Name…… **Index No. …….**

School ……...

231/2
BIOLOGY
THEORY
PAPER 2
JULY/AUGUST 2007
TIME: 1 ¾ HOURS

TESO DISTRICT MOCK EXAMINATIONS - 2007

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

231/2
BIOLOGY
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PAPER 2
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INSTRUCTIONS TO CANDIDATES

- *This paper has TWO sections A and B*
- *Answer all the questions in section A in the spaces provided on the question paper.*
- *From section B answer question 6 (compulsory) in the spaces provided and either question 7 or 8 in the spaces provided after question 8.*

For Examiner's Use only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
A	1 – 5	40	
B	6	20	
	7	20	
	8	20	
TOTAL SCORE			

This paper consists of 12 printed pages.
Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

SECTION A

1. One ornithologist wanted to know the population of birds in a forest area. He collected ten birds from the forest and labelled each by tying a tag on its legs and released the ten birds into the forest to mix with the other birds. When he later collected a sample of fifty birds from the same forest he found that four of them had tag labels.

a) From the information, estimate the population of birds in the forest. Show your working. (3mks)

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b) Name the method under use from this information. (1mk)

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c) State two advantages and two disadvantages of using this method to estimate population.

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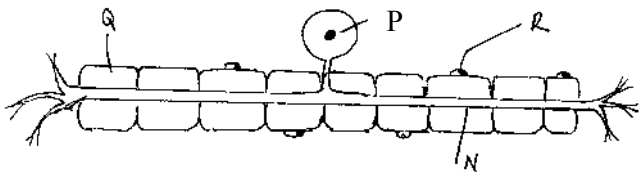
2. The diagram below represents a nerve cell. Study it and answer the questions that follow.



a) (i) Identify the cell (1mk)

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

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b) Name the parts labelled N, P, Q and R. (4mks)

N ……

P ……..

Q ……

R ……..

c) State the functions of the parts labelled N and Q. (2mks)

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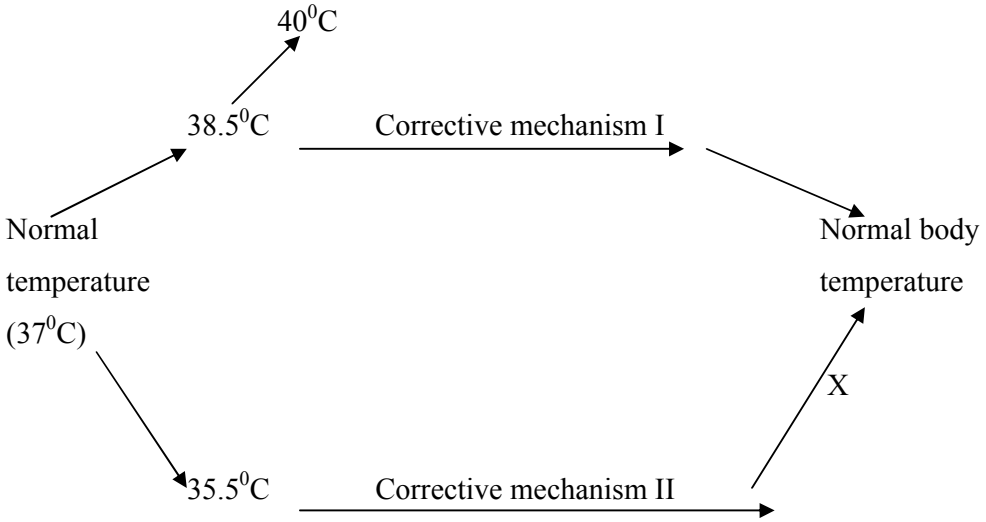
3. Below is a thermoregulatory response within the human body.



a) State the role played by the skin during the corrective mechanism II (3mks)

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b) Name the process indicated by letter X. (1mk)

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c) Explain why a steady body temperature is maintained in mammals. (2mks)

