

Marking scheme Biology form 1

1. Name the branch of biology that deals with the study of. (3 marks)

a) Insects.

Entomology.

b) Inheritance and variation.

Genetics.

c) Organism relation and their surrounding.

Ecology.

2. State the characteristic of living things shown by s: (1 mark)

a. **Growth and development. (seedlings)**

b. **Movement (Cthyng bird)**

3. Define the following terms.

a) Cell – **Basic structural functional unit of an organism.**

b) Development – **Irreversible increase in complexity of an organism.**

c) Excretion – **Separation and elimination of metabolic waste.**

4. State one use of the following. (4 marks)

a) Pit fall trap – **Suck small animals from the back of tree and rocks.**

b) Pair of forceps.- **Hold stinging/poisonous specimens.**

c) Bait in a bait trap – **Attract small animals on the trap.**

d) Chloroform – **Immobilize mobile animals during specimen collection.**

5. Distinguish between gaseous exchange and respiration. (2 marks)

- **Gaseous exchange in a physical process which involves passage of respiratory gases across a respiratory surface.**
- **Respiration is a chemical process involving breakdown of food material to release energy.**

6. Give three differences between a maize plant and a zebra. (3 marks)

Maize	Zebra
1. Has chlorophyll	Lack chlorophyll
2. Cellulose cell wall	Lack cellulose cell wall
3. Slow response to stimuli	Quick response to stimuli
4. Simple excretory system	Complex excretory system
5. Do not locomote	Locomote

7. Name two skills required when one is making a drawing with a magnification. (2 marks)

1. **Measuring.**
2. **Observing.**
3. **Recording.**
4. **Analyzing.**

8. State the two importance of movement in animals. (2 marks)

- **Enable them in search of food,water,shelter ,mate.**
- **Enable them to escape predators, harmful stimuli.**

9. The length of a real specimen is 3cm^3 calculate the linear magnification from the image below. (2 marks)

b) Name the apparatus that was used when the image was made. (1 mark)

- **Magnifying lens/hand lens.**

10. Give 3 differences between light and electron microscope. (3 marks)

Light Microscope	Electron microscope.
• Uses a beam of light.	• Uses a beam of electrons.
• Has low resolving power	• High resolving power.
• Has low magnification	• Has high magnification.
• Uses glass lense	• Uses electromagnetic lenses.
• Uses slides	• Use grid in a vacuum.

11. Give two functions of each of the following.

a) Golgi apparatus. (2 marks)

- **Packing and transportation gyco proteins,**
- **Transport of synthesized material in and out of the cells.**
- **Secretion of synthesized protein and carbohydrates.**
- **Formation of Golgi vesicles.**

b) Rough endoplasmic reticulum. (2 marks)

- **Transport proteins.**
- **Site for attachment of ribosomes.**

12. Name the organelles that perform the following functions.

a) Destroy the entire cells (1 mark)

- **Lysosome.**

b) Manufacture of food in presence of sunlight and water. (1 mark)

- **Chloroplast.**

13. Give reason for the following activities when preparing a temporary slide. (3 marks)

a) Adding a drop of iodine solution to the specimen of the slide.

- **To stain hence increase contrast.**

b) Adding water on a plant section.

- **Prevent dehydration of cells hence remain turgid.**

c) Using a sharp scapel/Razor blade.

- **Prevent destroying the tissues when cutting.**

14. Plant cell do not burst when placed in distilled water.

Explain.

(2 marks)

- **Because it has outer cellulose cell wall which is rigid.**

15. The diagram below shows a specialized cell.

(3 marks)

a) Name the cell.

- **Spermatozoon**

b) Function of the cell.

- **Fertilize the ovum.**

c) State its adaptation/modification to its function.

- **It has long tail for propulsion to the ovum.**
- **It has Acrosome that contains lytic enzyme that digests cell membrane of the ovum.**
- **Numerous mitochondria to provide energy.**

16a. During magnification using light microscope an image appeared blurred. Name the part to adjust for image to appear clear.

(1 mark)

- **Fine adjustment knob.**

b) Explain why the stage of a microscope should be dried before specimen slide is placed. (1 mark)

- **To prevent the slide from sticking when manipulating it into the field of view.**

17. How do the following factors affect diffusion?

(2 marks)

a) Temperature.

- **Increase in temperature increase the rate of diffusion.**
- **Decrease in temperature decreases the rate of diffusions.**

b) Concentration gradient.

- **Higher concentration gradient increases the rate of diffusion.**

18. Distinguish between haemolysis and plasmolysis.

(2 marks)

- **Haemolysis is bursting of red blood cell when placed in hypotonic solution.**
- **Plasmolysis is where by plant cell loose water shrink and become flaccid when placed in hypertonic solution.**

19. In an investigation a student extracted 3 pairs of paw paw cubes and placed them in a beaker containing a solution. Results after 40 minutes were as shown below.

Account for the results.

(3 marks)

- **Cell gained water through osmosis and become turgid. The cortex cell are more permeable to water than epidermal cells hence the curvature.**

b) Suggest a suitable control experiment.

(1 mark)

- **Use of boiled paw paw cubes.**
- **Placing cube in isotonic solution.**

c) Give one importance of the physiological process being investigated above.

(1 mark)

a) In animals _ osmoregulation.

b) In plants – **Support to young seedlings/herbs.**

-Feeding of insectivorous plants.

-Absorption water, opening and closing of stomata.

d) Name the physiological process that requires energy.

(1 mark)

- **Active Transport.**

