Name: …… Index Number…….

231/1 Candidate's Signature…….
BIOLOGY
Paper 1 Date: ……
(THEORY)
Oct./Nov. 2012
2 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education
BIOLOGY
Paper 1
(THEORY)
2 hours

231/1	Biology P1
Thursday	8.00 am – 10.00 am
15/11/2012	(1st Session)

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) Answer ALL the questions in the spaces provided
(d) This paper consists of 11 printed pages
(e) Candidatures should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing

Examiner's use only

Question	Maximum Score	Candidate's Score
1 - 30	80	

1. How does nutrition as a characteristic of living organisms differ in plants and animals? (2 marks)

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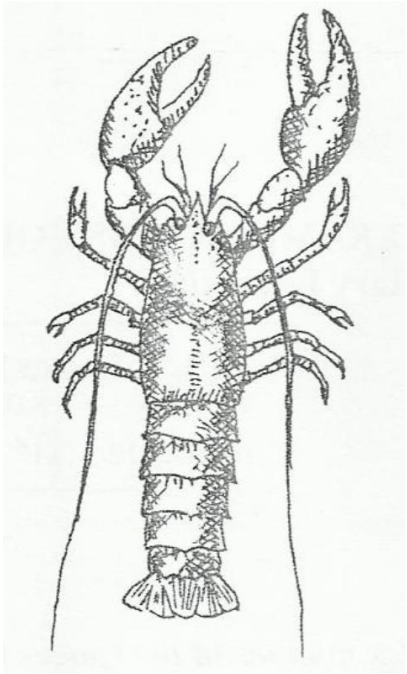
2. The diagram below represents a certain organism collected by a student at the sea shore.



(a) Name the class to which the organism belongs. (1 mark)

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(b) Give three reasons for your answer in (a) above. (3 marks)

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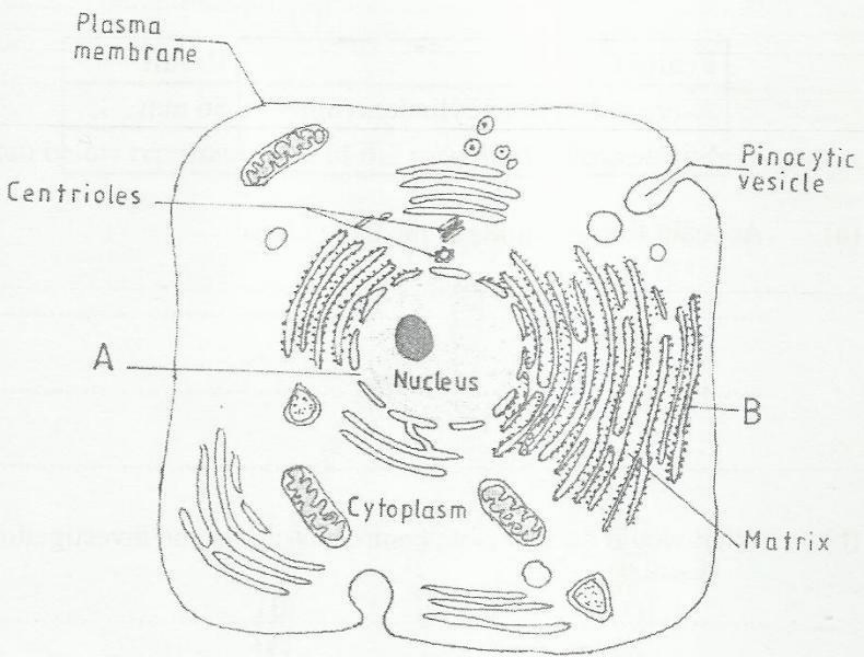
3. The figure below is a fine structure of a generalized animal cell as seen under an electron microscope.



(a) Name the parts labeled A and B. (2 marks)

A ……

B ……

(b) How is the structure labeled B adapted to its function? (2 marks)

……

……

4. In an investigation, a student extracted three pieces of paw paw cylinders using a cork borer. The cylinders were cut back to 50mm length and placed in a beaker containing a solution. The results after 40 minutes were as shown in the table below.

Feature	Result
Average length of cylinders (mm)	56 mm
Stuffiness of cylinders	Stiff

(a) Account for the results in the table above. (3 marks)

……

……

……..

(b) What would be a suitable control set-up for the investigation? (2 marks)

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5. The table below shows results of a study of three plants C, D and E growing in different habitats.

