MARKING SCHEME

SULIMO JET-2025

Kenya Certificate of Secondary Education
231/3
BIOLOGY
Paper 3
JULY 2025
TIME: 1hr45 minutes

INSTRUCTIONS TO CANDIDATES

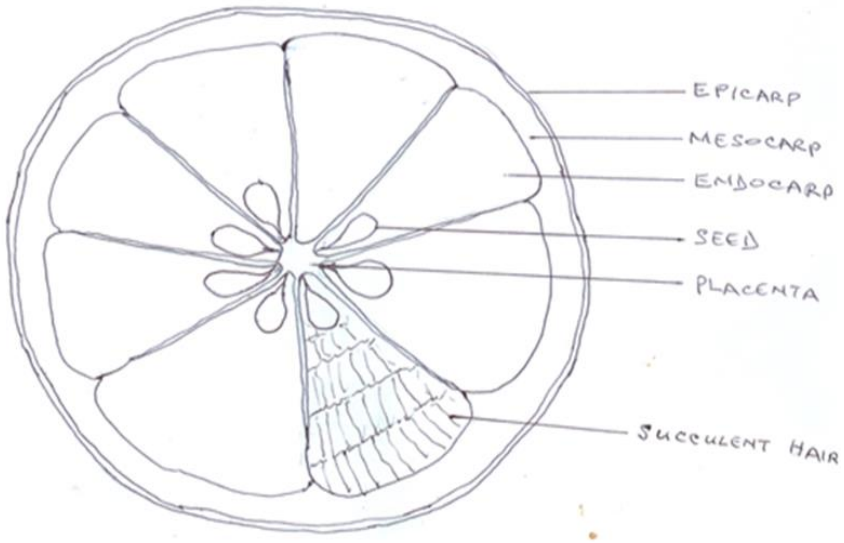
- ***Write your name, Admission number and name of your school in the spaces provided above***
- ***This paper consists of three questions***
- ***Answer all the questions in the spaces provided.***
- ***You are required to spend the first 15 minutes of the $1^{3}/_{4}$ Hours allowed for this paper reading through all the questions before commencing your work.***
- ***Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.***

For Examiners Use Only

Question	Maximum score	Candidate's score
1	14	
2	14	
3	12	
Total Score	40	

1. (I). You are provided with a specimen labelled **Q** (Citrus fruit).

1) a) Using a scapel cut a transverse section of the specimen **Q** and retain the other half-portion for part (II) below. Draw and label the exposed surface of the section (3marks)



Drawing with juicy sacs at least in a loculi 1mark;
Labels accept any 2 ;

b) What type of fruit is specimen **G**ive a reason (2 marks)

Berry /hesperidium;
The epicarp and mesocarp are fused together to form a rind which can be separated from the endocarp; fleshy endocarp
Endocarp forms the chambers in which seeds are embedded with juicy hairy loculi; juicy endocarp;

c)Name the type of placentation exhibited in specimen **Q** (1 mark)
central /axile;

(II). You provided with Liquid L

a) Put about 3ml of liquid L in a clean test tube
Add equal amount of Benedict's solution and heat to boil
Record your observations and conclusions in the table below (2marks)

Observation	*Conclusion*
Blue colour persists;	***Reducing sugar absent;***

b) Using the other portion of specimen *Q* squeeze the juice and sieve it into an empty beaker. Tie one end of a visking tube tightly and pour the sieved juice from the open end then tie to avoid any leakage .Rinse with running water then immerse the visking in liquid L in the beaker and a lot it to stand for 30 minutes .

Using the reagents provided carry out food test on the contents in Liquid L (3 marks)

Food substance	Procedure	Observation	Conclusion
Reducing sugar	***Put 2ml of juice into a test tube*** ***Add equal amounts of Benedict's solution*** ***Heat to boil ;***	***Orange colour;***	***Reducing sugar present;***

c) Account for the conclusion made during the experiment (2marks)

Reducing sugar is present in the beaker because its molecules are smaller; therefore diffuses across the tiny pores of the visking tubing into the beaker;

d) What physiological process was being investigated (1mark)

Diffusion;

2. You are provided with bones **E,F** and **G**.Examine them carefully and answer the questions that follow

I. Identify the bones **E, F a**nd **G.** (3 marks)

E ***Scapula;***
G ***Humerus***;
F ***Lumbar vertebra;***

II. State the adaptations of the bone labelled **E** (2marks)

- ✓ ***glenoid cavity -Depression/socket which articulates with the humerus forming, the shoulder joint/hinge joint;***
- ✓ ***A projected spine increases surface area for attachment of back muscle;***
- ✓ ***The acromion, coracoid process, offer attachment points for specific muscles and ligaments; further enhancing the scapula's role in shoulder movement and stability***;
- ✓ ***Triangular blade increases surface area for attachment of back muscle;***

III. Identify the joint formed between bone E and F (1marks)

Ball and socket joint;

B). Study the photograph bellow and answer the questions that follows.

(a) . Name the class to which the organism represent. (1mark)

Pisces;

(b) . Give **two** reasons to support your answer in (a) above. (2marks)

Fins present;
Body covered with scales;
Operculum present;

(c). Identify the structures that;

(i). Reduces friction. (2marks)

Scales overlapping backwards:
Streamline body:

(ii). Control pitching (2marks)

Pelvic and pectoral fins:

(iii). Detect minute vibrations in water. (1mark)

Lateral line:

2. The photographs below represent the specimen labeled M, N and P.

M

N

i). Name With a reason the phylum and class to which specimen **M, N** and **P.** represent.
Phylum. (1mark)
Arthropoda;

Reason. (1mark)
Segmented body parts; jointed walking legs ;
Class (1mark)
Insecta;
Reasons. (2marks)
Three body parts- Head/thorax and abdomen;
A pair of antennae;
Three pairs of legs;

ii) State **two** observable differences between specimen **N** and **P** (2marks)

P	**N**
No spikes on legs;	***Spikes on legs;***
Hind legs not muscular;	***Hind legs muscular;***
One pair of wings;	***Two pairs of wings;***
Piercing and sucking mouth part;	***Biting and chewing mouth part;***

iii). Name the mode of feeding exhibited by specimen **M** giving a reason. (2marks)

Mode of feeding.

Carnivorous;

Reason

Strong legs to jump to catch the prey;
Strong fore legs to grasp their prey;
Green in coloration to camouflage the prey;

vi) Identify the openings on the abdominal parts of specimen **N** and state how they are adapted to perform their function. (3marks).
Spiracle;

- ✓ ***Valves present which are controlled by muscles, that can open and close to allow insects to regulate the amount of air entering the tracheal system; conserving water***
- ✓ ***Hairs present to prevent excessive loss of water from the body tissues by evaporation;***