

Name..... Index Number.....  
Student's Signature.....

231/1  
BIOLOGY  
PAPER 1  
MAY 2015  
2 HOURS

**TIGANIA SOUTH PRE-MOCKS 2015**  
**Kenya Certificate of Secondary Education**  
**BIOLOGY**  
**Paper 1**  
**TIME: 2 Hours**

**Instructions to Candidates**

- Write your name, admission number, class and signature in the spaces provided at the top of the page.
- Answer **all** the questions in the spaces provided in this paper.

**For Examiners Use Only**

SECTION A	MAXIMUM SCORE	CANDIDATE SCORE
Question		
1 – 25	80	

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 name of a certain garden plant is *Duranta Repens*  
i. What is the meaning of *repens*? (1mrk)  
.....
- ii. Identify one mistake shown by the written name. (1 mrk)  
.....
- iii. Distinguish between a *genus* and a *Species* as Taxa used during classification of the Organism. (2mrks )  
.....  
.....  
.....  
.....  
.....
3. 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 mrks)
- (c) Estimate by approximation the Number of cells that would be observed if the objective lens magnification was changed to  $\times 40$  (1mrk)  
.....

(d) What is the role of centriole in animal cells? (1mrk)

.....  
.....

4. Explain the following statements:

i. The action of ptyalin stops at the stomach. (1mrk)

.....  
.....

ii. The small intestines contain Villi. (1mrk)

.....  
.....

iii. High temperatures stop enzyme action. (1 mrk)

.....  
.....

iv. Lack of magnesium leads to yellowing of leaves in plants. (2 mrks)

.....  
.....

v. The thyroid glands swell, in some individuals (1 mrk)

.....

5. Name one cofactor and one co-enzyme required for a blood clotting process to be normal.

a) Co-factor - ..... (1mrk)

b) co-enzyme - ..... (1mrk)

6. What is counter current Mechanism in a Tilapia fish? (2mrks)

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

7. State three adaptations of the Red blood cell to its function. (3 mrks)

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

8. The diagram below represents an organ from a finned bony fish. Study it and answer the question that follows



- i. Identify the organ. (1mrk)  
.....
  - ii. State three adaptations of the part labeled S to its functions. (3 mrks)  
.....  
.....  
.....
9. (a) State the importance of pleural fluid in the lung of a mammal. (2mrks)  
.....  
.....  
.....
- (b) What function does the cilia of the trachea play during gaseous exchange in a mammal? (1 mrk)  
.....
- (c) What significance does mucus offer a mammal during gaseous exchange? (1 mrk)  
.....
10. The equation below represents a process that take place in plants and animals  

$$\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \longrightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$$
- (a) Name the process. (1 mrk)  
.....
  - (b) State two requirements necessary for the process (a) above to process at maximum rate. (2 mrks)  
.....  
.....  
.....

(a) What is the role of Cristae in the process above? (1 mrk)

.....

(b) In which part of the cell does glycolysis and Krebs cycle occur? (2 mrks)

Glycolysis - .....

Krebs cycle - .....

11. State the role of each of the following components of the skin. (2 mrks)

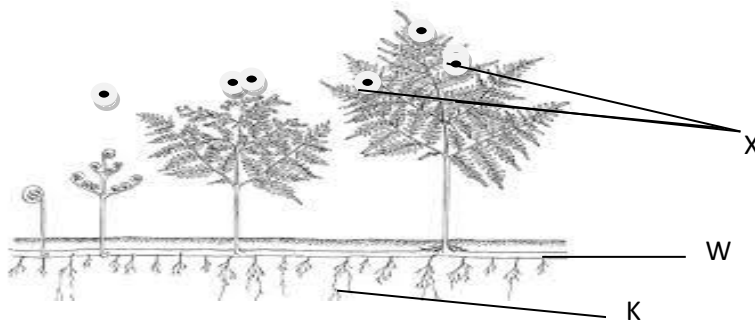
Sebum.....

.....

Melanin.....

.....

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 - .....

12. State three Biotic factors in an ecosystem. (3 mks)

.....

