Name…… **Index No. …….**

School ……...

231/2
BIOLOGY
(THEORY)
PAPER 2
JULY / AUG. 2007
2 HRS

NANDI NORTH DISTRICT MOCK EXAMINATION-2007

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

231/2
BIOLOGY
(THEORY)
PAPER 2
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INSTRUCTIONS TO CANDIDATES

- This paper contains two sections
- Answer all questions in section A
- In section B answer question 6 (compulsory) and either question 7 or 8 in the spaces provided.

For Examiner's Use Only.

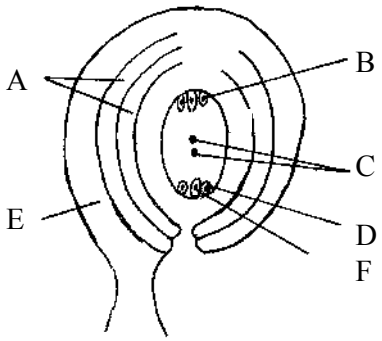
Section	Question	Maximum Score	Candidate's score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
TOTAL SCORE		80	

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 (40 MARKS)

Answer all questions in the spaces provided.

1. The figure below shows the structure of the embryo sac. (2mks)



a)(i) Name the parts labelled

B …… (1mk)

C …….. (1mk)

F …… (1mk)

(ii) State what happens to A and E after fertilization.

A …….. (1mk)

E …… (1mk)

b) Name the hormone that promotes fruit development after fertilization. (1mk)

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c) Define the term fruit. (2mks)

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2. a) Name the sugar in

(i) DNA (1mk)

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(ii) RNA (1mk)

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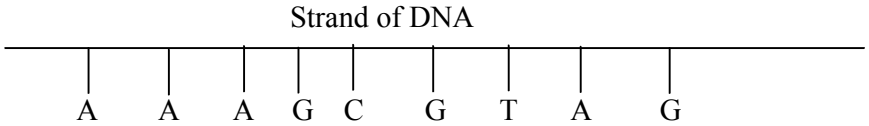
b) The figure below shows the sequence of Nitrogenous bases on part of strand of DNA.



c) (i) Draw a complementary strand of the messenger RNA (mRNA) indicating the complementary bases. (1mk)

(ii) Give the name of the mutation type that occurs when the sequence of a base is altered. (1mk)

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c) In humans, red-green colour blindness is determined by a sex-linked gene. The allele for normal sight is represented by letter **R** and that of colour blindness is represented by letter **r**. A carrier female married a colour blind male. Work out the genotypes of F1 generation. (4mks)

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3. a) State one instance when the concentration of carbon (IV) oxide increases in blood. (1mk)

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b) Name the site for gaseous exchange in a mammalian lung. (1mk)

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c) How is the structure above modified to perform its function? (4mks)

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d) Explain the importance of rings of cartilage in trachea of mammals being C-shaped and not complete circular rings? (2mks)

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4. a) What is adaptive radiation? (2mks)

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b) How would *staphylococcus sp* of bacteria develop resistance to antibiotics? (3mks)

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c) In Malaria infested regions of Africa, infants with sickle cell trait have a better chance of survival than a homozygote. Explain. (3mks)

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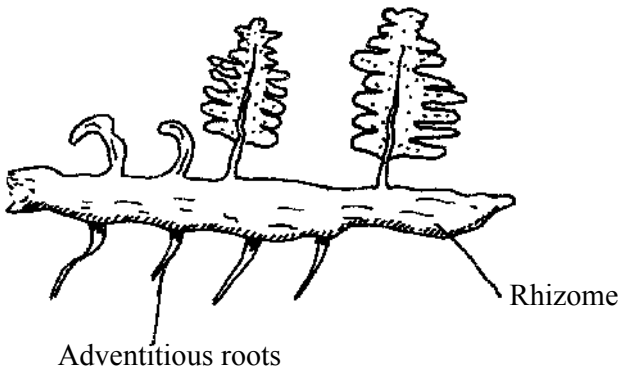
5. Below is a diagram of a plant a form three student collected while carrying out an ecological study.



(a) With reasons identify the division into which the students classified the plant.

Division …… (1mk)

Reasons (2mks)

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b) (i) Name the structure that produces spores in this plant. (1mk)

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(ii) State two differences between the plant above and those belonging to the phylum spermatophyta.

