

NCERT Exemplar Solutions for Class 6 Science Chapter 9: The Living Organisms and their Surroundings

Multiple Choice Questions

1. Which of the following cannot be called a habitat?

- (a) A desert with camels
- (b) A pond with fishes
- (c) A jungle with wild animals
- (d) Cultivated land with grazing cattle

Answer: (d) Cultivated land with grazing cattle

Explanation: A habitat is the natural environment where an organism lives and finds everything it needs to survive, including food, shelter, and proper climatic conditions. Cultivated land is not the natural habitat where grazing cattle naturally live; it is an artificial environment created by humans.

2. Following are some features of plants:

- (i) They lose a lot of water through transpiration
- (ii) Their leaves are always broad and flat
- (iii) They lose very little water through transpiration
- (iv) Their roots grow very deep into the soil

Which combination of the above features is typical of desert plants? **(a)** (i) and (ii)

- (b) (ii) and (iv)
- (c) (ii) and (iii)
- (d) (iii) and (iv)

Answer: (d) (iii) and (iv)

Explanation: Desert plants have adapted to survive in hot and dry conditions. They have small leaves or spines (not broad leaves) to minimize water loss through transpiration. Their roots grow deep into the soil to absorb water from underground sources.

3. Boojho comes across an animal having a streamlined and slippery body. What is the habitat of the animal?

- (a) Water
- (b) Desert
- (c) Grassland
- (d) Mountain

Answer: (a) Water

Explanation: Aquatic animals have streamlined bodies to reduce resistance while swimming and slippery surfaces to move easily through water without damaging their bodies.

4. Which of the following are characteristics of living beings?

- (i) Respiration
- (ii) Reproduction
- (iii) Adaptation
- (iv) Excretion

Choose the correct answer from the options below: **(a)** (i), (ii) and (iv) only

(b) (i) and (ii) only

(c) (ii) and (iv) only

(d) (i), (ii), (iii) and (iv)

Answer: (d) (i), (ii), (iii) and (iv)

Explanation: All four processes - respiration, reproduction, adaptation, and excretion - are essential characteristics of living organisms that help them survive and continue their species.

5. Earthworms breathe through their:

(a) skin

(b) gills

(c) lungs

(d) stomata

Answer: (a) skin

Explanation: Earthworms lack specialized breathing organs and breathe through their moist skin surface. Gills are found in aquatic animals like fish, lungs in land mammals, and stomata in plants for gas exchange.

6. Which of the following is NOT an example of response to stimulus?

(a) Watering in mouth when we see delicious food items

(b) Closing of leaves of Mimosa plant when touched

(c) Shutting our eyes when an object is suddenly thrown in our direction

(d) A chick hatching out of an egg

Answer: (d) A chick hatching out of an egg

Explanation: Hatching is a developmental process, not a response to an external stimulus. The other options show immediate responses to specific stimuli.

7. Which of the following is correct for respiration in plants?

(a) Respiration takes place only during daytime

(b) Respiration takes place only during night

(c) Respiration takes place both during day and night

(d) Respiration takes place only when plants are not making food

Answer: (c) Respiration takes place both during day and night

Explanation: Respiration is the process of breaking down organic substances to release energy. Unlike photosynthesis, respiration occurs continuously in plants, both day and night.

8. Which of the following is an incorrect statement about excretion?

(a) Excretion takes place in plants

(b) Excretion takes place both in plants and animals

(c) Excretion is the process of getting rid of excess water only

(d) Secretion is one method of excretion

Answer: (c) Excretion is the process of getting rid of excess water only

Explanation: Excretion involves eliminating various waste products including water, carbon dioxide, and nitrogenous compounds through urine, sweat, and exhaled air - not just excess water.

