



MIGOHO BIOLOGY JOINT EXAMINATION

231/1

BIOLOGY

PAPER 1

THEORY

TIME 2 HOURS

NAME..... INDEX NO.....ADM/NO.....

SCHOOL..... STREAM.....

MIGORI-HOMABAY COUNTY BIOLOGY JOINT EXAMINATION

FORM 4

AUG TERM II 2022

Kenya Certificate of Secondary Education (K. C. S. E.)

INSTRUCTIONS TO CANDIDATES

- Write your name 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 Examiners use only.

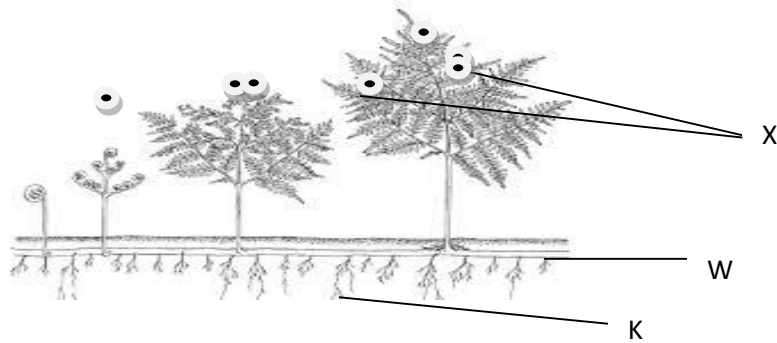
Question	Maximum Score	Candidates Score
1 –25	80	

This paper consists of 6 Printed pages. Candidates should check the question paper to ensure that all the Papers are printed as indicated and no questions are missing.

BIOLOGY MIGOHO PP1

1. (a) What is a teat pipette used for in Biology Laboratory Lesson? (1 mrk)
.....
- (b) Give the name of a reagent that is used to test substances and at the same time used as a stain in the laboratory. (1mrk)
.....
2. A form one student observing Onion epidermal cells under the low power objective counted 5 cells on a field of view measuring 5mm
- (a) Estimate the size of one cell. (1 mrk)
- (b) If the eye piece magnification used was $\times 10$ and that of the objective lens was $\times 10$. What was the magnification of the microscope? Show your working. (2 mks)
- (c) Estimate by approximation the Number of cells that would be observed if the objective lens magnification was changed to $\times 40$ (1mrk)
.....
3. Explain the following statements:
- i. The action of ptyalin stops at the stomach. (1mrk)
.....
.....
- ii. Lack of magnesium leads to yellowing of leaves in plants. (2mrks)
.....
.....
- iii. The thyroid glands swell, in some individuals (1 mrk)
.....

4. Study the diagram below and answer the questions that follows



i. Name parts. (2mrks)

W

K

ii. Name the division of Kingdom plantae the diagram represent. (1 mrk)

.....

iii. Give the identity of **X** and state its function (2 mks)

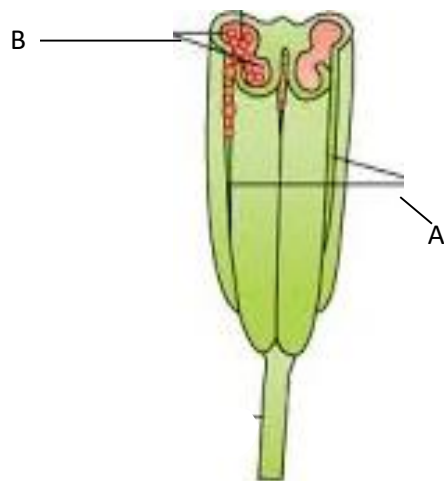
Identify of **X** -

.....

Function -

.....

5. The diagram below represents a male reproductive transverse section structure in plant



i. Name structures (2mrks)

A -

B-

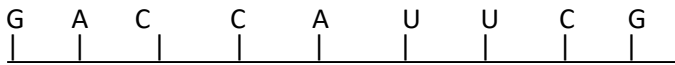
ii. Name the type of cell division taking place in structure A (1 mrk)

.....

iii. State Two significance of the named type of cell division in (ii) above in Sexual Reproduction. (2mrks)

.....
.....

