Marking scheme

NAME: _____ ADM NO: _____

DATE: _____ CANDIDATE'S SIGN: _____

CLASS _____

231/3
BIOLOGY
PAPER 3
PRACTICAL
JUNE/JULY, 2021
TIME: 1 ¾ HOURS

MOKASA 1 JOINT EVALUATION EXAMINATIONS

Kenya Certificate of Secondary Education

231/3

BIOLOGY

PAPER 3

PRACTICAL

JUNE/JULY, 2021

TIME: 1 ¾ HOURS

INSTRUCTIONS TO CANDIDATES

- Write your Name,Class and Adm No. in the spaces provided above
- Answer ALL the questions in the spaces provided

FOR EXAMINERS USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
1		
2		
3		
TOTAL	**40**	

1. You are provided with specimen **X** (Soaked maize grain), Transverse section of specimen K, Benedict's solution, Iodine solution, Pestle and mortar and distilled water.

(i) Name the type of fruit represented above (1mk)

Caryopsis

ii) Give a reason for the above identity (1mk)

Pericarp and seed coat are fused together to form a thin covering over the entire seed.

(iii) Crush the specimen X and dissolve in distilled water to make a paste. Carry out food test of the following and record your observations in the table below. Fill in the table below: (6marks)

Food Test	Procedure	Observation	Conclusion
Starch	Put 2cm3 of the paste in the test tube Add 3 drops of iodine solution	Blue-black colouration	Starch present Rej. Presence of Starch.
Reducing sugars	Put 2cm3 of the paste in the test tube. Add an equal amount of Benedicts solution. Place it in hot water bath.	Colour changes from blue to green to yellow to orange	Reducing sugars present. Rej. Presence of reducing sugars.

iv) Account for the observations made in the above table in relation to starch and reducing sugar. (3mks)

Starch
Plants store food/carbohydrates in form of starch;
Reducing sugars
Some starch was hydrolyzed by enzyme diastase
to reducing sugars

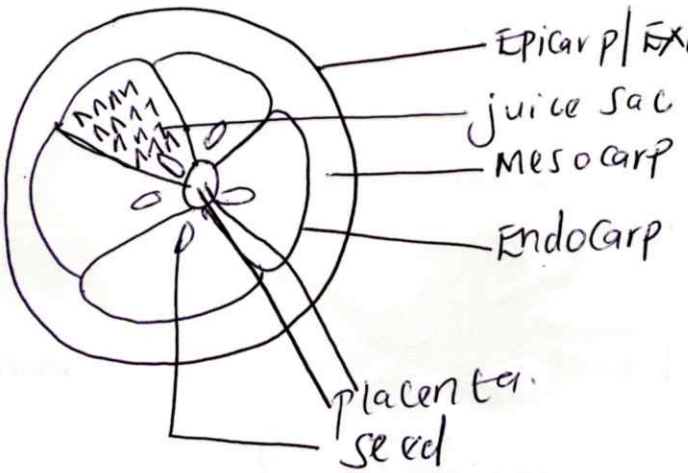
Iv) Identify the type of placentation in the specimen **K** above (1mk)

Axile placentation; Ref: Axial placentation

(b) Describe how the above placentation was formed (2mks)

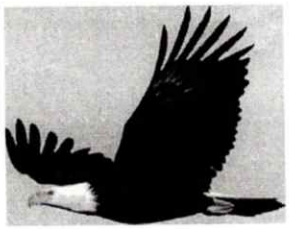
Edges of carpels fuse together to form a central
placenta in the axis formed by carpels. Ovules
arranged on the placenta and ovary divided into
a number of locules by the walls of the carpel

(c)Draw the cross section of the specimen K and label its parts (3mks)

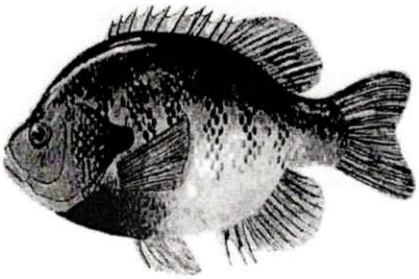


Mg = 1MK
D = 1MK
L – 3 parts 1MK

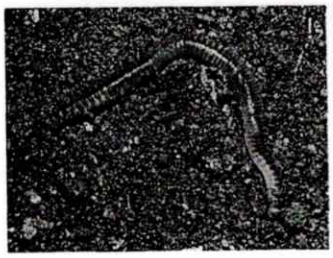
2. Using the pictures of animals provided below, complete the construction of the dichotomous key by filling the blank spaces. (13 marks)



