Name_____ **Index No.** _____

Candidate's signature _____

Date _____

231/2
BIOLOGY
PAPER 2
THEORY
JULY/AUGUST 2014
2 HOURS

KATHONZWENI SUB-COUNTY FORM 4 PRE-TRIAL EXAMINATION
Kenya Certificate of Secondary Education
BIOLOGY
PAPER 2
2 HOURS

INSTRUCTIONS TO CANDIDATES
(a) Write your name and index number in the spaces provided above.
(b) Sign and write the date of examination in the spaces provided above.
(c) This paper consists of two sections A and B
(d) Answer all the questions in section A in the spaces provided
(e) In section B answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

For examiner's use only

Question	**Maximum score**	**Candidate's score**
1	8	
2	8	
3	8	
4	8	
5	8	
6	20	
	20	
Total score	80	

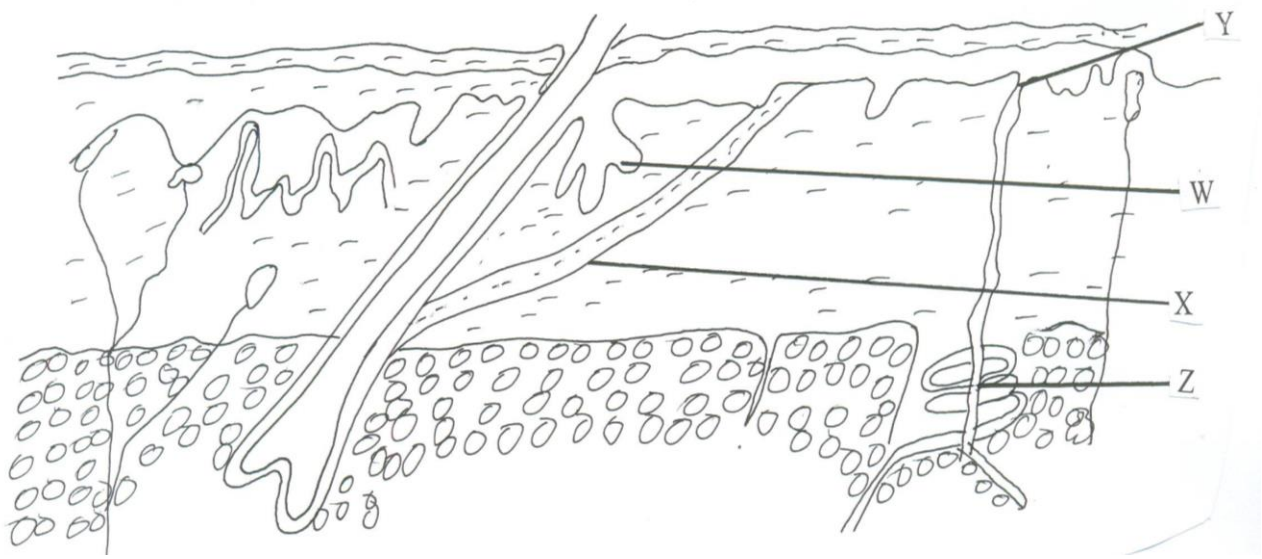
This paper consists of 11 printed pages

Turn Over

SECTION A 40 MARKS

Answer all the questions in this section in the space provided

1. The diagram below shows a section through the mammalian skin



(a) Name the parts labelled W and X (2mks)

W _____

X _____

(b) State the function of the parts labelled Y and Z (2mks)

_____

_____

_____

_____

(c) Explain the changes that occur in the skin when it is cold (4mks)

_____

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2. (a) Eye colour in fruits flies is sex-linked. Red eye colour R is dominant to white eye colour r
A heterozygous red –eyed female fly was crossed with a white eyed male

(i) Show the parental genotypes (1mk)

_____

_____

_____

(ii) By means of a genetic cross, determine the genotypic ratio of the offsprings (4mks)

(iii) Explain why the actual phenotype ratio obtained from this cross could differ from the Expected (1mk)

