MASENO SCHOOL

Kenya Certificate of Secondary Education 2020

231/2 - BIOLOGY -Paper 2

(THEORY)

DEC. 2020 - 2 hours

THE MASENO SCHOOL MOCK

231/2-Biology- P2
Mon. 22/12/2020
Time: 8:00am -10.00am

Name …… **Index Number**……..

Candidate's Signature ……..…….. **Date** ……

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a) Write your name and index number in the spaces provided above.
b) Sign and write the date of examination in the spaces provided above
c) *This paper consists of **two** sections; **A** and **B***
*d) Answer all the questions in section **A** in spaces provided*
*e) In section **B**, answer question **6** (**compulsory**) and either question **7** or **8** in the spaces provided after question **8.***
f) This paper consists of 12 printed pages
g) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
h) Candidates should answer all the questions in English.

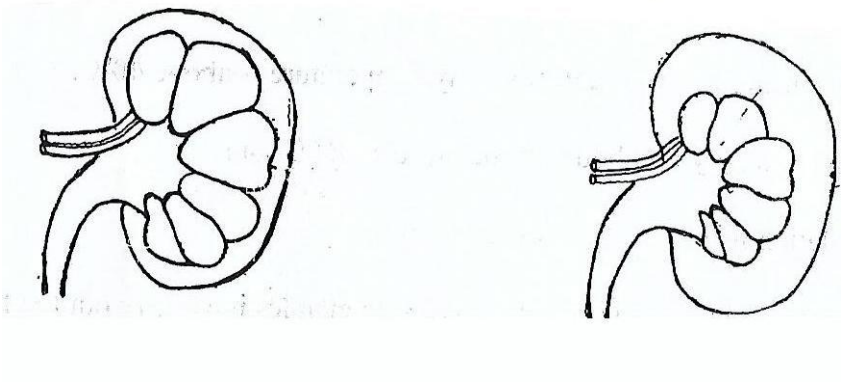
For examiners use only

Section	Question	Maximum Score	Candidate's Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
		20	
	Total score	80	

SECTION A (40marks)

*Answer **all** the questions in this section in the spaces provided*

1. The diagrams below show simplified structures of kidneys from two different animals.



A **B**

a. State any two differences between kidneys A and B (2marks)

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b. What is the likely habitat for animal having kidney A? Explain your answer. (4marks)

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c. Explain the importance of having wider afferent arteriole than efferent arteriole in kidney nephron. (2marks)

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2. The table below shows the rate of inspiration and blood flow to the gut for some groups of students which were measured at rest and during strenuous exercise.

	Average rate of blood flow to the gut (dm^2/minutes)	Average number of inspiration per minutes
At rest	1.6	12
During strenuous exercise	0.23	20

a. i. Account for the average number of inspiration during strenuous exercise (3marks)

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ii. Explain the increase in blood flow to the gut at rest. (2marks)

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b. Explain the role of muscles in inspiration (3marks)

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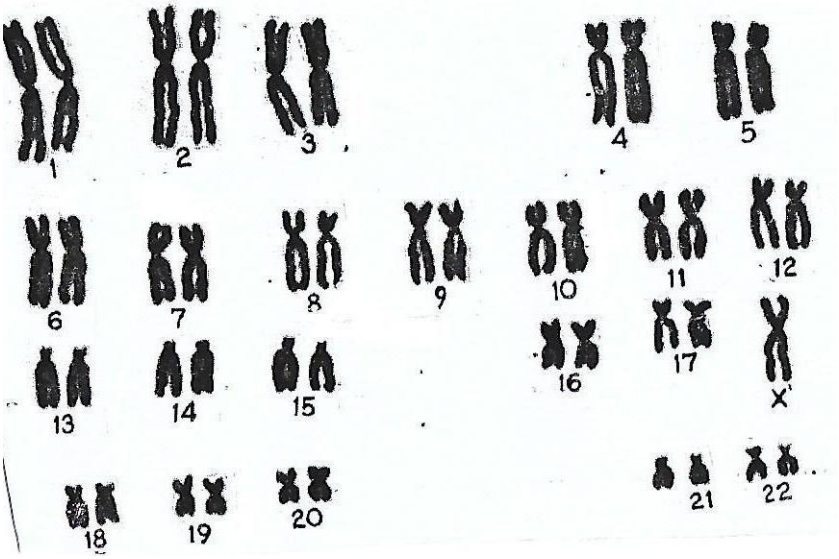
3. The diagram below represents chromosomes arrangement in somatic cells of a female suffering from a certain genetic disorder.



a. i. Name the disorder (1mark)

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ii. Name the type of chromosomal mutation that causes the above disorder. (1mark)

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iii. State two symptoms of a female with above disorder (2marks)

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iv. Explain why there are no males with above genetic disorder. (2marks)

