Living and Non-Living

Fill in the blanks: -

1. We can see _____ under a microscope.
2. All organisms begin their life with a _____ cell.
3. _____ grow throughout their life.
4. Plants excrete _____ and _____ through small pores called _____.
5. The size of an organism is primarily dependent on _____.
6. Plants release energy during _____.
7. _____ and _____ are examples of waste produced by plants.
8. The process by which green plants make their own food using sunlight is called _____.
9. The tendency of roots to grow downwards in response to gravity is called _____.
10. The study of living things is called _____.

Define the following: -

1. Cell
2. Molecule
3. Unicellular organisms
4. Phototropism
5. Geotropism
6. Autotrophs
7. Heterotrophs
8. Stomata
9. Respiration
10. Species
11. Lifecycle
12. Excretion
13. Reproduction
14. Life span

Answer in one word-

1. Smallest unit of matter- _____
2. Molecule : non-living things :: _____ : living things
3. Small pores on the leaves and stem of a plant- _____
4. Waste product of a plant- _____
5. Earthworm : skin :: Cockroach : _____
6. Process of removal of waste products from the body _____
7. Humans : nose :: Plants : _____
8. Shoot : light :: root : _____
9. Resin : plant :: _____ : humans
10. Plants : seeds :: Animals : _____

Answer the following questions: -

1. Name 4 things common in living and non-living things.
2. What is the difference between the structural units of living and non-living things?
3. Why do animals move?
4. Name 5 unicellular organisms.
5. With time the rock or a crystal also grows. Can they be called living things? Give reasons to support your answer.
6. How is the growth of a unicellular organism different from a multi-cellular organism?
7. How is growth of a plant different from the growth of an animal?
8. Explain stimulus and response with an example.
9. Why do the leaves of *Mimosa* plant droop when touched?
10. Name some of the stimuli affecting the plants.
11. Name some types of plants which can be heterotrophs.
12. You hang a plant upside down. After a few days you notice that the stem has started turning up towards the sky. What does this tell you about the plant?
13. Why do living beings need food?
14. Why do living beings need energy?
15. Why do plants supply more oxygen during the day than night?
16. What are species and how are they classified?
17. What are organisms with multiple cells called?
18. Name the three kinds of wastes produced by the human body.
19. How is the growth (growth in size) of living things is different from that of a non-living thing. Explain with the help of an example.

20. What causes the movement in the plants and animals?
21. What is the waste product of plants during respiration and during photosynthesis?
22. Why is reproduction essential?
23. Compare and contrast autotrophs and heterotrophs. Explain how energy flows through an ecosystem from autotrophs to different types of heterotrophs.
24. Discuss how the ability to respond to stimuli is crucial for the survival of living organisms. Provide examples from both plants and animals.
25. Name two responses of animals to stimuli with examples.
26. What is 'life span' of a living being? Explain with an example.

Conceptual and indirect questions for discussion:

1. A student observes a rock and a seed. Both are motionless and appear lifeless. How can the student determine which one is living and which is non-living?
2. If a robot is programmed to move, grow in size, and even replicate itself, would you classify it as a living thing? Justify your answer based on the characteristics of living things.
3. In a sealed terrarium, plants continue to grow for years without additional water or nutrients. Explain how this is possible in terms of the characteristics of living things.
4. Some organisms, like tardigrades, can enter a state of cryptobiosis where they show no visible signs of life for years. How does this challenge our understanding of the characteristics of living things?
5. A Venus flytrap closes its leaves when triggered by an insect. A laptop closes its lid when triggered by a magnetic sensor. Compare and contrast these responses in terms of living and non-living characteristics.
6. Viruses can reproduce, but only inside host cells. They also evolve over time. Debate whether viruses should be classified as living or non-living organisms.
7. Some scientists propose that the entire Earth behaves like a single, self-regulating living organism (the Gaia hypothesis). Evaluate this idea using the characteristics of living things we've discussed.
8. If we discovered silicon-based life forms on another planet that didn't require water or oxygen, how might we need to adjust our definition of living things?
9. Certain crystals can grow, replicate their structure, and respond to environmental conditions. Explain why they are still considered non-living.

10. How might the characteristics of living things need to be redefined if we ever create artificial life in a laboratory?

Find the odd one out. Give reasons to support your answer.

1. Mimosa, Orchid Tree, Water Lily, Rose
2. Amoeba, Mushroom, Salmonella, Yeast,
3. Sunflower, Dandelion, Rose, Mimosa
4. Cockroach, Fireflies, Bats, Eagle
5. Gum, Resin, Latex, Wax

Multiple choice questions-

1. Which of the following is NOT a characteristic of living things?

a) Reproduction b) Growth c) Magnetism d) Excretion

2. Phototropism in plants is a response to which stimulus?

a) Gravity b) Water c) Light d) Temperature

3. Which of these is an example of an autotroph?

a) Mushroom b) Cow c) Algae d) Butterfly

4. The movement in the non-living things is not caused by one the things below.

a) Blowing of air b) Push of our hand c) Hormonal reactions d) Flowing of water

5. Which of these refer to a group of cells that perform a function?

a) Cell Structure b) Organ c) Organ system d) Tissue

Write true or false and correct the incorrect statement: -

1. Different living things have different cells.
2. Plants do not move.
3. All plants are autotrophs.
4. All living things are matter.
5. The number of cells in unicellular organisms increases with the increase in their size.
6. One living thing can have multiple type of cells.
7. Some animals are autotrophs.
8. Some plants are heterotrophs.
9. All living organisms respire all the time.