NAME_____ADM_____FORM_____

231/3

BIOLOGY FORM 4

END OF TERM 2, 2022 EXAMINATION

TIME: 1¾ HOURS

INSTRUCTIONS TO CANDIDATES

1. *Write your Name, Admission Number, and Class/Form in the spaces provided above.*

*2. This paper contains **THREE Sections.** Answer **ALL** the questions in the spaces provided **IN THIS PAPER**.*

*3. **ALL** the answers must be clear and precise.*

4. Answer all the questions using correct English.

FOR EXAMINER'S USE ONLY

SECTION	MAX. SCORE	CANDIDATE'S SCORE
1	13	
2	11	
3	16	
TOTAL	**40**	

This paper consists of 5 printed pages. Candidates should check the question paper to ascertain that all pages are printed as indicated and no questions are missing.

1. You are provided with specimens labeled **S** and **T**. Using the appropriate apparatus and reagents provided, use the specimens to answer the questions below.
   a. Carefully, cut a **longitudinal section** of specimen **S**. Draw and label a plain diagram of the cut surface of specimen **S**. (5 marks)

   b. State **three** differences between specimen **S** and **T**. (3 marks)

Specimen **S**	Specimen **T**

   c. Give **three** functions of the major chemical component in specimen **T**. (3 marks)

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   d. Which branch of biology deals with the study of the specimens above? (1 mark)

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   e. In which kingdom do the specimen above belong? (1mark)

……

2. Below are photographs of skulls of different mammals, **W** and **X**. Study them carefully and use them to answer the questions that follow.

W **X**

a. State the diet of the mammals from which the photographs above were obtained and give a reason in each case. (4 marks)

	Diet	Reason
W		
X		

b. In a natural set-up, the mammals from which the photographs of skulls **W** and **X** were obtained have a **biotic** interrelationship.

i. Identify the biotic interrelationship of such mammals. (1 mark)

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ii. What are the adaptations of the animal with the skull labeled **X** for efficiency in the named biotic interrelationship in (b) (i) above? (3 marks)

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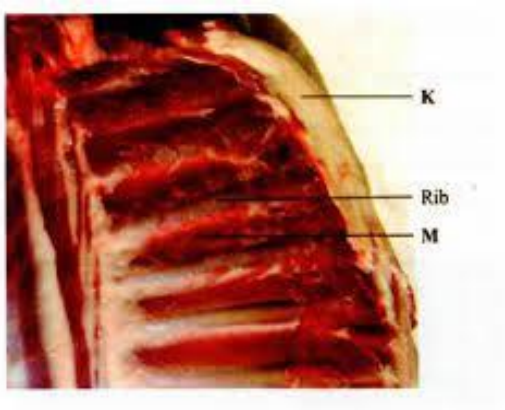
c. Draw and label the external structure labeled **I** on photograph **W**. (3 marks)

3.

a. The photograph below shows the inner surface of the upper left side of the ribcage.



Explain the role of the part labeled **M** in inhalation. (4 marks)

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b. Below is a photograph of a respiratory system. Study it to answer the questions that follow.

i. Identify the disease. (1 mark)

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ii. Name a chemical compound formed when burning tobacco that accelerates the disease. (1 mark)

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iii. Name a plant excretory product used in the therapy of such a disease. (1 mark)

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iv. Give three ways in which the disease can be treated. (3 marks)

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c. You are provided with a specimen labeled **P**. You are also provided with a sharp scalpel, a hand lens, a Petri dish, a glass slide, an iodine solution, and distilled water. Carry out the following procedure and answer the questions that follow.
   i. Cut off the petiole about 1.5cm from the end where the leaf attaches to the stem.
   ii. Carefully make several thin cross sections through the piece obtained above using a sharp scalpel.
   iii. Put the sections obtained in water in a Petri dish.
   iv. Mount the thinnest section and stain with iodine.

Using a hand lens, observe and then draw a well-labeled diagram of the section observed. (3mks)

d. What is the purpose of the following procedures when preparing the sections?
   i. Making thin cross sections. (1 mark)

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   ii. Using a sharp scalpel when cutting thin sections. (1 mark)

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   iii. Putting the sections obtained in water. (1 mark)

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