NAME: ……………………………………………………………………… **INDEX NO:**……………

SCHOOL: ..……………………………………………...…..…………………..……………………

BIOLOGY
PAPER 2
THEORY
JULY / AUGUST 2007
TIME 1 ¾ HOURS

KERICHO DISTRICT MOCK EXAMINATION
Kenya Certificate of Secondary Education 2007

231/2
BIOLOGY
PAPER 2
JULY /AUGUST 2007

INSTRUCTIONS TO CANDIDATES
❖ *This paper contains two sections.*
❖ *Answer **all** the questions in section **A**.*
❖ *(Question 1 – 7) Answer question 8 of section B. and either question 9 or 10.*

For Examiner's Use Only.

	Question	Maximum Score	Candidates Score
	1	4	
	2	8	
	3	4	
A	4	5	
	5	3	
	6	8	
	9	8	
	8	20	
B	9	20	
	10	20	

KERICHO DISTRICT MOCK © 2007   *231/2*

SECTION A (40 marks)

Answer all the questions in this section.

1. (a) **What** is the importance of tissue fluid? (2mks)

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    (b) **State two** main differences in composition between tissue fluid and plasma and state how this difference are brought about. (2mks)

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2. A group of students were investigating the number of crayfish in a shallow pond, using the capture – release- recapture method. They caught 50 Crayfish, marked them with a dab of white paint on the cephalothorax, and then released them back into the same pond.
    After three days they collected another 50 crayfish from the pond, and of these 3 bore the white paint mark.

    (a) Using this data, **calculate** the population of the crayfish in this pond. (3mks)

    (b) **State any two** assumptions that were made in this method of estimating the crayfish population in the pond. (2mks)

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    …………………………………………………………………………………………........

    (c) **Suggest** another method that could have been used to determining the population size of the cray fish. (1mk)

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    (d) In what form is energy transferred from one trophic level to another? (1mk)

    …………………………………………………………………………………………........

    (e) In what form does this energy enter the earth's ecosystem? (1mk)

    …………………………………………………………………………………………........

3. (a) Mr. Joseph had an accident at the age of seven. A hospital diagnosis revealed that part of his endocrine system had been affected. He is now 30 year old yet he sounds like a boy and has not grown any beard. **Which** gland has been affected? (1mk)

    …………………………………………………………………………………………........

3

(b) **Name** the hormone produced by the gland you have named in (a) above.   (1mk)

……………………………………………………………………………………........

(c) **State two** function of the hormone name in (b) above.   (2mks)

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4. (a) **Identify** the vertebra shown below giving one characteristic structural feature of this

bone.   (1mk)

(Anterior view)
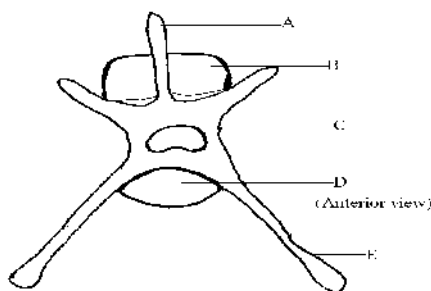
(b) **Name** the parts labelled A to E   (3mks)

A   …………………………………………….…………………………………..

B   …………………………………………………………………………………

C   …………………………………………………………………………………

D   …………………………………………………………………………………

E   …………………………………………………………………………………

c) **Suggest** the type of joint that is formed by the bone in (a) above and its adjacent

vertebra.   (1mk)

……………………………………………………………………………………........

5. The wall of the alveolus is the gaseous exchange surface in a mammal. Below is a cross-

section through an alveolus.

4
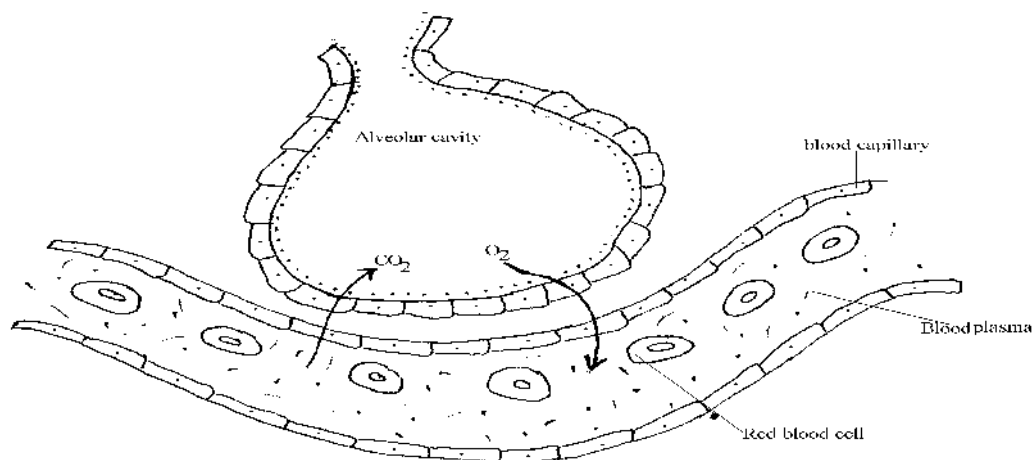
(a) **What** are the features of the above alveoli that make them efficient gas exchange
surfaces? (3mks)

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6. The following table represents the results of interbreeding three different breads of cats.

