

Adm.no.....Name.....Class.....

**FORM THREE BIOLOGY END OF TERM 3 EXAM.  
BIOLOGY PAPER 1 TERM 3 2014**

1. Identify the products of anaerobic respiration:-

(i) Plants

(1mk)

(ii) Animals.

(1mk)

2(a) Name the thermoregulatory centre of the brain.

(1mk)

(b) State two changes which occur in the skin to bring about cooling when human body temperature rises beyond normal.

(2mks)

(c) Give a function of sebaceous glands in the mammalian skin.

(1mk)

3. (a) Besides cephalothorax name the other body part of members of the class Arachnida.

(1mk)

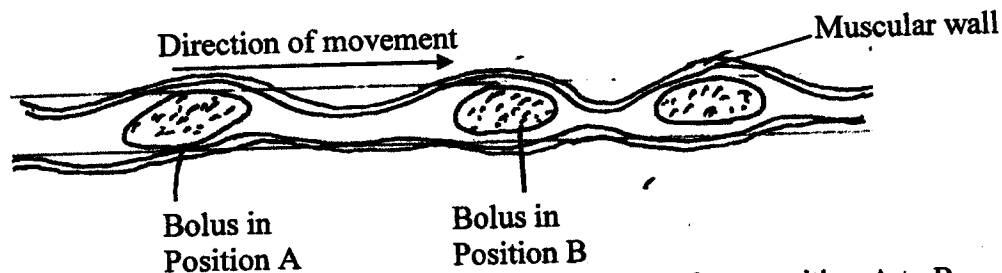
(b) Identify the gaseous exchange structure in members of the class insecta.

(1mk)

(c) Name the material that makes up the exoskeleton in members of the phylum Arthropoda.

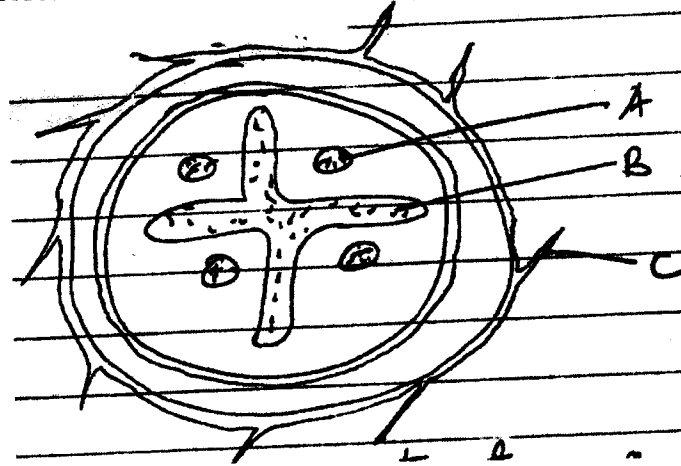
(1mk)

4. The diagram below shows how food moves along the human oesophagus and intestines.



- (a) Name the process through which a food particle moves from position A to B. (1mk)
- (b) Name a component in the human diet that assists in the movement in 4(a) above. (1mk)
- (c) Name the type of muscles found along the muscular wall of the oesophagus. (1mk)
- (d) Other than assisting in food movement along the gut, give another function these muscles perform related to food digestion. (1mk)
5. (a) Explain why a donor of blood group AB can't donate blood to a recipient of blood group O. (3mks)
- (b) Name a disease caused by excessive deposition of cholesterol along the wall of the coronary artery in the human body. (1mk)
6. (a) Name the cell organelle that performs each of the following functions in a cell. (1mk)
- i). Site for protein synthesis. (1mk)
- ii). produces cell's energy. (1mk)
- iii). Controls movement of materials in and out of the cell. (1mk)
- (b) Name a specialized field which deals with the study of insects. (1mk)

7. The figure below represents a transverse section of a plant region.



a). Give the roles of structures A and B.

(2mks)

b). With a reason, identify the plant organ from which the above section was prepared (2mks)  
Plant organ:

Reason:

