` **Name:** …… **Index no** ……..….....

School: ……..…. **Candidate's sign** ……....

Date: ……

231/3
BIOLOGY
PAPER 3
JULY/AUGUST 2011
TIME: 1¾ HOURS

NDHIWA DISTRICT JOINT EVALUATION TEST

Kenya Certificate of Secondary Education (K.C.S.E.)

Biology
Practical

INSTRUCTIONS TO CANDIDATES:

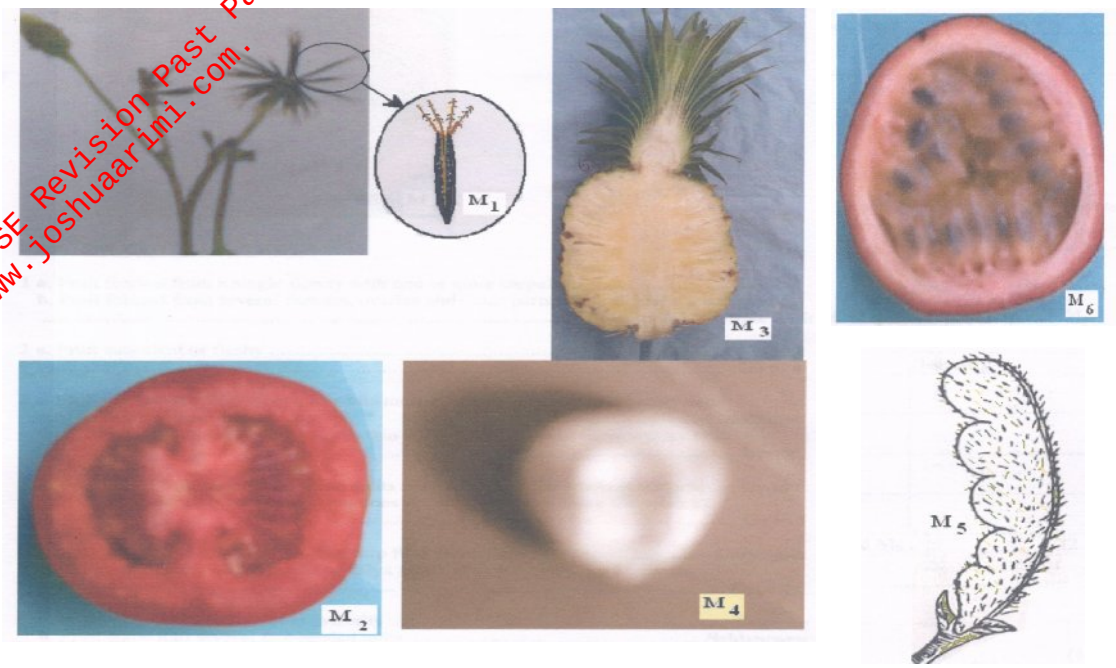
- *Write your **name** and **index number** in the spaces provided.*
- *Sign and write **date** of examination in the spaces provided above*
- *Answer **all** the questions in section **A** and **B***
- *You are required to spend the first 15 minutes of the 1 ¾ hours allowed for this paper reading the whole paper carefully.*

For Examiner's Use Only:

QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
1	14	
2	14	
3	12	
TOTAL	**40**	

This paper consists of 4printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing

1. You are provided with photographs of specimens labelled M1 M2 M3 M4 M5 and M6. Examine these specimens and study the identification key below.



1 a. Fruit formed from a single flower with one or more carpels……. Go to 2
b. Fruit formed from several flowers, ovaries and other parts of the flower e.g receptacle.
…….Multiple fruit
2 a. Fruit succulent or fleshy…….. Go to 3
b ……Goto4
3 a. Fruit one-seeded; endocarp thin while mesocarp is thick and fleshy; endocarp hard or stony and enclosed seed…… Drupe
b. Fruit with several seeds. Epicarp is thin while mesocarp and endocarp are both thick and fleshy……. Berry
4. a. Pericarp of fruit becomes dry and splits open to release the seeds at maturity ……Go to 6
b. Pericarp of fruit becomes dry but does not split open to release the seeds at maturity…… Goto5
5. a. Fruit of grass family; has thin pericarp fused with seed coa……..t Caryopsis
b. One-seeded fruit with remains of calyx above the ovary forming hooks for animal dispersal ……Cypsela
6. a. Fruit splits along two lines at maturity ……Legume
b. Fruit splits into several one-seeded units…… Schizocarp

a) Complete part 2. b) of the dichotomous key above. (1 mk)
b) Use the identification key above to identity the plant specimens provided. In each case show the sequence of steps (e.g. l.a, 2.b, 3b, etc) in the key which you followed to arrive at the identity of each specimens. (4mks)

Specimen	Steps	Identity
M_2		
M_4		
M_5		

c) State the type of placentation shown by specimens M_2 and M_6. (2 mks)

M_2 ……

M_6. ……

d) i. State the agent of dispersal of specimen M_5.

