MARANDA HIGH SCHOOL

Kenya Certificate Of Secondary Education

THE 2024 MOCK EXAMINATION

231/3 **BIOLOGY** **PAPER 3**

June, 2024 **TIME: $1^{3}/_{4}$ Hrs**

Name: ..... Admission No:.....

Stream: ..... **Signature:** .....

MARKING GUIDE

231/3 - BIOLOGY
Monday, 3rd June, 2024
Afternoon
2.00-4.30pm

Instructions

(a) Write your ***name, admission number, date, stream and signature*** *in the spaces provided above.*

(b) All answers must be written in the spaces provided in the booklet.

(c) This paper consists of 8 printed pages with 3 questions. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing

(d) Candidate should answer the questions in ***English***

FOR EXAMINERS'USE ONLY

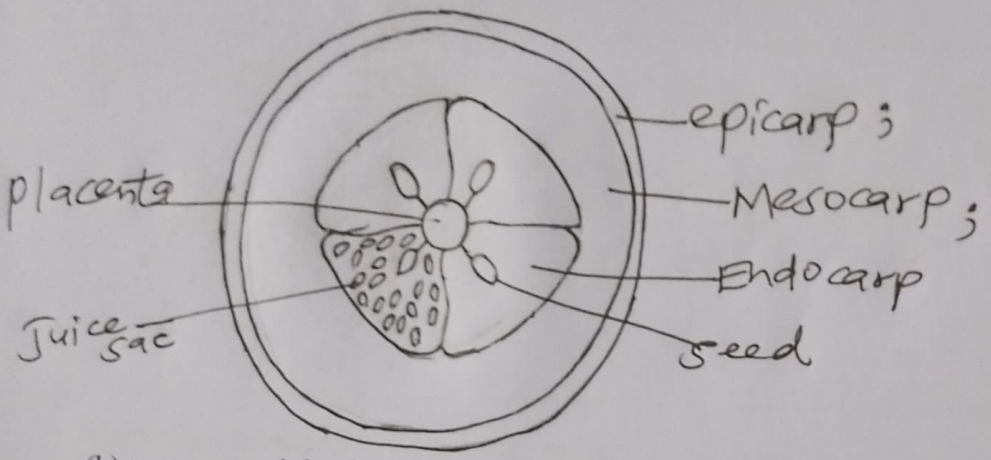
QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	20	
2	20	
3	20	
Total	40	

1.You are provided with specimen **Q**. Make a transverse section through **Q** to obtain two halves:

(a) (i) Carefully observe and make a drawing of one of the cut surface.

Label any **two** parts on the diagram. (3marks)

D(3mk)
L-2mks
M-(1mk)



(b) squeeze out juice from the two halves into a beaker . Sieve the juice to obtain solution **Q1**.Divide the solution into two equal amounts and transfer them into two separate test tubes and label them as solution **Q2** and Q3.Using the reagents provided ,carry out the food test to determine the foods available in solution **Q2**.fill in the table below. (6marks)

FOOD TESTED	PROCEDURE	OBSERVATION	CONCLUSION
Protein	-Put two ml of soln Q2 in a test tube. Add equal amount of NaOH soln. Add little amount of copper(II) sulphate and shake;	- Blue color of copper(II) sulphate persist/Retained;	-Proteins absent;
Non-Reducing sugar	- Put 2cm³ of soln Q2 in a test tube. Add 2 drops of HCl. and heat. Allow to cool. Add NaHCO₃ dropwise until fizzing stop; Add 2cm³ of Benedicts soln. Heat to boil;	-The blue color of Benedicts soln Changes from to green- Yellow to orange.	- Non-reducing sugar present;