.....

.....

13. Name two specific bacteria involved in denitrification process in a Nitrogen cycle. (2 mrks)

.....

.....

14. Define:

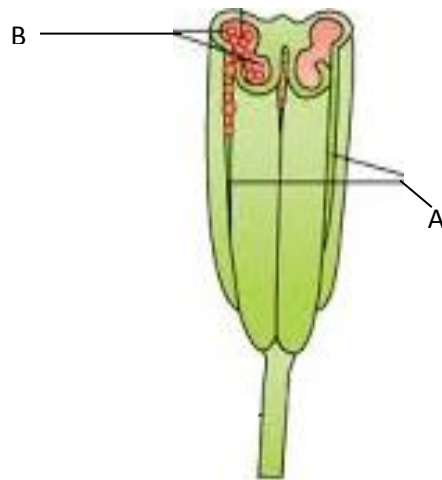
(a) Biosphere (1 mrk)

.....

(b) Ecological Niche (1 mrk)

.....

15. 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)

.....

.....

.....

16. State Three applications of Genetic in our day to day life. (3 mrks)

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.....

.....

17. Give the full Name of the abbreviation. DNA (1 mrk)  
.....
18. State the Three theories advanced to support the origin of life. (3 mrks)  
.....  
.....  
.....
19. Name three types of Fossils (3 mrks)  
.....  
.....  
.....
20. Name a chemical substance required for transmission of impulse in a synapse. (1 mrk)  
.....
21. State the functions of the following structures in neuron.
- i. Node of Ranvier (1 mrk)  
.....
- ii. Myelin sheath (1 mrk)  
.....
22. Name the chemical substances involved in thickening of the following support tissues in plants
- i. .... (1mrk)
- ii. .... (1mrk)
23. State the Number of the following vertebra in a mammal
- i. Cervical Vertebrae (1mrk)  
.....
- ii. Lumbar Vertebrae (1mrk)  
.....
24. State three functions of Obturator Foramen in the pelvic girdle in a mammal. (3mrks)  
.....  
.....  
.....  
.....  
.....

25. What is a

(i) tendon?

(1mrk)

.....

(ii) ligament?

(1 mrk)

.....



NAME: ..... INDEX NO.....

CLASS..... STREAM.....

**231/3**  
**BIOLOGY**  
**PAPER 3**  
**(PRACTICAL)**  
**MAY 2015**  
**TIME: 1<sup>3</sup>/<sub>4</sub> HOURS**

**TIGANIA SOUTH PRE-MOCK – 2015**  
*Kenya Certificate of Secondary Education (K.C.S.E)*

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the spaces provided.
2. You are required to spend the first 15 minutes of 1<sup>3</sup>/<sub>4</sub> hours allowed for this paper reading the whole paper carefully before commencing your work.
3. Answers must be written in the spaces provided in the question paper.
4. Additional pages should not be inserted candidates may be penalized for recording irrelevant information and for incorrect spellings especially of technical terms.

**FOR EXAMINERS USE ONLY.**

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1	16	
2	10	
3	14	
<b>SCORE</b>	<b>40</b>	

*This paper consists of 7 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and that no questions are missing.*

1. You are provided with liquids labelled **Q1** and **Q2**. Spare about 10ml of the liquids for part (a) of this question. Using a piece of thread, tie tightly one end of the visking (dialysis) tubing. Open the other end of the tubing and half fill it with liquid **Q1**. Tightly tie this end. **Ensure there is no leakage in both ends.** Immerse the tubing in a beaker containing liquid **Q2**. Leave the set up for at least 30 minutes.

- a) Using iodine and Benedict's solution provided; test for the food substance in liquids **Q1** and **Q2**. Record the procedure, observation and conclusion in the table below.

(6mks)

LIQUID	PROCEDURE	OBSERVATION	CONCLUSION
A			
B			

After at least 30 minutes remove the visking tubing from the beaker and wash the outside of the tubing thoroughly to remove traces of liquid **Q2**.

