

NAMEINDEX NO.....

SCHOOL.....

231/2
BIOLOGY
PAPER 2
THEORY
JULY / AUGUST 2008
TIME: 2 HOURS

KERICHO /KIPKELION DISTRICT MOCK EXAMINATION Kenya Certificate of Secondary Education 2008

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BIOLOGY
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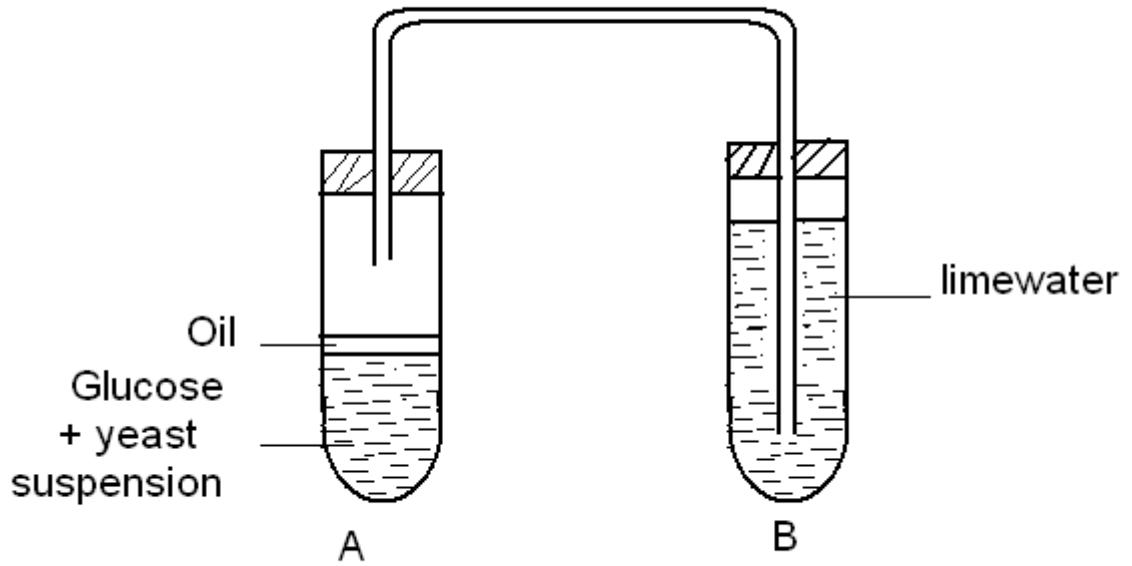
INSTRUCTIONS TO CANDIDATES

- ❖ Write your name and index number in the spaces provided above.
- ❖ This paper consists of 2 sections A and B
- ❖ Answer all the questions in section A in the spaces provide.
- ❖ In section B, answer question 6 (Compulsory) and either question 7 or 8 in the spaces provided after question 8

For Examiners Use Only

Section	Question	Maxi. Score	Candidates Score
A	1	8	
	2	8	
	3	7	
	4	9	
	5	8	
B	6	20	
	7	20	
	8	20	
	TOTAL	80	

1. A student set up the following apparatus for an experiment.



(a) The student boiled the yeast solution before the experiment. **Explain.** (1mk)

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(b) The mixture of yeast suspension and glucose solution was cooled to about 37⁰ C. **Explain.** (1mk)

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(c) **Why** was a layer of oil added to the mixture of glucose and yeast? (1mk)

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(d) State the observations expected in

(i) Tube A (1mk)

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(ii) Tube B (1mk)

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(e) Account for the observations in d (i) and (ii) above. (1mk)

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(f) (i) Apart from carbon (IV) Oxide and energy, what other products can be found in tube A? (1mk)

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(ii) **Explain** how you can confirm this. (1mk)

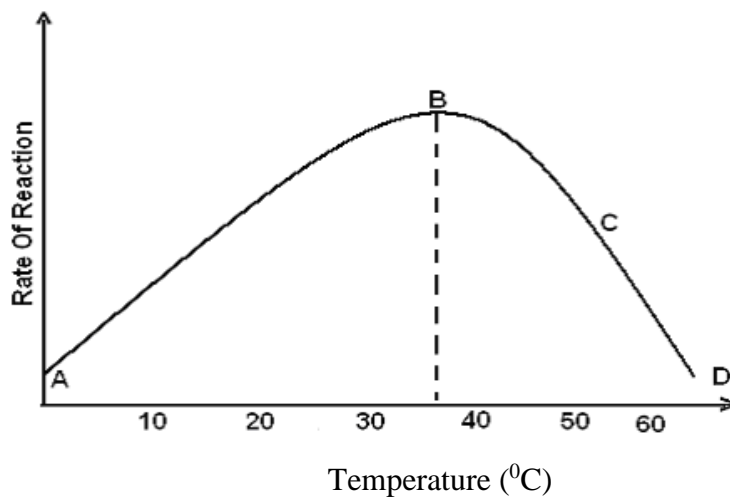
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2. (a) **Explain** the role of enzymes in living cells. (1mk)

