NAME..... ADM NO.....CLASS.....

ALLIANCE HIGH SCHOOL

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

FORM FOUR TRIALS

231/3

BIOLOGY

Paper 3**(PRACTICAL)**

SEPTEMBER 2022

Time: 1¾Hours

INSTRUCTIONS TO THE CANDIDATES

- Sign and write your Name and Index Number in the spaces provided above.
- Answer **all** the questions in the spaces provided.
- You are required to spend the first **15** minutes of the**1 ¾** hours allowed for this paper reading the whole paper carefully before commencing your work
- Additional pages must **NOT** be inserted.
- Candidates may be penalized for recording irrelevant and incorrect spelling especially of technical terms.

For Examiner's Use Only

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	13	
2	16	
3	11	
TOTAL	40	

This paper consists of 6 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

1. You are provided with specimen labeled M. Crush it using pestle and mortar, add some distilled water to get fine solution. Label four clean test tubes: A, B, C, and D. Put about 4ml of the solution into each of the four test tubes.

a) To solution in test tube A, add some few drops of iodine. Shake the solution to mix well. Pour some little solution onto a white tile.

(i) Record your observation. (1mk)

.....

(ii) Account for your observations in a) (i) above (1mk)

.....

b) Into solution in test tube B, add about 2ml of Benedict's solution. Place it in a boiling water bath.

(i) After about 3 minutes, record your observation (1mk)

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(ii) What is your conclusion from observation in b) i) above? (1mk)

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c) For the remaining test tubes: -

To test tube C, add about 3ml of solution labeled K. To test tube D, add about 3ml of solution K and about 2ml of solution labeled L. Place both test tubes C and D in a water bath. Maintain the water bath at 37 ^{0} C. Allow it to stand in the water bath for 30 minutes. After 30 minutes, remove the test tubes. Add about 2ml of Benedicts solution to each test tube and shake well. Place the two test tubes in a boiling water bath. After about 5 minutes record your observations in the table below. (4mks)

Test tube	Observation	Conclusion
C		
D		

d) Account for your observations in the test tubes C and D. (2mks)

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e) i) Why was set up placed at 37^0C? (1mk)

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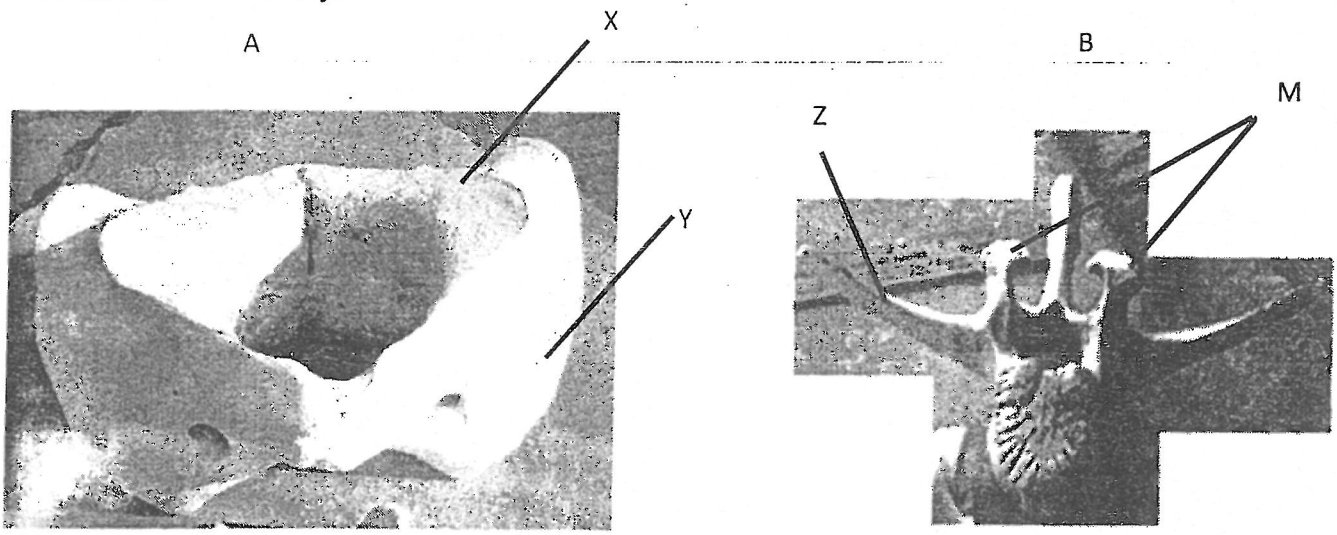
(ii) Suggest identity of solutions K and L (2mks)

K.....

L.....

2. The photographs below are of the same mammalian vertebra showing two views of the same bone.

Examine them carefully.



(a) (i)Identify the vertebrae in photograph (2mks)

A .....

B .....

(ii) Name part X ..... (1mk)

(iii) State the function of part X (1mk)

.....

(b)State the functional difference between a tendon and a ligament (1mk)

.....

.....

(c)Name the views of the vertebrae above? (2mks)

.....

(d) State a common role of the parts labeled Y and Z. (1mk)

.....

(e) What are the differences between bones A and B? (2mks)

.....

f) The photographs below illustrate a response in plants. Study it carefully and answer the questions that follow.

(i) Identify the type of response illustrated above. 1mk

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(ii) Explain how the structure above is formed. 3mks

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.....

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(iii) Besides the structure above, name other two support structures in plants. 2mks

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3. You are provided with specimen D.

(a) (i) Cut off the petiole, about 1.5 cm from the end where the leaf attaches to the stem.

(ii) Carefully make several thin cross sections through the piece obtained in (a)(i) above, using a sharp razor blade or scalpel.

(iii) Put the sections obtained in water on a Petri dish. (iv) Mount the thinnest section(s) on a glass slide, add a drop of iodine solution provided.

(iv) Observe the section(s) using a hand lens, then draw a labelled diagram of the section observed. (2 mrks)

(b) Account for the following features of specimen D.

(i) Extensive network of veins (1mark)

.....

(ii) Tough leaf blade (1mark)

.....

(iii) Strong and extended petiole (1 mark)

.....

(c) State with reason, the class of plants from which the specimen was obtained.

Class (1mark)

.....

Reasons: (1mark)

.....

(d) Explain why the following procedures were necessary during the preparation of the sections for observation.

(i) Putting the sections in water on a Petri dish. (1 mark)

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(ii) Using a sharp scapel/razor blade. (1 mark)

.....

(iii) Adding iodine solution to the section. (1 mark)

.....

(iv) Cutting very thin sections. (1 mark)

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