- b) Using the same reagents, test the food substance in liquid Q1 in the visking tubing.  
Record your observations and conclusion in the table below. (2mks)

Liquid	Observation	Conclusion
Q1		

- c) (i) **Name** the physiological process being demonstrated by this experiment. (1mk)

.....

- ii) **Name two** parts of the human body where the process named in (c) (i) above takes place. (2mks)

.....

.....

- d) **Account** for the results obtained after carrying a second food test on liquid Q1. (2 mks)

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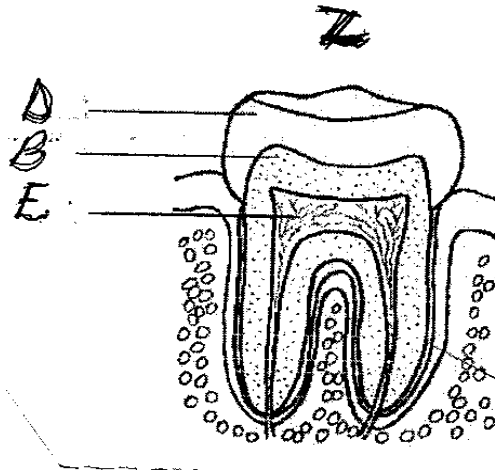
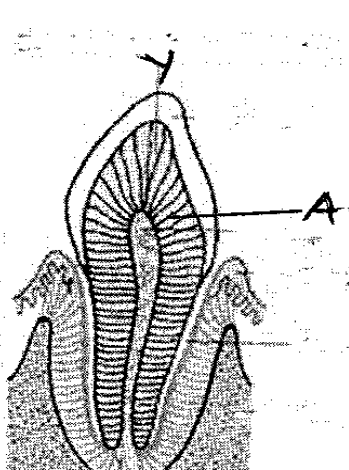
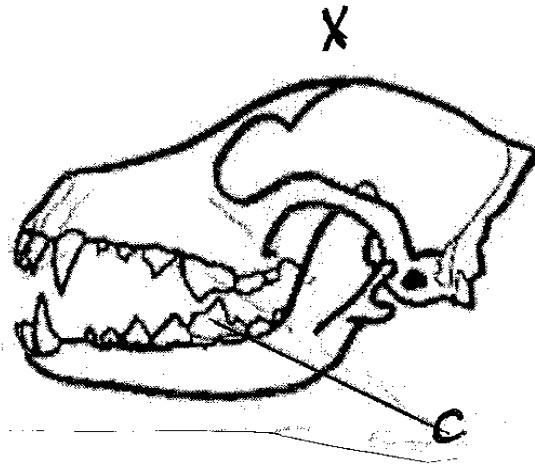
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- .....
- .....
2. You are provided with diagrams of specimens taken from a mammal. Study them carefully and answer the questions that follow.



- (a) Identify the diagrams labeled below. (3 marks)

X.....

Y.....

Z.....

(b) State the diet of the animal from which diagram x was taken and give a reason for your answer. (1 marks)

(i) Diet.....

(ii) Reason (2 marks)

.....

.....

.....

(c) Name the parts labeled (3 marks)

A.....

B .....

D.....

(d) How are the following structures adapted to their functions (2 marks)

D

.....

.....

C

.....

.....

(e) State the function of the parts labeled. (2 marks)

.....

.....

