

NAME:.....

INDEX NO:.....

SCHOOL:.....

DATE:.....

SIGN:.....

232/2  
BIOLOGY  
PAPER 2  
THEORY  
JULY / AUGUST 2012  
TIME: 2 HOURS

**KERICHO DISTRICT JOINT KCSE TRIAL EXAMINATION-2012**  
*Kenya Certificate of Secondary Education (K.C.S.E)*

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PAPER 2  
THEORY  
JULY / AUGUST 2012  
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**INSTRUCTIONS TO CANDIDATES**

1. Write your name and Index number in the spaces provided.
2. Sign and write the date of examination in the spaces provided
3. This paper consists of two sections A and B
4. Answer all the questions in section A in the spaces provided.
5. In section B answer question 6 ( Compulsory) and either question 7 and 8 in the spaces provided after question 8.

**FOR EXAMINERS USE ONLY**

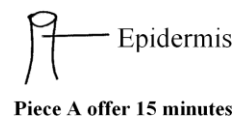
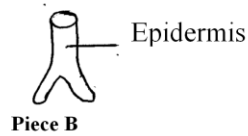
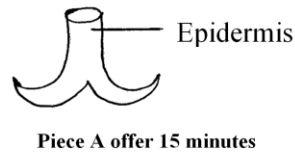
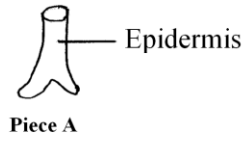
SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE SCORE
A	1	8	
	2	6	
	3	10	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	<b>TOTAL</b>	80	

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

1. a) Define the term cell physiology (1mk)

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b) Two pieces of leaf petioles were cut as shown in the diagram below, then each piece placed in solution of different concentration.



i) What physiological process was being investigated in this experiment? (1mk)

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ii) Suggest the type of solution piece B was placed (1mk)

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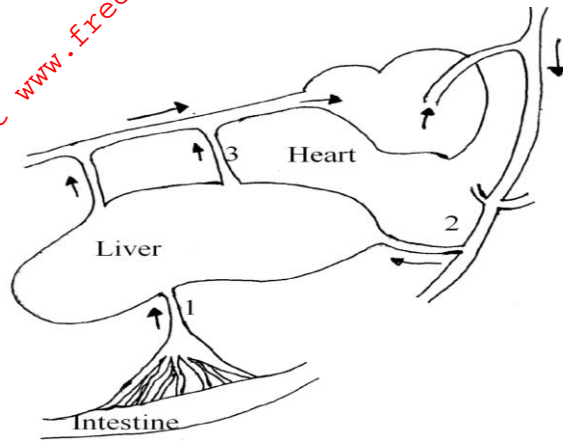
iii) Explain the appearance of piece A after 15 minutes (3mks)

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c) In land plants, water logging slows down the uptake of certain minerals. Suggest a reason for this. (2mks)

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2. The figure below is a simplified diagram of a mammalian circulatory system. Study it and answer the questions that follow.



a) Explain why the level of blood sugar in vessel 3 would be higher than that in vessel 1. during fasting. (2mks)

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b) Name the vessel that has the highest concentration of urea among vessels labeled. 1,2 and 3 (1mk)

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c) In what ways does blood vessel 1 differ from most of the other blood vessels in the body? (1mk)

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d) Name the nutrients that is only transported in small quantities in vessels 1 following absorption. (1mk)

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e) Why is it necessary that blood from digestive tract pass through the liver before entering the general circulation. (1mk)

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3. A Pure – line pea plant with green pods was crossed with a pure – line plant with yellow pods.  
All F<sub>1</sub> plants had green pods out of 1160 F<sub>2</sub> plants, 856 had green pods and 304 had yellow pods.

a) i) Identify the dominant and the recessive genes. (1mk)

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ii) Using letter G to represent dominant gene and g to represent recessive gene, work out the phenotype of the F<sub>1</sub> generation.

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b) Showing your working, state the number of plants with; (3mks)

i) Recessive genes;

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ii) Dominant genes;

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iii) Heterozygous genes;

