BIOLOGY MID TERM 1 2023 FORM 2



(2mks)

MARKING SCHEME

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



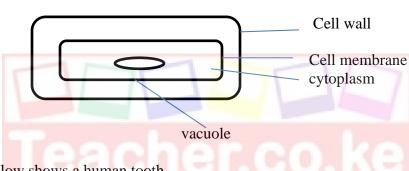
At start



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. .



2. The diagram below shows a human tooth.







a)	Identify the tooth. Canine	(1mk)
b)	How is the tooth adapted to its functions. Pointed/sharp for cutting flesh.	(2mks)
	1 0	
	Has a long root to support it into the jaw bone.	

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

	Br.	= F2:
_	a) From which plant organ was the section obtained. Dicotyledonous root. (1mk)	(1mk)
- -	 b) Give two reasons for your answer in (a) above Presence of root hairs. Presence of endodermis Xylem is star shaped at the centre while the phloem is in between the arms of the start of the	(2ks) the xylem.
	 c) Name the parts labeled J K and L. J - epidermis K- phloem L- Xylem 	(3mks)
	 d) State two functions of the part labeled M. Absorpation of water Absorption of mineral salts. 	(2mks)
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

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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 f	or this (1mk)		
- Wolf and dog belong to different species.	(1111K)		
 State the role of light in photosynthesis (2mks) Provided energy required for splitting water molecules into hydrogen ions and oxtgen 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 			
	(1mk)		
 Herbivorous b) Give a reason for your answer in (a) above. Lack incisors, canines on the upper jaw 	(1mk)		
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			
 The waste products one loss toxic 16. State two ways by which acquired immune deficiency syndrome (AIDS) virus is transmitted 	(1mk) red (2mks)		
 Having unprotected sex with infected persons Sharing of sharp objects e.g needles 			
17. State three structural differences between arteries and veins.	(3mks)		
 <u>Arteries</u> <u>Thick muscular walls</u> <u>Narrow lumen</u> <u>Elastic walls</u> No values except at the bases of pulmonary artery and aorta <u>veins</u> <u>veins</u> <u>veins</u> <u>veins</u> <u>veins</u> <u>thin less muscular walls</u> <u>Wide lumen</u> <u>Less elastic walls</u> <u>Have values at regular intervals</u> 			
 18. State three difference between open and closed circulatory systems. OPEN CLOSED Fluid is in direct contact with tissues - blood is not in direct contact with Fluid flow under low pressure hence slow - Blood flow under high pressure hence fast 			

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- Transport fluid conveyed in general body Transport fluid conveyed in special tubules Cavity
- 19. Explain two protection functions of blood.

(2mks)

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

