**NAME…………………………………......………………ADM. NO…………....……CLASS………**

**BIOLOGY**

**FORM 1**

**END TERM 1 2024**

**TIME: 2 HRS 15 MINUTES**

**MARKING SCHEME**

**Instructions: Answer all question in the spaces provided.**

1. a) Define biology. (1mk)

The study of life/living things

b) State and explain the three main branches of biology. (3mks)

Botany – study of plants;

Zoology – study of animals;

Microbiology – study of microscopic organisms;

1. a) state three importances of studying biology. (3mks)

* Helps to solve environmental problems;( such as pollution)
* Helps to acquire scientific skills such data collecting used in everyday living;
* For entry into other professions/careers such as teaching;
* Knowledge gained can be used to enhance international cooperation;
* Understand developmental stages in the human body;

b) Name 3 careers that require biology. (3mks)

* + Medicine;
  + Teaching;
  + Horticulture (AVP)

1. List three environmental problems solved by studying biology. (3mks)

* Pollution;
* Food shortage;
* Drought;
* Poor health;
* Conservation of natural resources;

1. Complete the table below about sub divisions of biology. (11mks)

|  |  |
| --- | --- |
| **Branch** | **Definition** |
| Entomology | Study of insects; |
| Genetics | Study of inheritance and variation; |
| Cytology; | Study of cells |
| Ornithology; | Study of birds |
| Ichthyology; | Study of fish |
| Anatomy | Study of internal structures of living organisms; |
| Ecology | Study of living organisms in their surroundings; |
| Morphology; | Study of external structure. |
| Physiology | Study of body functions; |
| Histology | Study of tissues; |
| Virology | Study of viruses; |

1. a) State eight characteristics that make an organism be called a living organism. (8mks)
   * Nutrition
   * Growth and development
   * Respiration
   * sensitivity/irritability
   * Excretion
   * Movement/locomotion
   * Reproduction
   * Gaseous exchange;
2. How does nutrition differ in plants and animals? (2mks)

Plants manufacture their own food/ are autotrphic while animals do not manufacture their own food/ are heterotrophic;

1. A car/ Aeroplane is able to move from one place to another and give out exhaust gases but it is snot classified as a living organism. List other characteristics of living things that do NOT occur in motor vehicles. (3mks)
   * + Growth and development;
     + Irritability;
     + Reproduction;
2. State the characteristic illustrated by the photos below. (2mks)

|  |  |
| --- | --- |
| Photo | Characteristics. |
|  | Nutrition; |
|  | Movement/locomotion; |

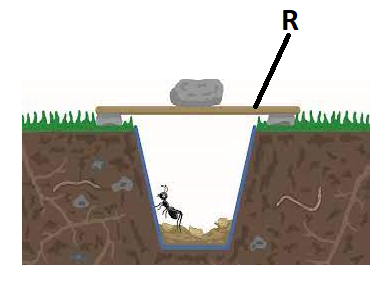
1. Name the most suitable apparatus used to collect the following specimens for study in the laboratory.

(5mks)

|  |  |
| --- | --- |
| **Organism** | **Apparatus.** |
| Grasshopper. | Sweep net; |
| Rat. | Bait trap; |
| Fish. | Fish net; |
| Ants. | Pooter/ pitfall trap; |
| Stinging nettle. | Pair of forceps; |

1. Below is an apparatus used to trap specimen.
2. Identify the apparatus. (1mk)

Pitfall trap;



1. State the purpose of the part labelled R. (1mk)

Prevent entry of rain water or sun rays;

1. What is a specimen. (1mk)

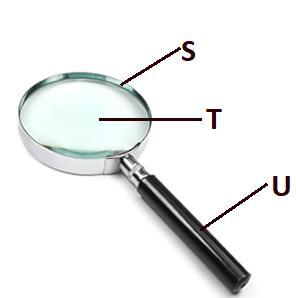
A whole or a part of an organism being studied or examined;

1. List three precautions made during collection and observation of specimen. (3mks)

* Collect only the number of specimens you need;
* Do not harm specimens during the capture(collection);
* Do not destroy the natural habitat of the specimen;
* After use return any live specimens back to their habitat whenever possible;
* Dangerous/ injurious specimens should be handled with a lot of care such include stinging plants or insects make use of forceps and hand gloves in such cases;
* For highly mobile animals they should be immobilized;

