Teacher.co.ke

Name: ……Index No…….

Candidate's Signature…….

Date: ……..

231/3
BIOLOGY
Paper 3
(PRACTICAL)
1 ¾ Hours

Instructions to candidates

- Write your name and index number in the spaces provided above.
- Sign and write the date of the examination in the spaces provided above
- Answer ALL the three questions in the spaces provided
- Spend the first 15 min of the 1hr 45 min to read through the paper carefully before commencing your work.
- Additional pages must NOT be inserted
- This paper consists of 5 printed pages
- Candidates should check the question paper to ensure that all the pages are printed as indicated and no question is missing.

FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	12	
2	18	
3	10	
TOTAL	40	

1.

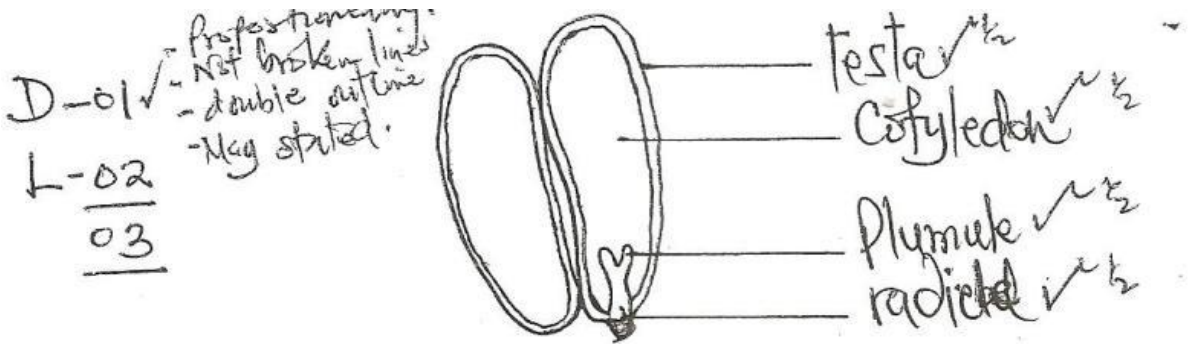
Download this and other FREE materials from https://teacher.co.ke/notes

For more FREE KCSE Mocks, Notes, Exams, and Past Papers Visit https://Teacher.co.ke/notes/

Teacher.co.ke

You are provided with a specimen labeled R which is a plant organ.

(a) Carefully break it open along its length to expose inner parts hence draw a well labeled diagram of specimen R showing at least four parts. (3 marks)



(b) Crush the already broken specimen R into fine powder, put into a test tube and add 6ml of water to make solution R. Using the provided reagents carry out tests to identify the food substances present in solution R. (9 marks)

TEST FOR	PROCEDURE	OBSERVATION	CONCLUSION
Starch	Put $2cm^3$ of solution in a test tube, add drops of iodine solution (E) equal amount	Blue-black colour change observed; refer blue black	Starch present
Reducing sugars	Put $2cm^3$ of solution R in a test-tube, add equal amount of Benedicts solution and boil	Blud colour persists	Reducing sugars absent
Proteins	Put $2cm^3$ of solution R in a test-tube, add equal amount of sodium hydroxide and shake, then add drops of CuSo4, 3 drops	Violet. Purde colour change obsrved	Proteins present

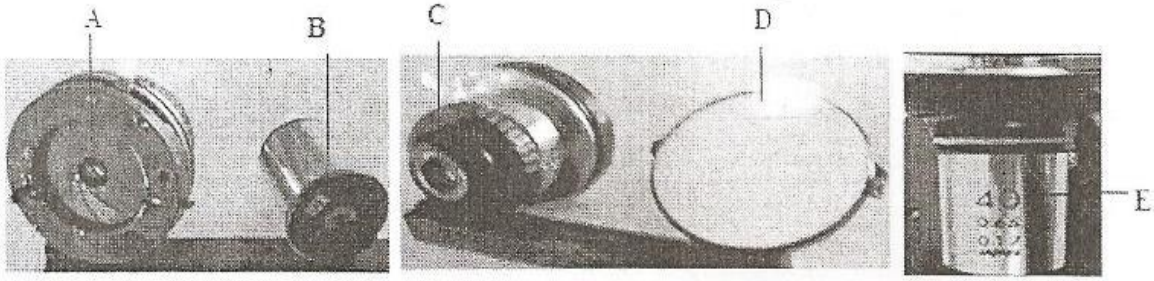
Download this and other FREE materials from https://teacher.co.ke/notes

For more FREE KCSE Mocks, Notes, Exams, and Past Papers Visit https://Teacher.co.ke/notes/

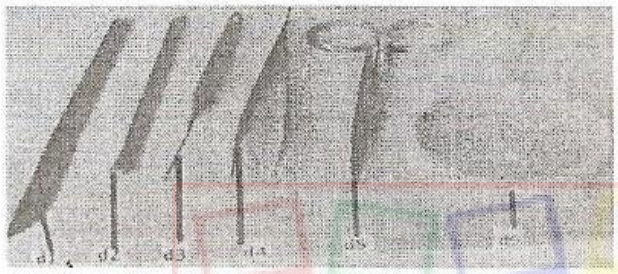
Teacher.co.ke

2. The photograph P1 below illustrates some components of a light microscope while P2 show some instruments used for dissection in a biology laboratory. Study them carefully and answer the questions that follow.

