

Name Index No
School Candidates Sign
Date

231/2
Biology Paper 2 (Theory)
July 2014
TIME: 2 HOURS

KAMUKUNJI DISTRICT KCSE EVALUATION TEST

Instructions to candidates

1. Write your name and index number in the spaces provided above.
2. Sign and write the date of examination in the space provided above.
3. The paper consists of sections A and B.
4. Answer all questions in section A in the space provided.
5. In section B answer question 6 (compulsory) and either 7 or 8 in the space provided.
6. Candidates should check the question paper to ascertain that all the pages are printed as indicated and no question is missing.

For Examiner's Use Only

Section	Question	Maximum Score	Candidates Score
A	1	08	
	2	08	
	3	08	
	4	08	
	5	08	
Section B	6	20	
	7	20	
	8	20	
Total		80	

SECTION A

Q 1. (a) i) Name a carbohydrate secreted in the duodenum. (1 mk)

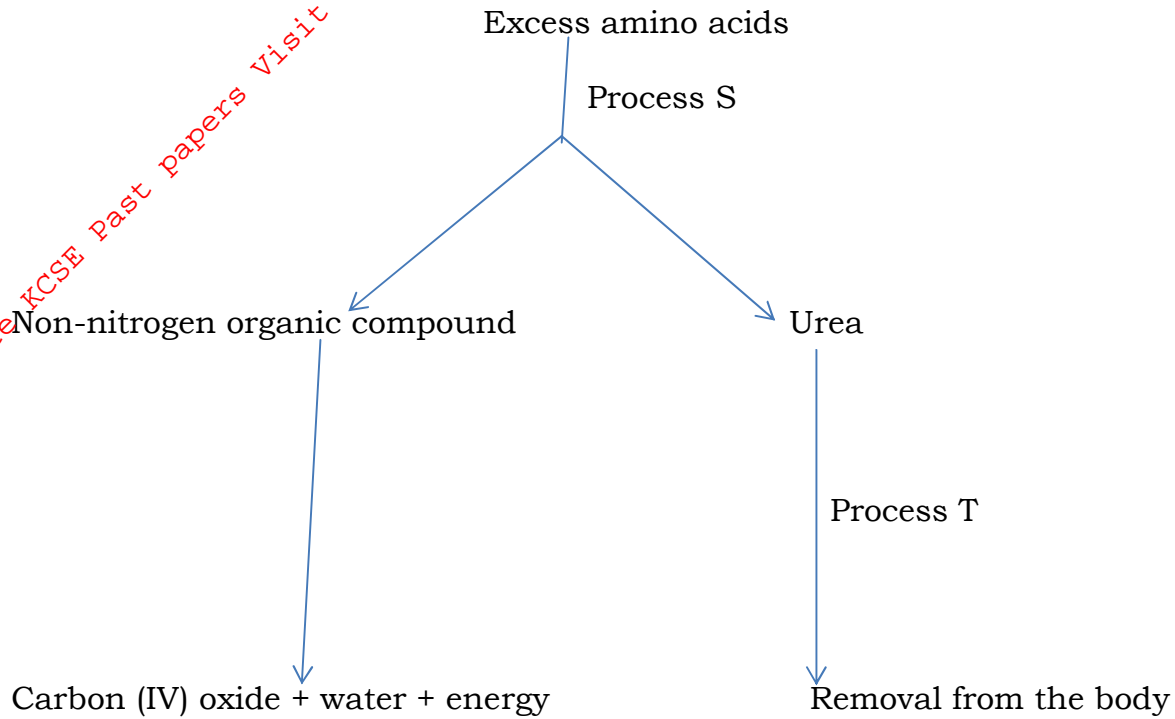
ii) Name the organ that secretes the carbohydrate you named in (a) (i) above. (1 mk)

(b) State the function of carbohydrate (1 mk)

(c) Name three characteristics of organic catalysts found in the gut. (3 mks)

(d) State two ways in which food physically digested along the alimentary Canal (2 mks)

Q2. Proteins are present in a balanced diet. They are broken down into amino acid, the body cannot store amino acids, and so any excess amino acids are metabolized as shown below.



(a) Names the process S and T, stating the organ in which each occurs.

Process	Name	Organ
S		
T		

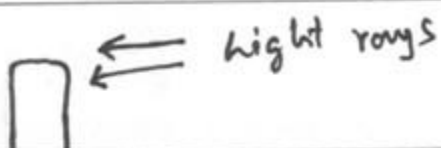

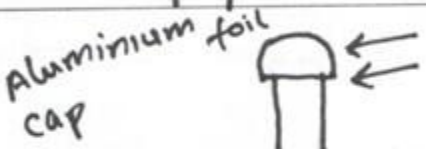





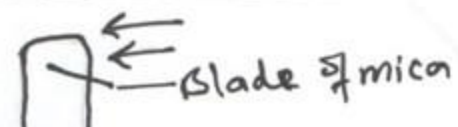

(b) Describe how urea is transported to the site of removal from the body.

