NAME……INDEX NO……

SCHOOL…….. DATE……

SIGN……

231/2
BIOLOGY
PAPER 2
JULY/AUGUST 2013
TIME: 2 HOURS

NAKURU DISTRICT TRIAL EVALUATION TEST 2013

Kenya Certificate of Secondary Education

INSTRUCTIONS TO CANDIDATES

- **Answer all questions in section A in the spaces provided**
- **Section B: Question 6 is compulsory, Answer either question 7 or 8**

FOR EXAMINERS USE ONLY

Section	Question	Maximum score	Candidate score
A	1 2 3 4 5	8 8 8 8 8	
B	6 7 8	20 20 20	
	TOTAL	**80**	

1. A human gene which is Y-linked controls the length of hair on male ears. One allele produces non-hairy ears while the other produces hairy ears, (hairy pinna).

   (a) What are alleles (1mark)

   ……....

   (b) If a man with hairy ears(pinna marries, work-out the phenotypes of his children. (Use letter h to represent gene for hairy pinna). (4 marks)

   ……....

   .....

   .....

   .....

   ……....

   .....

   .....

   .....

   .....

   ……

   (c) Explain why this trait is not observed in females (2marks)

   ……....

   .....

   .....

   .....

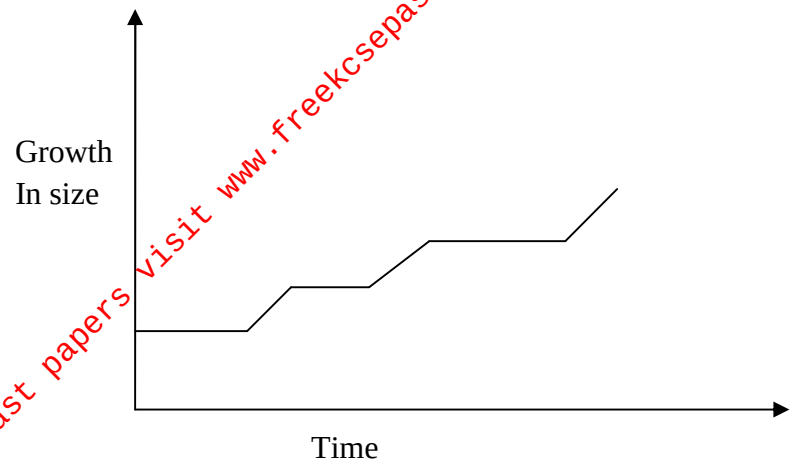
   (d) Give one other trait in man that is Y—linked (1mark)

   ……....

   .....

   .....

2. (a) The graph below represents the growth pattern of animals in a certain phylum



(i) Name the phylum showing the above growth pattern (1mark)

……..

(ii) State the type of growth shown (1mark)

……..

(iii) Explain the growth pattern illustrated by the graph (3marks)

……..

.....

.....

.....

……

……

(b) Explain the meaning of

(i) Growth……..(1mark)

……

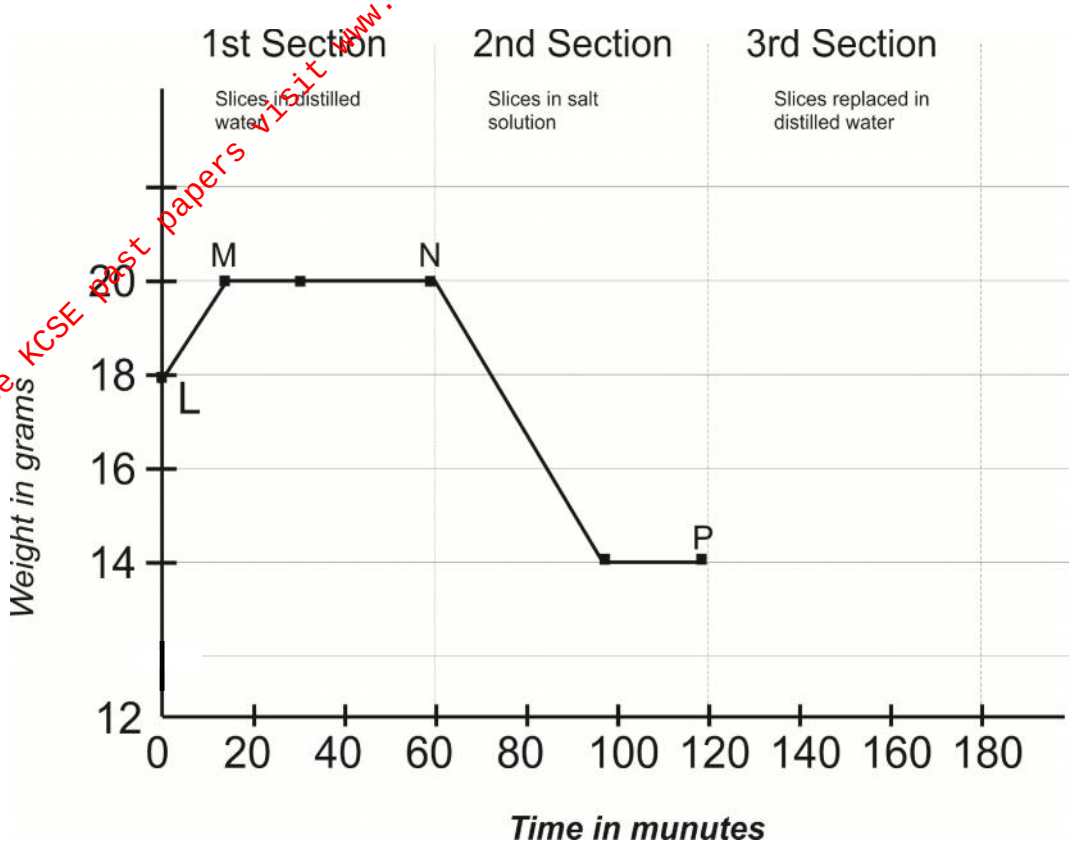
(ii) Development…….. (1mark)