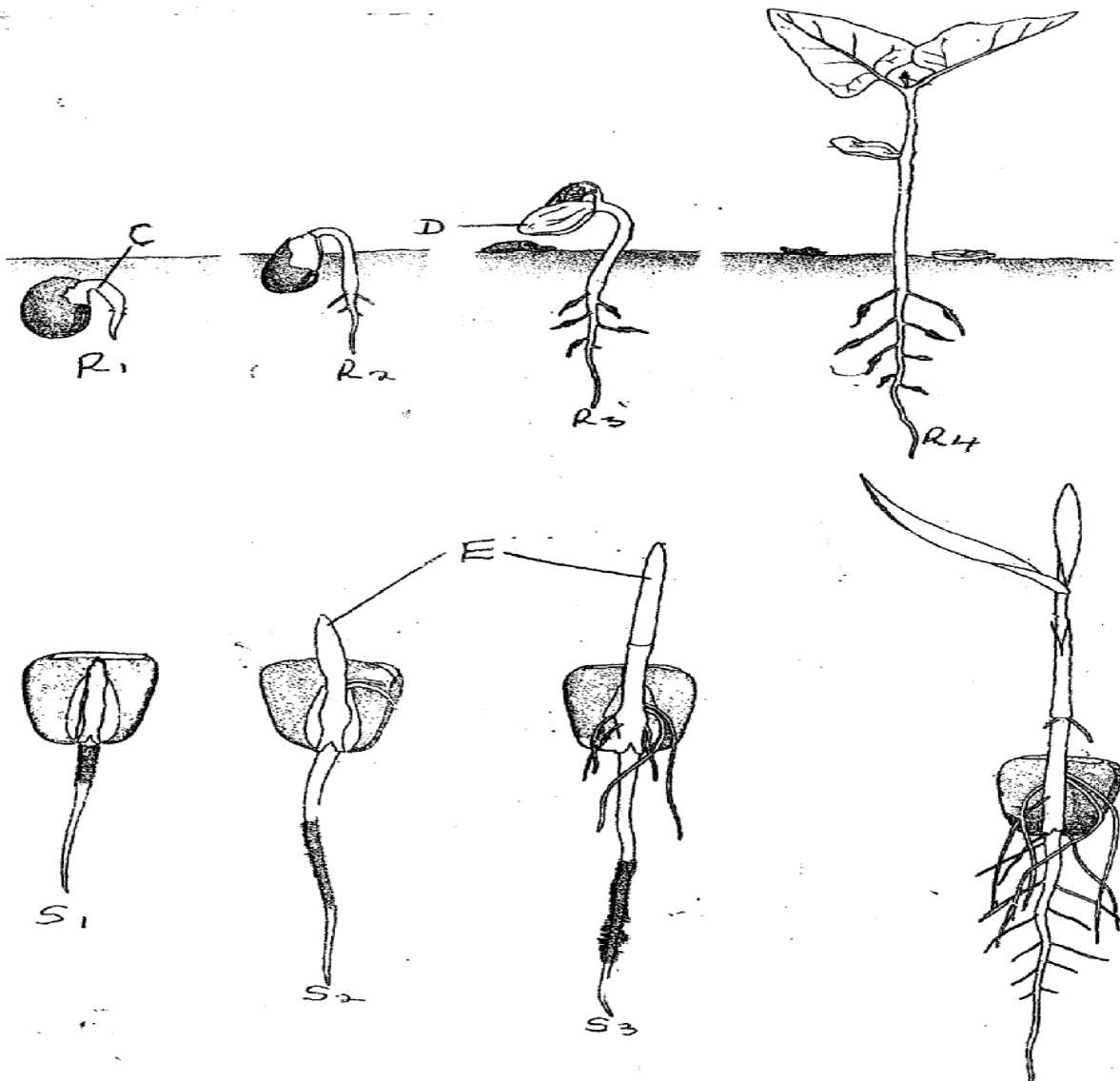
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- (f) State **one** structural difference between Y and Z (1 mark)

.....

3. Examine the seedling below and use them to answer the question that follow.

- a) Name the part labeled C,D, E and state their importance for the seedling.



C: ..... (1mk)

Importance ..... (1mk)

.....

.....

D. .... (1mk)

Importance (1mks)

.....

.....

.....

(ii) E..... (1mk)

Importance. (1mk)

.....

.....

(b) The R series of seedlings on the roots later in its life:

(i) What is the name of the swelling: (1mk)

.....

(ii) Name the organisms that would be found in the swellings (1mk)

.....

(iii) Explain the relationship that exists between the named organisms and the plant. (1mks)

.....

.....

(c) ( i) State the types of germination exhibited by R series of the seedlings. (1mk)

.....

.....

(ii) Give a reason for your answer in (c) (i) above. (1mk)

.....

.....

(d) State any two external factors necessary for germination. (2mks)