(2 mks)

(c) State the type of respiration shown, giving a reason to explain your answer

(2 mks)

3. An experiment was set up to investigate the effect of unilateral light on the growth of oat coleoptiles. The diagrams below represent the experiment set up at the start, and the results at the end of the experiment.

SET UP	START OF EXPERIMENT	RESULTS
A		
B		
C		
D		
E		

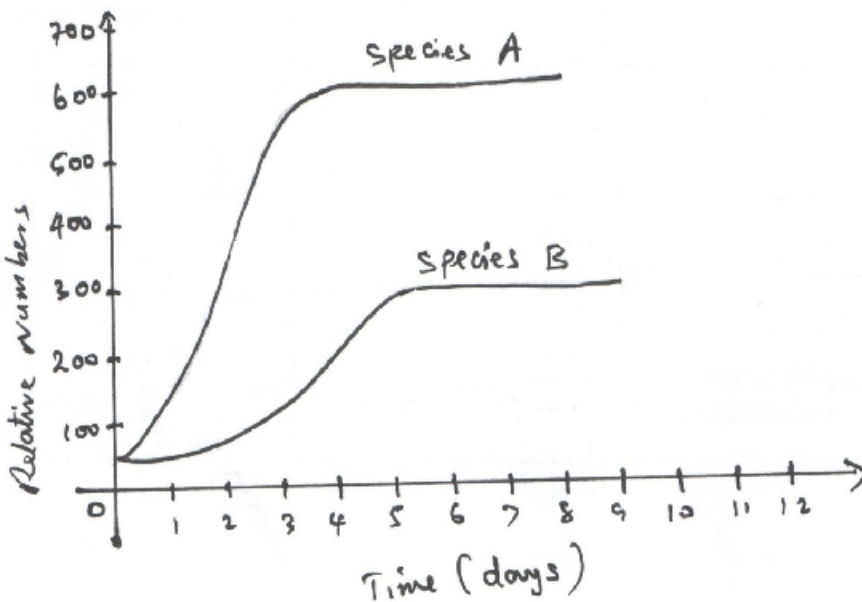
(a) Account for the results in the experiment set up A. (3 mks)

(b) Explain the purpose of experimental set-up B and C. (3 mks)

(c) Explain the results in experimental set ups D and E

(2 mks)

4. Two bacteria strains were introduced in a culture in a petri dish at the same time and in equal numbers. The graph below represents their population during the first days. Study the graph and answer the questions that follow:



(a) i) Which species has a better competitive ability?

(1 mk)

ii) Give a reason for your answer.

(1 mk)

(b) Account for the shape of the curve for species A between.

(i) One day and three days.

(2 mks)

(ii) Three days and seven days (2 mks)

(c) A natural predator for species A was introduced into the ecosystem with a reason. State how population of each species would be affected. (3 mks)

5 (a) What is meant by genetically modified organism. (1 mk)

(b) Njoki is an albino. Her husband Mwenda has normal skin colour. Two of their children have normal skin colour while two are albinos.

(i) Give the genotypes of Njoki and Mwenda. (2 mks)

Njoki

Mwenda

(ii) Illustrate the cross between the two parents. (4 mks)

(iii) Give the phenotypic ratio of offsprings. (1 mk)

SECTION: B

The table below shows the changes observed in the dry weight (in milligrams) of a barley seedling, its embryo and endosperm during the first ten days after the onset of germination.

TIME (DAYS)	DRY WEIGHT IN MILLIGRAMS		
	EMBRYO	ENDOSPERM	WHOLE SEEDLING
0	2	41	45
2	2	39	43
4	7	32	41
6	15	21	38
8	22	11	35
10	35	6	43

(a) Using a suitable scales on the same axis, plot graphs of dry weight of embryo endosperm and whole seedling against time. (8 mks)

(b) State and account for the changes in dry weight shown by:

(i) Embryo (4 mks)

(ii) Endosperm (4 mks)

(c) Explain the role of water during germination. (4 mks)

7. (a) Describe one method which can be used to measure growth rate of a single leaf plant (6 mks)

(b) Describe secondary thickening in flowering plants. (14 mks)

8. (a) State two factors which increase the rate of mutation. (2 mks)

(b) Describe the various types of chromosome mutations and their effects in human beings. (18 mks)