Name ..... **Index Number** ..... / .....

Candidate's Signature .....

Date .....

231/3
BIOLOGY
PAPER 3 (PRACTICAL)
JULY/ AUGUST 2013
TIME: 1 3/4 HOURS

KIKUYU DISTRICT INTERSCHOOLS EVALUATION

KENYA CERTIFICATE OF SECONDARY EDUCATION

231/3
BIOLOGY
PAPER 3 (PRACTICAL)

Instructions to candidates

1. Answer all questions in the spaces provided.
2. You are required to spend the first 15 minutes of the 1 3/4 hours reading the whole paper carefully before commencing your work.
3. Additional papers should **not** be inserted.

For Examiner's use only

Question	Maximum Score	Candidate's Score
1	14	
2	13	
3	13	
Total Score	**40**	

1. You are provided with specimens A, B and C. Cut specimen A into pieces and crush it in a mortar with a pestle. Measure 4cm^3 of distilled water and add it into the crushed pulp. Pour the crushed pulp into a sieve and filter it into a beaker labeled **X** by gently squeezing it. Repeat the procedure with specimens B and C, putting the filtrates in beakers labeled **Y** and **Z**, dilute the filtrate by adding 3cm^3 of distilled water into the beakers.

Label three test tubes of D, E and F. into each test-tube and add exactly 2cm^3 of DCPIP solution. Suck into a teat (dropper) pipette filtrate from specimen A. Add from the teat pipette the filtrate to the contents of test-tube D drop by drop, stirrimg gently after each drop until the blue colour of the dye just disappears. Count the number of drops added to make the colour of the contents in D equal to that in the teat pipette. Record the number of drops in the table below.

Repeat the above using filtrate from A from the teat pipette and test tube E. Finally suck the filtrate from C into tube F, in each case, record the number of drops used to match the colour of tube content and the content of the teat pipette.

To another test tube, add 2cm^3 of DCPIP, suck into the teat pipette 0.1% ascorbic acid solution. Add to the test tube ascorbic acid drop by drop. stirring gently after each drop. Count the number of drops used so that the colour of the test tube content matches the colour of ascorbic acid solution in the teat pipette.

a) Record your results in the table below. (12 marks)

Specimen	No. of drops	Calculation	Relative amounts of vitamin c
A			
B			
C			
0.1% Ascorbic acid solution			

b) Give the deficiency symptoms if somebody lacks the vitamin tested above. (2 marks)

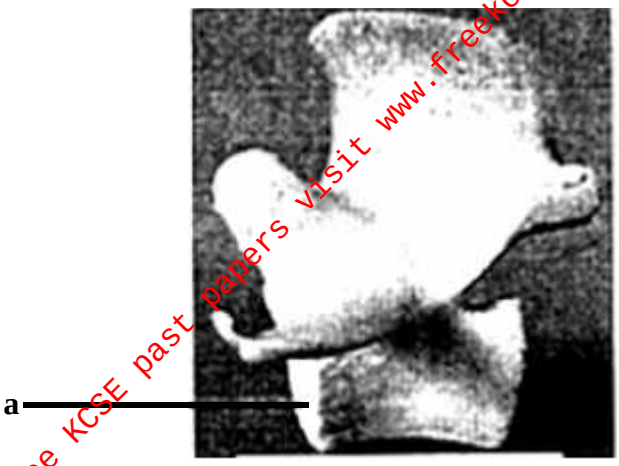
.....

.....

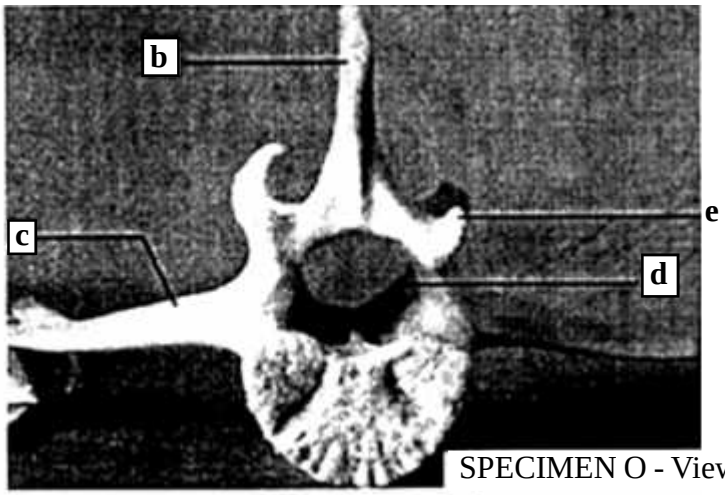
.....