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d) State two protective roles of the human skin (2mks)

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4. In rose plants, a pure breed red flowered plant was crossed with a pure breed white flowered plant. The F_1 generation had all pink flowers. When the F_1 generation was selfed, 1654 plants were obtained in the F_2 generation

a) Explain why all the F_1 generation had pink flowers. (1mk)

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b) Using letter R to represent the gene for red colour and r for white colour, work out the possible genotypes of the F_2 generation. (4mks)

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c) Work out the number of F_2 plants with

(i) pink flowers. (1mk)

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(ii) Red flowers (1mk)

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d) What is a test-cross. (1mk)

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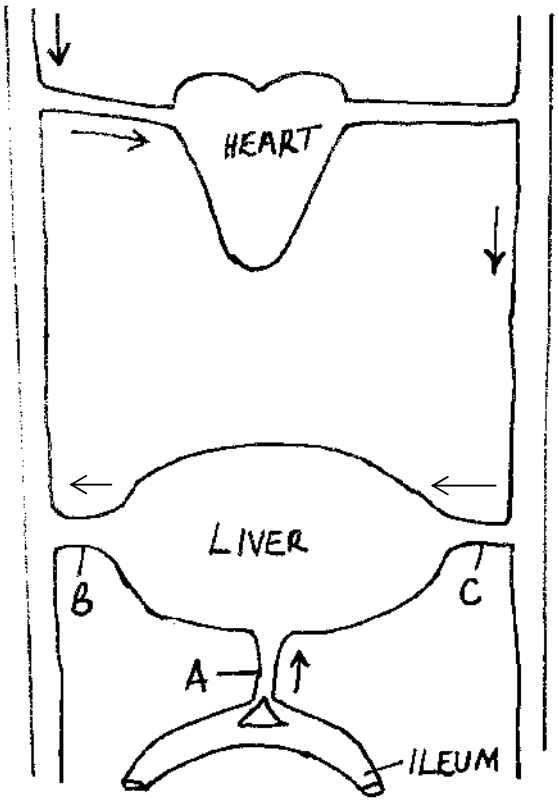
5. The diagram below represents part of the mammalian blood circulatory system and some associated glands;



a) Name the blood vessels labelled A and B. (2mks)

A …….

B ……..

b) Which of the blood vessels will have the highest sugar concentration under the following conditions.

(i) after a heavy meal ……. (1mk)

(ii) During fasting …… (1mk)

c) Explain how the liver assist in regulating the high sugar level in the blood. (2mks)

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d) How can a sample of urine be tested to confirm that a person has *diabetes mellitus*

(2mks)