9. Choose the set that represents only the biotic components of a habitat:

(a) Tiger, Deer, Grass, Soil

(b) Rocks, Soil, Plants, Air

(c) Sand, Turtle, Crab, Rocks

(d) Aquatic plant, Fish, Frog, Insect

Answer: (d) Aquatic plant, Fish, Frog, Insect

Explanation: Biotic components are living parts of the environment. Option (d) contains only living organisms, while other options include abiotic (non-living) components like soil, rocks, air, and sand.

10. Which one of the following is NOT associated with reproduction?

(a) A new leaf coming out of a tree branch

(b) A dog giving birth to a puppy

(c) A seed growing into a plant

(d) Chick hatching from an egg

Answer: (a) A new leaf coming out of a tree branch

Explanation: A new leaf growing is vegetative growth, not reproduction. Reproduction involves producing young ones of the same species, as seen in the other options.

11. Choose the odd one out with respect to reproduction:

(a) Eggs of hen

(b) Seeds of plants

(c) Buds of potato

(d) Roots of mango tree

Answer: (d) Roots of mango tree

Explanation: Mango tree roots do not play a role in reproduction. Hen eggs and plant seeds are direct products of reproduction, while potato buds are vegetative reproductive parts.

12. Although organisms die, their kind continues to live on earth. Which characteristic of living organisms makes this possible?

(a) Respiration

(b) Reproduction

(c) Excretion

(d) Movement

Answer: (b) Reproduction

Explanation: Reproduction allows organisms to produce offspring, ensuring the continuation of their species even after individual organisms die.

13. If you happen to go to a desert, what changes do you expect to observe in the urine you excrete? You would:

(i) excrete small amount of urine

(ii) excrete large amount of urine

(iii) excrete concentrated urine

(iv) excrete very dilute urine

Which of the above would hold true? **(a)** (i) and (iii)

(b) (ii) and (iv)

(c) (i) and (iv)

(d) (i) and (ii)

Answer: (a) (i) and (iii)

Explanation: In desert conditions, the body conserves water by producing small amounts of concentrated urine to prevent dehydration.

Very Short Answer Questions

14. Unscramble the given words to get the correct word using the clues:

(a) **SATPADAINT**: Specific features that enable a living being to live in its surroundings

Answer: ADAPTATIONS

(b) **RETECOXNI**: Waste products are removed by this process

Answer: EXCRETION

(c) **LUMISIT**: All living things respond to these

Answer: STIMULI

(d) **ROUCDPRENTOI**: Because of this we find organisms of the same kind

Answer: REPRODUCTION

15. Write the habitat of each animal shown in the figure:



(a)



(b)



(c)



(d)

(a) Deer - **Grassland**

(b) Red-eyed tree frog - **Tropical rainforest**

(c) Yak - **Mountain**

(d) Camel - **Desert**

16. Classify the following habitats into terrestrial and aquatic types:

[Grassland, Pond, Ocean, Rice field]

Terrestrial habitats: Grassland, Rice field

Aquatic habitats: Pond, Ocean

17. Why is reproduction important for organisms?

Answer: Reproduction is crucial for living organisms as it enables them to produce offspring of their own kind, ensuring the continuity and survival of their species across generations.

18. Fill in the blanks:

(a) Saline water, hot air and sand are **abiotic (non-living)** components of a habitat.

(b) The habitat of plants and animals that live in **water** is called the aquatic habitat.

(c) **Adaptations** enable a plant or an animal to live in its surroundings.

(d) Plants and animals that live on land are said to live in **terrestrial** habitats.

Short Answer Questions

19. Paheli has a rose plant in her garden. How can she increase the number of rose plants in the garden?

Answer: Paheli can increase the number of rose plants using the plant propagation method by planting stem cuttings. She should cut 20-30 cm long pieces from one-year-old stems and plant their lower ends in moist soil. With proper care, these cuttings will develop roots and grow into new rose plants.

20. Why do desert snakes burrow deep into the sand during the day?

Answer: Desert snakes burrow deep into the sand during the day because the deeper layers of sand remain cooler than the surface. This behavior helps them escape the intense heat of the desert during daytime and maintain their body temperature within a tolerable range.

