

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

231/3
BIOLOGY PRACTICAL
FORM 4
PAPER 3
TIME 1 ¾ HOURS

Instructions to Candidates

- Write your name and index number in the spaces provided at the top of this page.
- Answer **all** questions.
- You are required to spend the first 15 minutes of the 1 ¾ hours allowed for this paper reading the whole paper carefully before commencing your work.
- Answers must be written in the spaces provided in the question paper. Additional pages must not be inserted.
- Candidate may be penalized for recording irrelevant information and for incorrect spelling especially of technical terms

For Examiners Use Only

Question	Maximum Score	Candidate's Score
1	6	
2	18	
3	16	
Total score	40	

This paper consists of 6 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.

1. The photographs below represent twigs from various plant species. Study them and answer the questions that follow



P



Q



R



S



T



U



V



W



X

a) Complete the dichotomous key below using observable features

- 1(a) Twigs with simple leavesgo to 2
- (b) Twigs with compound leaves.....go to 5
- 2(a) Leaves with parallel venation.....go to 3
- (b) Leaves with network venationgo to 4
- 3(a) Purple leaves.....Tradescantia
- (b) Green leaves.....Kikuyu grass
- 4(a) Leaves with opposite arrangement.....Verbenaceae
- (b)Leaves with alternate arrangementHibiscus
- 5(a) Leaves trifoliate.....go to 6
- (b).....go to 7
- 6(a) Leaves with serrated margin.....*Bidensbilosa*
- (b) Leaves with lobed margin.....Oxalis
- 7(a) Pinnate leaves.....go to 8
- (b).....Acacia
- 8(a) Leaflets with rounded apex.....Papilionaceae
- (b) Leaflets with pointed apex.....Rose

(2marks)

b) Using the completed dichotomous key, identify the twigs and show the steps followed(4marks)

Identity	steps followed
P
Q
T
U

2. You are provided with specimen labeled **E**, examine specimen **E**

a) Giving reasons, identify the type of the fruit? (2marks)

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b) Cut a transverse section through **specimen E**, make a well labeled diagram (4marks)

c) State the type of placentation of **E** (1mark)

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d) i) Name the agent of dispersal for **E** (1mark)

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.....

ii) State how **E** is adapted to its mode of dispersal (2marks)

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e) Squeeze out the juice from **specimen E** into test tubes and fill in the table below (6marks)

Food test	Procedure	Observation	Conclusion
Ascorbic acid			
Reducing sugars			
Protein			

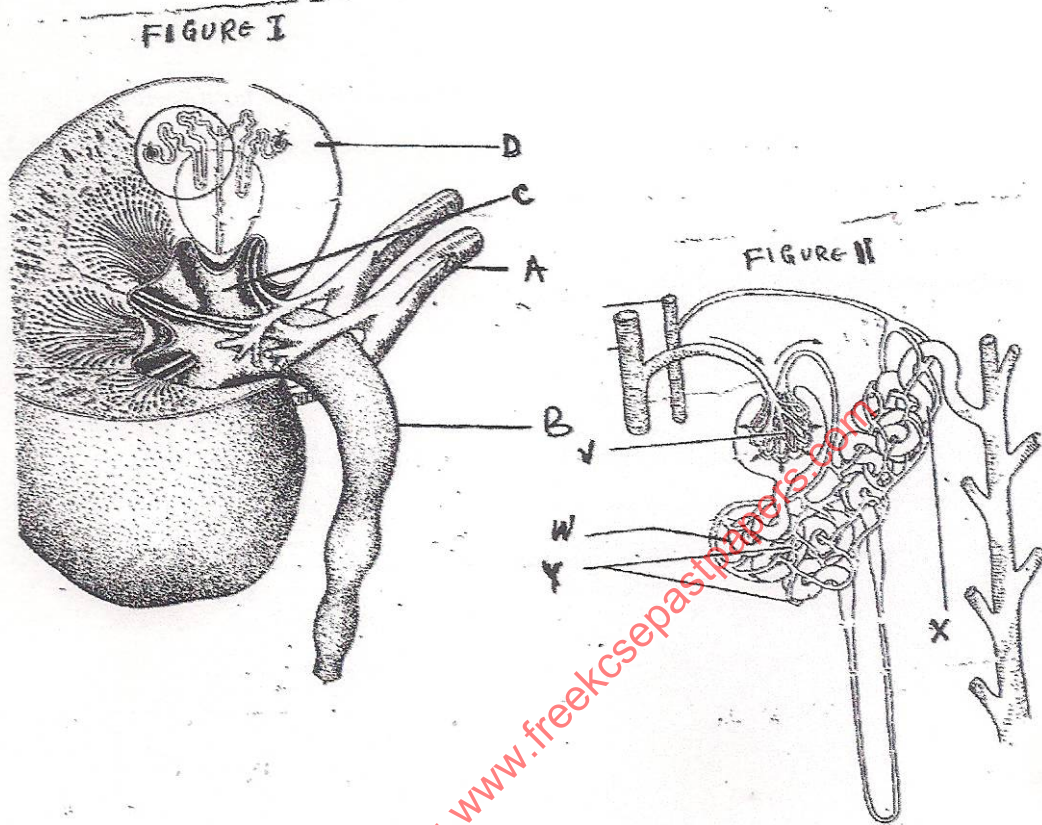
f) i) Suggest the expected result if the juice of **E** was boiled for 10 minutes, cooled then **DCPIP** Solution added drop by drop (1mark)

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ii) Explain your answer in f(i) above (1mark)

.....

3. Study the kidney diagrams below



a) i) Name the parts labeled **A**, **B**, **C** and **D** in figure 1 (4marks)

A.....

B.....

C.....

D.....

ii) Name the processes that take place in the parts labeled (2marks)

V.....

X.....

b) State three adaptations of the part labeled **W** (3marks)

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c) On the diagram name the part where counter current flow occurs (1mark)

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d) State two homeostatic functions of the diagram above (2marks)

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e) Explain what will happen to the process of urine formation in absence of vasopressin hormone. (4marks)

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