**MARKING SCHEME**

**FORM 1 BIOLOGY**

**TERM 2 2022 OPENER EXAM FORM 1**

**TIME: 2 HOURS**

**Answer all the questions in the spaces provided.**

1. With reference to the term Biology, state the meaning of the following:- (2 mks)

 **(i) bios – life**

 **(ii) logos – knowledge**

2. State the two major branches of Biology and give their meaning. (4 mks)

 **(i) Botany - Branch of biology that deals with study of plants.**

 **(ii) Zoology - Branch of biology which deals with study of animals.**

3. Complete the table below by giving the meaning of the terms: (5 mks)

|  |  |
| --- | --- |
| **Branch of Biology** | **Meaning** |
| Microbiology | **Study of microscopic organisms** |
| Anatomy | **Study of structure of living organisms** |
| Physiology | **Study of body functions** |
| Entomology | **Study of insects** |
| Cytology | **Study of cells** |

4. Outline four benefits of study of biology. (4 mks)

 **(i) Solving environmental problems**

 **(ii) Career subject**

 **(iii) Acquire scientific skills**

 **(iv) Promotes cooperation in solving common problems**

 **(pertinent and emerging problems)**

5. With reference to characteristics of living organisms complete the table below. (8 mks)

|  |  |
| --- | --- |
| **Characteristic** | **Definition/Meaning** |
| **Reproduction** | **Process by which living things give use to new individuals of their own.** |
| **Movement** | **Change in position of whole or part of an organism** |
| **Excretion** | **Removal of metabolic wastes from body of an organism.** |
| **Nutrition** | **Process by which living organisms acquire & utilize nutrients** |
| **Respiration** | **Chemical breakdown of food to release energy** |
| **Growth and development** | **Growth-Permanent increase in size of an organism****Development – Permanent increase in complexity of an organism** |
| **Gaseous exchanges** | **Process of movement of respiratory gases across a respiratory surface.** |
| **Irritability (Responsiveness)** | **Ability of organism to detect and respond to change in environment** |

6. State the importance of the following in living organisms. (6 mks)

 **(i) Reproduction – Increase in population**

 **- Sustains species**

 **(ii) Movement – Get resource from environment**

 **- Escape harmful stimuli**

 **- Reach out mates for reproduction**

 **(iii) Excretion – Prevents accumulation of metabolic waste to toxic level which would**

 **harm the organism.**

7. Explain how plants and animals differ with reference to the following characteristics. (10 mks)

 NB: Marks are linked in each characteristic.

|  |  |  |
| --- | --- | --- |
| Movement | Plants | Animals |
| (i) Nutrition | **Are antotrophic** **Manufacture their food for water & CO2** | **- Are heterotrophic.****- Feed on complex food materials from plants and animals** |
| (ii) Irritability | **- Show response****- No specific receptors** | **- Rapid response to stimulus****- Have specific reception** |
| (iii) Growth | **- Growth takes place at meristemetic tissue only.** | **- Growth occurs all over the body uniformly.** |
| (iv) Excretion | **- Lack specialized excretory organs** | **- Have highly developed excretory organs.** |
| (v) Movement | **Occurs only in parts** | **- Both locomotory and parts movement.** |

8. Explain how the following apparatus are used in collection and observation of specimens.

 (6 mks)

 **(i) A pooter – Sucking small animals from surfaces.**

 **(ii) A bait trap – Attract and trap small animals eg rats.**

 **(iii) A pit fall trap – Catching crawling animals.**

 **(iv) A fish net – Trapping small water animals eg fish.**

 **(v) A sweep net – Catching flying insects.**

 **(vi) Pair of forceps – Picking up small crawling animals.**

9. (a) Define the following terms: (2 mks)

 **(i) Taxonomy – Science of classification**

 **(ii) Taxonomic units – Group into which organisms are placed in classification.**

 (iii) Outline the seven taxonomic units of classification from the largest to the smallest.

 (7 mks)

 **(a) Kingdom**

 **(b) Phylum**

 **(c) Class**

 **(d) Order**

 **(e) Family**

 **(f) Genus**

 **(g) Species**

 (b) Complete the table below kingdoms should be in the order of simplest to most complex

 organisms. (10 mks)

|  |  |  |
| --- | --- | --- |
|  | **Kingdom** | **Example of organism** |
| **(i)** | **Monera** | **Bacteria** |
| **(ii)** | **Protoctista** | **Algae, amoeba, paramecium** |
| **(iii)** | **Fungi** | **Moulds, yeast, mushrooms, puffballs etc** |
| **(iv)** | **Plantae** | **Maize, beans** |
| **(v)** | **Animalia** | **Man, bees, lion** |

10. (a) Identify the organisms shown in the photographs. (3 mks)

 

 **A – Clamydomonas**

 **B – Hydra**

 **C – Paramecium**

 (b) If fish in diagram A is the drawing of object B, calculate the drawing magnification. (2 mks)

 **Magnification =** $\frac{length of image}{length of object}$ **=** $\frac{86cm }{43cm}$ **= X2**

 