NAME: ……..INDEX NO:…….

SCHOOL: ……..SIGNATURE :……

DATE: ……

231/2
BIOLOGY
THEORY
Paper 2
July/August, 2016
Time: 2 Hours

KAKAMEGA SOUTH SUB-COUNTY JOINT EVALUATION TEST – 2016

Kenya Certificate of Secondary Examination (KCSE)

231/2
BIOLOGY
THEORY
Paper 2

INSTRUCTIONS TO CANDIDATES

1. Write your name, index number and school in the spaces provided
2. Sign and write the date the examination was done in the spaces provided
3. This paper consists of two sections, section A and section B. Answer ALL the questions in section A in the spaces provided on the question paper. In section B, answer question 8
4. (compulsory) and either question 7 or 8 in the spaces provided after question 8
5. Be brief and precise. Unnecessary information and wrong spellings especially of technical terms shall be penalized
6. This paper consists of 8 questions on 8 printed pages. Candidates are advised to check the question paper carefully to ensure that all the pages are printed as indicated and no questions are missing
7. All answers must be written in the English language

FOR EXAMINER'S USE ONLY

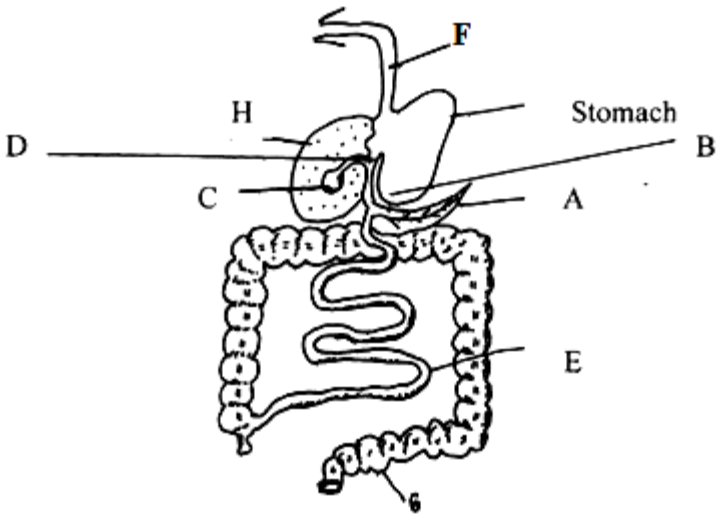
QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1-27	80	

This paper consists of 8 printed pages Check the Question paper to ensure that all pages are printed as indicated and no question are missing.

SECTION A (40 MKS)

Answer ALL the questions in this section in the spaces provided on the question paper.

1. The diagram below shows part of the mammalian digestive system



a) Name the parts labeled A, B and D (3 mks)

A……

B ……..

D……

b) State the functions of the parts labeled C and E (2 mks)

C……

F……

c) What are the adaptations of the stomach to its function (2 mks)

……

……

d) Name a deficiency disease resulting from lack of proteins in the diet (1mk)

……

2. a) What is diffusion? (1mk)

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

i) Diffusion gradient (1 mk)

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ii) Surface area to volume ratio (1 mk)

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iii) Temperature (1 mk)

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c) Outline four roles of active transport in the human body (4 mks)

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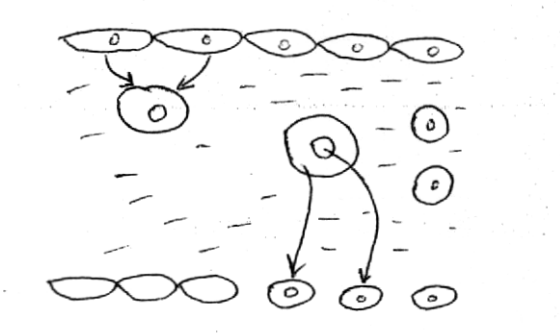
3. Use the diagram below to answer the questions that follow.



a) Name the gas that diffuses

i) To the body cells (1 mk)

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ii) From the body cells (1mk)

……

b) Which compound dissociates to release the gas mentioned in a) ii) above? (1 mk)

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c) i) What is tissue fluid? (2 mks)

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ii) What is the importance of tissue fluid? (1 mk)

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d) Name the blood vessel (s) in the human body with the highest concentration of:

i) Glucose after a meal rich in carbohydrates. (1 mk)

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ii) Carbon (IV) oxide. (1 mk)

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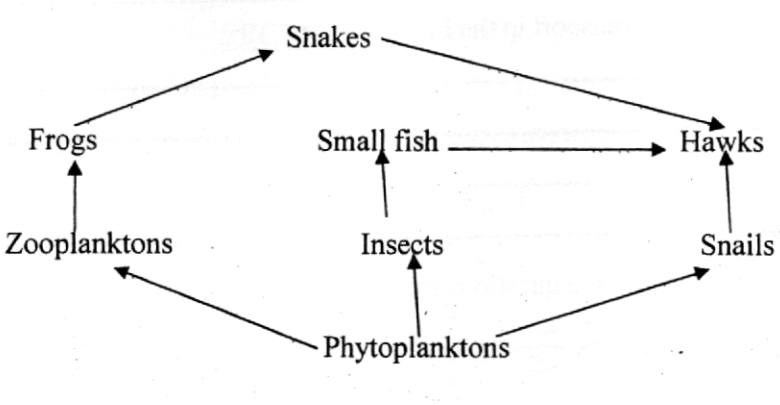
4. The flow chart below shows a feeding relationship in an aquatic ecosystem



a) Name the:

i) Producers in this ecosystem (1mk)

……

ii) Organisms that occupies the highest trophic level (1mk)

……

b) Write a food chain that ends with the hawk as a secondary consumer (1mk)

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c) If all the frogs died, state two short-term effects on this ecosystem. (2mks)

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d) Oil spills on water bodies leading to the death of fish. Explain. (2 mks)

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e) Give one other cause of water pollution other than oil spills. (I mk)

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5. Black colour is due to a dominant gene in rats. Two black rats were crossed and their F_1, generation was in the ratio of 3 black: 1 white. Using letter B to represent the gene for black colour and b for white colour, give the:

a) i) Genotypes of the parents. (2 mks)

……

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ii) Gametes of the parents (2 mks)

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iii) Genotypic ratio of the F1 generation (3 mks)

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b) What is meant by the term test cross as used in genetics? (1 mk)

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SECTION B(40 MKS)

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

6. An experiment was carried out to investigate the population growth of rats in a laboratory. Twenty young rats were placed in cage. The amount of food available to the rats each day was kept constant. The results obtained are shown in the following table

Time in Months	0	2	4	6	8	10	12	14	16	18
Number of Rats	20	20	65	115	310	410	390	190	145	160

a) Using the grid provided on page 6, draw a graph of the number of rats against time (6 mks)

b) With reference to the graph, account for the changes in the population of rats between:

1) 0 to 2 months (2 mks)

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ii) 2 to 10 months (2mks)

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c) Between which two months was the population change greatest (1 mk)

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d) Calculate the rate of population change over the period you have mentioned in c) above. (3 mks)

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e) What population changes would be expected if the investigation was continued for a further 24 months. (2 mks)

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f) State four factors that would cause rapid human population growth (4 mks)

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7. Describe the adaptations of the human skin to its functions. (20 mks)

8. a) Define evolution (2mk)

b) Discuss the various evidences of organic evolution (18 mks)

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