

NAME: _____ ADM NO. _____

SCHOOL _____ DATE _____

CANDIDATE'S SIGNATURE _____

231/2
BIOLOGY PAPER TWO
FORM FOUR
MARCH/APRIL 2013
TIME: 2 HOURS.

BARINGO NORTH TRIAL EXAMINATIONS-2013
Kenya Certificate of Secondary Education (K.C.S.E.)
FORM FOUR BIOLOGY PAPER TWO.

INSTRUCTIONS TO CANDIDATE

- Ø Write your name and **Index number** in the spaces provided.
- Ø Answer **ALL** the questions in section **A** in the spaces provided
- Ø 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	Candidates Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	Total Score	80	

This paper consists of 8 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no question is missing.

SECTION A: 40 MARKS)

Answer ALL the questions in this section in the spaces provided.

1. In human beings the phenotypes with respect to the condition of sickle anaemia are as follows:

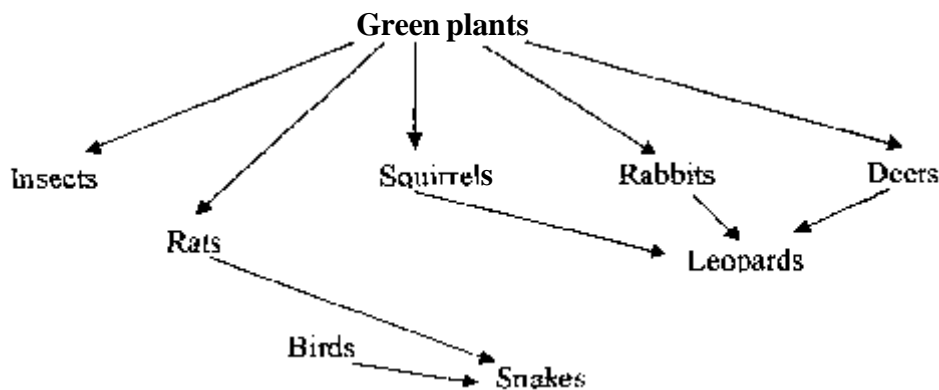
Phenotype	Genotype
Unaffected	HbS HbS
Sickle cell trait	HbS Hbs
Sickle cell anaemia	Hbs Hbs

a) Carry out a genetic cross to predict the outcome of a man and a woman with the sickle cell trait. (4 marks)

b) What are the phenotypic and genotypic ratios?. (2 marks)

c) Name the two possible sets of chromosomes that can be found in a normal cell. (2 marks)

2. The diagram below represents a food web from Lake Nakuru national park

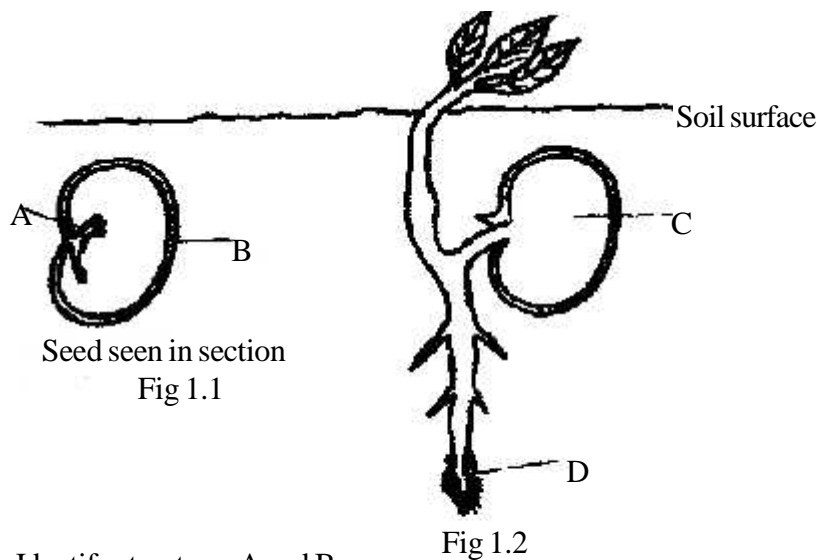


a) With a reason, identify the organism with the largest biomass. (2 marks)

b) From the food web isolate a food chain ending with snakes as tertiary consumer. (1 mark)

