**BIOLOGY FORM II EXAM**

**END OF TERM 3- 2022**

**TIME: 2 HRS**

**MARKING SCHEME**

1. The diagram below represents a transverse.

Section of a young stem.

 DIAGRAM

1. Name the parts labeled A and B (2mks)

A Epidemis

 B Pith

1. State functions of the part labeled C, D, E. (3mks)
* **E. Translocate manufactured food**
* **D. Dendes to give rise to new cells that produce secondary system and phloem**
* **E. Transports water mineral salts from the roots to the leaves**
1. a) Why are people with blood group 0 are universal donors. (2mks)
* **Because they donate blood to all other blood groups**

b) A person with blood group AB requires blood transfusion. Name blood groups of

 the donor. (2mks)

* **A,AB,B,O**
1. a) The type of circulatory system found in members of the class inseda is (1mk)
* **Open circulatory system**

b) Name the blood vessel that transports blood from

1. Small intestine to the liver. (1mk)
* **Hepatic portal vein**
1. Longs to the heart. (1mk)
* **Pulmonary vein**

c) In what form is oxygen transported from the longs to the body tissues? (1mk)

* **Oxyhaemoglobin**
1. Distinguish between natural and acquired immunity. (2mks)
* **Natural immunity – transmitted from parent to offspring e.g after suffering from a disease.**

1. State four functions of blood other than transport. (4mk)
* **regulation of body temperature**
* **regulation of PH of body fluids**
* **Defence against diseases – causing organism**
* **Prevent excessive bleeding by enhancing clotting**
1. Name the antigens that determine human blood groups. (2mks)
* **antigen A**
* **Antigen B**
1. State structural differences between arteries and veins. (6mks)

|  |  |
| --- | --- |
| **ARTERIES** | **VEINS.** |
| * **thick muscular walls**
 | * **thin less muscular walls**
 |
| * **No valves**
 | * **Have valves**
 |
| * **Narrow lumen**
 | * **Wide lumen**
 |

1. Give reasons for carrying out the following procedure when making temporary slides.
2. Making thin sections. (1mk)
* **To reduce layers of cell and allow light to pass through**
1. Adding water to the plant. (1mk)
* **to make cells turgid**
1. Placing coverslip over the plant section. (1mk)
* **to hold specimen in position n ; to protect objectic lens exclude air, dust, foreign particles.**
1. a) Distinguish between diffusion and osmosis. (2mks)
* **diffusion is the movement of molecdes from a region of high concentration to a region of low concentration (2mks)**

b) The diagram below show a red blood cell that was subjected to certain treatment.

 **DIAGRAM**

Account for the shape of the cell. (2mks)

* **The red blood cell was placed in hypertonic solution. It loose water by osmosi and become crenated.**
1. a) Name the material that strengthens xylem vessels. (1mk)
* **Lignin**

 b) Name the tissue that is removed when the bark of the dicotyledonous is ringed. (1mk)

* **Phloem**

11. a) State what happens during light stage of photosynthesis. (4mks)

* **Light stage is light dependent. it take place in the grand of the chloroplast**
* **Light trapped is used to split water molecules into hydrogen and oxygen ions through photolysis energy is formed and it is stored in the form of ATP**

 b). What are the end products light stage. (2mks)

* **Hydroge ions; oxygen gas; ATP**

12. State 2 factors affecting enzymatic activities. (4mks

* **Temperature – increase in temperature increase enzymatic up to an optimum low temperature inactive enzymes high temperature denature enzymes.**
* **Enzymatic activity as there is more active site**

13. How does the following affect the rate of diffusion:

1. Diffusion gradient. (2 mk)
* **The higher the concentration gradient the higher the rate of diffusion**
1. Size of the molecules (2 mk)
* **Small size molecules diffuse faster than large and heavy molecules**
1. Thickness of the membraine. (2 mk)
* **The thicker the membrane the lower the rate of diffusion**
* **this is because the distance covered by diffusing molecules is greater however if the membrane is thinner**
* **the rate of diffusion is higher.**
1. Temperature (2mks)
* **Increase in energy increases kinetic energy of the molecules and this causes them to move faster hence increases in temperature**
* **Increases the rate of diffusion and vie-versa.**
1. Surface area to volume ration.  (2mks)
* **The greater the surface area to volume ration the higher the rate of diffusion**

14. Explain how the following factors determine the daily energy requirements

1. Age (2mks)
* **Young people are actively growing hence they require more energy.**
1. Occupation (2mks)
* **manual workers require more energy equivalent to work done by sederitary workers**
1. Sex (2mks)
* **Men are more muscular hence require more energy than female to maintain every cell**

15. Name the appropriate food substances for each of the following enzymes.

1. Ptyalin. (1mks)
* **Starch**
1. Pepsin. (1mks)
* **Protein**

b). State the two roles of mucus in the stomach. (2mks)

* **Forms protective partner to the stomach all against corrosions by hydrochloric acid and digestive enzymes**

16. a) State 3 adaption of xylem to its function. (3mks)

* **Walls are strengthen by deposition of ligning to ensure they don’t collapse**
* **Hollow and narrow to aid caplilarity**
* **Made up of dead cells to ensure passage of water.**

b) Describe how 4 environment factors affect the rate of transportation. (8mks)

* **TEMPARATURE: The increase in internal temperature of the leaf which in turns increases latent heat of vaporization enhancing evaporation.**
* **WIND; Wind carries away water vapour as fast as it diffuses out of the leaves increases the rate of transpiration.**
* **HIGH LIGHT INTENSITY: Light intensity increases rate of photosynthesis where sugar is formed, which is osmotically vapour diffuses out at a higher rate thereby increasing rate of transpiration**
* **LOW HUMIDITY: When atmosphere is dry or in low water vapour diffuses out of the leaves into dry atmosphere. Due to high saturated deficit water diffuses faster hence increased rate of transpiration.**

17.a) State the difference between dosed and open circulatory system. (2mk)

* **transport fluid is not confined to the blood vessesl but contains in the general body cavity.**
* **The transport fluid called blood is conveyed in special tubes reffered to as blood vessels**

b).State two ways in which the heart muscles are adapted. (2mks)

* **are abel to initiate their own contraction**
* **presence of intercalated discs hence they do not get fatigue**

18. State the role of the following organelles. (6mks)

1. Golgi apparatus
* **They package and transport**
1. Ribosomes
* **Site for protein synthesis**
1. Lysosomes
* **They contain lytic enzymes that destroy aged and unwanted cells**
1. Mitochondrion
* **Site for respiration**
1. Chloroplasts
* **Site for photo synthesis**
1. Centrioles
* **They form clia and flagella.**