

NAME..... STREAM..... ADM NO.....

SCHOOL..... SIGNATURE.....

DATE.....

231/1
BIOLOGY
PAPER 1 (THEORY)
2 HOURS

NYAHOKAKIRA CLUSTER III EXAMINATION 2022

Kenya Certificate of Secondary Education (KCSE)



INSTRUCTIONS TO CANDIDATES

- Write your name, Admission number and Index Number in the spaces provided above.
- Sign and write date of examination in the spaces provided above.
- Answer **ALL** questions in the spaces provided.
- All workings **MUST** be clearly shown where necessary.

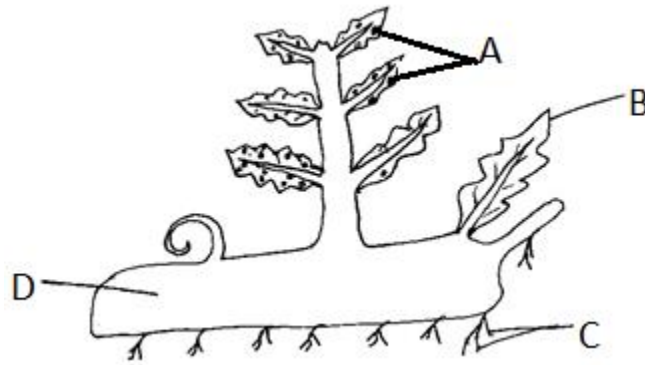
FOR EXAMINER'S USE ONLY.

Question	Maximum Score	Candidates Score
1 – 30	80	

This paper consists of 11 Printed pages.

Candidates should check the question paper to ensure that all the papers are printed as indicated and no questions are missing

1. During research on different types of plants students found a plant that looked like the one shown below



a) Name the parts labeled A, C and D. (3marks)

A.....

C.....

D.....

b) State the division to which the plant belongs. (1mark)

.....
.....

2. a) Name three types of muscles that are found in the human body. (3marks)

.....
.....
.....

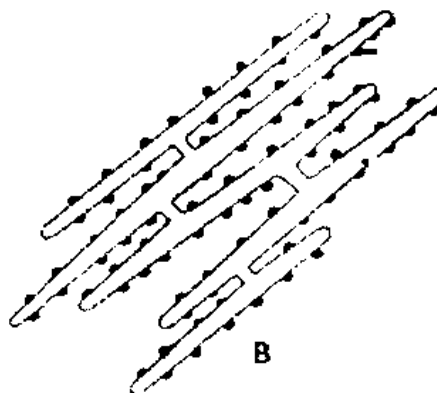
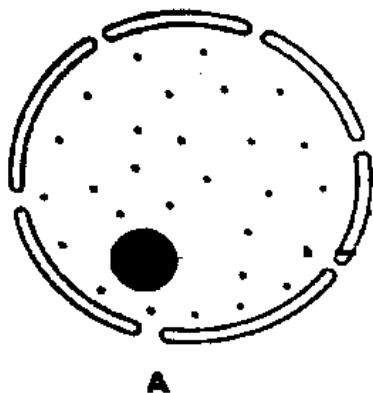
b) Suggest how herbaceous stems of plants remain upright yet they have very little strengthening tissues (1mark)

.....
.....
.....

3. Name the characteristic of living organisms illustrated by dressing heavily in human beings (1 mark)

.....
.....

4. The diagrams below show some cell structures



a) Identify the organelle labeled A (1mark)

.....

b) State the function of each of the following organelle A and B (2marks)

A.....

.....

B.....

.....

5. Name the reagents used for testing presence of; (3marks)

a) Starch

b) Reducing sugars

.....

c) Protein

.....

6. The diagram below shows a physiological process that occurs in human gastro intestinal tract. Study and answer the questions that follow.



a) Identify process **R** above (1mk)

b) What is the biological importance of the process in digestion (1mk)

c) In which part of the gastro intestinal tract does the process occur (1mk)

7. a) State why primary productivity in Lake Victoria decreases with increase in depth (2mks)

.....
.....
.....

b) Define the term ecological niche (1mark)

.....
.....

8. a) Name **two** plant growth hormones that promote parthenocarpy. (2marks)

.....
.....

b) Differentiate between epigeal and hypogeal germination (1mk)

.....
.....
.....

9. a) The cardiac muscles are said to be myogenic. Explain. (1mk)

.....
.....

b) Explain why blood does not clot in undamaged blood vessels. (1 mark)

.....
.....

10. a) Name one process that brings about the translocation of manufacture food in plants. (1mk)

b) Explain why the leaf of a sisal plant has a shiny cuticle (1mk)

.....

11.State the function of the following in mammalian trachea. (3 marks)

a) Rings of cartilage

.....

b) Mucus

.....

c) Cilia

.....

12.Active yeast cells were added to a dilute sugar solution in a container. The mixture was kept in warm room. After a few hours bubbles of gas were observed escaping from the mixture.

(a) Write an equation to represent the chemical reaction above. (1 mk)

.....
.....

(b) Give **one** economic importance of this type of chemical reaction above? (1 mk)

.....
.....