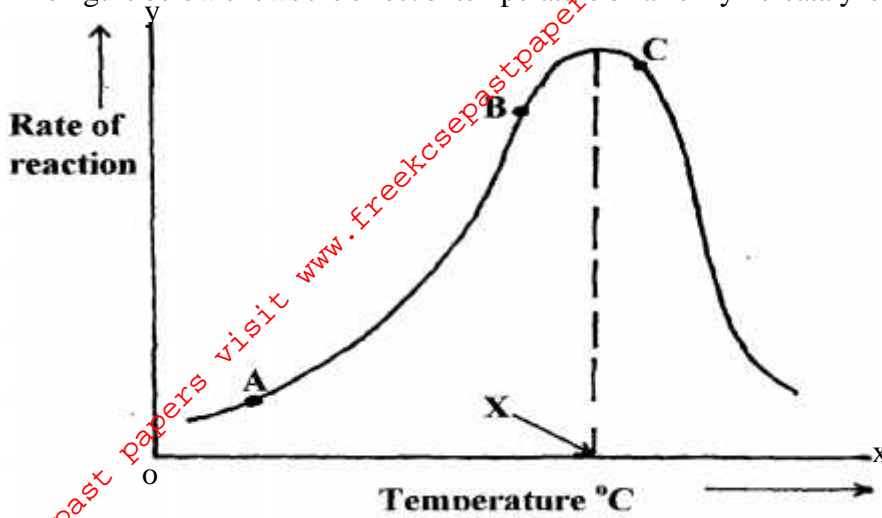
- c) i) Name any two organisms not shown in the food web but would be present in the ecosystem. (1 mark)
-
- ii) What is the role of the organisms stated in (i) above in the ecosystem. (2 marks)
-
- d) From the food web, snakes and leopards feed on rabbit. What name is given to this kind of competition. (1 mark)
-
- e) Name an organism that may be both secondary and tertiary consumer. (1 mark)
-

3. Fig 1.1 Shows a seed before germination and Fig 1.2 shows the same seed after it has become a seedling



- a) Identify structures A and B (2 marks)
- A _____
- B _____
- b) i) Suggest a food likely to be stored at C. (2marks)
-
- 2) Explain how this food:-
- i) Is made available for the process of germination. (2 marks)
-
- ii) Travels to D in fig. 1.2
-
- iii) Is used at D (2 marks)
-

4 The figure below shows the effect of temperature on an enzyme-catalyzed reaction.



a) Account for the shape of the graph:

i) Between points A and B (2 marks)

ii) Beyond C (2 marks)

b) What is point X? (1 mark)

c) Name two other factors that affect an enzyme-catalyzed reaction. (2 marks)

d) State the enzyme found in living tissues that breaks down hydrogen peroxide. (1 mark)

5. State the function of each of the following apparatus. (1 mark)

i) Sweep net

ii) Pooter

b) What is a species? (1 mark)

c) State three principles that govern binomial nomenclature. (3 marks)

d) Why is classification of living organisms necessary (2 marks)

