**FORM 4**

**BIOLOGY PP1**

**END TERM 1, 2022**

1. Name the disease in humans that is caused by lack of vitamin C. (1mk)

* **Scurvy**

1. State three characteristics that cause cross- pollination takes place in flowering plants. (3mks)

* **Protandry**
* **Protogyny**
* **Self-sterility**
* **Monoecious plants**

1. Name two structures used for gaseous exchange in plants. (2mks)

* **Stomata**
* **Cuticle**
* **lenticels**

1. When are two organisms considered to belong to the same species? (2mks)

* **When they freely interbreed , to produce a viable off spring**

1. State the functions of the following cell organelles (2mks)
2. Golgi apparatus

**Packing of synthesized materials/ glycoproteins**

1. Ribosomes

* **Transport of packed materials**
* **Manufacture of proteins**

1. State three ways in which xylem vessels are adapted to their functions. (3mks)

* **Lignified to prevent collapse**
* **Narrow to facilitate capillarity**
* **Hollow for continuous flow of water**
* **Bordered pit for lateral movement of water**

1. A person who found to pass out large volumes of dilute urine frequently.
2. Name the disease the person was suffering from (1mk)

* **Diabetes insipidus/diuresis/water diabetes**

1. Name the hormone that was deficient. (1mk)

* **Antidiuretic hormone/vasopresin**

1. State any three pieces of evidence that support the theory of evolution. (3mks)

* Fossil records
* **Geographical distribution of organisms**
* **Comparative anatomy**
* **Cell biology**
* **Comparative serology**
* **Comparative embryology**

1. Why are people with blood group O universal donors. (2mks)

* **Blood has no antigen and does not cause agglutination**

1. Which organelle would be abundant in
2. Skeletal muscle cell. (1mk)

* **mitochondria**

1. Palisade cell (1mk)

* **chloroplast**

1. In an experiment, it was found that when maggots are exposed to light, they move to dark areas. Name
2. The type of response exhibited by maggots. (1mks)

* **Photo taxis**

1. The advantages of the response to the maggots. (1mk)

* **To avoid desiccation/drying/dehydration**
* **To escape from predators**

1. State two ways by which the human immune deficiency (H.I.V) is transmitted other than through sexual intercourse. (2mks)

* **Use of unsterilized instrument**
* **Blood transfusion**
* **Mother foetus**
* **Mixing of infected blood through cuts**

1. Suggest three reasons why green plants are included in a fish aquarium. (3mks)

* **Food, shelter, breeding sites; removal of co2; for oxygen**

1. State three ways in which some fungi are beneficial to human. (3mks)

* **Brewing; baking; manufacture medicine; some edible**

1. Why is oxygen important in the process of active transport in cells. (2mks)

* **Oxygen is required for respiration that produces energy necessary for active transport**

1. State two disadvantages of metamorphosis to the life of insects. (2mks)

* **No competition for food**
* **Enable survival in adverse conditions**

1. A person whose blood group is AB requires a blood transfusion. Name the blood groups of the donors. (1mk)

* **A,B,AB, O (rej if the four not given**

1. State two functions of muscles found in the alimentary canal of mammals. (2mks)

* **Act as values to regulate food movement**
* **Churning food**

1. Name three types of chrosomal mutations. (3mks)

**Inversion; duplication; deletion; translocation; non - disjunction**

1. The diagram below shows a specialized plant cell.
2. Name the cell. (1mk)

* **Root hair cell**

1. Name the parts labeled D and E. (2mks)

**D – cell wall**

**E- sap vacuole**

1. State the function of the part labeled C. (1mk)

* **Control activities’ of the cell**

1. Distinguish between haemolysis and plasmolysis. (2mks)

* **Haemolysis- bursting of an animal cell when placed in a hypotonic solution.**
* **Plasmolysis- loss of water by a plant cell when placed in a hypertonic solution.**

1. Explain why it is not advisable to be in poorly ventilated room with a burning charcoal stove. (3mks)

* **In a poorly ventilated room the charcoal burns producing carbon (ii) oxide; it combines with haemoglobin forming a stable compound carboxyhaemoglobin which which does not easily dissociate ; it prevents oxygen from combining with haemoglobin leading to suffocation. (3mks)**

1. What is the role of bile salts in digestion in human’s. (2mks)

**Emulsification**

**Creates alkaline conditions ( for enxyme action)**

1. (a) The following is the dental formula of a certain mammal.

i 0 c 0 pm 3 m 3

3 1 3 3

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

**herbivorous**

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

* **Absent of upper incisors/presence of horny pad**
* **Lack of canines on upper jaw/diastema present**

1. State the changes that occur in arterioles in the human skin during thermoregulation (2mks)

* **Vasoconstriction in cold conditions**
* **Vasodilation in hot conditions**

1. Name the site of anaerobic respiration in a cell (1mk)
2. (a) What is meant by convergent evolution? (1mk)

* **A type of evolution where structures of different origin and modified to perform similar functions**

1. State two limitations of fossils as an evidence of evolution. (2mks)

* **Missing links**
* **Partial fossilization**
* **Destruction by geological activities**

1. Apart from the lungs, name two gaseous exchange surfaces in a frog. (2mks)

* **Mouth/buccal cavity**
* **skin**

1. (a) The diagram below represents a certain plant.
2. What is the likely habitat for the plant. (1mk)

**Arid/semi arid**

1. Give two reasons for your answer in (a) above (2mks)

* **Leaves modified into spines/thorn**
* **Swollen stems to store water**

(b) What would be the expected results from a test cross. (2mks)

* **If unknown phenotype is heterozygous, the off- spring are a mixture of dominant and recessive 1:1, if phenotype is homozygous; all off-spring display the dominant trait.**

1. (a) State one economic importance of each of the following plant excretory products. (3mks)
2. Tannin

* **Treating leather**

1. Quinine

* **Anti- material drug**

1. Caffeine

* **Stimulant in beverage**

(b) Name three salivary glands in humans. (3mks)

**Sub maxillary salivary gland**

**Subliqual gland**

**parotid**

(c ) Name two dental diseases (2mks)

* **Periodontal**
* **Dental caries**

1. The diagram below represents a certain organism

State the phylum and class to which it belongs (2mks)

Phylum- **chordata**

Class- **aves**

1. What is meant by the flowing terms. (2mks)
2. Ecology

* Ecology- **study of inter-relationship of organisms and their environment**

1. Carrying capacity – **maximum number of organisms of the same species on area can support without depleting available resources**