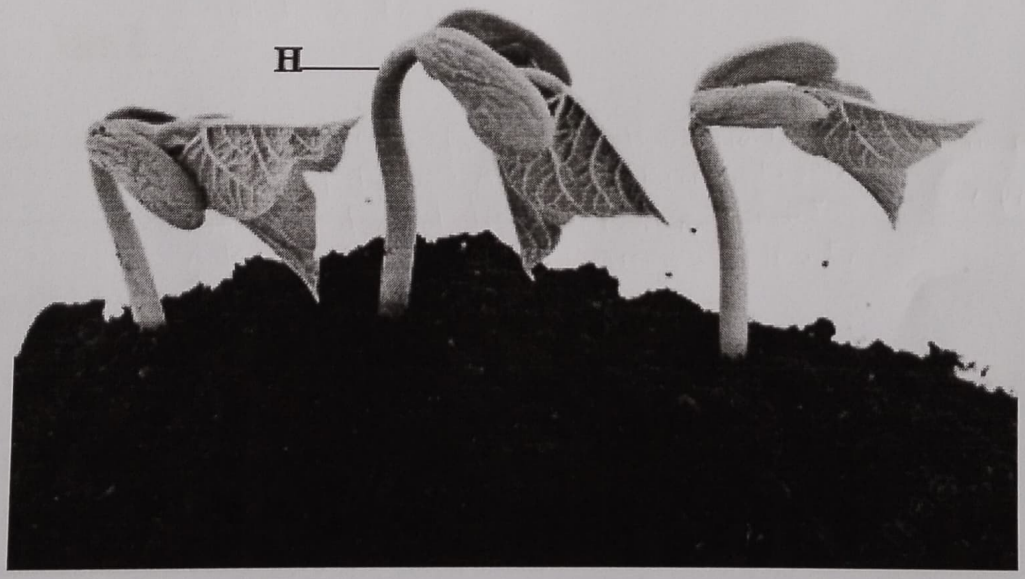
(c)(i) You are provided with a visking tubing 8cm long. Open and tie one end tightly with the thread. Half fill it with the solution **Q3** and tie the other end tightly with a piece of thread to avoid leakage. Rinse the visking tubing. Measure 10ml of distilled water and put in a boiling tube and immerse the visking tubing completely in it and leave it to stand for 15minutes.Using Benedict's solution only, carry out food test on the content of the boiling tube. (3 marks)

FOOD TESTED	PROCEDURE	OBSERVATION	CONCLUSION
Reducing sugar	Put 2cm³ of the Q3 solution in test tube; Add equal amount of benedict's Sln. Heat to boil	- Blue color of Benedict's Soln change to green-yellow to orange.	- Reducing sugar Present

(ii) Account for the observation made above. (2marks)

- Glucose moves from the visking tubing/Q3 into the boiling tube; by diffusion.; hence its presence

2. (a) Below is a photograph of a germinating seedling. Examine it.



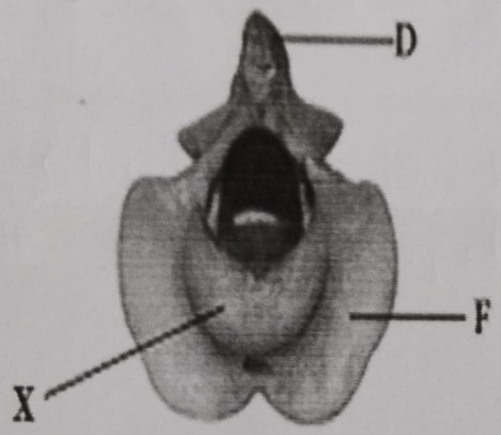
(i) identify the type of germination shown by the seedling above. (1mark)

- Epigeal; germination

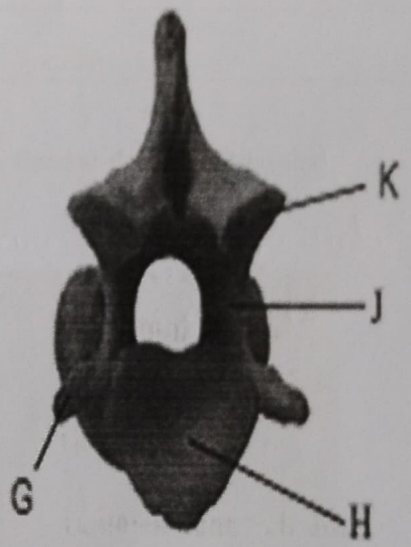
(ii) As germination progresses the part labelled **H** straightens. Explain how this occurs. (3marks)

-Sunlight causes auxins to diffuse from lit side to dark / lower side; Higher concentration of auxins on the lower side causes faster / rapid elongation of cells; leading to straightening of the shoot;

(b). The photographs below are of the same mammalian vertebra showing two views of the same bone. Examine them carefully.



View 1



View 2

(i) Identify the vertebra (1mark)

Axis;

(ii) Name the region of the body from which the bone was obtained (1mark)

Neck / Cervical;

(iii) Name part **X** (1mark)

Odontoid process;

(iv) State the function of part **X** (1mark)

Articulates with neural canal of axis hence allow for rotation movement of the head;

(v) Name the bone that articulate with the vertebra shown in the photograph above at:

Proximal end (1 mark)

Atlas;

Distal end (1 mark)

Typical / Normal Cervical Vertebrae.

(c)State the functional difference between a tendon and a ligament (1 mark)

Ligament - Hold bone to bone.
Tendon - Hold bone to muscle

(d) Below are photographs of specimens obtained from plants. Examine the photographs.