…… (1mk)

ii. Give a reason for your answer in d) i above.

…… (1mk)

e) You are provided with 001% DCPIP solution, specimens X and Z, scalpel blade and sieve. Cut small pieces of X enough to produce 10 drops of undiluted juice. Smash the pieces in a clean sieve and collect the filtrate in clean beaker. Take the cut section of Z and squeeze the juice through a clean sieve into another beaker. Measure 2m1 of 0.01% DCPIP in two clean beakers. Using clean droppers, find out the number of drops of each juice required to decolorize the DCPIP.

i) Record your results in the table below: (2 mks)

Juice Extract	**No drops needed to change colour of DCPIP**
X	……
Z	……

ii) Account for your results stated in e) i above. (2 mks)

……

……

I) i. Suggest the expected results if the juice from specimen X was boiled for thirty minutes, cooled and added drop by drop to DCPIP solution (1 mk)

……

……

ii. Explain the expected results in I' (I) above (1 mk)

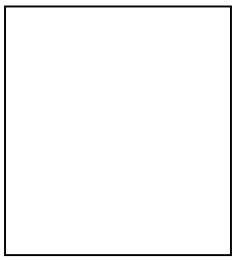
……

……

2. You are provided with cotton wool, Petri dish, light blue suspension labelled K and a dropper. Put about half of the cotton wool provided in a Petri dish. Add a few drops of the suspension and press with thy cotton wool to remove excess stain. This will be your improvised stamp pad

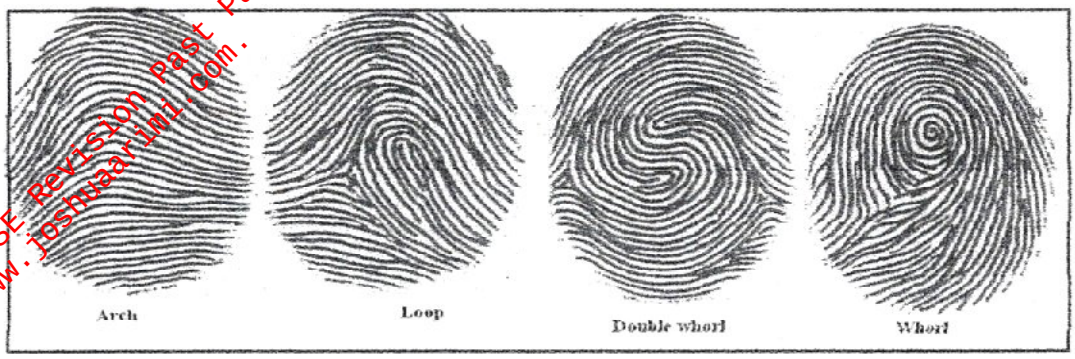
a) Wash and dry your hands thoroughly and press the left thumb on the stained cotton wool.

i. Make an impression of your finger print inside the square below: (2 mks)



ii, Use the chart provided to classify your finger print. (1 mk

CHART OF MAIN FINGER PRINT TYPES



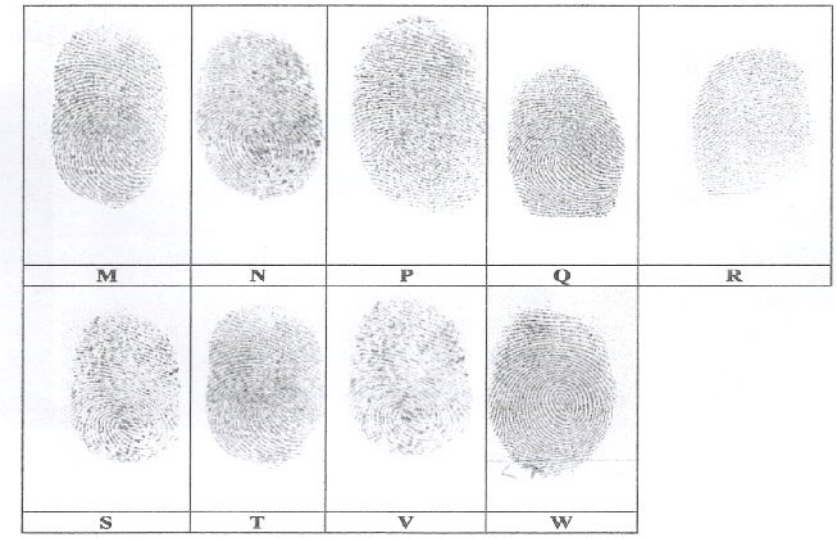
b) i) Finger print is one of the complex variations in human beings. Identify the type of variation exhibited by finger prints. (1 mk)

