

## MAKUENI COUNTY CLUSTER PREPARATORY EXAMINATION 2016

231/1

## BIOLOGY

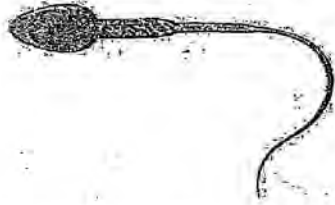
Paper 1

(Theory)

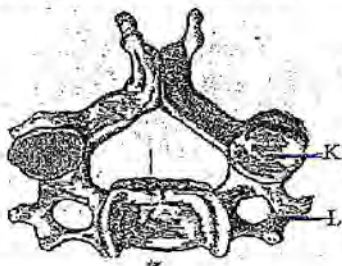
July / August 2016

Time: 2 Hours

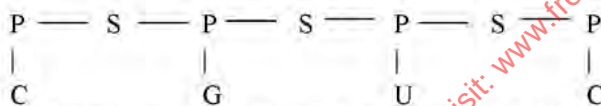
1. The following diagram shows a specialized cell.



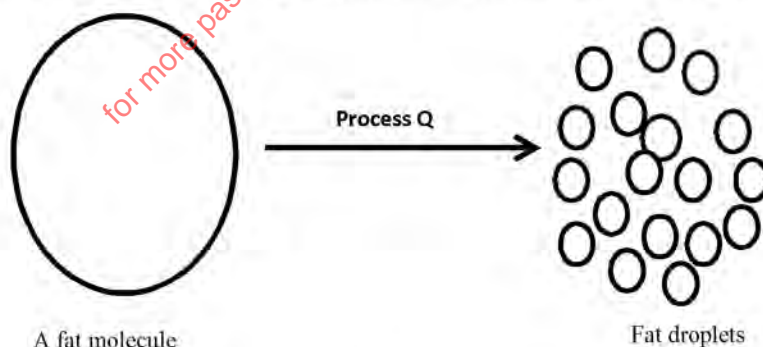
- a) Identify the specialized cell. (1 mark)  
 b) State the function of the cell named in (a) above. (1 mark)
2. The diagram below represents a mammalian bone.



- a) State the function of the part labeled K and L. (2 mark)  
 b) State the region of the body in which the above bone is found. (1 mark)
3. a) What is a test cross? (1 mark)  
 b) The figure below is a structural diagram of a portion from a nucleic acid strand.

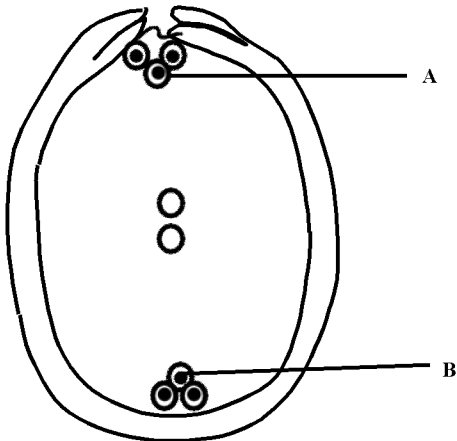


- Giving a reason, name the nucleic acid to which the portion belongs. (2 marks)  
 c) Write down the sequence of bases of the complimentary strand to that shown above. (1 mark)
4. The diagram below illustrates a physiological process that occurs in the alimentary canal of man.

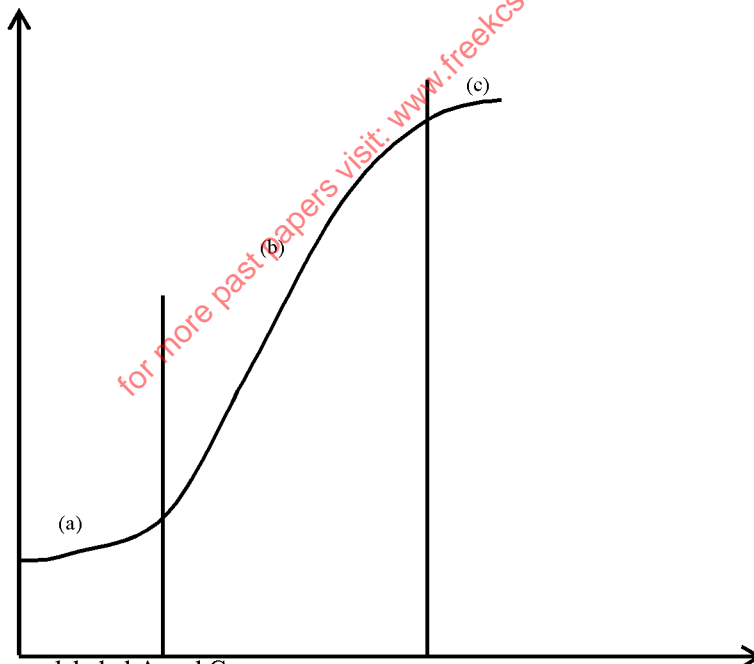


- a) Name the process Q above. (1 mark)  
 b) Explain the biological importance of the above process. (1 mark)  
 c) Name the substance that helps the process named (a) above. (1 mark)
5. State the function of the following parts of the human ear.  
 a) Tympanic membrane (1 mark)  
 b) Round window (1 mark)
6. What is the role of water in photosynthesis? (1 mark)
7. Name the function of the following organelles found in a cell. (2 mark)  
 a) Centrioles  
 b) Nucleolus
8. State the fluids that provide cushion in the following organs (4 marks)