A

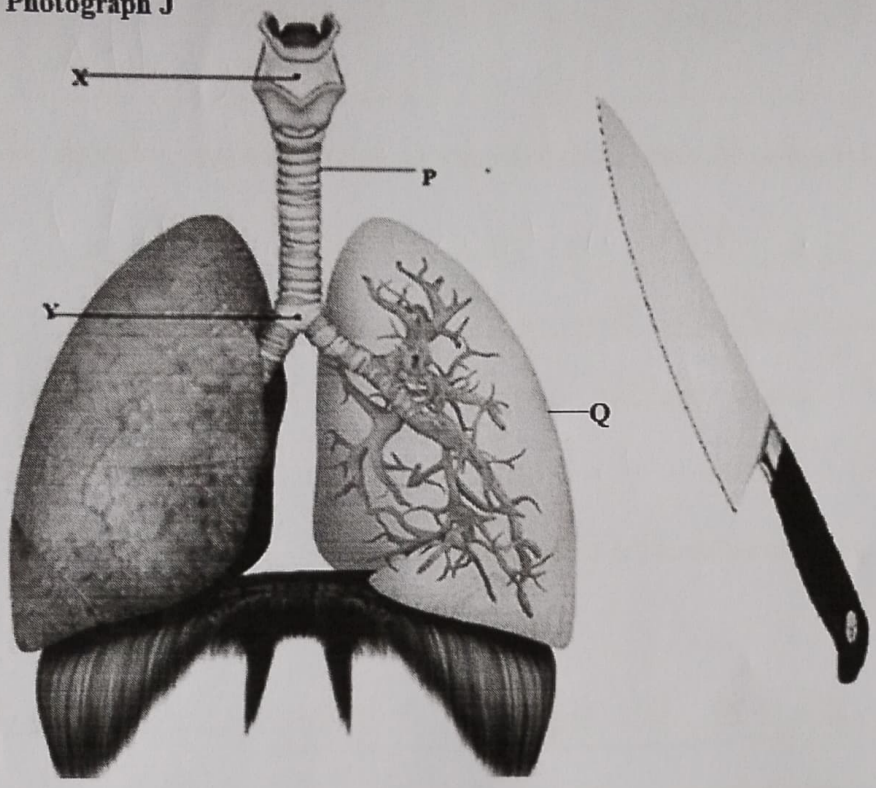
B

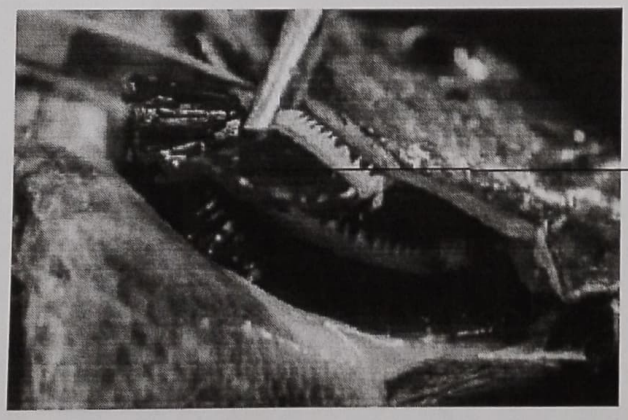
In the table below name the mode of dispersal and one feature that adapt each specimen to that mode of dispersal. (4marks)

SPECIMEN	MODE OF DISPERSAL	ADAPTIVE FEATURE
A	Wind.	Parachute / hairs / hair like projection;
B	Self dispersal / Explosive mechanism	- Sutures / lines of weakness;

2. Examine photographs **J** and **K** and answer the question that follows.

Photograph J





Photograph K

(a) Identify the organ Q in photograph J and the organ in photograph K and state the class of organisms from which each were obtained. (4mrks)

Organ	Identity	Organism class
Q	Left lung;	Mammalia;
K	Gill	Pisces.

(b) State the common functions performed by the organs shown in the photographs. (1mrk)

Gaseous exchange / External Respiration.

(c) List any ~~three~~ two adaptations that are common to organ **Q** and the organ in photograph **K**. (2 ~~3~~ marks)

- Large S.A for faster rate of diffusion;
- Highly vascularized to transport diffusing gases;
- Thin epithelium to reduce diffusion distance.

(d) (i) If the actual length of the knife shown in the photograph **J** is 28cm.Calculate the magnification of the photograph. (2marks)

Magnification = $\frac{\text{length of image of knife}}{\text{Actual length of the knife}}$

$= \frac{10\text{ cm}}{28\text{ cm}} = \times 0.357.$

(ii) Calculate the actual distance between line **X** and **Y** on photograph **J**. (2marks)

$\frac{\text{length between X and Y on image}}{\text{Magnification.}}$

$= \frac{2.4\text{ cm}}{0.357} = 6.6722\text{ cm}.$

(e) Name the part labeled **P** in photograph **J**. (1mark)

Trachea.