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b. State two advantages of cross breeding as a method of artificial selection (2marks)

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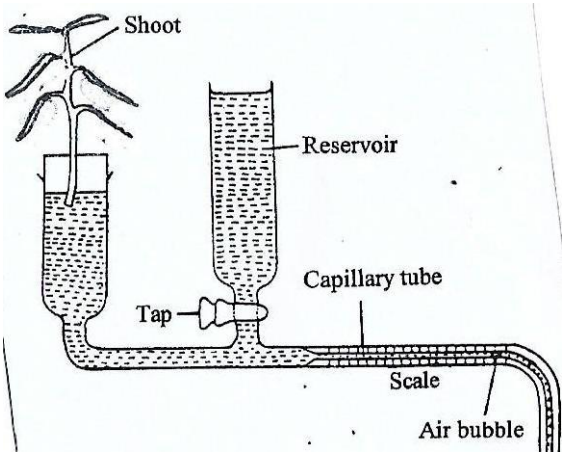
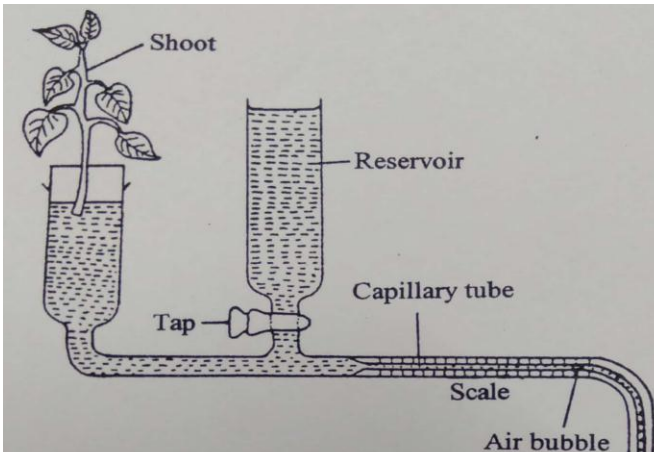
4. The set ups below were carried out by a group of students to investigate an aspect in transpiration. Both potometers were placed under same environmental conditions and observation done at the same time after six hours.



A



B

a. State the aim of experiment (1mark)

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b. State the expected observations in potometers A and B. (2marks)

A……

B……

c. Explain the expected observation in potometer B. (2marks)

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d. Account for what would happen if leaves on both set ups were smeared with Vaseline jelly on their upper and lower surfaces. (3marks)

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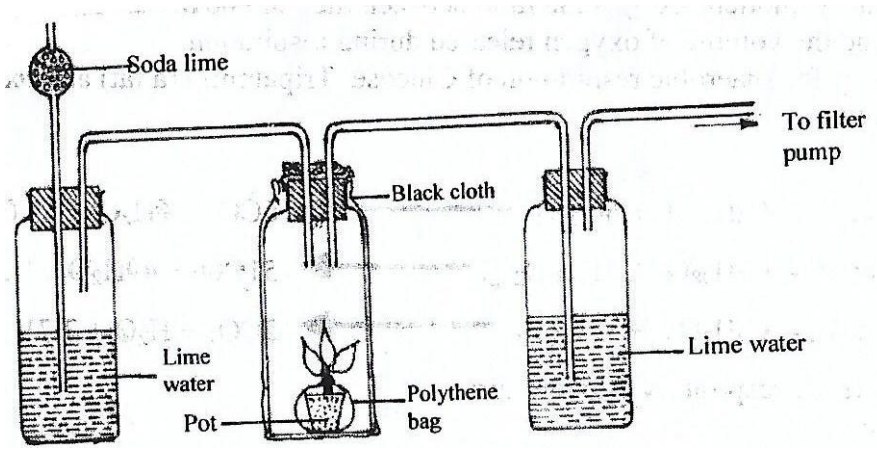
5. The diagram below illustrates an experiment to demonstrate certain aspect of respiration.



a. i. State the aim of experiment. (1mark)

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ii. What is the role of soda lime in the set up? (1mark)

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iii. State observations made in vessels A and B (2marks)

A……

B……..

iv. Why is it necessary to enclose the pot with polythene bag? (1mark)

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v. State the role of black cotton cloth covering bell jar. (1mark)

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b. During aerobic respiration involving lipid as a respiratory substrate, 102 cm^3 of carbon (iv) oxide was produced. Determine the volume of oxygen that was used.