_____

_____

_____

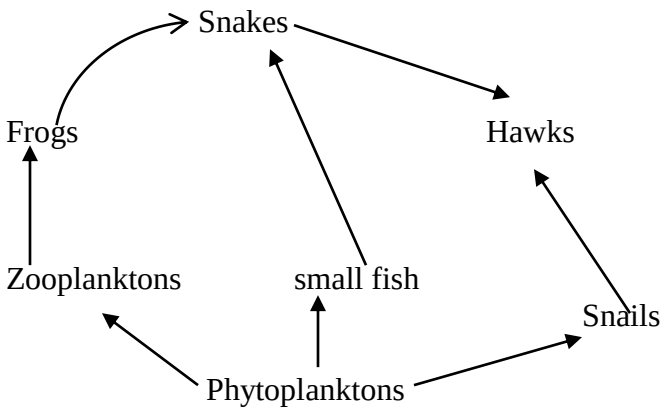
(b) Name two disorders due to non-disjuction (2mks)

_____

_____

_____

3. The diagram below represents a feeding relationship in an ecosystem.



(a) Name the type of ecosystem represented by the above food web (1mk)

_____

_____

_____

(b) Name the organism in the food web that

(i) Is a producer

_____

_____

_____

(ii) Occupies the highest tropic level. (1mk)

_____

_____

_____

(c) (i) Write a food chain that ends with the hawk as a quarternary consumer. (1 mk)

_____

_____

_____

_____

(ii) State two short terms effects on the above ecosystem if all the small fish were killed (2mks)

_____

_____

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_____

(d) (i) How does oil spills lead to death of fish? (1mk)

_____

_____

_____

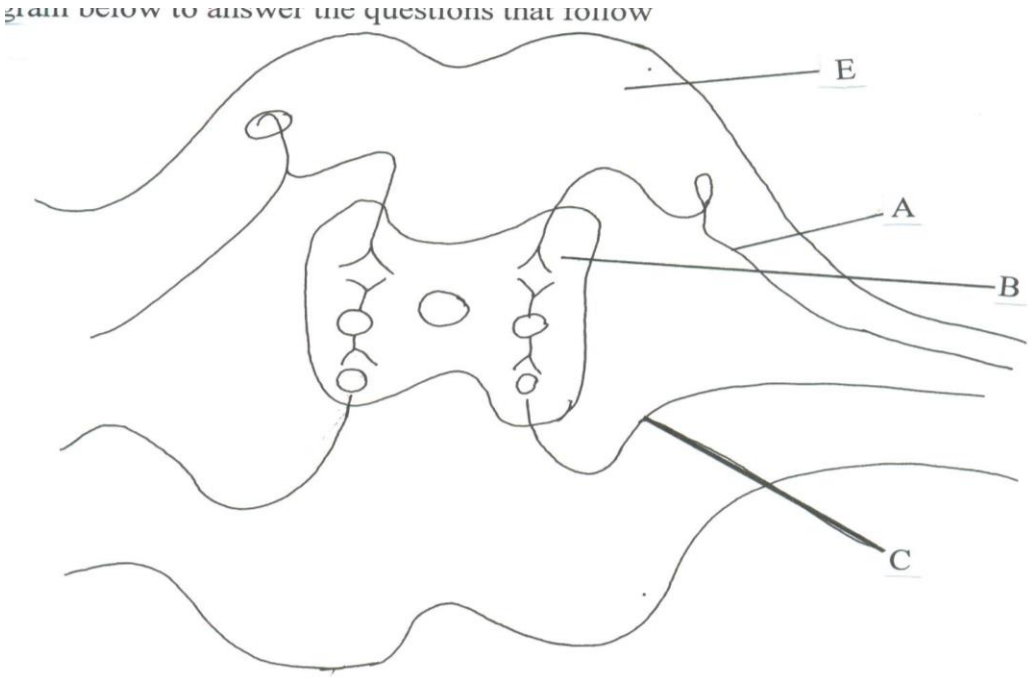
(ii) Name one other cause of water pollution apart from oil spills. (1mk)

_____

_____

_____

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



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

A _____

B _____

C _____

(b) What is the function of the following?

(i) A (1mk)

_____

_____

_____

(ii) C (1mk)

_____

_____

_____

(c) Name a part (not on the diagram) that

(i) Detects a stimulus (1mk)

_____

_____

_____

(ii) Brings about a response (1mk)