……

(ii) Cleavage…….(1mark)

……

3. In an experiment some slices were cut from a living potato tuber and were immersed in distilled water for one hour. After that the slices were immersed in a concentrated salt solution for another one hour. The slices were taken out of the liquid, weighed and immersed again in the liquid at regular intervals. The results are shown in the graph below. Point **L** shows the beginning of the experiment.



a) Give the name given to the condition of the cells of the slices at point **L** (1mark)

……

b) (i) find the change in weight between **L** and **M** (1mark)

……

……

……

(ii) Which process brings about this change in weight? (1mark)

……

……

……

(c) Explain the condition of the cells at point **N**. (2mark)

……

……

……

……

(d) The slices were removed from the concentrated salt solution at point P and washed in distilled water. Draw a curve on the graph, to show what would happen in the next one hour in the third section. (1mark)

(e) State two characteristics of active transport (2marks)

……

……

……

4. (a) Explain how carbon (IV) oxide produced by respiring mesophyl cells of flowering plants reaches the atmosphere (4 marks)

……

……

(b) How are submerged hydrophytes adapted for gaseous exchange (2marks)

……

……

……

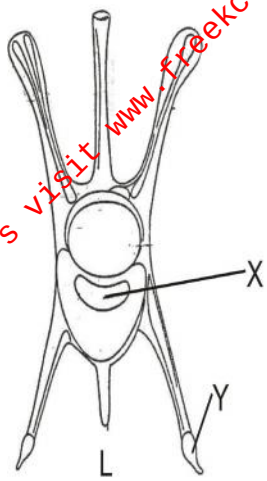
……

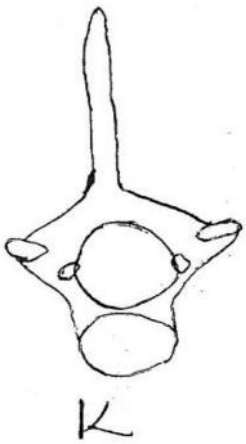
(c) State 2 respiratory diseases in Man (2marks)

……

……

5. The following figures are anterior views of two vertebrae





a) Identify the vertebra (2marks)

K…… **L**……

b) State where vertebra **K** is located in human body (1mark)

……

c) Name two parts labeled **X** and **Y** in vertebrae **L** (2marks)

X…… **Y**……..

d) How is vertebra **K** adapted to its function (3marks)

……

……

……

……

6. An investigation was carried out between 2003 and 2012 to study the changes of fish population in a certain small lake. Four species of fish, **T, W, M, P** were found to live in this lake. In 2004 a factory was built near the lake raising the average temperature from 25^{o}C to 30^{o}C. In 2005 sewage and industrial waste from a nearby town was diverted into the lake. 2007, discharge of hot water, sewage and industrial waste into the lake was stopped. The fish population during the period of investigation are shown in the table below.

Fish species	2003	2005	2007	2009	2010	2011	2012
T	5900	200	17	100	700	4300	8000
W	300	25	8	19	60	400	508
M	30	120	0	0	0	0	0
P	4300	260	25	30	35	510	807

(a)(i) In which year were the fish population lowest? (1mark)

……..

(ii) State the factors that might have caused the lowest fist population during the year you have stated in (a)(i) above (3marks)

……

……

……

(iii) Explain how each factor you have stated in (a)(ii) above could have brought about the changes in fish population (6marks)

……

……

……

……

……

……

……

……

(b)(i) What is the difference in the rate of population recovery of species T and P? (3marks)

……

……

……

……

……

……

(ii) Suggest two biological factors that could have led to this difference (2marks)

……

……

……

(c) (i) State a method that might have been used in estimating the fish population in the lake? (1mark)

……

(ii) State one advantage of the method you have stated in (c) (i) above (1mark)

……

……

(iii) State three limitations of the method named in (c) (i) above. (3marks)

……

……

……

……

……

……

7. How is the mammalian skin adapted to its functions (20 marks)

8. (a) Explain the role of Auxin in Geotrophic response in plants (5 marks)
   (b) Describe other roles of hormones in the growth and development of plants (15 marks)