(2marks)

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c. Explain how locomotion in animals is dependent on respiration (2marks)

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SECTION B

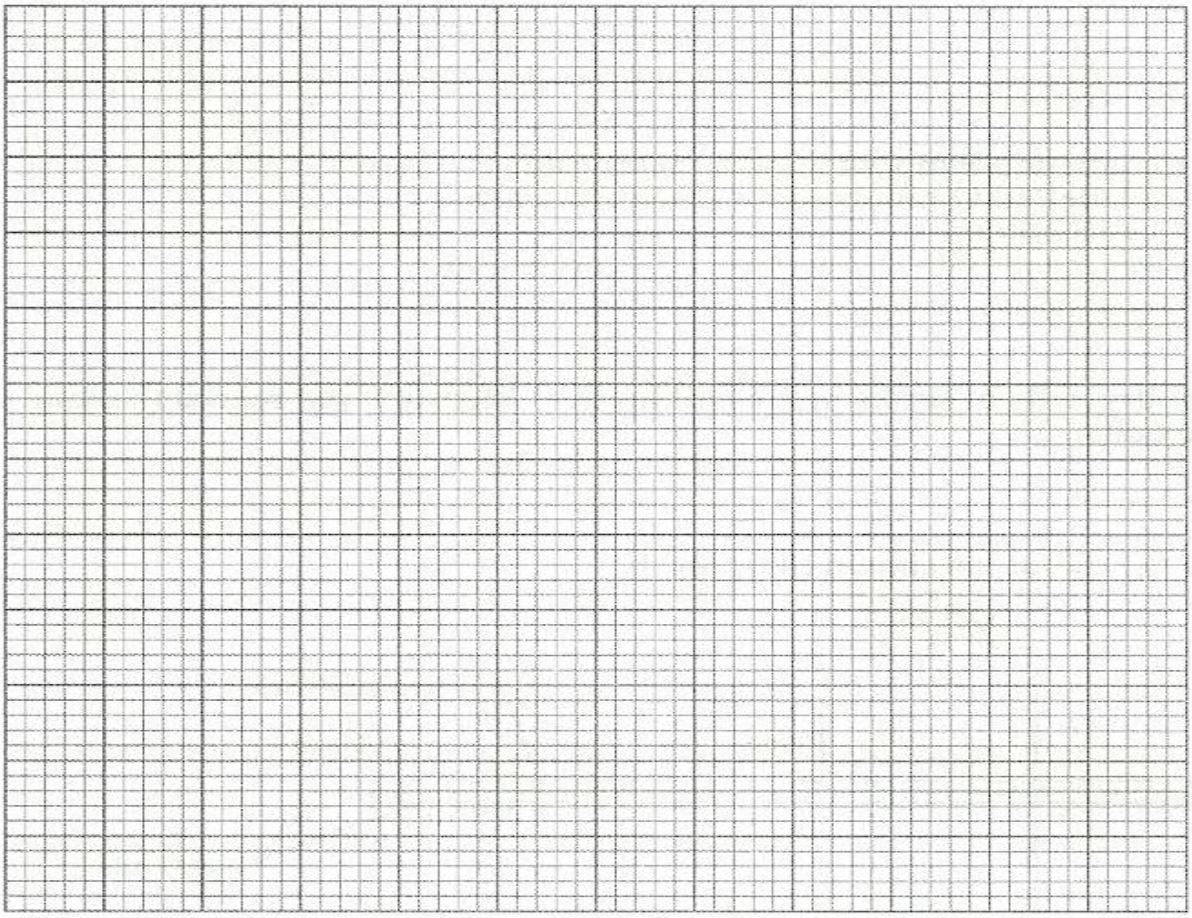
*Answer question **6** (**compulsory**) and either question **7** or **8** in the spaces provided after question **8***

6. The table below shows changes in human hormonal levels in blood during 40 weeks of pregnancy

TIME (WEEKS)	HORMONAL LEVELS(UNITS ×1000		
	Progesterone	Human Chorionic Gonadotropin	Oestrogen
5	10	00	00
10	15	45	02
15	15	60	02
20	20	15	02
25	40	04	04
30	75	14	10
35	85	20	18
40	84	20	18

a. On the same axis, plot graphs of concentrations of hormones against time.

(8marks)



b. Account for the changes in levels of the following hormones during 40 weeks period.

i. Progesterone (2marks)

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ii. Oestrogen (2marks)

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c. Explain the following.

i. Injection of an expectant mother with high levels of Luteinizing hormone after 4th month of pregnancy could cause an abortion. (2marks)

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ii. At 4th month of pregnancy, surgical removal of ovaries of an expectant mother does not affect pregnancy. (2marks)

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d. Explain the role of oxytocin hormone during parturition. (2marks)

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e. State two ways in which oviduct is adapted to reproductive function. (2marks)

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7. A student while on his way to sleep saw a python snake. He immediately changed direction and ran away. Explain how the nervous and endocrine systems coordinate to bring about response shown by the student. (20marks)

8. a. Explain the role of skin in thermoregulation (12marks)

b .Describe how red blood cell is adapted to its function (8marks).

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