21. Write the adaptation in aquatic plants:

(a) Submerged leaves can bend in flowing water:

Submerged leaves are long, narrow, and ribbon-like, allowing them to bend easily with water currents without breaking. This flexibility helps them withstand strong water flow (e.g., tape grass).

(b) Leaves can float on the surface of water:

Floating leaves are broad, hollow, and lightweight with air-filled spaces that provide buoyancy, enabling them to float on the water surface for efficient photosynthesis.

22. Mention one adaptation in the following animals:

(a) In camels to keep their bodies away from the heat of sand:

Camels have long legs that elevate their body above the hot sand surface, protecting them from ground heat.

(b) In frogs to enable them to swim:

Frogs have webbed feet (skin membrane between toes) that act like paddles, helping them swim efficiently in water.

(c) In dolphins and whales to breathe air when swimming near the surface:

Dolphins and whales have blowholes on top of their heads that allow them to breathe air when they surface, without fully emerging from water.

23. Some desert plants have very small leaves whereas some others have only spines. How does this benefit the plants?

Answer: Desert plants face severe water scarcity, so they have evolved to conserve water efficiently. Small leaves and spines are modified leaves with reduced surface area that minimize water loss through transpiration. This adaptation helps desert plants survive in hot, dry conditions by retaining precious water within their tissues.

24. What are the specific features present in a deer that help it detect the presence of predators like lions?

Answer: Deer have several adaptations for detecting predators:

- **Long, sensitive ears** that can detect subtle sounds and movements of approaching predators
- **Eyes positioned on the sides of their head** providing a wide field of vision to spot danger from multiple directions
- **Excellent sense of smell** to detect predator scents carried by wind

- **Alert posture** allowing quick response to potential threats

Long Answer Questions

25. Read the features of plants and choose the appropriate plant type:

- (a) **Thick waxy stem** - Desert plant
- (b) **Short roots** - Aquatic plant
- (c) **Cone-shaped plants** - Mountainous plant
- (d) **Sloping branches** - Mountainous plant
- (e) **Small or spine-like leaves** - Desert plant
- (f) **Hollow stem** - Aquatic plant

26. Although a car moves like many animals, it is still not considered a living organism. Give 2-3 reasons.

Answer: A car is not considered a living organism for the following reasons:

1. Cellular Structure: Cars are not made up of cells, which are the basic units of life. All living organisms are composed of one or more cells that carry out life processes.

2. Response to Stimuli: Cars cannot sense and respond to environmental changes on their own. Living organisms have the ability to detect and react to stimuli such as light, temperature, sound, and chemical changes.

3. Growth and Development: Cars do not show biological growth. While they may be manufactured in different sizes, they don't grow irreversibly like living organisms. Living things show permanent, irreversible growth throughout their life cycle.

4. Metabolism: Cars don't carry out metabolic processes like respiration, digestion, or excretion that are essential for life.

27. What are the adaptive features of a lion that help it in hunting?

Answer: Lions have several adaptive features that make them effective hunters:

1. Physical Adaptations:

- **Strong, muscular body** for overpowering large prey
- **Sharp teeth and powerful jaws** for gripping and killing prey
- **Long, sharp claws** for catching and holding prey
- **Powerful paws** for striking and grasping

2. Camouflage:

- **Tawny brown coat color** that blends with dry grassland, helping lions remain hidden from prey until they're close enough to attack

3. Vision:

- **Forward-facing eyes** that provide excellent depth perception and binocular vision, essential for judging distances accurately when pouncing on prey
- **Excellent night vision** for hunting in low-light conditions

4. Hunting Strategy:

- **Silent movement** with padded paws for stealthy approach
- **Cooperative hunting** behavior when hunting in groups (prides)

These adaptations work together to make lions one of the most successful predators in their ecosystem.