

NAME.....ADM. NO.....CLASS.....
SIGN..... DATE.....

231/1
BIOLOGY
PAPER 1
SEPTEMBER, 2021
TIME: 2 HOURS

MOMALICHE 3 CYCLE 8

(Kenya Certificate of Secondary Education)

Instructions to the candidates

- Write your name, class and admission number in the space provided above.
- Write the date of the examination and sign in the space provided above.
- Answer *all* the questions in the spaces provided.
- You may be *penalized* for wrong spelling especially technical terms.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1-25	80	

This paper consists of 10 printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing

1. (a) Name the branch of biology that deals with the study of the following:- (2mks)

(i) Fungi.

(ii) Insects.

(b) Suggest the names of the treaties that were signed and enacted into law to-

(2mks)

i) Fight depletion of Ozone layer.

ii) Manage natural resources e.g. prohibiting poaching of wild animals

2. In an experiment, it was observed that when maggots are exposed to light, they move to dark areas. On the other hand, Euglena and Chlamydomonas move towards light.

(a) Name the type of response exhibited by the organisms (1mk)

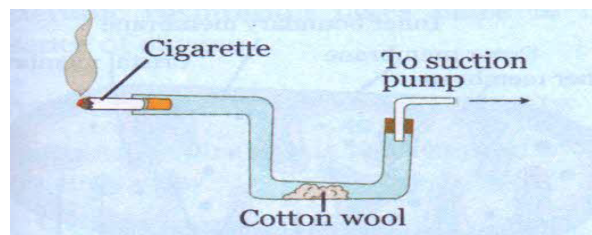
(b) State one advantage of the response shown by Euglena and Chlamydomonas.

(1mk)

3. Plant leaf was placed between two pieces of cobalt chloride paper before being held by two glass slides. Explain the expected observation after several hours in the sun.

(3mks)

4. The figure below shows the apparatus used for collecting some of the substances in cigarette smoke. As the cigarette burns the cotton wool turns brown.



(a) Name the substance that causes the cotton wool to change its colour. (1mk)

(b) The cotton wool provides a large surface area on which this substance collects .
what structures in the lungs does the cotton wool represent. (1mk)

(c) Explain how smoking affects the amount of oxygen taken up by the blood.(3mks)

5. Name three tissues responsible for secondary growth in flowering plants. (3mks)

6. Study the diagram below and answer the questions that follow:



a) State the class of the organism shown above. (1mk)

b) Give three reasons for your answer in 6 (a) above. (3mks)

7. Give three reasons why plant have not evolved complex excretory organs. (3mks)

8. a) Name two substances in the human blood that are required for the process of photosynthesis.
(2mks)

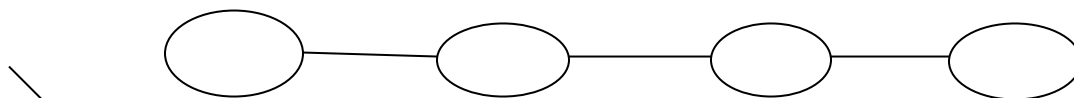
9. Give the structural difference between mitochondrion and chloroplast. (2mks)

10. Give three ways in which the pollen of insect pollinated flowers differs from the pollen of wind pollinated flowers. (3mks)

Insect pollinated	Wind pollinated

11. Name two organelles that would be abundantly present in secretory cells. (2mks)

12. The diagram below shows part of a starch molecule



(a) State what the circles and the lines joining them represent:- (2mks)

(i) Circles.

(ii) Lines.

(b) Show diagrammatically and name the product when the enzyme Amylase has an effect on this molecule. (1mk)

13. Two farmers prepared fish ponds and introduced equal number of fish in each pond. The fish in one of the farmer's pond died within two days after being introduced into the pond while those of the other survived. On examining the ponds, one was found to be full of Algae and the other had no Algae.

(a) In which of the ponds were the Algae present? (1mk)

(b) Suggest the possible reason for the death of the fish (1mk)

(c) State two importances of Algae and other water plants to fish (2mks)

14. Why is it not advisable to wash vegetables after cutting them into small pieces. (2mks)

15. Give three roles of gibberellins in plants. (3mks)

16. What is the fate of excess amino acids in the human body. (3mks)

17. Give reasons for each of the following statements:-

(a) Constant body temperature is maintained in the body (2mks)

(b) Low blood sugar is harmful to the body. (2mks)

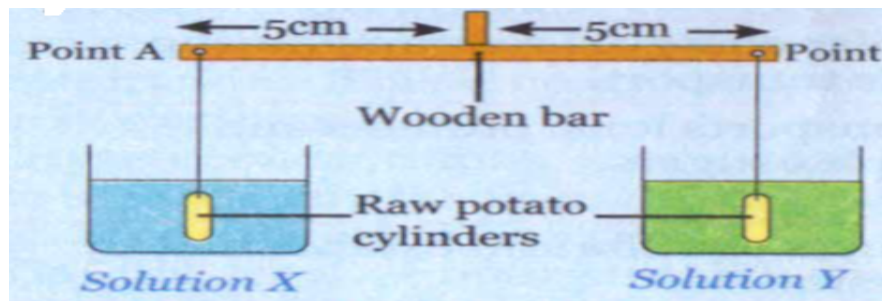
18. How is the mammalian fallopian tube adapted to its function? (2mks)

19. a) State three ways in which *Homo sapiens* differ from *Homo habilis*. (3mks)

Homo sapiens	Homo habilis

b) Distinguish between homologous and analogous structures. (2mks)

20. The diagram below represents a set-up used to investigate a certain biological process in plants. After seven hours the wooden bar was found to be tilting downwards at point A.



a) Suggest the nature of solution X and Y. (2mks)

X.

Y.

b) Give an explanation on the tilting of the wooden bar downwards at point A. (3mks)

21. A potometer can be used to measure the rates of transpiration and water uptake.

Which of the two can be measured in the following manner? (2mks)

(i) Directly.

(ii) Indirectly.

22. A set of triplets were separated at birth and were brought up under different conditions. The table below gives information about them when they met after 18years.

Character	James	John	Jacob
Weight	71kg	70kg	65kg
Height	1.82M	1.85m	1.75m
I.Q	124	124	123
Blood group	A	O	A

a) Which of the triplets could have been identical. (1mk)

b) Give a reason for your answer. (1mk)

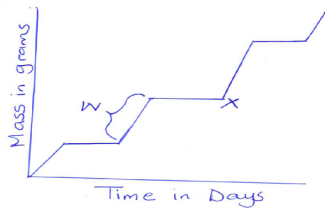
23. (a) State two regions within a cell where the second phase of respiration occurs.

(2mks)

c) Give two uses of energy released during respiration.

(2mks)

24. The graph below represents the growth of animals in a certain phylum



(a) Name the type of growth pattern shown on the graph.

(1mk)

(b) Identify the process marked X.

(1mk)

(c) Name the hormone secreted by the neurosecretory cells in the brain which stimulates the production of the hormone responsible for the process in (b) above.

(1mk)

25. Give three reasons as to why biological control is preferred to chemical control in the control of pests and parasites.

(3mks)