Feature	Plant C	Plant D	Plant E
Number of stomata on upper surface of leaf per square area	4	20	6
Number of stomata on lower surface of leaf per square area	6	0	8
Thickness of leaf cuticle (mm)	0.4	0.1	0.2
Surface area of roots (cm^3)	2000	1000	1200

(a) Which one of the plant C, D and E grows in an area of relatively low water availability? (1 mark)

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(b) Explain your answer in (i) above. (3 marks)

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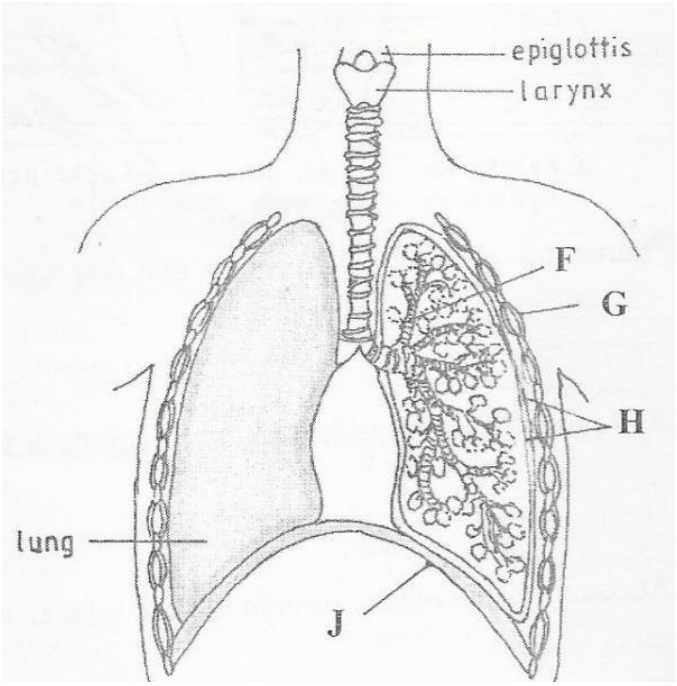
6. The diagram below represents par of the gaseous exchange system in human.



(a) Name the parts labeled F and G. (2 marks)

F ……

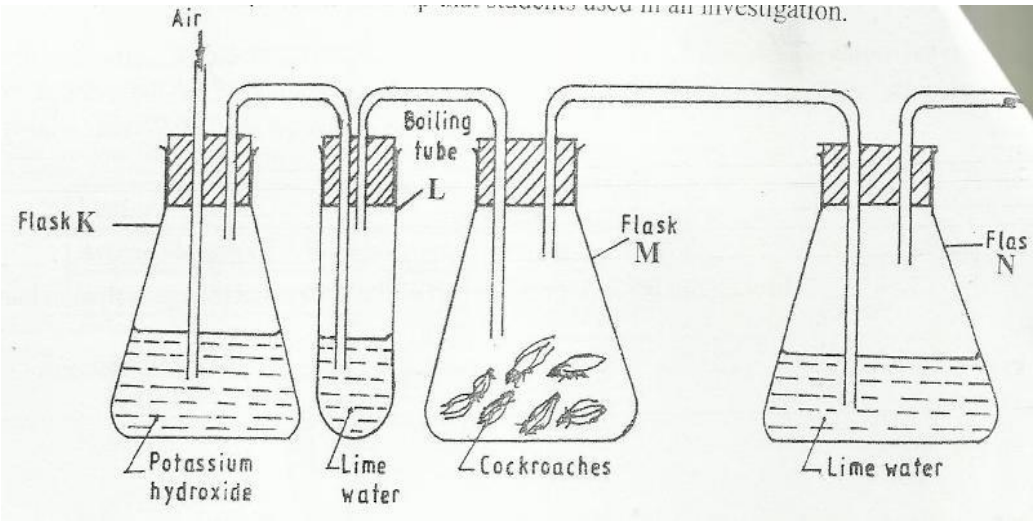
G ……

(b) State one function of each of the parts labeled H and J (2 marks)

H ……

J ……

7 The diagram below represents a set-up that students used in an investigation.



(a) Name the physiological process that was being investigated. (1 mark)

……

(b) State the role of potassium hydroxide in flask K. (2 marks)

L ……..

……

N ……

……

8. What is the probability of a couple with blood group AB getting a child with blood group AB? Show your working. (4 marks)

……..

……

……

……..

9. State the importance of negative phototaxis to termites (1 mark)

……..

……

10. What is meant by the term irritability? (1 mark)

……..

……

(b) Name the muscles found in the following organs: (2 marks)

Stomach; …….