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c) State the features of this plant that made the student classify it in the kingdom plantae. (2mks)

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SECTION B (40 MARKS)

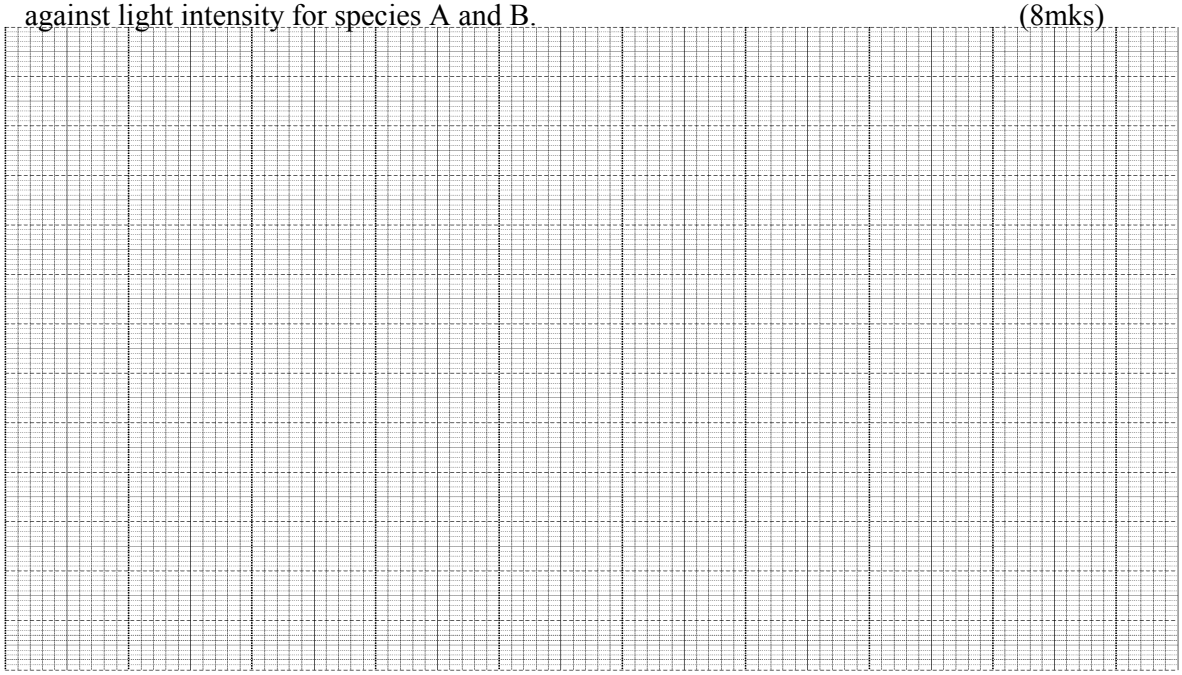
Answer question 6 (compulsory) and either question 7 or 8

6. Plant species A and B grow naturally in different habitats. In an experiment the exchange of carbon (IV) oxide between the atmosphere and species A and B was determined over a range of light intensities from darkness to the equivalent of mean noon sunlight. A constant temperature was maintained throughout the experiment. The data obtained is shown below.

Light intensity as a percentage noon sunlight	Net carbon (IV) oxide absorption in arbitrary units	
	Species A	Species B
0	-0.1	-0.8
10	3.0	0.5
20	5.3	3.5
30	6.5	7.0
40	6.5	9.3
50	6.7	11.5
60	6.8	13.2
70	7.0	15.0
80	6.5	17.0
90	6.8	18.0

100	6.7	19.0

a) Using a suitable scales, Draw graphs of Net Carbon (IV) oxide absorption in arbitrary units against light intensity for species A and B. (8mks)



b) Give a reason for the behaviour of curve B as seen on the graph. (1mk)

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c) (i) Using the graphs drawn, state the possible habitat of species A. (1mk)

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

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d) Other than light intensity, explain how three the factors affect the rate of photosynthesis. (6mks)

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e) (i) Define the term photosynthesis. (1mk)

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(ii) Name two important products of light stage in photosynthesis. (2mks)

7. Explain how the various activities of man have caused pollution of air. (20mks)

8. a) Describe secondary thickening in flowering plants. (13mks)

b) Describe one method which can be used to measure the average growth of a root seedling. (7mks)