**BIOLOGY FORM 1**

**TERM 3, 2023**

**MARKING SCHEME**

1. (a) Define the term ‘photosynthesis’. (1 mark)

***Process by which green plants manufacture their food using simple substances in presence of sunlight***

(b) State four requirements for the process of photosynthesis. (4 marks)

* **Water**
* **Carbon (IV) oxide.**
* **Presence of sunlight energy**
* **Chlorophyll**

**2.** Name the branch of biology that deals with the study of: (3 marks)

1. **Cells- Cytology**
2. **Parasites-Parasitology**
3. **Viruses-Virology**

**3**. The diagram below shows an experiment that was set up to investigate a certain process.



 The set-up was left in bright sunlight for several hours.

1. State the aim of the experiment. (1 mark)

**To test if Oxygen gas is produced during photosynthesis**

1. Name X and Y. (2 marks)

**X-Oxygen gas**

**Y- Water plant**

1. Other than sunlight, name three other factors that would affect the experiment. (3 marks)

**Carbon (iv) oxide concentration**

**Temperature**

**Water**

1. State how the identity of X would be confirmed. (1 mark)

**Using a glowing splint**

(e) Write a chemical equation for this process. (3 marks)

**6H2O+6CO2---------->C6H12O6+6O2**

**Water + Carbon (IV) oxide ----------- Glucose + Oxygen.**

**4.** Draw a well labelled diagram of a simple leaf (5mks)

* **MARK THE USE OF ALL RULES OF BIOLOGICAL DRAWINGS**

5. Tabulate the differences between plant and animal cells. (4 marks)

**PLANT CELL- ANIMAL CELL**

* **Plant cell Animal cell -Usually large Smaller in size**
* **Regular in shape- Irregular in shape**
* **Has a cell wall -Has no cell wall**
* **Usually has a large central vacuole -Usually has no vacuoles but when present, they are often temporary and small structures within the cytoplasm**
* **Cytoplasm and nucleus are usually located towards the periphery of the cell- Cytoplasm occupies most space in the cell with the nucleus usually centrally placed**
* **Some have chloroplasts -Has no chloroplasts**
* **Usually more store oils, starch and proteins- Store glycogen and fats**
* **Has no centriole- Has centriole**

**6**. The diagram alongside was drawn by a student after observing a human cheek cell under a microscope.



(a) Suggest the type of microscope the student used. Give a reason. (2 marks)

***Light microscope: only fewer details of the cell could be seen***

 (b) Name the parts labelled A, B and C. (3 marks)

**A-Cell membrane**

**B- Nucleus**

**C-Cytoplasm**

 (c) State the functions of parts A, B and C. (3 marks)

**A-Allow selective movement of materials in and out of the cell**

**B- Controls all activities of the cell**

**C- Fluid in which all organelles are suspended**

 (d) State two features which make this cell different from a plant cell. (2 marks)

**Nucleus centrally placed**

**Lack cell wall**

**7**. Differentiate between haemolysis and crenation (2marks)

**Haemolysis is the process by which an animal cell gains water by osmosis, becomes turgid and finally bursts when placed in a hypotonic solution while Crenation is the process by which an animal cell loses water and shrinks when placed in a hypertonic solution**

8. Define the term species (1mark)

**Smallest unit of classification whose members freely interbreed to produce a fertile offspring**

9. State the functions of the following parts of a microscope (2marks)

a) Condenser

**Concentrates light onto the object on the stage**

b) Diaphragm

**Regulates the amount of light passing through the condenser to illuminate the specimen**

10. List four factors affecting diffusion (4marks)

* **Diffusion gradient**
* **Surface area to volume ratio**
* **Thickness of membranes and tissues**
* **Size of molecules**
* **Temperature**

11. Name the apparatus used for trapping crawling organisms (1mark)

**Pit fall trap**

12. A student counted 20 cells across a field of view whose diameter was 3mm. Calculate the size of one cell in micrometers (3marks)

 **Diameter of field of view/number of cells**

 **3000/20=150 micrometers**