Bone …….

12. (a) Name the part of light microscope used to bring an image of a specimen into sharp focus. (1 mark)

……

13. State three factors that affect the rate of diffusion. (3 marks)

……..

……

……

14 (a) Name the type of respiration that is most efficient (1 mark)

……

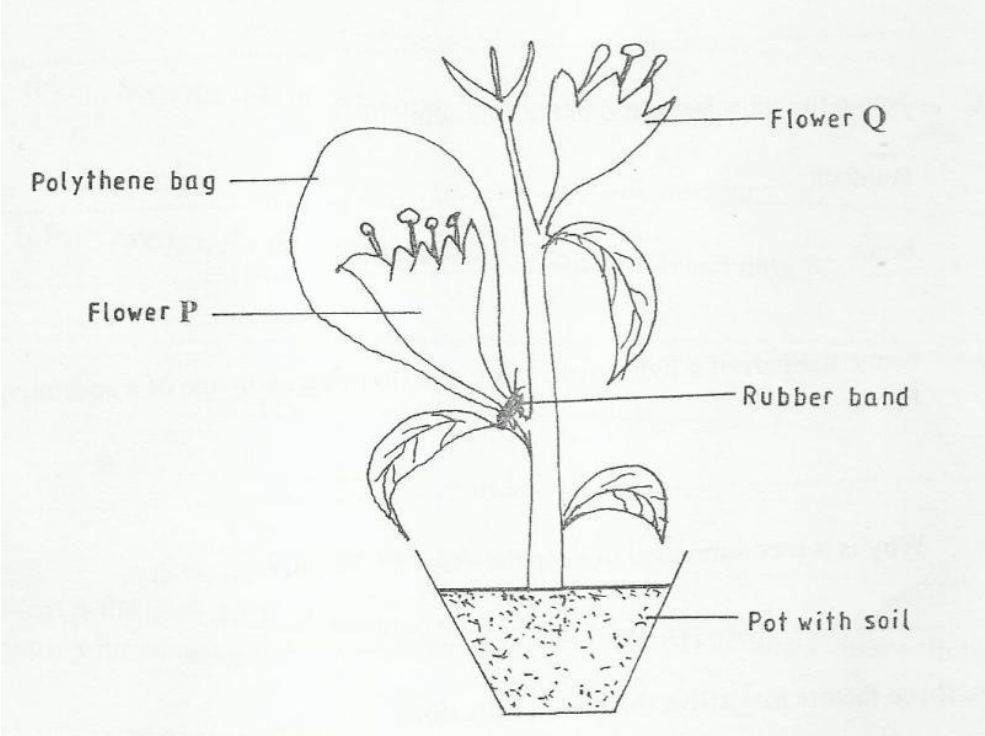
(b) Given a reason for your answer in (a) above (1 mark)

……

15 What name is given to a group of hormones that controls the development of secondary sexual characteristics in a human male? (1 mark)

……

16. The diagram below represents an experimental set-up used by students to investigate a certain process.



Flower Q produced seeds while P did not. Account for the results.
(3 marks)

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……..

17. Name two substances that leave the foetal blood through the placenta (2 marks)

……

……..

18. Why are plants able to accumulate most of their waste products for long? (1 mark)

…….

19. List four symptoms of diabetes mellitus (4 marks)

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……..

20. State three aspects that can be used to estimate growth in seedlings. (3 marks)

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21. Name the process through which free atmospheric nitrogen is converted into nitrates. (1 mark)

……..

22. State the importance of divergent evolution to organisms (2 marks)

……..

……

23. Name the strengthening materials found in the following support tissues: (2 marks)

(a) collenchyma; ……

(b) xylem…….

24. State four characteristics of apical mieristem cells (4 marks)

……..

……

……..

25. State the role of the following hormones in the life cycle of insects: (2 marks)

Ecdysone hormone; ……..

……..

Juvenile hormone …….

……..

26. (a) State the theories of evolution proposed by the following scientists (2 marks)

Charles Darwin …….

……

Jean-Baptiste de Lmarck……

……

(b) State the evidence of evolution based on (2 marks)

(i) cell organelles……

……

(ii) fossils……

……..

27. What is the function of contractile vacuoles in amoeba? (1 mark)

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28. State two differences between open and closed circulatory systems (2 marks)

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29. Name two nutrients that are absorbed without being digested by enzymes in humans. (2 marks)

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30. Name the organelle that is involved in each of the following: (2 marks)

(a) manufacture of lipids ……

(b) formation of lysosomes……

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