_____

_____

_____

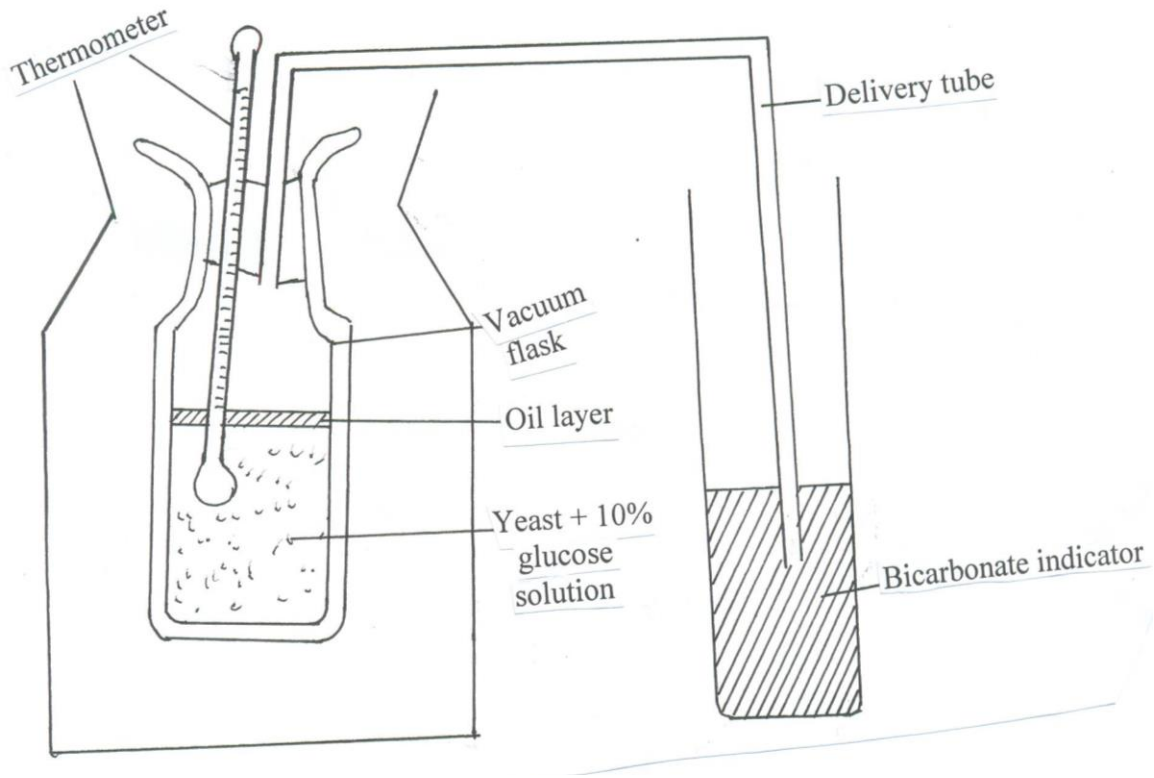
(d) Why is part B darker than part labelled E (1mk)

_____

_____

_____

5. The experiment below was set – up to investigate some physiological processes. The glucose solution was first boiled then cooled. The set up was left for 24 hours



(a) Suggest two aims of the experiment. (2mks)

_____

_____

_____

_____

(b) (i) State the expected observations after 24 hours (2mks)

_____

_____

_____

_____

(ii) Explain your observations in a (i) above (2mks)

_____

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_____

_____

(iii) Why was glucose solution boiled then cooled? (1mk)

_____

_____

(c) Suggest a control for the above experiment. (1mk)

SECTION B – 40 MARKS

6. In an experiment to investigate a certain process in a given plant species, the rate of carbon(iv) oxide consumption and the rate of carbon (iv) oxide released were measured over a period of time of the day. The results of the investigation are shown in the table below.

Time of day (hrs)	6	8	10	12	14	16	18	20	22	24
Carbon (iv)oxide consumption mm^3/min	0	43	69	91	91	50	18	0	0	0
Carbon (iv) oxide released mm^3/min	38	22	10	3	3	6	31	48	48	48

(a) On the same axes, draw the graphs of volume of carbon (iv) oxide consumed and released against time (7mks)

(b) Name the biochemical process represented by

(i) Carbon (iv) oxide consumption (1mk)

(ii) Carbon (iv) oxide release (1mk)

(c) Account for the shape of the curve for

(i) carbon (iv) oxide consumption (3mks)

(ii) Carbon (iv) oxide release. (3mks)

(d) (i) From the graph state the time of the day when the plant attains compensation point (1mk)

_____

_____

_____

(ii) What is made by compensation point? (2mks)

_____

_____

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_____

(e) Explain how temperature affects the rate of carbon (iv) oxide consumption in a plant. (2mks)

_____

_____

_____

_____

7. Explain how the following organisms are adapted to their mode of feeding
   (a) Herbivores (10mks)
   (b) Carnivores (10ms)

8. Describe how fruits and seeds are suited to their modes of dispersal. (20mks)

_____

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_____

ANSWERS:
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