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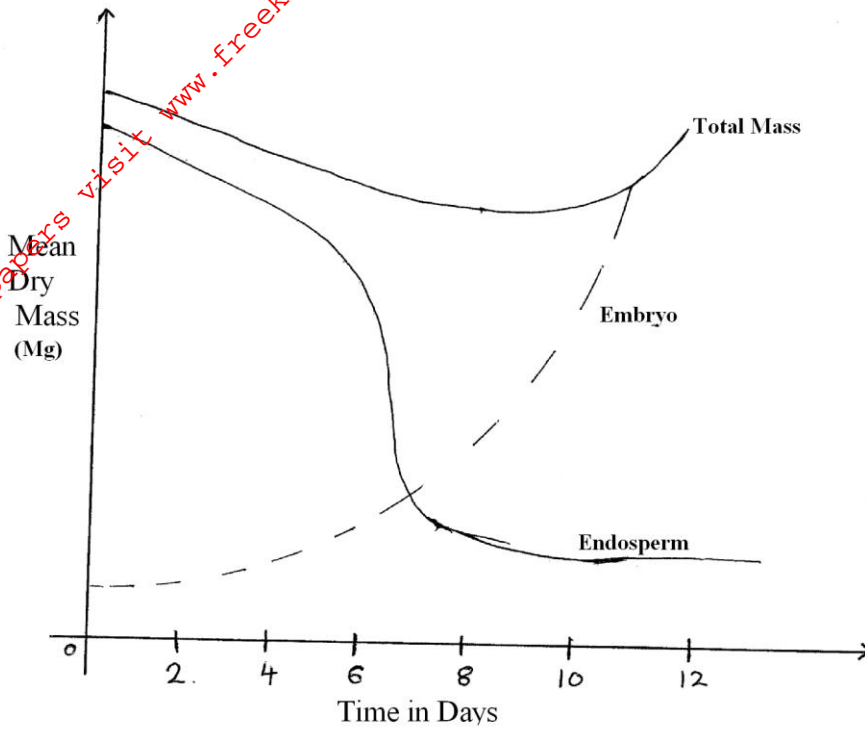
c) i) What is sickle cell Anemia? (1mk)

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ii) State one problem faced by people suffering from sickle cell anemia? (1mk)

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4. The graphs below show the changes in mean dry mass of endosperm, embryo and total mass of germinating maize.



Account for the ;

- a) Decrease in the dry mass of endosperm from day 1 to day 9 (4mks)

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- b) Increase in dry mass of embryo from day 1 to day 9 (1mk)

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- c) Decrease in total mass upto day 6. (1mk)

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- d) Increase in total mass after day 6 (2mks)

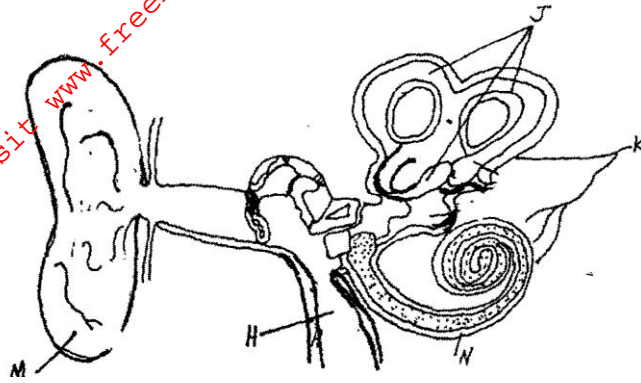
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5. The diagram below represents a section through the mammalian ear. Study it and answer the questions that follow



a) Name the structure labeled H and J. (2mks)

H.....

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J.....

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b) State how the structure labeled H, M and N are adapted to their functions. (3mks)

H.....

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M.....

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N.....

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c) State what would happen if the structure labeled K was completely damaged. (1mk)

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d) Name the fluid contain in structure N. (1mk)

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- e) Apart from hearing, state the other role performed by the human ear. (1mk)

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**SECTION B ( 40 MKS)**

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

6. In an experiment to investigate certain processes in a given plant species, the rate of carbon (iv) Oxide released and intake were measured over a long period of time. The results of the investigation were as shown below.

Time of the day ( Hours)	6	8	10	12	14	16	18	20	22	24
Volume of carbon (iv) Oxide Consumed (mm <sup>3</sup> / min)	10	43	69	91	91	50	18	0	0	0
Volume of Carbon (iv) Oxide released (mm <sup>3</sup> / Min)	38	22	10	3	3	6	31	48	48	48

- a) On the same axes draw graphs of volume of carbon (iv) oxide consumed and released against time. (7mks)
- b) Name the chemical process changes represented by;
- i) Carbon (iv) Oxide consumed (1mk)
- ii) Carbon (iv) Oxide released (1mk)
- c) Account for the shape of the curve for
- i) Carbon (iv) oxide consumed (3mk)
- ii) Carbon (iv) Oxide released (3mk)
- d) i) What is meant by compensation point (1mk)
- ii) From the graph, find the time of the day when the plant attained compensation point. (2mks)
- e) Explain how temperature affects the rate of carbon (iv) oxide consumption in the plant.(2mks)
7. a) What is meant by natural selection (3mks)
- b) Describe how natural selection brings about adaptation of species to its environment. (17mks)
8. a) Describe the characteristics and functions of the three types of muscle found in the mammalian body. (11mks)
- b) Explain how the various components of blood are adapted to perform their functions. (9mks)

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