



MARANDA HIGH SCHOOL
Kenya Certificate of Secondary Education
POSTMOCK EXAMINATIONS 2021

CODE: 231/3

BIOLOGY

January 2021 – TIME: 1³/₄ Hours

Name: Adm No:

Class: Candidate's Signature: Date: 25/1/2021.

INSTRUCTIONS TO CANDIDATES

- Answer **all** the questions.
- Answers **must** be written in the spaces provided in the question paper.
- Additional pages **must not** be inserted.
- You are required to spend the first 15 minutes of the 1 ³/₄ hours allowed for this paper reading the whole paper before commencing your work.

FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	14	
2	18	
3	8	
TOTAL	40	

1. (a) You are provided with solutions labeled Q and S and a powder labeled P together with a filter paper. Using the reagents provided test for the presence of food substances in powder P. Record your work in the table below. (12 marks)

Food tested	Procedure	Observation	Conclusion
Starch ;	Put 2ml of soln P in a test-tube Add ¹⁻²⁻³ 3 drops of Iodine / Q solution ;	brown color of Iodine to blue-black ;	Starch present ;
Reducing Sugars ;	Put 2ml of soln P in a test-tube and add equal amounts of Benedict's solution. Heat to boil ;	Blue colour of Benedict's soln changes to green - yellow - Orange ;	Reducing Sugars present ;
Lipids ; Acc. fat/oils ;	Rub P on the filter paper / or Place a drop of soln P on a filter paper, dry over a flame, observe the filter paper against light ;	~~the filter paper~~ dries off No translucent mark / spot seen ;	lipids absent

- Iodine
Benedict's

- glucose + beans +
flour

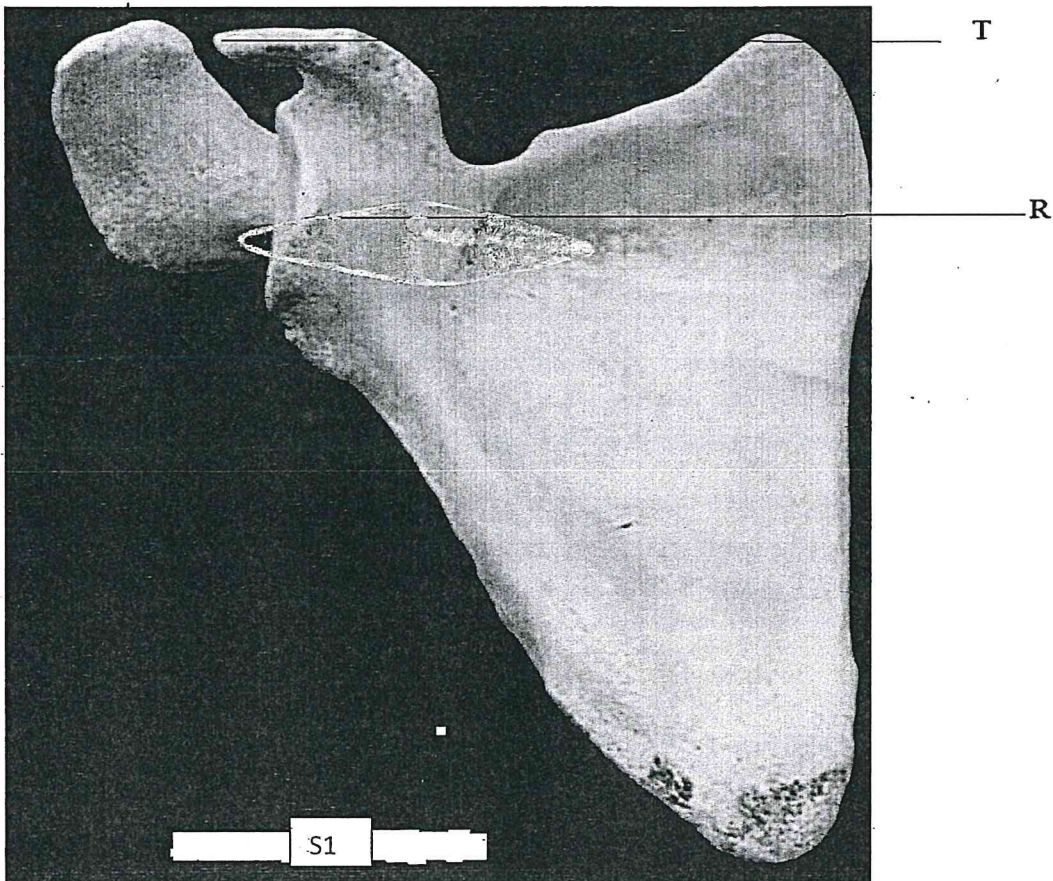
(b) State two enzymes required to digest powder P in the alimentary canal in human beings.

(2 marks)

hard to observe

Salivary amylase / ptyalin; Lactase;
Maltase;

2. Photographs S1, S2 and S3 represent specimens obtained from the same animal while photograph S4 represents structure on a part of a plant. Examine them and use them to answer the following questions.