6. (a) The diagram below represents a section or portion of a certain nucleic acid.



With a reason, identify the type of nucleic acid whose portion is shown above. (2mrks)

Nucleic acid:.....

Reason.....

b) A certain type of gene mutation changed the word BRUSH TO BUS. Identify the type of gene Mutation described above. (1mrk)

.....

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

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

.....

b) State one advantage of the response shown by Euglena and Chlamydomonas. (1 mrk)

.....

8. An accident victim was found to pass large volumes of dilute urine.

a) What part of the brain was injured? (1 mrk)

.....

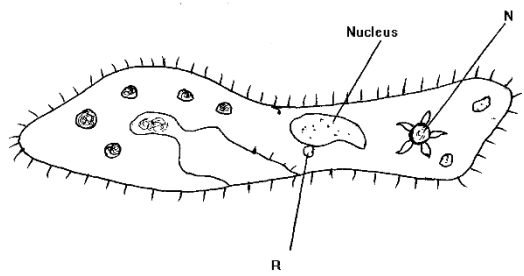
b) Explain how injury of the part mentioned in 8(a) above brought about release of large volume of urine. (3mrks)

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

9. State TWO advantages of metamorphosis to the life of insects (2mks)

.....
.....

10. The diagram below represents an organism.



a) State the kingdom to which the organism belongs. Give a reason for your answer. (2mrks)

Kingdom

.....

Reason.

.....

b) Suggest the function of the structure labeled N (1mrk)

.....

11. Explain why water logging favour denitrification in swampy areas. (2mrks)

.....

.....

12. The number and distribution of stomata on three different leaves are shown in the table below.

Leaf	Number of stomata	
	Upper epidermis	Lower epidermis
A	450	0
B	185	270
C	03	15

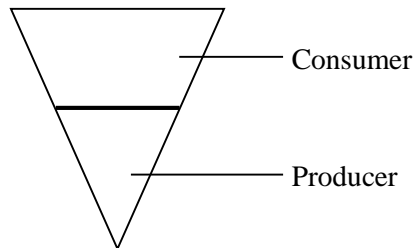
Suggest the possible habitats of the plants from which the leaves were obtained (3mrks)

A.....

B.....

C.....

13. The diagram below represents a pyramid of biomass derived from a certain ecosystem.



(a) Suggest the type of ecosystem from which the pyramid was derived (1 mrk)

.....

(b) State the significance of short food chains in an ecosystem. (1 mrk)

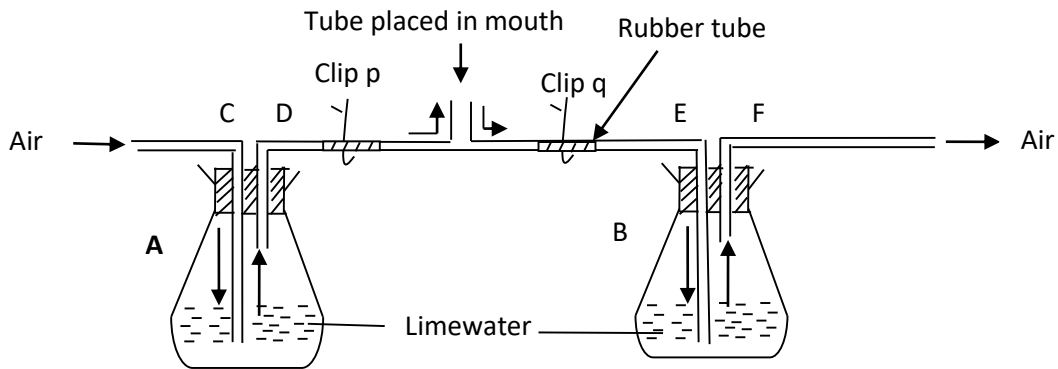
.....

14. State two features of neurones that increase the rate of impulse transmission (2mrks)

.....

.....

