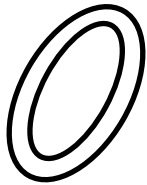


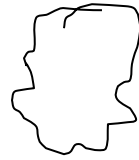
NAME:..... ADM:..... CLASS:.....

**BIOLOGY MARKING SCHEME  
FORM 2**

1. The diagrams below show a red blood cell that was subjected to a certain treatment.



At start

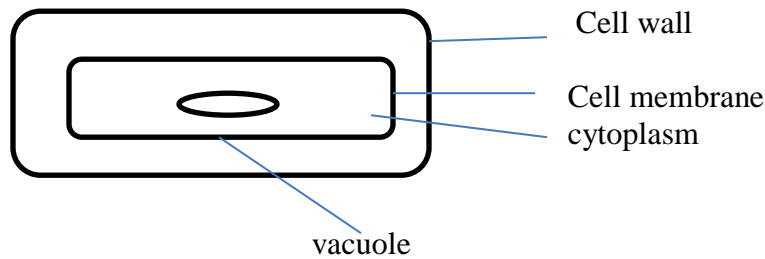


At the end of experiment

a) Account for the shape of the cell at the end of the experiment. (2mks)

- **The red blood cell was placed in a hypertonic solution. It lost water by osmosis and become evenate**

b) Draw a diagram to illustrate how a plant cell would appear if subjected to the same treatment. . (2mks)



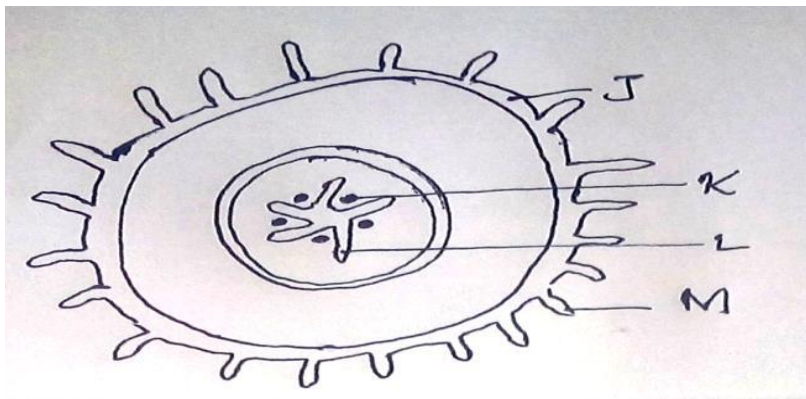
2. The diagram below shows a human tooth.



a) Identify the tooth. (1mk)  
**Canine**

b) How is the tooth adapted to its functions. (2mks)  
**Pointed/sharp for cutting flesh.**  
**Has a long root to support it into the jaw bone.**

3. The diagram below represents a transverse section through a plant organ.



a) From which plant organ was the section obtained. (1mk)  
 - **Dicotyledonous root. (1mk)**

b) Give two reasons for your answer in (a) above (2ks)  
 - **Presence of root hairs.**  
 - **Presence of endodermis**

- **Xylem is star shaped at the centre while the phloem is in between the arms of the xylem.**

c) Name the parts labeled J K and L. (3mks)

**J - epidermis**

**K- phloem**

**L- Xylem**

d) State two functions of the part labeled M. (2mks)

**Absorption of water**

**Absorption of mineral salts.**

4. Explain how each of the following factors affects the rate of photosynthesis

i) Temperature (2mks)

**Photosynthesis is an enzyme controlled reaction. Low temperatures inactivate enzymes rises enzymes are activated and rate of photosynthesis increases**

ii) Chlorophyll concentration. (2mks)

**Chlorophyll molecules traps light energy from the sun necessary for photosynthesis, low amount of chlorophyll molecules lowers the rate of photosynthesis.**

5. Name the tissues in plants responsible for: (2mks)

a) Transport of water and mineral salts

**xylem**

b) Transport of carbohydrates

**phloem**

6. State one adaptation of xylem vessels to their functions . (1mk)

- **Lignified**

- **Has dead cells**

7. (a) Why are people with blood group O universal donors? (2mks)

**Blood type O has no antigens and does not cause agglutination with other blood groups**

(b) A person whose blood group is AB requires a blood transfusion. Name the blood groups of the donors. (2mks)

- **A, B, AB, O**

8. Name the organelles that performs the following functions in a cell (2mks)

**Protein synthesis - ribosomes**

**Transport of cell secretions – lysosomes**

9. State one use for each of the following apparatus in the study of living organisms. (2mks)

a) Pooter

**For sucking small animals from rocks surfaces or bark of trees.**

b) Pitfall trap

- **For catching crawling animals.**

10. A 'dolf' is an offspring between a wolf and a dog. This animal is infertile. Give a reason for this. (1mk)

- **Wolf and dog belong to different species.**

11. State the role of light in photosynthesis (2mks)

- **Provided energy required for splitting water molecules into hydrogen ions and oxygen gas.**

12. Name a disease caused by lack of each of the following in human diet. (2mks)

- **Vitamin D – rickets, osteoporosis**

- **Iodine- goitre**

13. The following is the dental formula of a certain mammal.

I 0/3 C 0/1 pm 3/3, molar 3/3

a) State the likely mode of feeding for the mammal. (1mk)

- **Herbivorous**

b) Give a reason for your answer in (a) above. (1mk)

- **Lack incisors, canines on the upper jaw**

14. Explain why the rate of transpiration is reduced when humidity is high? (2mks)

- **When humidity is high the concentration of water vapour in the atmosphere is higher thus reducing the rate of transpiration**

15. Why are plants able to accumulate most of their waste products for long. (1mk)

- **The waste products are less toxic**

16. State two ways by which acquired immune deficiency syndrome (AIDS) virus is transmitted. . (2mks)

- **Having unprotected sex with infected persons**
- **Sharing of sharp objects e.g needles**

17. State three structural differences between arteries and veins. (3mks)

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>- <b><u>Arteries</u></b></li> <li>- <b>Thick muscular walls</b></li> <li>- <b>Narrow lumen</b></li> <li>- <b>Elastic walls</b></li> <li>- <b>No valves except at the bases of pulmonary artery and aorta</b></li> </ul> | <ul style="list-style-type: none"> <li>- <b><u>veins</u></b></li> <li>- <b>thin less muscular walls</b></li> <li>- <b>Wide lumen</b></li> <li>- <b>Less elastic walls</b></li> <li>- <b>Have valves at regular intervals</b></li> </ul> |
|--|---|

18. State three difference between open and closed circulatory systems. (3mks)

- |  |  |
|--|--|
| <p><b>OPEN</b></p> <ul style="list-style-type: none"> <li>- <b>Fluid is in direct contact with tissues</b></li> <li>- <b>Fluid flow under low pressure hence slow</b></li> <li>- <b>Transport fluid conveyed in general body Cavity</b></li> </ul> | <p><b>CLOSED</b></p> <ul style="list-style-type: none"> <li>- <b>blood is not in direct contact with tissues.</b></li> <li>- <b>Blood flow under high pressure hence faster</b></li> <li>- <b>Transport fluid conveyed in special tubules</b></li> </ul> |
|--|--|

19. Explain two protection functions of blood. (2mks)

- **Contains phagocytes that engulf and digest pathogens through phagocytosis.**
- **Contains platelets whose role is blood clotting when vessels are injured.**
- **Contains lymphocytes that produce anti-bodies that protect the body from infections**