……

ii) Give a reason for your answer in b. i) above. (1 mk)

…… ……

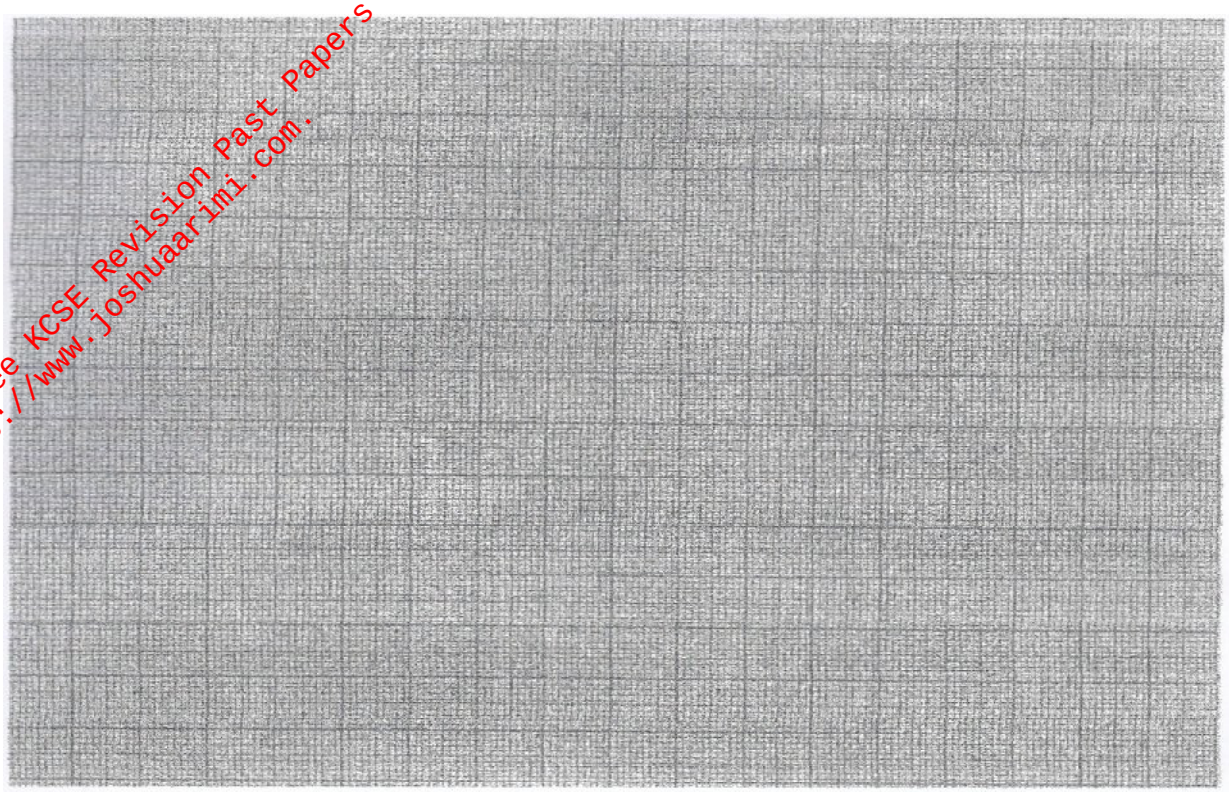
c) Below are specimen thumb prints made by nine students. Study them and answer the questions that follow:



i. Tabulate the frequencies of each class of finger print among the above group of students. (2 mks)

Type of finger print	Number of students
Arch	
Loop	
Whorl	
Double whorl	

ii. Using the frequencies obtained in the above table, plot a graph showing the number of students having each type of finger print on the piece graph paper provided below



(3 marks)

3. You are provided with two bones specimens **L** and **M**

(a) Identify each bone and the part of the body where it is found. (4 marks)

Bone	Name	Part of the body
L	.....	.....
M	.....	.....

(b) (i) Make a well labelled diagram of later view of specimen L (3mks)

(ii) State the magnification of your drawing. (1 mk)

……

(c) Identify **two** structural differences between bones L and M (2 mks)

L	M

(d) State three ways in which bone **M** is adapted to its functions. (3mks)