15. An experiment was set up as shown below to compare the amount of carbon (iv) oxide in expired and inspired air.



a). **State** the purpose of the clip (2mrks)

P.....
 Q.....

b). Compare the observations in flask A and B after the experiment. Give reasons for your answer. (2mrks)

.....

16. (a) Explain why a person discharges urine more frequently when environment temperatures are low than when they are high. (2mrks)

.....

(b) Name the nitrogenous wastes excreted by a fresh water fish (1mrk)

.....

17. In a blood test, a few drops of anti-B serum were added to two samples of blood. It was noted that agglutination occurred. What were the possible blood groups of the two blood samples? (2mrks)

.....

b) Why would carboxyhaemoglobin lead to death? (2 marks)

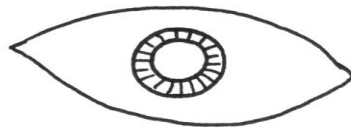
.....
.....

18. State the branch of Biology that would be used in solving the problem of disputed parentage. (1mrk)

.....

19. The illustration below shows the appearance of pupil of eye in normal light.

(a) Make an illustration to show how the size of pupil will appear in bright light. (2mrks)

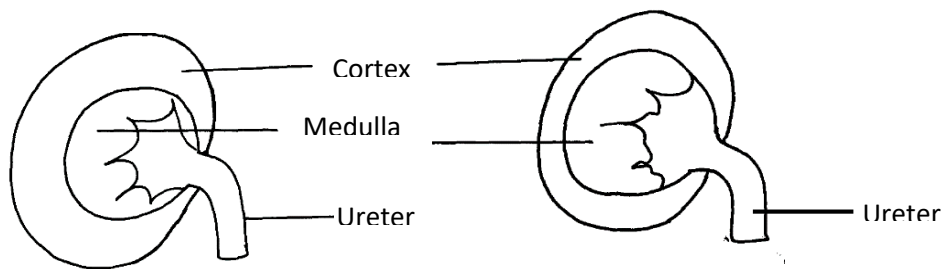


(b) Give **two** functions of human ear. (2mks)

.....
.....

20. The diagrams below represent kidney of two different animals living in different ecological habitats.

Study them and answer the questions which follow.



Kidney of animal A

Kidney of animal B

(i) Which kidney represents an animal living in a fresh water habitat? (1mrk)

.....

(ii) Give a reason for your answer in (i) above. (2mrks)

.....

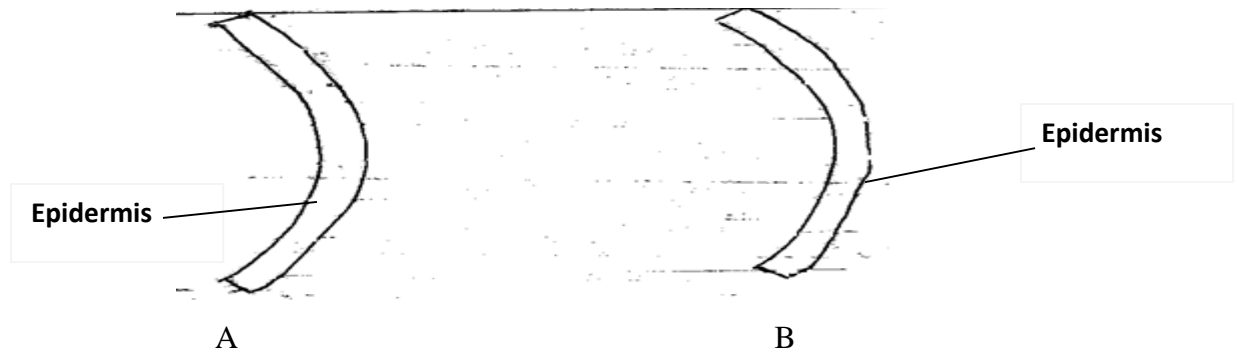
21. (a) What are vestigial structures? (1mrk)

.....

(b) State **one** major importance of divergent evolution to living organisms. (1mrk)

.....

22. A freshly obtained dandelion stem measuring 5cm long was split lengthwise to obtain two similar pieces. The pieces were placed in solutions of different concentrations in Petri dishes for 20minutes. The appearance after 20 minutes is as shown.