Key:	pure black	pure white	pure grey
	B B	W W	G G
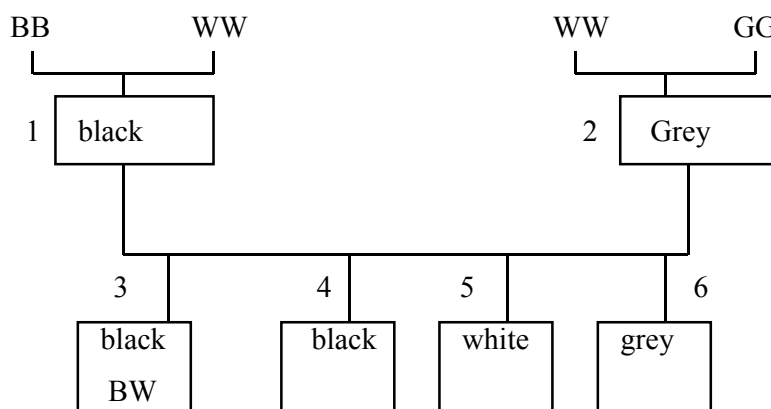
(a) The coat colour of one of the three breeds of cats is recessive to the other two. **Which**
one. (1mk)

……………………………………………………………………………………........

(b) The coat colour of which breed is dominant to the other two breeds? (1mk)

……………………………………………………………………………………........

(c) **What** is the genetic make-up of the cats marked? (3mks)

(i)   1:   ……………………………………………………………………………

(ii) 4:   ……………………………………………………………………………

(iii) 6:   ……………………………………………………………………………

(d) **Which** of the cats labelled 1 to 6 is pure like the parents given in the key? (1mk)

……………………………………………………………………………………........

(e) **What** generation is represented by cats marked? (2mks)

(i)   1 and 2   ……………………………………………………………………

(ii) 3 to 6:   ……………………………………………………………………

7. The figure below represents the tip of a root and three cells X, Y, and Z taken from regions
1, 2 and 3.

5
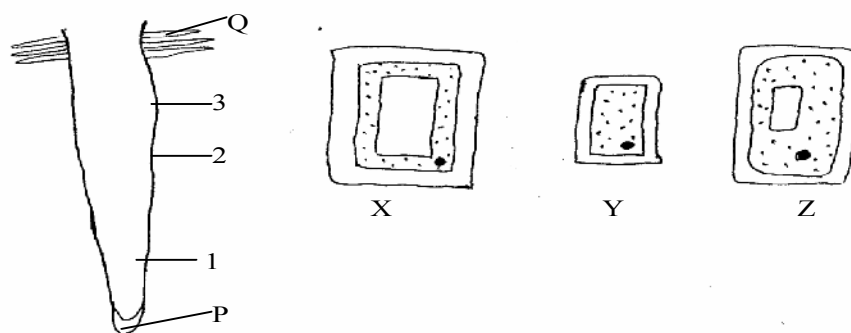
(a)   **Which** of the three cells is taken from region?   (3mks)

(i)   1:   …………………………………………………………………………

(ii)   2:   …………………………………………………………………………

(iii)   3:   …………………………………………………………………………

(b)   **Name** the regions which are concerned with growth in.   (2mks)

(i)   Girth   …………………………………………………………………………

(ii)   Length …………………………………………………………………………..

(c)   **How** is the root hair cells adapted to their functions?   (3mks)

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SECTION B

Question 8 is compulsory" Choose either Question 9 or 10.

8.   The data below shows the population changes in Kenya, Tanzania and Uganda from 1948
        to 1997 all figures are given in millions of people.

Country	Population size millions					
	1948	1960	1970	1972	1985	1997
Kenya	5.4	8.4	10.8	11.7	17.9	28.4
Tanzania	7.5	8.8	13.2	14.0	20.3	31.5
Uganda	5.0	6.5	8.6	10.1	13.1	20.18
Total	17.9	23.7	32.6	35.8	51.3	80.7

(a)   **Plot** this data on the same axis on a graph to describe the change in population size and
        population growth rate of each country.   (10mks)

6

(b)   From your graph, **estimate** the population of each country and the total human
population of East Africa in 1990.   (4mks)

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(c)   If the populations continue growing at their current rate **what** would you estimate the
population of each country to be in the year 2005?   (4mks)

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(d) **State** the factors that may affect the population of a country.   (2mks)

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9.   **Explain** the mechanism by which a human body maintains a constant body temperature.

(20mks)

10.   **Explain** how a body fish is adapted for movement in its habitat.   (20mks)

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