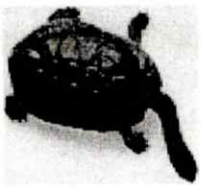
eagle



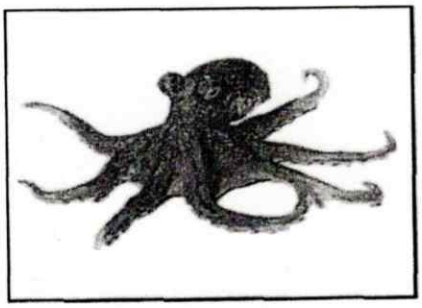
fish



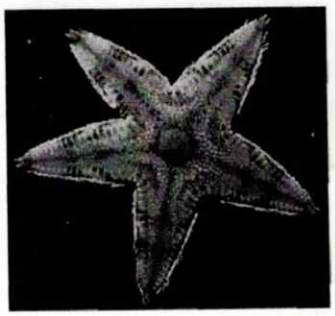
Earthworm



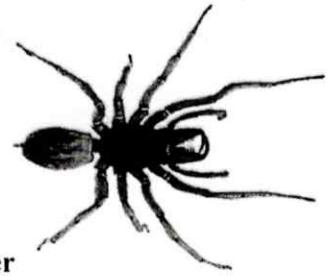
Tortoise



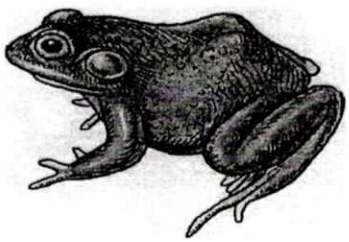
Octopus



Starfish



spider



frog

1a Animals with backbone.....Go to 2

b Animals without backbone ..... Go to 5

2 a Animals with wings..... Eagle

b Animals without wings..... Go to 3

3a Animals which live in water all the time..... Fish

b Animals which live in water for some time..... Go to 4

4a Animals with scales..... Tortoise

b Animals without scales..... Frog

5a Animals with legs..... Go to 6

b Animals without legs..... Go to 7

6a Animals with six legs..... Butterfly

b Animals with eight legs..... Spider

7a Animals with a shell.....Snail

b Animals without a shell..... Go to 8

8a Animals with jelly-like body..... ~~Starfish~~ Go to 9

b Animals without a jelly-like body..... Starfish

9a Animals with a segmented body..... Earthworm

b Animals without segmented body..... Octopus

3. You are provided with starch solution, Iodine solution, Visking tubing, stirring road, 2 pieces of thread, measuring cylinder and a beaker. Tie one end of the visking tubing and pour about 2mls of iodine solution into it. Tie the other end making sure no iodine solution leaks and place the visking tubing into starch solution in the beaker. Leave the set up for about 30 minutes.

(i) Identify the physiological process being investigated (1mk)

Diffusion

(ii) Account for the observations made in (i) above (3mks)

Starch in the beaker turned blue-black, Iodine molecules have smaller molecular size diffuse compared to starch molecules, they then pass thro' the tiny pores in the visking tubing turning into blue-black.

(iii) Give the role of the physiological process investigated above in:

a. Reproduction (1mk)

Flowers produces scent that diffuses to attract pollinators. Pheromones diffuse from the females to attract the males

b. ~~Respiration~~ Gaseous exchange. (1mk)

Oxygen inhaled diffuses thro' the alveoli capillaries into the blood. CO2 breathed out diffused from blood capillaries - Alveoli

iv) Name two parts in the alimentary canal where starch is digested (2mks)

Mouth

Duodenum

Ileum

v) Identify one hormone and one digestive enzyme that ~~influences~~ leads digestion of starch in the parts identified in (iv) above (2mks)

Secretin

Pancreatic amylase

(vi) What deficiency disease results when an individual lacks starch in their diet? (1mk)

Marasmus