- (a) Lungs .....
  - (b) Heart .....
  - (c) Knee .....
  - (d) Eye ball .....
9. The wings of a bird and those of a housefly adapt the two organisms to a boreal habitat.
- i) Give the evolutionary process that may have given rise to these structures. (1 mark)
  - ii) What name is given to such structures? (1 mark)
10. Name the branch of biology that deals with the study of insects. (1 mark)
11. What are the functions of amniotic fluid? (2 marks)
12. a) What is a species? (1 marks)
- b) State **three** principles that govern binomial nomenclature. (3marks)
13. a) Why are people with blood group AB referred to as universal recipients? (1 mark)
- b) Name the antibodies in blood group O (1 mark)
14. The diagram below shows a structure in flowering plants.



- State the function of each of the following parts labeled A and B after double fertilization. (2 marks)
15. Explain the role of insulin in blood glucose regulation. (2 marks)
16. The graph below represents growth of bacteria when cultured in a suitable media.



- a) Name phases labeled A and C. (2 marks)
  - b) Account for the growth of the organism in phase (a) (2marks)
17. a) Name two mechanisms involved in absorption of mineral salts. (2 marks)
- b) Name two differences between a monocotyledonous stem and a dicotyledonous stem (2marks)
18. State four adaptations of respiratory surfaces. (4 marks)
19. a) What is synecology (1 mark)
- b) Name **two** abiotic factors in water that affect living organisms. (2marks)
20. Name **three** methods by which plants eliminate their waste. (3 marks)
21. State **three** similarities between Aves and Pisces (3 marks)
22. State **three** roles of osmosis in plants (3marks)

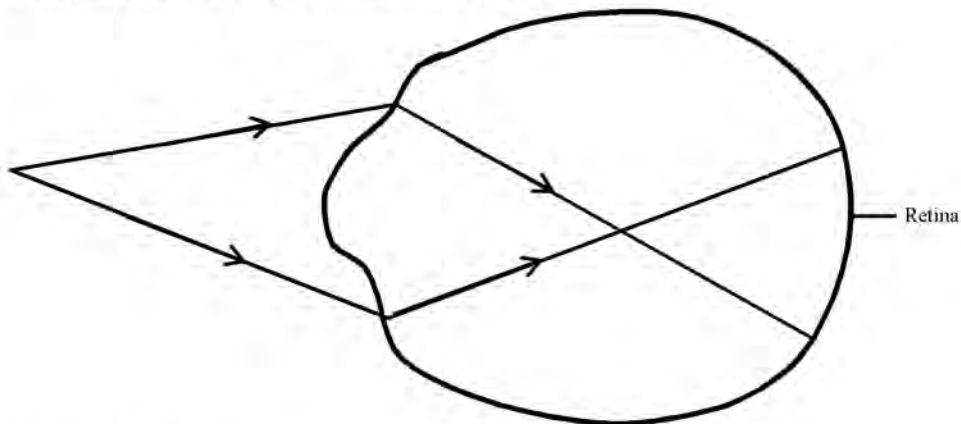
23. The oxidation of a certain fat is represented by chemical equation shown below.



- a) Calculate the respiratory quotient (RQ) of the fat  
b) What is the significance of RQ?

(2marks)  
(2marks)

24. Study the diagram below showing a mammalian eye defect.



- i) Identify the eye defect  
ii) How can the above defect be corrected

(1 mark)  
(1 mark)

25. Name two kingdoms whose members reproduce by means of spores.

(2 marks)

26. a) Why are tracheids less efficient in transporting water and mineral salts.

(1marks)

b) State any two adaptations of the phloem to its function.

(2 marks)

27. Complete the table below

(3 marks)

Disease	Causative agent
Amoebic dysentery	
	<u>Schistosoma Mansoni</u>
Syphilis	

28. The figure below shows blood of a person that was obtained after a test.



- a) What condition is the person suffering from?  
b) Why would such a person survive better in malaria prone areas than a normal person?  
c) What is the disadvantage of acquiring such a condition?

(1mark)  
(2marks)  
(1mark)

29. State **two** reasons why blood flow under high pressure in arteries than veins.

(2 marks)