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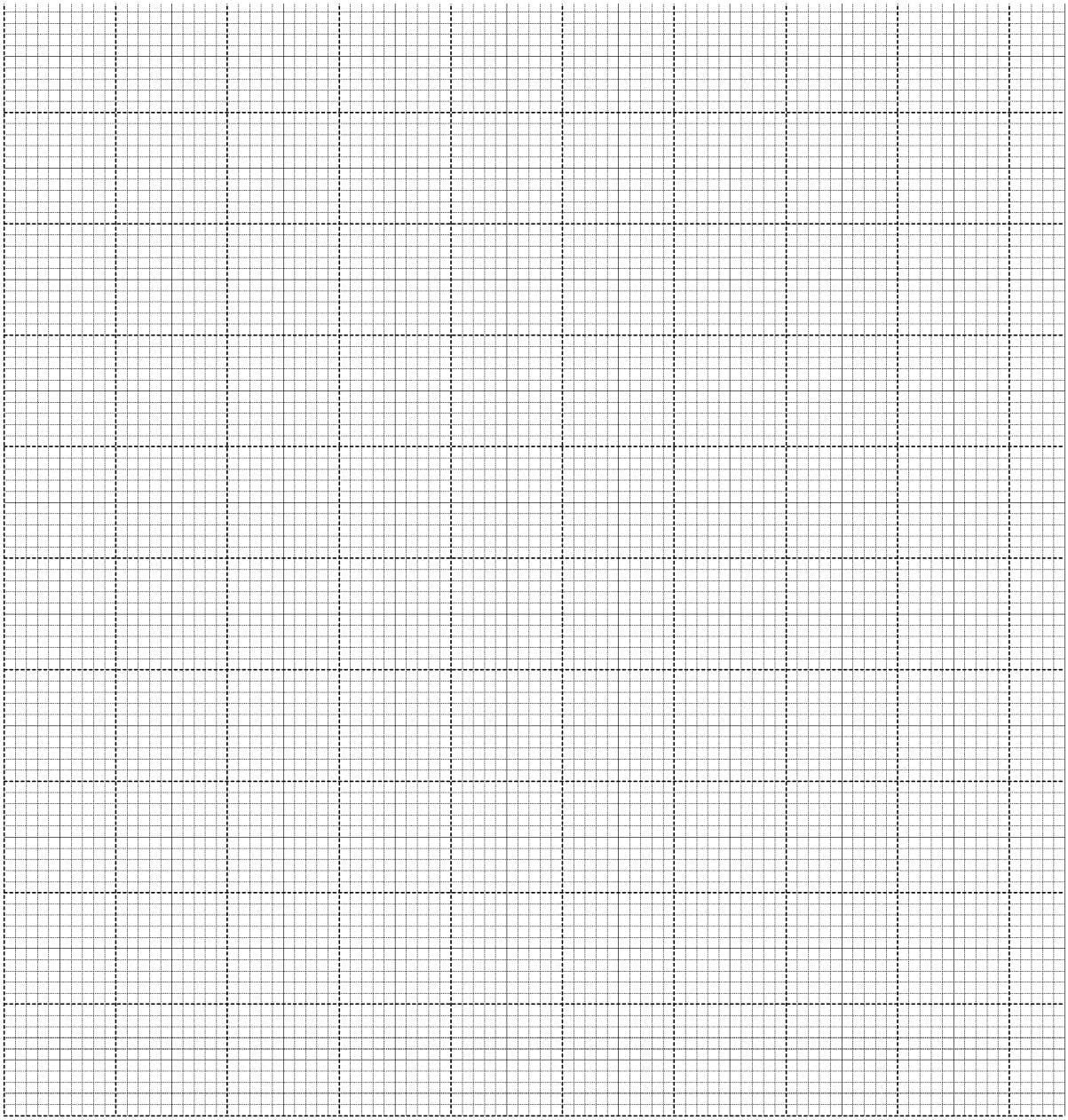
SECTION B

6. In an experiment the energy required by persons of different sizes was determined. Their body weights and amounts of energy their bodies used at rest were measured. The results are as shown below

Weight of individual	Energy used per kg of body weight per day in KJ
5	300
15	200
25	150
35	130
45	115
55	105
65	100
75	95

a)Using suitable scale draw a graph of amount of energy used per kg of body weight per day against weight of individual. (6mks)



b) From the graph determine the difference in energy requirements between persons weighing

(i) 10kg and 20kg. (1mk)

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(ii) 60kg and 70kg. (1mk)

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c) Why did individuals with smaller sizes require more energy per kg of body weight than those with larger sizes? (3mks)

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d) Use your graph to determine the energy requirements of an infant whose body weight is 2.5kg. (1mk)

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e) (i) How would the results differ if experiment is repeated using reptiles instead of human beings. (1mk)

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(ii) Give reasons for your answer in (e) (i) above. (3mks)

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f) Name two classes of food that provide energy in the body under normal conditions. (2mks)

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g) Name the class of food that provide energy in a mammal during starvation. (1mk)

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7. a) Describe how seeds and fruits are adapted for dispersal. (13mks)

b) Describe the adaptations of wind pollinated flowers. (7mks)

8. Describe the composition and functions of mammalian blood. (20mks)

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