

NAME:.....
SCHOOL:.....

INDEX NO:.....
DATE:.....
SIGN:.....

231/1
BIOLOGY
PAPER I
(THEORY)
JULY/AUGUST 2012
TIME: 2 HOURS

BURETI DISTRICT JOINT EVALUATION TEST – 2012
Kenya National Examination Council (K.C.S.E)

231/1
BIOLOGY
PAPER I
(THEORY)
JULY/AUGUST - 2012
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

- (a) Write your name and Index number in the spaces provided.
- (b) Answer ALL questions in the spaces provided.

FOR EXAMINERS USE ONLY.

QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
1 – 28	80	

*This paper consists of 8 printed pages.
Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.*

1. Some form one students wanted to collect the following animals for study in the laboratory. State the suitable apparatus they should use.

i) Flying insects (1 mark)

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ii) Crawling stinging insects (1 mark)

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iii) Small animals from tree barks (1 mark)

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2. a) State the role of enzyme catalase in living cells (2 mark)

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b) Which factor inactivates enzyme action? (1 mark)

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3. State the transport and synthetic roles of endoplasmic reticulum

i) Transport role (1 mark)

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ii) Synthetic role (1 mark)

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4. a) What is test cross? (1 mark)

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b) What are homologous chromosomes? (1 mark)

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5. a) What is the significance of diffusion to plant pollination (1 mark)

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b) Explain why movement of air molecules is not energy driven process (1 mark)

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6. a) Name two products of anaerobic respiration in animals (2 mark)

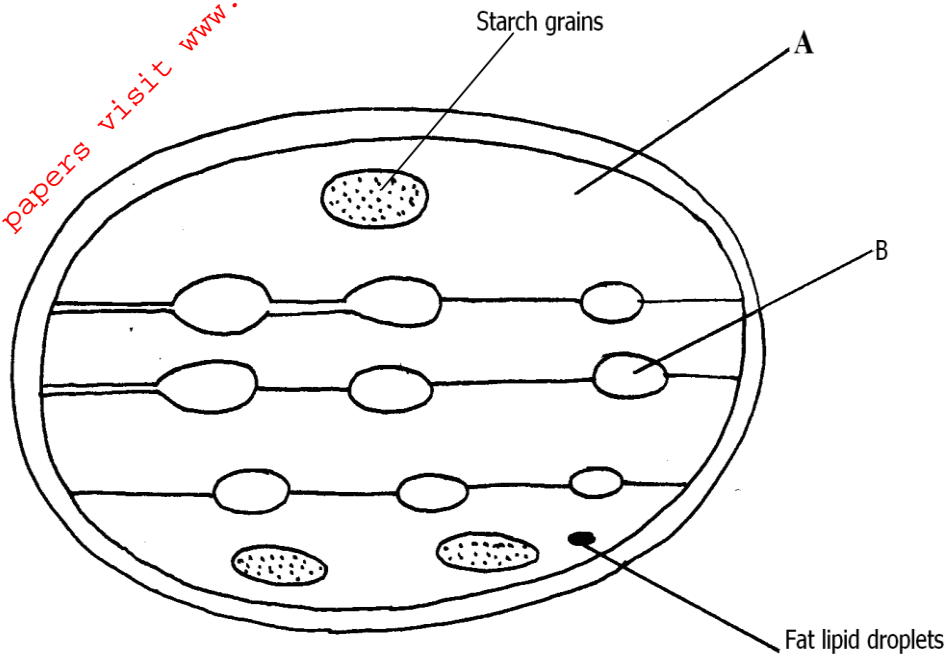
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b) Define the term respiratory quotient (1 mark)

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.....

7. Study the diagram below and answer the questions that follows (1 mark)



a) Identify the structures labeled A and B (2 mark)

A

B

b) What process takes place in the parts labeled A and B (2 mark)

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.....

8. State two distinguishing characteristics of members of division Bryophyta (2 mark)

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.....

9. Name the organisms that cause: (2 mark)

i) Malaria

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ii) Sleeping sickness

10. a) Differentiate between transpiration and guttation (2 mark)

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b) State two conditions that are necessary for opening of the stomata (2 mark)

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11. State two functions of smooth muscle along alimentary canal in mammals. (2 mark)

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12. List the three modes of expressing food relationship in an ecological system (3 mark)

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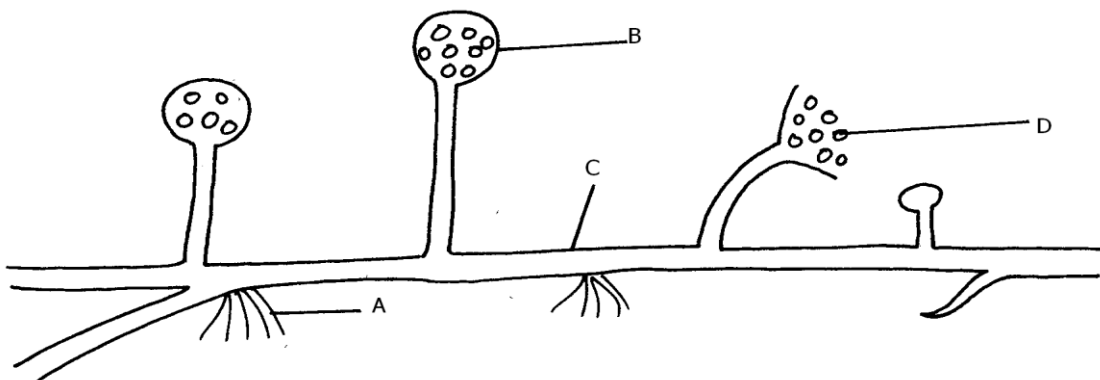
13. a) What is eye accommodation? (1 mark)

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b) Explain how the iris muscle controls the size of pupil when exposed to bright light. (2 mark)

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14. The figure below shows part of a mould growing on a substrate



a) Name the kingdom to which it belong (1 mark)

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b) Name the parts labeled B, C, and D (3 mark)

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.....
c) State the function of part A (1 mark)
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.....