SECTION B

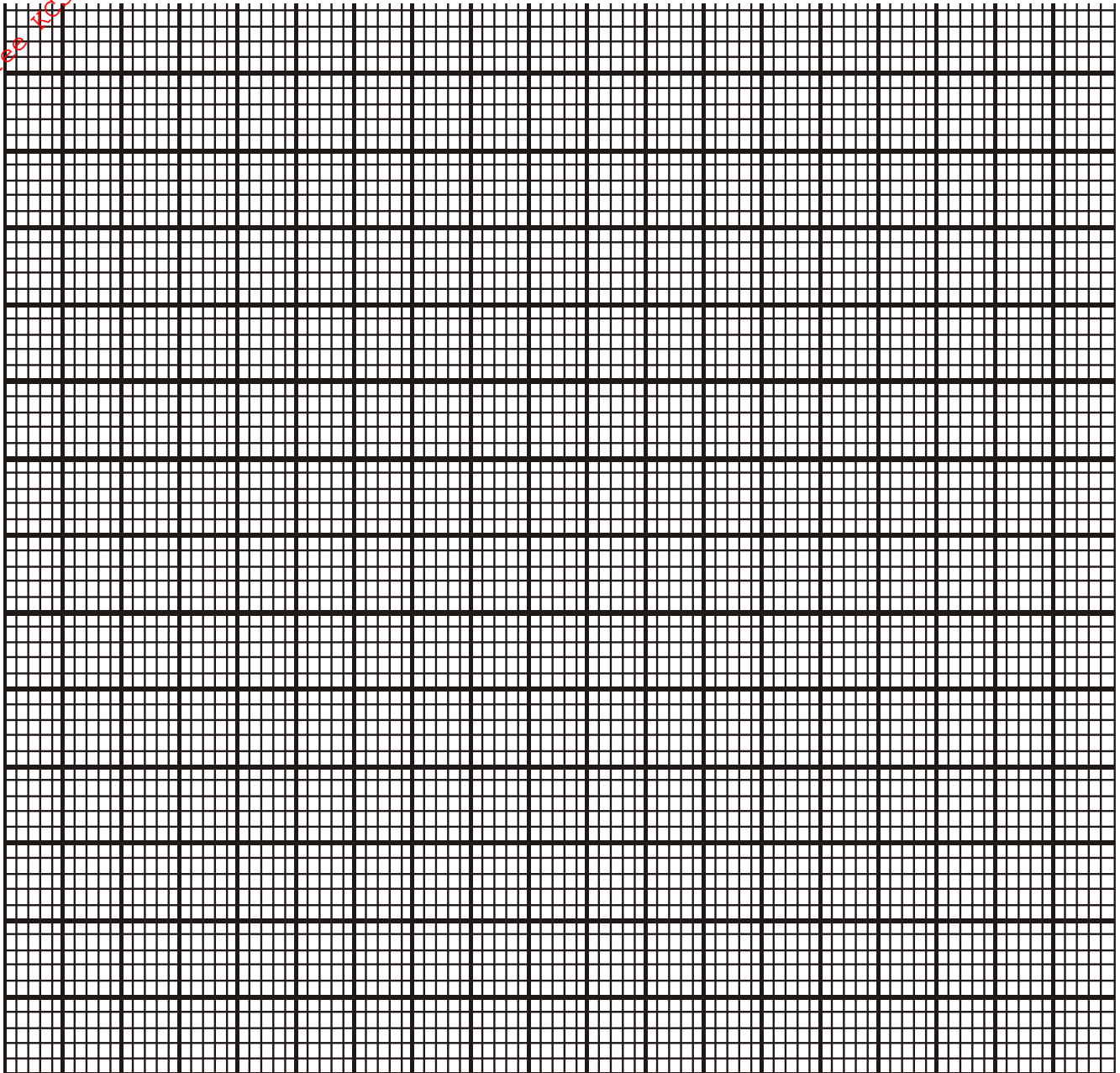
(40 MARKS)

Answer question 6 (Compulsory) and either 7 or 8 in the spaces provided

6. A man carried out an experiment to find out the effect of water and 0.9% salt solution on urine production. On the first day he drank one litre of water (X). On the second day he repeated the experiment but instead of water, he drank one litre of 0.9% salt solution (Y). The experimental results are as shown in the table below.

Time (hours)		0.0	1.0	1.5	2.5	4.5	5.5	6.5	7.5
Amount of urine produced in cm ³ per hour	X	80	60	360	520	60	100	40	60
	Y	40	40	40	45	100	60	80	100

- a) Using a suitable scale, draw graphs of urine produced in cm³ per hour against time.



b) From the graph determine the:-

i) Amount of urine produced in the second hour when the man drunk one litre of water. (1 mark)

ii) The rate of urine production between the first and second hour after the man had drunk one liter of water. Show your working. (2 marks)

c) What does the shape of the curve representing column X tell us about the rate of urine production? (2 marks)

d) Explain the difference between the rate of urine production in graph X and Y. (2 marks)

e) Why do you think that drinking one litre of (0.9%) sodium chloride solution made litre difference to the urine output? (2 marks)

f) What does the comparisons of the results of the experiment indicate the effect of the kidney on the osmotic pressure of the blood plasma? (2 marks)

g) What does the results of the experiment indicate about the effect of the kidney on the volume of blood plasma? (2 marks)

