Distinguishing Living from Non-living

A. Choose the correct answer:

1. Which of the following is a key characteristic of all living organisms?

a) Ability to grow and reproduce

b) Ability to remain static forever

c) Lack of movement and response to stimuli

d) Dependence on external power sources like batteries

2. Which process is essential for a living organism to generate energy?

a) Respiration

b) Evaporation

c) Condensation

d) Filtration

3. What differentiates living beings from non-living things?

a) Living beings do not need energy

b) Living beings can respond to their surroundings

c) Non-living things can grow and develop

d) Non-living things have a metabolism

B. Fill in the Blanks:

1. Living organisms undergo _____ to convert food into energy.
2. One of the main features of living organisms is their ability to _____ and reproduce.
3. Non-living things do not have _____, so they do not respond to stimuli.

C. Case Study:

A group of scientists conducted an experiment to differentiate between living and non-living things. They observed three subjects:

- **Object A** was a stone, which remained unchanged regardless of temperature, water, or light.
- **Object B** was a plant, which grew towards sunlight and required water and nutrients.
- **Object C** was a robot, which could move and perform tasks but required an external power source.

After several weeks, the scientists noted that Object B continued to grow, while Objects A and C remained unchanged unless acted upon externally.

Questions & Answers:

1. What was the primary purpose of the scientists' experiment?
2. Why was Object A classified as a non-living thing?
3. What feature of Object C made it different from living beings?
4. Based on the study, what key characteristics define living organisms?

D. Short Answer Questions:

1. Why do living organisms need energy?
2. How do living organisms respond to stimuli?
3. What are the differences between growth in living and non-living things?

E. Long Answer Questions:

1. Explain five characteristics that distinguish living organisms from non-living things.
2. Describe how living organisms maintain homeostasis and why it is important.
3. Discuss how technology has blurred the distinction between living and non-living things (e.g., artificial intelligence and robots).