13. a) State why a desert rat has along developed loop of Henle (1mk)

.....
.....

b) Explain how the mammalian liver detoxifies hydrogen peroxide (2mks)

.....
.....
.....

14. Name the structures that are found in the cortex of the kidney. (1mark)

.....
.....
.....

15.(a) What causes the following diseases?

i) Diabetes mellitus.

(1mark)

.....
.....

ii) Diabetes insipidus.

(1mark)

.....
.....

16. Below is an image of a biological vector. Use it to answer questions that follow.



a) Identify the parasite transmitted into human blood by the organism.

(1 mark)

.....
.....

b) Name the blood cells that are destroyed by the parasite in (a) above. (1 mark)

.....

c) State **one** biological method used to eradicate the larvae of this organisms. (1 mark)

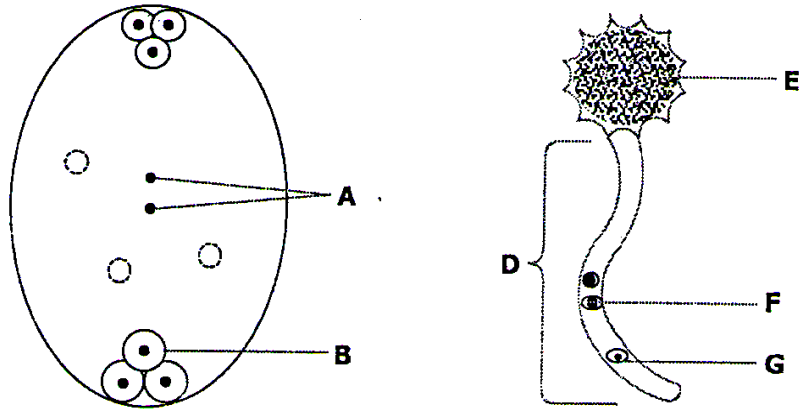
.....

17. Name the diseases caused by the following causative agents

i) *Bordetella pertussis*..... (1mk)

ii) *Streptococcus pneumonia* (1mk)

18. The diagrams below show changes in the life cycle of flowering plants.



Complete the table below by choosing the letters from the diagram which refers to each of the stages given. (4 marks)

STAGE OF LIFE CYCLE	LETTER
Male gametophyte	
Tube nucleus	
Female gamete	
Male gamete	

19. A DNA strand has the following base sequence G-C-C-T-A-G-A-T-C-A-C. What is the sequence of;

a) A Complementary DNA strand (1 mark)

.....
.....

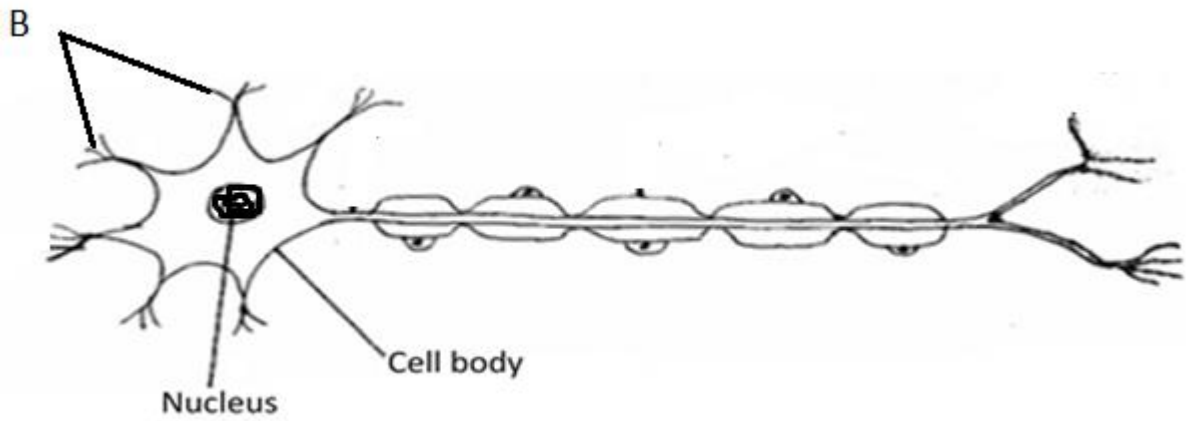
b) M-RNA strand copied from this DNA strand. (1 mark)

.....
.....

20. Give **two** examples of natural selection in action (2marks)

.....
.....
.....

21. a) Study the diagram **below** of a neurone in human being.



i) Identify the neurone. (1mark)

.....

ii) Name the part labeled **B** (1mark)

.....

b) Using an arrow on the diagram, show the direction of the movement of impulses. (1 mark)

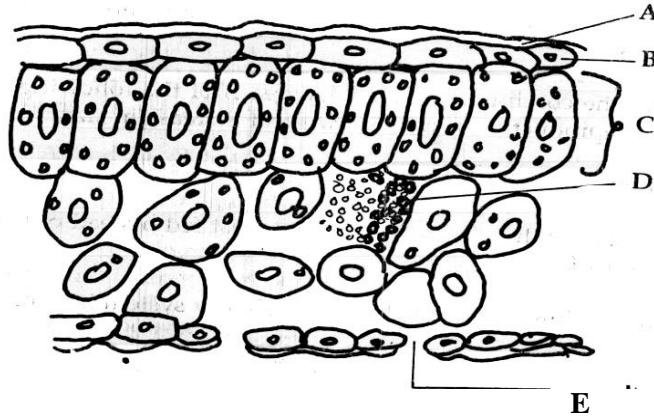
22. Give **one** reason why Lamarck's theory on natural selection in organic evolution was discarded. (1 mark)

.....
.....