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(b) The graph below shows the effects of temperature on the rate of reaction of the enzyme salivary emylase



(i) **Account** for the change in the curve between C and D. (1mk)

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(ii) **What** does the dotted line represent? (1mk)

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(c) **Explain** how the following factors affect the rate of enzyme activity:

(i) Temperature (2mks)

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(ii) Substrate concentration. (2mks)

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3. In cats, sex is determined by X and Y chromosomes in the same way as in humans. One gene for coat colour in cats is present on the X chromosome but not on the Y chromosome. This gene has two alleles Orange (B) and black (b) and X chromosome bearing the B allele is represented by X^B and one bearing the b allele by X^b . Female cats that are homozygous for the X^b allele have black coats; female cats that are heterozygous have tortoiseshell coats. (Orange with dark patches).

(a) Give the genotype of

(i) A female cat with tortoiseshell coat (1mk)

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(ii) A male cat with an orange coat. (1mk)

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(iii) A male cat with a black coat. (1mk)

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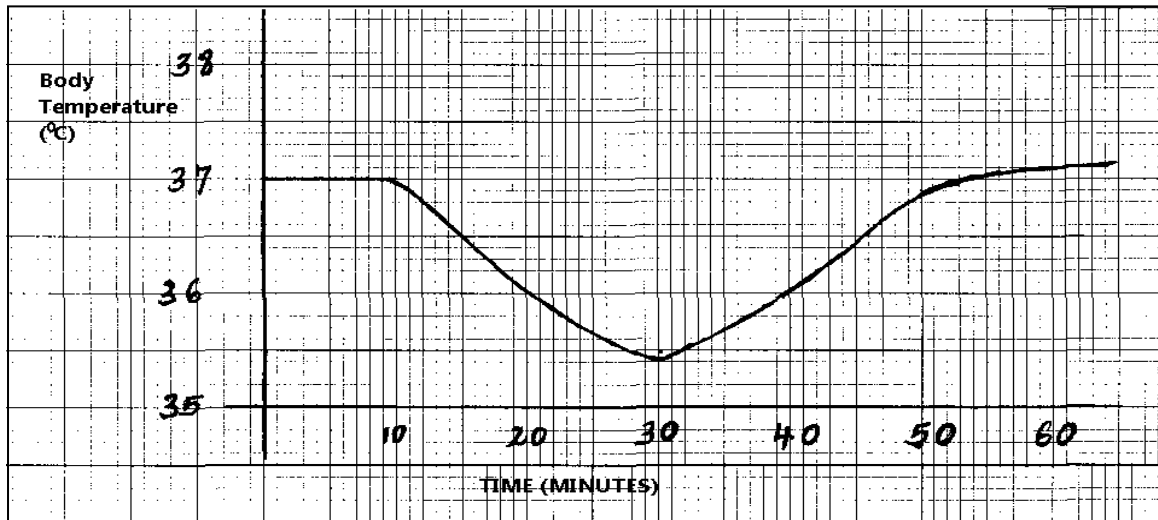
(b) A black coated male cat is mated with a tortoiseshell coated female cat. Use a genetic diagram to explain what would be the expected ratios of the genotypes and the phenotypes of the kittens that could be produced by this cross. (5mks)

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4. (a) What is meant by the term homeostasis? (1mk)

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The figure below shows the body temperature of a person before, during and after taking a cold bath. The temperature of the bath water is 22°C



(b) For how long was the person in the bath? (1mk)

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(c) **Explain** why the person's body temperature fell. (1mk)

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(d) **Explain** the role played by the following in helping to return the body temperature to normal.