1. Below is a drawing of an apparatus used during the study of biology.
2. Identify the apparatus. (1mk)

Magnifying lens/ hand lens;

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1. Name the parts labelled S, T, and U. (3mks)

S – Frame;

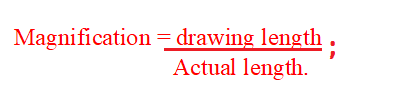
T – (convex) lens;

U – Handle;

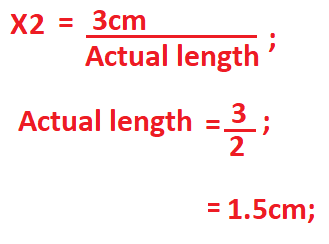
1. State the function of the apparatus. (1mk)

Make small objects to appear larger/ enlarge specimen/ magnify specimen;

1. A student observing a head of an insect using a hand lens.
2. Write the formular used to calculate magnification of a specimen using a hand lens.(1mk)



1. She made a drawing of the head whose length was 3 cm. If the magnification was X2, calculate the actual length of the drawing. (3mks)

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1. State three main differences between plants and animals. (3mks)

|  |  |
| --- | --- |
| **Animals** | **Plants** |
| Has Specialized complex excretory organs | Has simple excretory organs |
| Respond quickly to stimulus | respond to stimulus slowly |
| Has definite growth | Have indefinite growth |
| Move around to look for food | Stationery |
| Heterotrophic | Autotrophic |
| Cells have no cell walls | Cells have cell wall made of cellulose |
| Cells lack chlorophyll | Cells has chlorophyll |

1. Define the following terms.
   * 1. Taxon. (1mk)

Group of organisms with similar characteristics;

* + 1. Species. (1mk)

A group of organisms that can naturally interbreed to give rise to fertile offspring;

1. State two reasons that make scientific names to be written in Latin language. (2mks)
   * Does not change;
   * Was widely spoken/ used by scientists during Linnaeus time;
2. State three importances of classification of living organisms. (3mks)
   * Place organisms in their right group for reference;
   * Put together organisms with similar characteristic and separate those with different characteristic;
   * Organize information about living organisms in an orderly manner to avoid chaos that may arise if it was done arbitrarily;
   * Understand evolutionary relationship between organisms;
3. State all the taxonomic units in descending order. (7mks)

Kingdom;

Phyla/division;

Class;

Order;

Family;

Genus;

Species;

1. Apart from Plantae and animalia, name the three other kingdoms of classification and give an example for each. (6mks)

|  |  |
| --- | --- |
| Kingdom | Example |
| Fungi | Mushroom; |
| Protoctista | Amoeba; |
| Monera; | Bacteria; acc a good example; |

1. a) what is binomial nomenclature. (1mk)

Assigning of two scientific names to living organisms;

b)State three rules of binomial nomenclature. (3mks)

* + The genus name should start followed by scientific name;
  + The name should be underlined separately when handwritten;
  + The specific name is sometimes written with the name of the person who first described the organism adequately;

1. The scientific name of paw paw is *carica Papaya.*
2. Which taxonomic unit is represented by the name *carica. (*1mk)

Genus;

1. State two mistakes made in writing the name. (2mks)

* Starting the genus name with a small letter;
* Starting the species name with a capital letter;

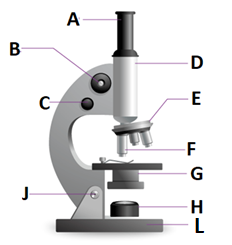
1. Write the name correctly. (1mk)

Carica papaya;

1. The scientific name of a tiger is *Panthera tigris* and that of Jaguar is *Panthera onca.* State a reason why a tiger and Jaguar cannot interbreed yet they belong to the same genus. (1mk)

They belong to different species;

1. Study the light microscope below and answer the questions that follows.



1. Name the parts labelled A – L. (10mks)

A – Eye piece;

B – Coarse adjustment knob;

C –Fine adjustment knob;

D –Body tube;

E –Revolving nose piece;

F –High power objective lens; acc objective lens alone

G –Condenser;

H – Mirror;

L – Base;