NAME …… **INDEX NO** ……..……..

SCHOOL …… **SIGNATURE** ……..……...…….

DATE ……..……..

231/2
BIOLOGY
PAPER 2
(THEORY)
JULY/AUGUST, 2014
2 HOURS

MAKINDU DISTRICT INTER – SECONDARY SCHOOLS EXAMINATION

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

231/2
BIOLOGY
PAPER 2
(THEORY)
JULY/AUGUST, 2014
2 HOURS

INSTRUCTIONS TO CANDIDATES

- Write your name and Index Number in the spaces provided above.
- This paper consists of **two** sections. Section **A** and section **B.**
- Answer **ALL** questions in section **A** in the spaces provided. In section **B** answer question **6** (compulsory) and either question **7** or **8** in the spaces provided after question 8
- This paper consists of 11 Printed pages. Candidates should check the question paper to ensure that all the papers are printed as indicated and no questions are missing

For Examiners use only.

Section	Question	Maximum score	Candidates score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	Total score	80	

1. a) What is diffusion (2marks)

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b) How do the following factors affect the rate of diffusion?

i. Diffusion gradient (1mark)

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ii. Surface area volume ratio (1mark)

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iii. Temperatures (1mark)

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c) Outline three roles of active transport in human body? (3marks)

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2. a) Give the differences between the following structures in wind and insect pollinated flowers? (3marks)

i. Anther

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ii. Pollen grains

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iii. Stigma

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b) What is the importance of pollination (1mark)

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c) Explain how a seed is formed after an ovule is fertilized (4marks)

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3. A cross between a red flowered plant and white flowered plant produces plants with pink flowers .Using letter R to represent the gene for red colour and W for white colour,

a) What were the parental genotypes? (1mark)

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b) Work out a cross between F1 plants. (4marks)

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c)

i. Give the phenotypic ratio of F2 plants

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ii. Genotypic ratio of F2 plants (1mark)

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d) Name a characteristic in humans which is controlled by multiple alleles (1mark)

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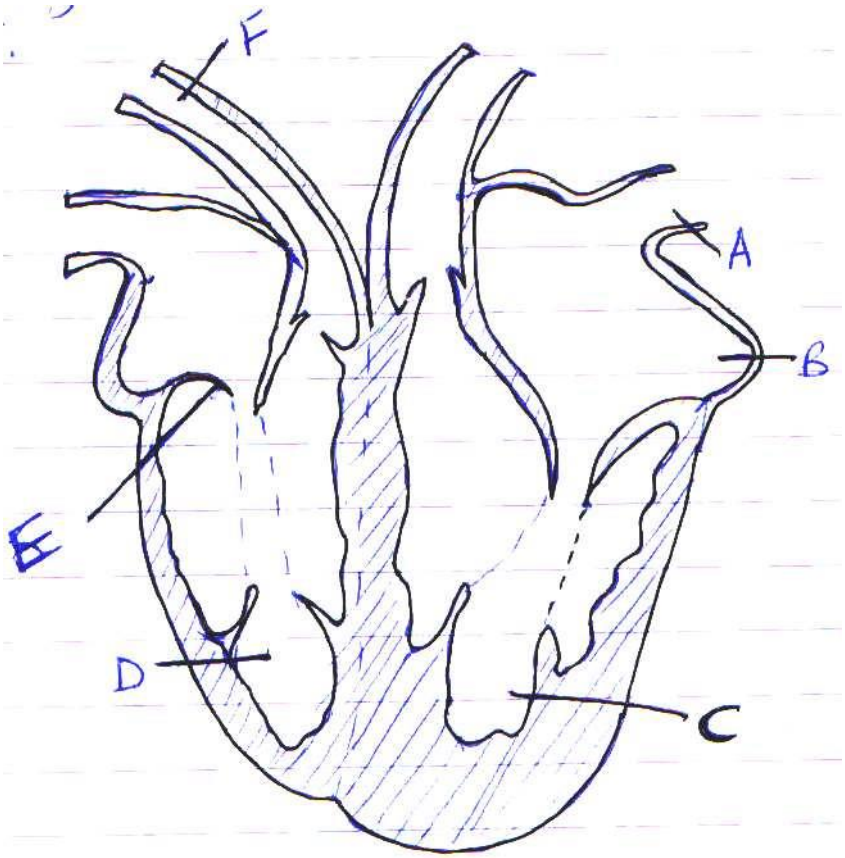
4. The diagram below shows a vertical section through a mammalian heart.



a) Name the parts labeled A, B, E, and F (4marks)

A.....

B.....

E.....

F.....

b) Use arrows to show the direction in which blood flows in the heart (2marks)

c) Give a reason why the wall of chamber C is thicker than chamber D (2marks)

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5.

a) What is the difference between Darwinian and Lamarckian theories of evolution (2marks)

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b) What is meant by the following terms. Give an example in each case.

i. Homologous structures (1mark)

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Example

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ii. Analogous structures (1mark)

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Example

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iii. Vestigial structures (1mark)

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Example

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SECTION B

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

6. During germination and growth of a cereal, the dry weight of endosperm, the embryo and the total dry weight were determined at two day intervals. The results are shown in the table below:

Time after planting (days)	Dry weight of endosperm (mg)	Dry weight of embryo (mg)	Total dry weight (mg)
0	43	2	45
2	40	2	42
4	33	7	40
6	20	17	37
8	10	25	35
10	6	33	39

a) Using the same axes, draw graphs of dry weight of endosperm, embryo and the total dry weight against time. (7marks)

b) What was the total dry weight on day 5 (1mark)

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c) Account for

i. Decrease in dry weight of endosperm from 0 to 10 (2marks)

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ii. Increase in dry weight of embryo from day 0 to day 10 (2marks)

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iii. Decrease in total dry weight from day 0 to day 8 (1mark)

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iv. Increase in total dry weight after day 8 (1mark)

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d) State two factors within the seed and two outside the seed that cause dormancy

i. Within the seed. (2marks)

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ii. Outside the seed (2marks)

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e) Give two characteristics of meristematic cells (2marks)

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7. Describe how the human kidney functions (20marks)

8. Explain how <u>abiotic</u> factors affect plants. (20marks)

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ANSWERS:

Order a copy of answers from www.schoolsnetkenya.com/order-e-copy

NB> We charge Kshs. 100 ONLY to meet website, e-resource compilation and provision costs