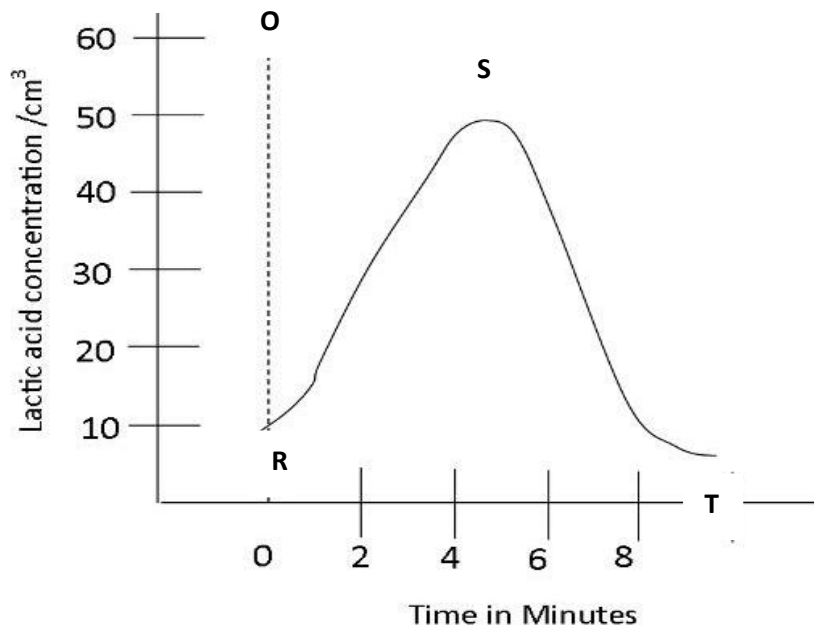
a) Which of the two pieces was placed in hypotonic solution. Explain (3mrks)

.....
.....

b) State the significance of the biological process involved in the experiment. (1mrk)

.....

23. The diagram below shows the general appearances of lactic acid in the blood of an athlete after an exercise.



a) What is the significance of the line marked O? (1 mrk)

.....
.....

b) Explain what was happening in the body between points:

(i) R and S. (1 mrk)

.....

(ii) S and T. (1 mrk)

.....

c) What is oxygen debt? (1 mrk)

.....

24. The diagram below represents a bone obtained from a goat.



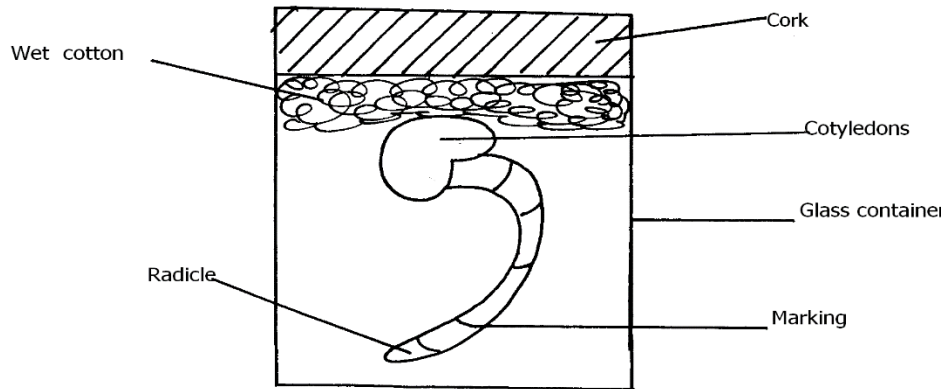
a) Identify the bone (1mk)

.....

b) Name the type of joint formed at the part labelled T. (1mk)

.....

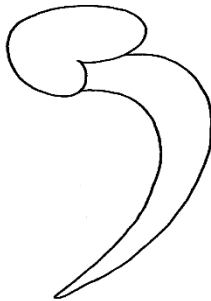
25. A student set up an experiment as shown in the diagram below.



a) What was the aim of the experiment? (1 mrk)

.....
.....

b) On the diagram below indicate the expected results after three days. (2mrks)



The End.