15. Explain the effects of vigorous exercise on

a) Breathing rate (1 mark)
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.....

b) Pulse rate (1 mark)
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c) Arterioles of a person (1 mark)
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16. a) Distinguish between pyramid of numbers and pyramid of biomass (2 mark)
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b) Briefly describe how the belt transect can be used in estimating the population of a shrub in a grassland (2 mark)
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17. a) State two advantages which a constant body temperature gives mammals and birds over the animals (2 mark)
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b) How does the body size affects heat loss in an animal (1 mark)
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18. A cross between a black bull and a white cow produces a calf which has black and white spots.

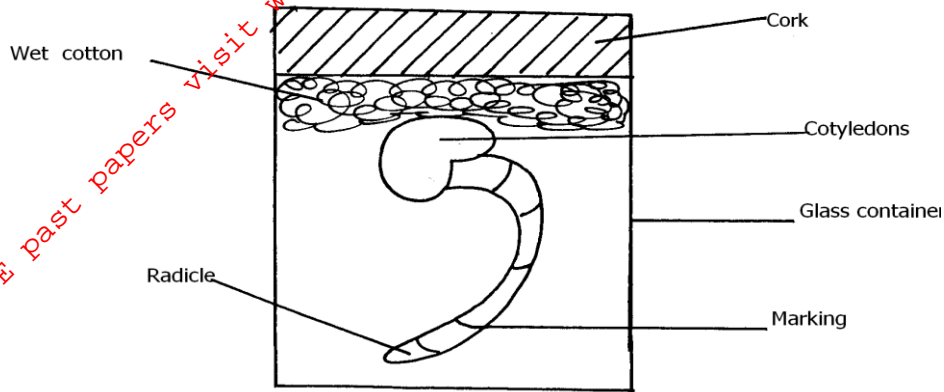
a) State the type of dominance shown. (1 mark)
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- b) Suggest the possible genotypes of the calf if the genes for white and black trait are B and W respectively. (1 mark)

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19. A student set up an experiment as shown in the diagram below.



- a) What was the aim of the experiment? (1 mark)

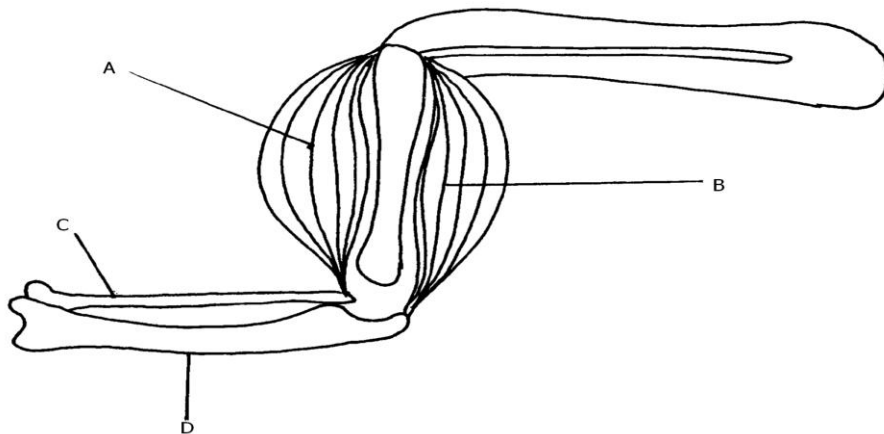
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- b) On the diagram below indicate the expected results after three days. (2 mark)



20.



- a) Name the bones labeled C and D. (2 mark)

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.....

.....

b) What happens to structure A and B as the arm is straightened (1 mark)

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21. a) What are the vestigial structures? (1 mark)

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b) Give two examples of the structures above in man. (2 mark)

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22. a) What is seed dormancy? (1 mark)

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b) Name a growth inhibitor in seeds (1 mark)

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c) Differentiate between hypogeal and epigeal germination in seeds (2 mark)

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23. The diagram of the Nucleolus of a liver cell of a rat in an electron micrograph was 8.0 mm. Calculate the actual diameter of the Nucleolus in micrometers given the magnification was X16000. (2 mark)

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24. a) Explain why tracheids are not efficient in transporting water up the plant. (1 mark)

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b) What is the advantage of xylem vessels being dead? (1 mark)

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25. An accident victim was found to pass large volumes of dilute urine.

a) What part of the brain was injured? (1 mark)

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b) Explain how injury of the part mentioned in 25(a) above brought about release of large volume of urine. (3 mark)

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26. The following nucleotide sequence was AGCCT on a segment of DNA strand.

i) Write down the sequence in corresponding segment of DNA strand (2 mark)

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ii) Find the complementary strand from the original sequence of RNA. (1 mark)

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27. a) Define the term active transport (1 mark)

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b) Name two environmental factors that influence the rate of active transport. (2 mark)

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28. State three unique features of a class insect. (3 mark)

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