**BIOLOGY FORM 2 MID-TERM 2 EXAM 2022.**

**MARKING SCHEME**

1. **Give the reasons for each of the following steps when preparing a cross-section of a stem or leaf for examination under the microscope 4 mrks**
2. **Cutting very thin sections**

Thin sections allow light to pass through making it easy to observe the tissue.

1. **Using a sharp razor blade during the cutting**

Sharp blade does not damage, deform, destroy or distort the surface of cell or tissue.

It makes thin sections.

1. **Placing sections in water**

To maintain turgidity hence maintain shape of cell.

It prevents drying of the section.

1. **Staining the sections with iodine before observing**

To make chloroplasts, starch containing structures, granules or plastids distinct.

1. **Name the types of enzyme inhibitors 2 mrks**

Competitive inhibitors.

Non- competitive inhibitors.

1. **Name the process by which mineral salts enter into a plant 2mrks**

Active transport

Diffusion

1. **Distinguish between the terms homodont and heterodont 2mrks**

Homodont have same kind, type, shape and size of teeth which perform similar function e.g. fish, reptiles and amphibians.

Heterodont have different kind, type, shape and size of teeth which perform different functions as those found in mammals.

**5. What are the functions of hydrochloric acid in digestion? 3mrks**

Kills bacteria.

Activates trypsinogen to trypsin which digests proteins to peptones and peptones to soluble amino acids.

Provides acidic medium for gastric enzymes.

1. **Explain why blood leaving the lungs may not be fully oxygenated 2 mrks**

Under ventilation of the lungs.

Blockage of alveoli (air sacs).

High cardiac frequency i.e. high rate of pumping of blood in the heart.

1. **Explain why blood flowing in blood vessels does not normally clot 1 mrk**

Presence of anticoagulant in blood.

1. **State three precautions that must be taken before blood transfusion 3 mrks**

Blood must be disease free.

Sterilized equipment must be used.

Blood of the recipient and that of the donor must b compatible to both ABO and rhesus factor.

Fresh blood must be used.

1. **Define the term gaseous exchange. 1mrk**

This is the process by which respiratory gases (oxygen and carbon IV Oxide) are passed across the respiratory surfaces.

1. **Give three importance of gaseous exchange 3 mrks**

Promotes oxygen intake for respiration in living organism

Facilitates carbon IV oxide removal from the body. Accumulation of large amounts of carbon IV oxide in the tissues is toxic to cells.

Enables green plants to obtain carbon IV Oxide for photosynthesis

Excess water is expelled from the plants through transpiration. Higher animals expel it partly in its gaseous form i.e. water vapor in the exhaled air.

1. **State three structures in plants through which gaseous exchanges occur**. **3 mrks**

Stomata, lenticels, pneumatophores, cuticle, root hairs, epidermal cells

1. **What are the advantages of having stomata open during daytime and having them closed at night? 3 mrks**

Opening in the daytime allows diffusion of carbon IV into the leaf for photosynthesis to take place and allows diffusion of oxygen out of the leaf.

Transpiration also takes place, thus cooling the leaf and facilitating uptake of water and mineral slats.

Closing in the night is to conserve water in the plant especially when there is not enough water available in the soil.

1. **State the four characteristics of respiratory surfaces in animals 4 mrks**

Moist.

Thin walled/thin membrane/thin surface.

Highly/richly vascularized/numerous blood vessels/well supplied with blood vessels.

Large surface area.

1. **Name the gaseous exchange surfaces of the following organisms; 4 mrks**
2. **Amoeba**  Cell membrane
3. **Fish**  Gill filaments
4. **Man**  Alveoli
5. **Grasshopper**  Tracheoles
6. **Differentiate between gaseous exchange and respiration. 2 mrks**

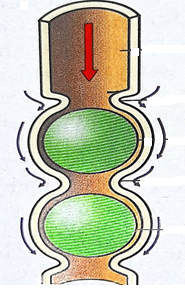
Gaseous exchange is the process by which respiratory gases (oxygen and carbon IV Oxide) are passed across the respiratory surfaces.

Respiration is the chemical breakdown of food substances in all living cells to generate energy.

1. **Make a well labelled diagram of a gill. 5 mrks**

**D=2MRKS Label three parts correctly,clockwise direction= 3mrks**

1. **The figure below illustrates a process that takes place in the alimentary canal.**



**a. Name the process. 1 mrk**

Pelistalsis

**b. Name two muscles that enhance the above process. 2 mrks**

Circular and longitudinal muscles

**c. Explain the importance of roughage to the above process. 1 mrk**

Roughage increases the bulk of food enhancing pelistalsis

**d. State how the stomach protects its walls against digestion by enzyme pepsin.**  By production of inactive enzymes which are activated by acid by secretion of mucus  **2 mrks**