(a) i) Identify specimen S1

(1 marks)

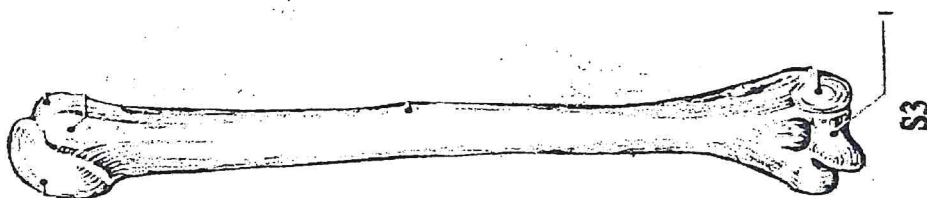
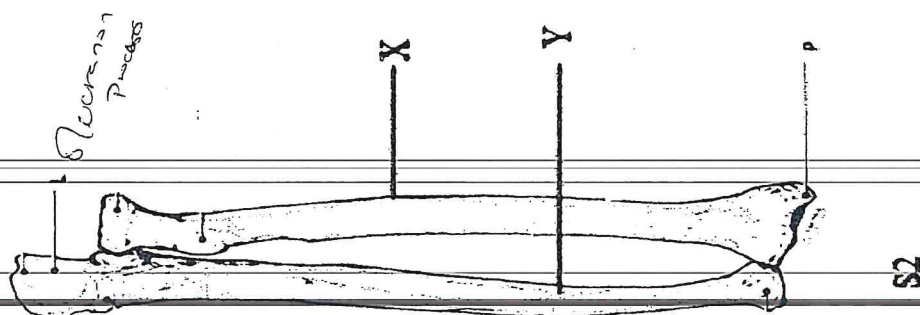
S1. Scapula;

ii) Name the structures labeled T and R on the photograph

(2marks)

T. Coracoid Process

R. Glensoid cavity



b) i) Identify bones labeled X, Y and S3

(3 marks)

X. Radius

Y. Ulna

S3. Humerus

ii) Identify the part labeled I

(1 mark)

I. trochlea;

iii) What is the significance of the structure labeled L on the photograph S2

(2 marks)

Prevents overstretching of the fore arm (at the elbow);
Attachment of muscles;

iv) With reasons name the type of joint formed at the proximal and distal ends of the specimen

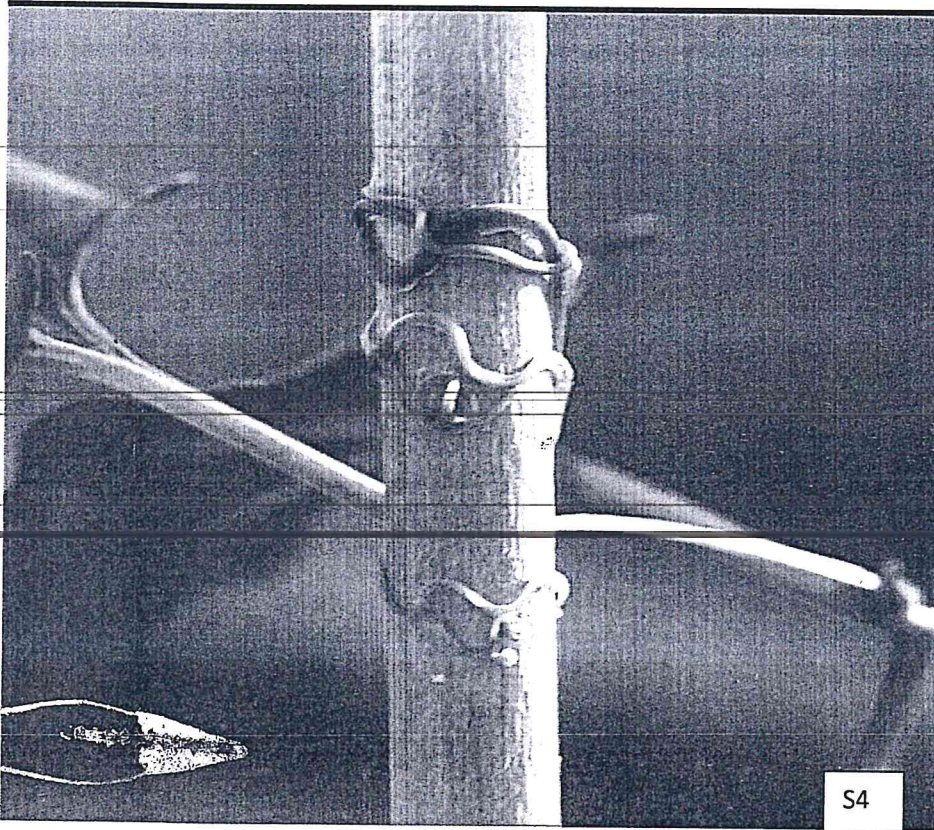
S3.