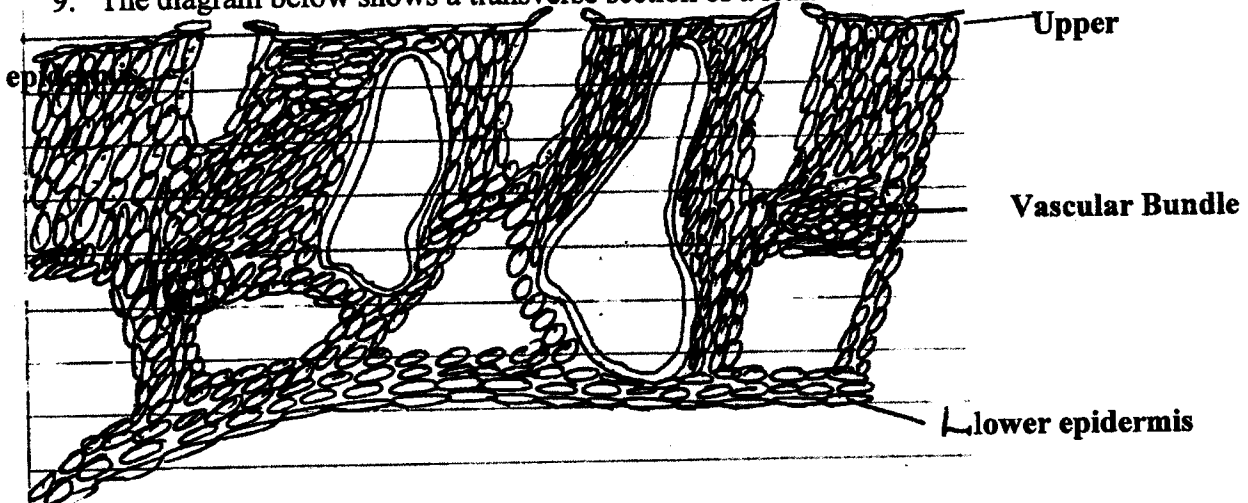
8. (a) State two roles played by photosynthesis in nature.

(2mks)

(b) Give two adaptations of guard cells to their functions.

(2mks)

9. The diagram below shows a transverse section of a leaf.



a). Name the most likely habitat from which the leaf was obtained. (1mk)

b). Give two reasons to support your answer in 12(a) above. (2mks)

c) Explain how sunken stomata affect water loss in plants. (1mk)

10. (a) Differentiate between obligate and facultative anaerobes. (2mks)

(b) The equation below shows respiration of a given substrate.



Calculate the respiratory quotient (RQ) for the above reaction. (2mks)

11. (a) Identify three gaseous exchange structures in terrestrial plants. (3mks)

(b) Give the role of aerenchyma tissue in floating hydrophytes. (1mk)

12. (a) (i) Give one example of a metallic co-factor. (1mk)

(ii) State the function of co-factors in cell metabolism. (1mk)

(b) Give two roles of bile juice in the digestion of food. (2mks)

13. (a) Distinguish between competitive and non-competitive enzyme inhibitors. (2mks)

(b) Explain how extreme temperatures affect the rate of enzyme activity. (2mks)

14. To estimate the population size of tsetse flies in a certain forest with an area of  $1000\text{km}^2$ , traps were laid at random, 4,000 tsetse flies were caught, marked and released back to the same forest. Three days later, traps were laid again and 3,740 tsetse flies were caught, out of which 800 were found to have been marked.

a). Calculate the population density of tsetse flies in the above forest. (3mks)

b). State two assumptions made during the above method of population estimation. (2mks)

15. (a) Identify the types of immunity described below:-

i). Developed after suffering from a disease. (1mk)

ii). Transmitted from parents to their off-springs. (1mk)

(b) Explain why a pregnant woman excretes less urea in her urine than a non-pregnant woman. (2mks)

16. (a) State **three** theories that explain the mechanism of opening and closing of the stomata. (3mks)

(b) Give **two** roles of stomata in green plants. (2mk)

17. (a) Name **three** mechanisms which hinder self pollination and fertilization in flowering plants. (3mks)

(b) Give **two** adaptations of the stigma in wind pollinated flowers. (2mk)

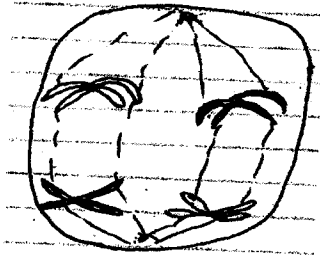
18. Explain how the following factors may affect population growth of organisms in a habitat. (3mks)

(a) Parasitism:

(b) Competition

(c) Mutualism:

19. The diagram below represents a stage during cell division.



(a) Identify the stage of cell division.

(1mk)

(b) Give **two** reasons for your answer in (a) above.

(2mks)

20). Explain the significance of the following processes in living organism.

(a) Reproduction

(1mk)

(b) Irritability.

(1mk)

(c) Excretion.

(1mks)

21. A student used  $1M^2$  quadrat to determine the population of striga weed in a  $20m \times 20m$  plot. He collected the data and recorded it as shown below.

Quadrat (throws)	Population of striga weed
1	19
2	12
3	11
4	14
5	16

Using the data above, determine the total population of striga weed.

(3mks)