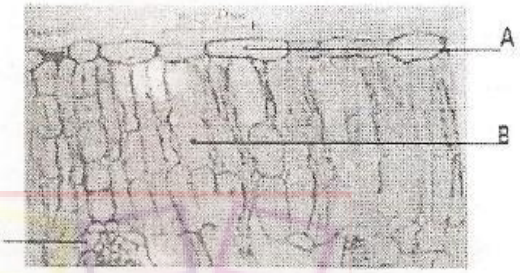
Photograph P1



Photograph P2



Photograph P3



a) Identify the parts of the microscope labeled A, B, C, D and E and in each case state its function. (5 marks)

Part	Identity	Function
A	Diaphragm	Control the amount of light illuminating the seamen
B	Eye piece	Holds eye piece lens (used for magnification)
C	Condenser	concentrates and directs light onto the specimen on stage
D	Mirror	Reflects light to illuminate specimen
E	Objective lens	Contributes to the total magnification of the specimen

b) I) Name the instruments labeled d1, d2, and d3 (3 marks)

d1 *Knife; acc dissection knife*
d2 *Probe*
d3 *Mounted needle; ref mounting needle*

Download this and other FREE materials from https://teacher.co.ke/notes

For more FREE KCSE Mocks, Notes, Exams, and Past Papers Visit https://Teacher.co.ke/notes/

Teacher.co.ke

ii) State the role of d4, d5 and d6 during dissection (3 marks)

d4 *Holding/lifting structures*
d5 *Cutting*
d6 *For magnification/enlarging images of specimen*

c) Photograph P3 shows the internal structures of a dicotyledonous leaf.

i) Name the parts labeled A and E. (2 marks)

A *Epidermal cell*

E *Vascular bundle*

ii) State two adaptations of cells B to their function. (2 marks)

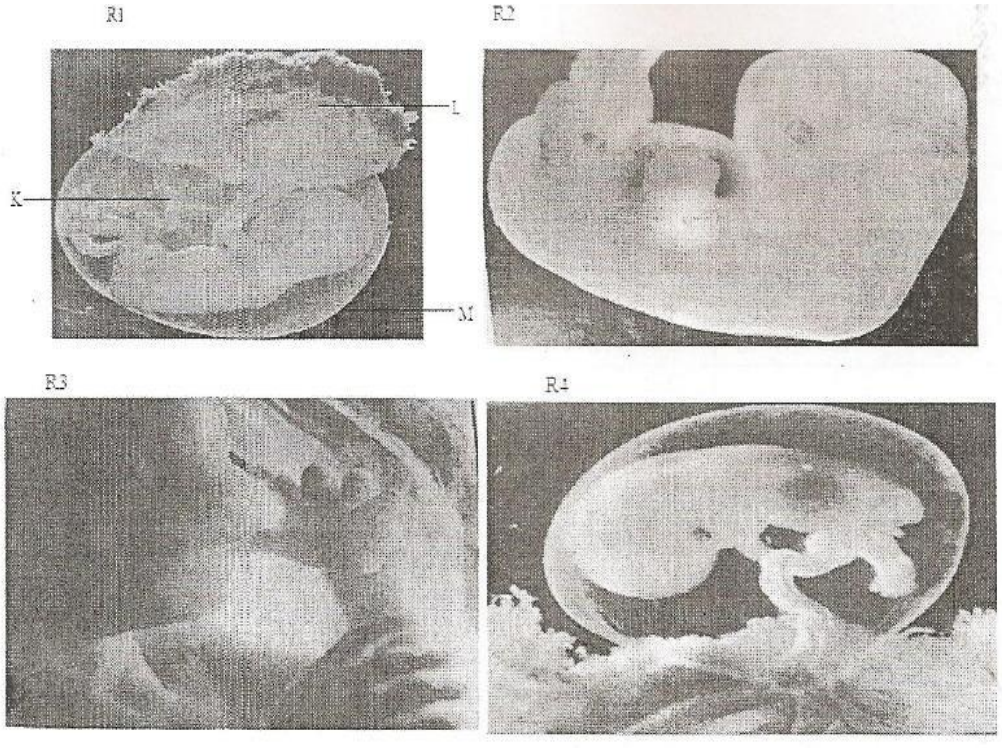
- *Contain numerous chloroplasts to maximize on photosynthesis; energy for photosynthesis*
- *Regular in shape thus allow many to be packed closely thereby increasing surface area for trapping light energy*
- *Located closer to the upper epidermis to trap maximum light*

iii) If the total magnification of the micrograph is X25'000, calculate the actual length of the vertical cross-section of the leaf. (3 marks)

Length of V/cross section
= (30mm x 50mm) = 115.38um
13mm

Actual = 115.38
Length 25000
= 0.004612mm

3. Photographs R1, R2, R3 and R4 show fetuses at different stages of development after implantation in a human being. Use them to answer the questions that follow.



Download this and other FREE materials from https://teacher.co.ke/notes

For more FREE KCSE Mocks, Notes, Exams, and Past Papers Visit https://Teacher.co.ke/notes/

Teacher.co.ke

a) Arrange the stages of development beginning with the latest. (1 mark)

R_3 R_1 R_4 R_2

b) Name the parts labeled K, L and M in photograph R1. (3 marks)

K *Umbilical cord*
L *Placenta*
M *Amnion*

c) Name:

i) The blood vessels present in the part labeled K. (2 marks)

Umbilical vein

Umbilical artery

ii) The tissue that form the part labeled L. (3 marks)

Chorionic villi

Endometrium

Allantois

d) State one role played by the fluid enclosed by part M. (1 mark)

- *Absorbs shock thereby protecting the foetus from mechanical damage*
- *Suspends the foetus hence providing it with support*
- *Regulates temp while foetus is within the womb*

Download this and other FREE materials from https://teacher.co.ke/notes

For more FREE KCSE Mocks, Notes, Exams, and Past Papers Visit https://Teacher.co.ke/notes/