**MWAKICAN EXAMINATIONS**

**BIOLOGY**

**FORM 2**

**END OF TERM 1 EXAM**

**MARKING SCHEME**

1.Tissue –a group of cells similar in structure performing a specific function.

2.a)Chloroplast ;cell wall

 b)Total magnification=eye piece lens magnification x

Objective lens magnification

=x5 X x20

=x100

3.i)Osmosis is the movement of water molecules from a dilute solution (lowly concentrated solution to a concentrated solution)to a concentrated solution(highly concentrated solution)across a semi-permeable membrane.

b)Tube A –absorbed water from the beaker and became swollen .

The liquid in the beaker was hypotonic to the one in tyube A.

Tube B-lost water in the beaker and became soft

The liquid in the beaker was hypertonic to that in tube B.

b)Liquid A

c)Cell membrane

4.-process by which green plants manufacture food such as carbohydrates from simple substances by use of light energy.

b)Carbon (iv) oxide, chlorophyll,sunlight ,optimum temperature.

5.a)To investigate the gas produced during photosynthesis

b) X-oxygen y-water plant e.g Elodea

c)Amount of carbon (iv)oxide in water ,amount of chlorophyll,the temperature

d)It relights a glowing splint.

e)6CO2+6H2O C2H12O6+O2

6.i)Sweep net

ii)Pitfall trap

7.i)Entomology

ii)Taxonomy

8.a)It is the smallest unit of classification whose members naturally interbreed to produce fertile offsprings.

b.i)Homo sapiens

ii)Digtaria scalanum

iii)Galinsoga pariflora

9.a)Mitochondrion reject mitochondria

b)A-cristae(inner foldings)

B-matrix

c)The inner membrane is highly folded to increase the surface area for respiratory activities.

d.-Sperm cells

 -Muscle cells (any correct)1x1=1mrk

**SECTION C (40MRKS)**

11.a)R-sieve pore/plate

S-cytoplasmic strand

T-companion cell

b)Translocation

c) ( i)Translocation process

(ii)Translocation occurs in the phloem tissues that are located on the outer side of the stem.when the tissue was cut food was not able to move through and therefore accumulated causing swelling.

10(a) (i)Is where the transporting fluid is contained in the body cavity (coelom).-The transporting fluid is contained in the special tubes called blood vessels.

(ii)Single –Where blood flows once in the heart for a complete circulation while double blood flows twice in the heart for a complete circulation.

b) Arteries veins

* Walls are thick,muscular and elastic -walls thin(less muscular and elastic)
* No valves except at the base of large arteries - Have valve at intervals throughout their

 Leaving the heart Length.

* Narrow lumen - Wider lumen

c) Carboxyhaemoglobin

12.a) A-Enamel D-Pulp cavity

B-Gum E-Cement

C-Dentine F-Blood vessels

b)It is non-living and forms an efficient hard biting surface made of calcium phosphate and carbonate.

D-contains blood vessels that supply to tissues with oxygen food materials and remove metabolic wastes.

-contains nerve endings which are sensitive to heat,cold and pain.

c) -Regular cleaning or brushing of teeth after every meal.

 -Avoid eating too much sugarly food

 -Eating hard foods e.g carrot,cassava etc.

 -Eating diet rich vit A,C and D, calcium and phosphate

 -Regular visit to the dentist.

13.a)These are chemicals which are capable of slowing down or completely inhibiting the activity of enzymes.

 They compete for active sites with the substance while non-competitive do not compete for active site.

Competitive inhibitors have no permanent effect on the enzyme while non-competitive inhibitors combines with enzymes permanently.

c) -pH

 -Specificity

 -Substrate concentration and enzyme concentration

 -Temperature

 -Enzyme co-factors and co-enzymes

d)-They are proteins in nature.Therefore they are highly affected by temperature and pH

 -Enzymes are substrate specific

 -They are efficient in small amounts since they are not affected by the reactions they catalyse

 -They are not used up in the reaction they catalyse

 -The reactions are reversible ( Any 4 correct)

 Total 1x4=4 (4mrks)

14.a)Heterodont dentition is one where there are different types of teeth while homodont dentition refers to a situation where all teeth are of same size and shape.

b)It provides space for the tongue to turn and move food during chewing.

c)These are special premolars in the lower and upper jaws of carnivore modified with smooth sides and sharp edges to slice through flesh and crush bones.

d) i)(2+5+8)x2=30 teeth

ii)Herbivorous because they have molars,incisors and premolars but no canines (2mrks)

15.i)Iodine solution

 ii)DCPIP

 iii)Benedicts solution

b)Monosaccharides

Disaccharides

Polysaccharides

c)i)Scurvy

ii)Kwashiorkor

iii)Rickets

**SECTION C**

16.a)Digestion

Absorption

b)Hepatic portal vein

c)It is long and therefore provide a large surface area for absorption

It is a narrow so as to bring digested food into close contact with the walls of the ileum for easier absorption

Highly coiled to slow down movement of food allowing more time for digestion and absorption.

Highly coiled to increase the surface area for digestion and absorption.

Large no.of villi and microvilli to increase the surface area for absorption of end products of digestion

Presence of thin layer of cells through which digested food diffuses

Dense network of blood capillaries in the villi into which amino acids,sugars,vitamins and mineral salts,are absorbed

Presence of lacteals in the villi for the absorption of fatty acids and glycerol

17.Thick cuticle which is water proof material’This reduces rate of transpiration

Leaf and shape

Plants with broad leaves loose a lot of water because they have a large surface area for water loss.

No of stomata

Location of stomata

Reserved stomatal rhythm in desert plants

Hairly leaves

Some plants leaves are covered with hairs or scales.Those trap layer of stillmoist air on the surface of the leaves,reducing transpiration.