Proximal end. Ball & socket (1 mark)

Reason. rounded end / head shaped like a ball (1 mark)

Distal end. Hinge joint; (1 mark)

Reason. presence of a groove; (1 mark)
(trochlea)



(c) i) Name the type of response shown by plant S4

(1 Mark)

Thigmotropism / Haptotropism;

ii) Explain how the response occurred

(2 marks)

the tendrils came into contact with the hard object;

(the contact caused them to curve & coil around the hard object)
the part in contact has a lower auxin conc. than the outer part.
causing auxins to migrate to the side away from contact
hence faster elongation;

iii) Identify strengthening tissues in woody plants

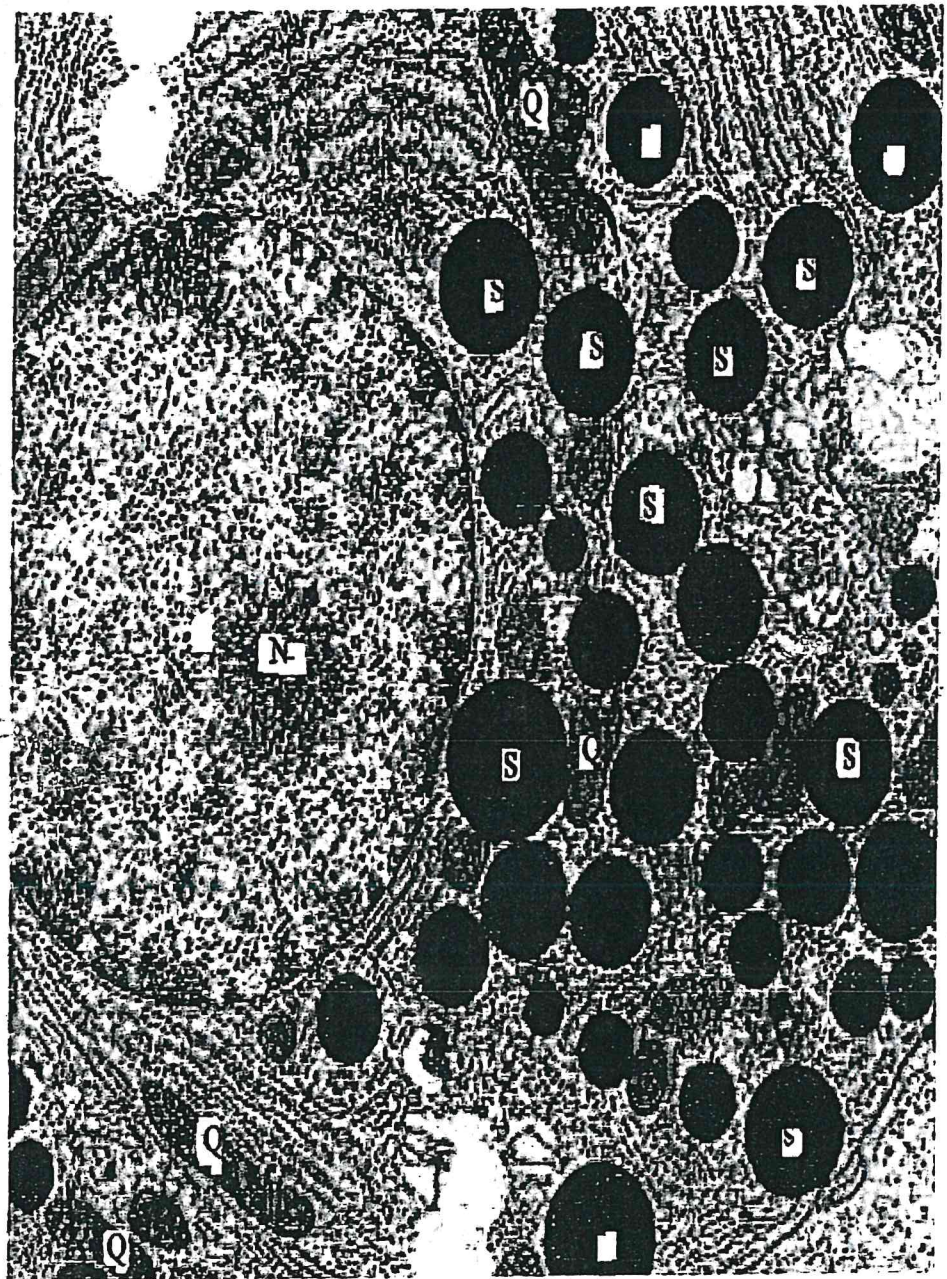
(2 marks)

Sclerenchyma;

Collenchyma;

Xylem tissue;

3. Below is a photomicrograph of a cell. Observe it and use it to answer the questions that follow. .



a) i) Identify the type of cell

(1 mark)

Animal cell

Plant cell

ii) give reasons for your answer in a) i) above

(1 mark)

presence of numerous secretory vesicles
Prominent nucleus.

presence of starch granules

iii) Identify the organelle labeled N and Q and state the functions of each in the table (4 marks)

Organelle	Name	Function
N Nucleus	Nucleus / Nucleolus	Contains genetic material / chromatin; Controls all cell activities; Secretion of ribosomes
Q Mitochondrion	Mitochondrion	

b) Account for the number of organelle Q that would be found in a sperm cells (2 marks)

Numerous to provide more energy for propulsion of the sperm towards the ovum/egg.