(i) The liver (2mks)

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(ii) Blood vessels in the skin. (2mks)

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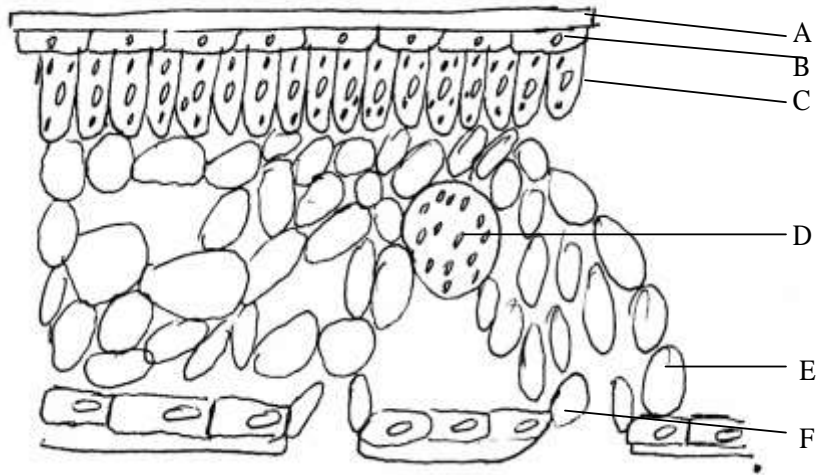
(iii) Muscle of the body. (2mks)

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5. The diagram shows the internal structure of a leaf



(a) Name the parts labeled A, B, C, D, & F (2mks)

- A
- B
- D
- F

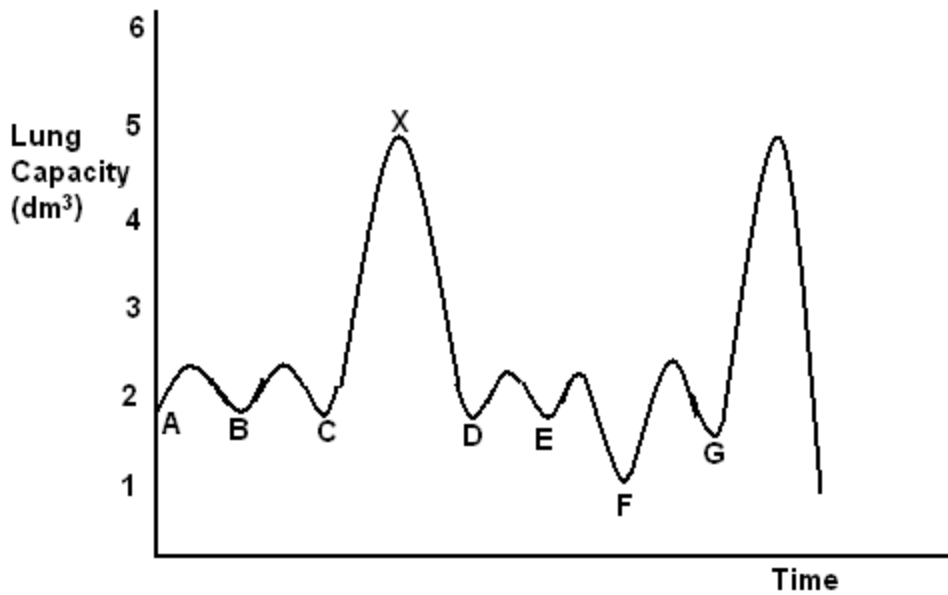
(b) State the functions of the parts labeled A, C, D and F (4mks)

- A
- C
- D
- F

(c) State two structural differences between guard cells and other epidermal cells. (2mks)

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6. The figure below shows the changes in volume of air whilst breathing in and out during a breathing exercise. The letters A to H represents successive breaths.



From the information given in the above figure,

(a) (i) **How much** air leaves the lungs each time you breath out during normal quiet breathing? (1mk)

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(ii) **What** has the person done to achieve peak X on the graph? (1mk)

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(iii) **What** is the greatest volume of air that is expelled in a single, outward breath? (1mk)

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(b) **State one** difference in the flow of the respiratory medium (air or water) in mammals and fish. (1mk)

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(c) **State one** reason why exercise cause an increase in breathing rate. (1mk)

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(d) (i) **What** happens to breathing rate when a person breathes in 100% oxygen?

(1mk)

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(ii) **Suggest** what happens in the lungs and blood of the person. Account for your answer in (i) above? (2mks)

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(e) **Distinguish** between breathing and respiration. (2mks)

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(f) **Describe** the breathing mechanism in man during inhalation. (4mks)

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(g) **Explain** the disadvantages of anaerobic respiration over aerobic respiration. (6mks)

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- 7. **Discuss** the various ways in which seeds and fruits are adapted for dispersal. (20mks)
- 8. **Describe** how the mammalian ear is adapted to perform its functions. (20mks)

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