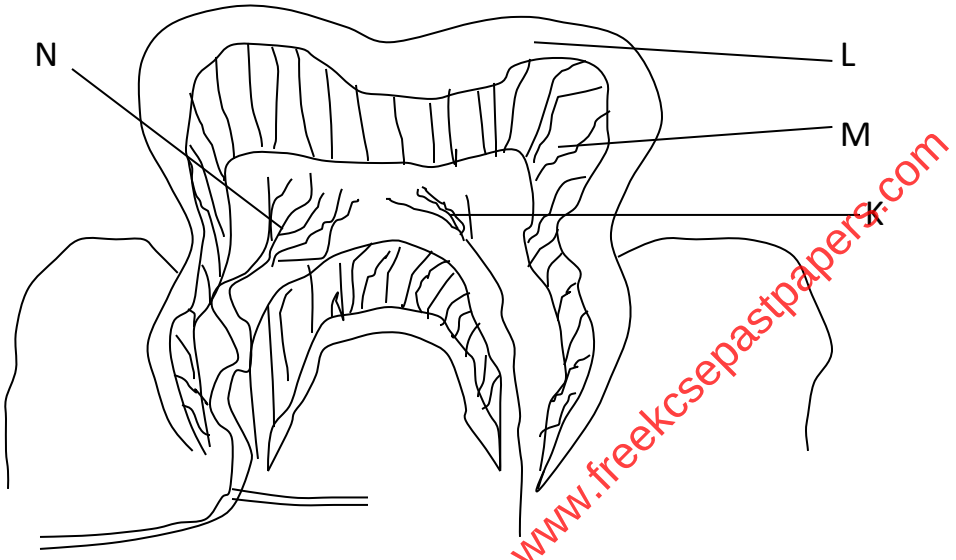
29. The diagram below represents the structure of a tooth.



(i) Name the type of the tooth represented by the above diagram

(ii) Identify the parts labeled L, M and N

L …… (1mk)

M ……(1mk)

N …… (1mk)

(iii) Name the disease that affects the part labeled L (1mk)

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(v) What is importance of the part labeled K (1mark)

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(iv) Animals such as the shark have teeth which are similar in size and

Shape. What name is given to this type of dentition? (1mk)

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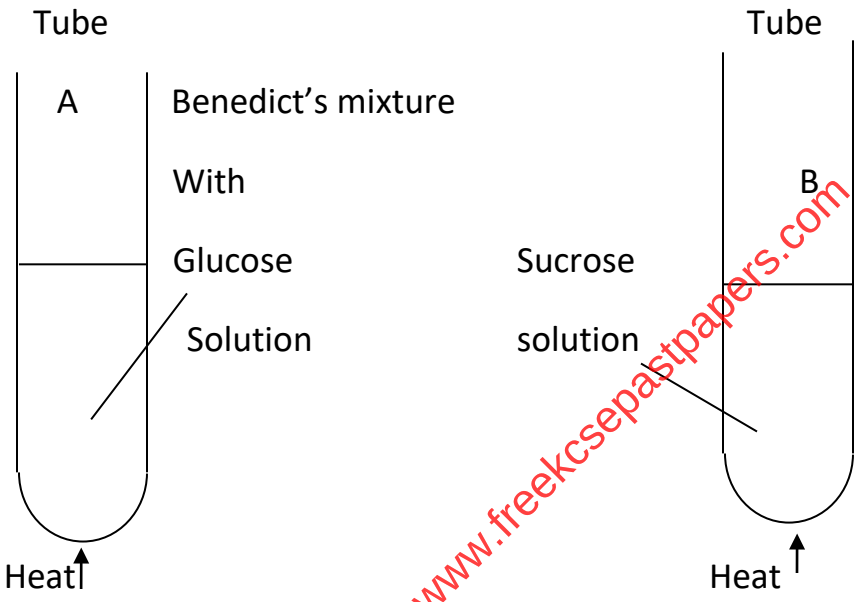
30. The diagram below shows an experiment set up that was used in the test for sugars.



Which name is given to the test done on test A (1mk)

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(ii) What are the likely observations in the experiment on test tube A. Explain your answer (2mks)

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(iii) In the tube B the students were required to add a few drops of hydrochloric acid followed by sodium hydrogen carbonate.

(a) What was the purpose of adding dilute hydrochloric acid (1mk)

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(b) What was the purpose of adding sodium hydrogen carbonate (1mk)

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SECTION C (20mks)

31. Discuss the role of active transport in living things (10marks)

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32. Briefly discuss the factors that affect the rate of photosynthesis (10mks)

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