.....

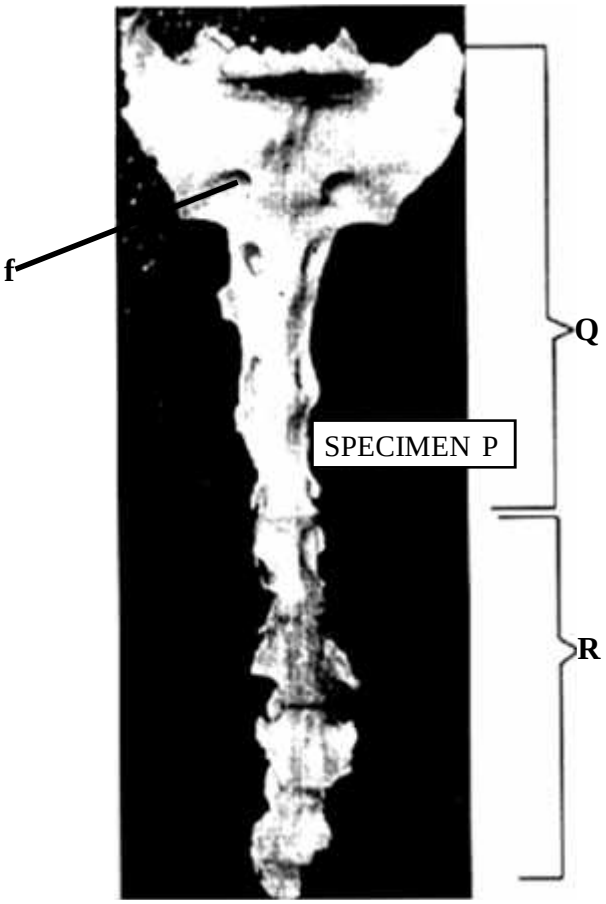
2. The photographs below represent some skeletal materials of unnamed mammal obtained from an excavated shallow grave. Use it to answer the questions that follow.



SPECIMEN O - View 1



SPECIMEN O - View 2



a) Identify

(i) Vertebrae labeled O (1 mark)

.....

.....

(ii) Structure Q (1 mark)

.....

.....

(iii) Structure R (1 mark)

.....

.....

b) Explain how structure Q name in a) (i) above is adapted to its functions. (2 marks)

.....

.....

.....

.....

c) From which part of mammalian body is O obtained. (1 mark)

.....

.....

d) Name the two views from which the photographs O have been taken from.

(i) View 1 (1 mark)

.....

.....

(ii) View 2 (1 mark)

.....

.....

e) Name the labeled parts indicated below. (3 marks)

a .....

b .....

e .....

f) Give the function of part b, c and f.

b and c (1 mark)

.....

.....

f (1 mark)

.....

.....

3. Examine the drawings of the leaves and the dichotomous key chown below.

1. (a) Leaf simple ..... go to 2
   (b) Leaf compound ..... go to 5

2. (a) Leaf parallel reined ..... Commelinaceae
   (b) Leaf _____ ..... go to 3

3. (a) Leaf margin smooth ..... go to 4
   (b) Leaf margin _____ ..... verbenaceae

4. (a) Leaf apex smooth ..... Nyctaginaceae
   (b) Leaf apex emarginated ..... Fabaceae

5. (a) Compound leaf palmate ..... malvaceae
   (b) Compound leaf _____ ..... go to 6

6. (a) Compound leaf _____ ..... Bignoniaceae
   (b) Compound leaf unipinnate ..... go to 7

7. (a) Leaf with terminal leaflet ..... Rosaceae
   (b) Leaf without terminal leaflet ..... papillionaceae

a) Complete the key shown above. (4 marks)

b) Using the key, identify each of the leaves A - H into their respective families in the table below.

Leaf	Steps followed	Identity
A		
B		
C		
D		
E		
F		
G		
H		

(8 marks)

c) To which class does leaf B belong? (1 mark)

.....

.....