23. Explain what happens to the structures of the human eye when a student reading a white printed paper on a bright sunny day enters a dark room for examinations. (3 marks)

.....

24. The diagram below shows the internal structure of a leaf



a) Name the part labelled **B** (1mark)

.....

b) State **two** difference between xerophytic and hydrophytic leaves. (2marks)

Xerophytic	Hydrophytic

25. Explain why haemolytic disease of the new born (**Erythroblastosis foetalis**) is encountered in children born later in a family where the mother is Rhesus negative and the father is Rhesus positive (2mks)

.....

26.a) Which structure in mammalian ear detects;

i) Sound waves

(1mk)

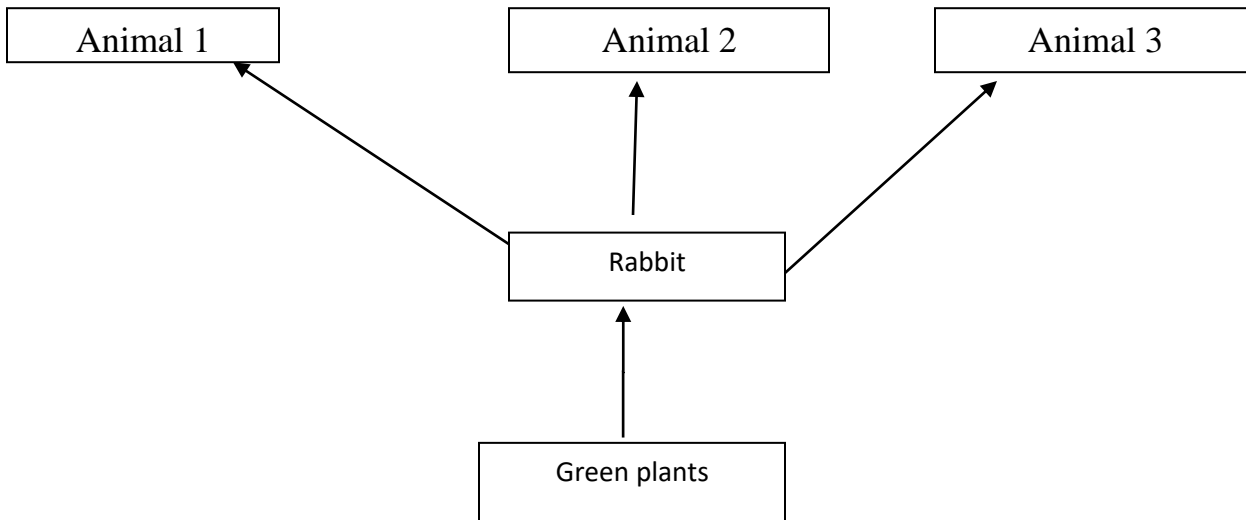
.....

ii) Change in posture

(1mk)

.....

27. The flow chart shows a part of a food relationship in an ecosystem.



a) (i) Name the food relationship shown.

(1 mark)

.....

ii) How many trophic levels are shown in the diagram

(1 mark)

.....

.....

b) What is the main source of energy in the ecosystem.

(1 mark)

.....

.....

28.a) What is the difference between hinge joint and ball socket joint

(1mk)

.....

.....

.....

29. State **three** limitations of fossil records as evidence of organic evolution (3 marks)

.....
.....

b) State the function of the following

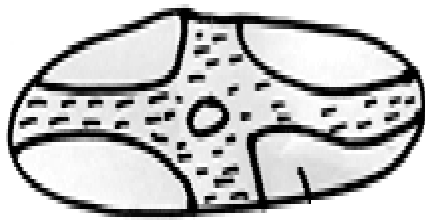
(i) Tendon (1mk)

.....
.....

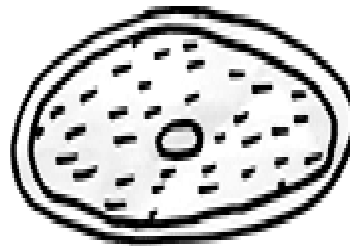
(ii) Ligament (1mk)

.....
.....

30. The cells shown below were obtained from two different plant cells which were immersed in 2% and 25% salt solutions



A



B

a) Comment on the nature of 25% salt solution in relation to the cell sap. (1mark)

.....
.....

b) What biological phenomenon leads to the observation made in A. (1mark)

.....
.....

c) What happens to red blood cells when placed in water. (2marks)

.....
.....

LAST PRINTED PAGE