

## 5. HABITAT (Solutions)

### IMPROVE YOUR LEARNING (PAGE 66 – 68)

#### 1) What is habitat (or) Define habitat?

**Definition:** A habitat is the natural environment or place where an organism (plant, animal, or microorganism) lives, grows, and thrives. It provides the necessary resources such as food, water, shelter, and space for the organism to survive and reproduce.

#### 2) Represent the different habitats in the form of a flow chart?

To represent different habitats in a flow chart, we can categorize habitats based on their primary characteristics (e.g., terrestrial, aquatic). Since I cannot directly produce a visual flow chart, I will describe a flow chart structure that can be visualized or drawn. Below is the textual representation of the flow chart:

Habitats

├— Terrestrial Habitats

|   ├— Forest

|   ├— Grassland

|   ├— Desert

|   ├— Mountain

|   └— Tundra

└— Aquatic Habitats

├— Freshwater

|   ├— Ponds

|   ├— Lakes

|   ├— Rivers

|   └— Streams

└— Marine

    ├— Oceans

└─ Coral Reefs

└─ Estuaries

**Explanation:**

**Terrestrial Habitats:** Land-based environments like forests (dense with trees), grasslands (dominated by grasses), deserts (arid with sparse vegetation), mountains (high-altitude, rocky), and tundra (cold, treeless).

**Aquatic Habitats:** Water-based environments divided into freshwater (ponds, lakes, rivers, streams) and marine (oceans, coral reefs, estuaries).

**3) List out the different components present in the habitat?**

A habitat consists of two main types of components:

**Biotic Components (Living):**

Plants: Provide food, oxygen, and shelter (e.g., trees, grasses, cacti).

Animals: Consumers that depend on plants or other animals (e.g., deer, fish, insects).

Microorganisms: Bacteria, fungi, and other microscopic life forms that decompose matter or contribute to nutrient cycling.

**Abiotic Components (Non-living):**

Air: Provides oxygen for respiration and carbon dioxide for photosynthesis.

Water: Essential for survival of all organisms.

Soil: Provides nutrients and anchorage for plants.

Sunlight: Drives photosynthesis and influences temperature.

Temperature: Affects metabolic processes and survival.

Rocks and Minerals: Provide structure and nutrients in some habitats.

**4) How do plants and animals survive in mountainous regions?**

**Plants in Mountainous Regions:**

**Adaptations:**

**Cone-shaped trees:** Trees like pines and firs have conical shapes to allow snow to slide off, preventing branch breakage (e.g., pine trees).

**Needle-like leaves:** Reduce water loss through transpiration and withstand harsh winds (e.g., conifers).

**Low growth:** Many plants grow close to the ground to avoid strong winds and retain heat.

**Deep roots:** Anchor plants against rocky terrain and strong winds.

**Thick bark:** Protects against cold temperatures and physical damage.

### **Animals in Mountainous Regions:**

#### **Adaptations:**

**Thick fur or feathers:** Provide insulation against cold (e.g., yaks, snow leopards).

**Strong hooves:** Enable climbing and running on rocky slopes (e.g., mountain goats).

**Hibernation or migration:** Some animals hibernate (e.g., bears) or migrate to lower altitudes during harsh winters.

**Camouflage:** Blends with snowy or rocky environments (e.g., snow leopards).

**Efficient oxygen use:** Animals like yaks have adapted to low oxygen levels at high altitudes.

#### **Examples:**

Plants: Pine, fir, alpine meadows.

Animals: Mountain goats, yaks, snow leopards.

### **5) What are the adaptations seen in aquatic plants?**

Aquatic plants have specific adaptations to thrive in water-based habitats:

#### **Floating Plants:**

**Air-filled tissues:** Help plants like water hyacinth and lotus float on water surfaces.

**Broad leaves:** Maximize sunlight absorption for photosynthesis (e.g., water lily).

**Waxy coating:** Prevents waterlogging and protects leaves.

#### **Submerged Plants:**

**Thin, flexible leaves:** Allow movement with water currents and increase surface area for nutrient absorption (e.g., hydrilla).

**No or reduced stomata:** Minimize water loss since they are surrounded by water.

**Air spaces (aerenchyma):** Provide buoyancy and store oxygen for respiration in low-oxygen environments.

**Root Adaptations:**

**Short or absent roots:** In free-floating plants (e.g., water hyacinth), roots are minimal or serve as anchors.

**Long roots:** In rooted plants like lotus, roots anchor in the sediment to absorb nutrients.

**Reproductive Adaptations:**

**Water-dispersed seeds:** Seeds float or are carried by water currents.

**Vegetative reproduction:** Many aquatic plants reproduce via fragments or runners.

**Examples:**

Floating: Water hyacinth, lotus, water lily.

Submerged: Hydrilla, vallisneria.

**MCQs with Answers and Explanations**

**1) Which one of these animals can live on land as well as in water?**

**A. Deer B. Giraffe C. Frog D. Fox**

**Answer:** C. Frog

**Explanation:** Frogs are amphibians, capable of living both on land and in water due to their moist skin and ability to breathe through skin and lungs.

**2) Which of the following aquatic plants groups completely submerged under water?**

**A. Water hyacinth B. Hydrilla C. Water lily D. Lotus**

**Answer:** B. Hydrilla

**Explanation:** Hydrilla is a fully submerged aquatic plant, while water hyacinth, water lily, and lotus are floating or emergent plants with parts above water.

**3) Which of the following animal does not have gills?**

**A. Squid B. Octopus C. Dolphin D. Fish**

**Answer:** C. Dolphin

**Explanation:** Dolphins are mammals and breathe air through blowholes, not gills. Squid, octopus, and fish use gills for respiration.

**4) In cactus plant the process of food making called photosynthesis is carried out by its.**

**A. Stems B. Modified leaves C. Roots D. Flowers**

**Answer:** A. Stems

**Explanation:** In cacti, leaves are modified into spines to reduce water loss, and the green, fleshy stem performs photosynthesis.

**5) The aquatic plant which float on the surface of water are**

**A. Water lily B. Water hyacinth C. Lotus D. All**

**Answer:** D. All

**Explanation:** Water lily, water hyacinth, and lotus are all floating aquatic plants with leaves or parts on the water surface.

**6) The word Habitat means**

**A. The community to which an organism belongs B. The community under which an organism lives C. The food that an organism feed on D. The place where an organism live**

**Answer:** D. The place where an organism live

**Explanation:** A habitat is the specific place or environment where an organism naturally lives.

**7) Which of the following is not a terrestrial Habitat.**

**A. Mountain B. Trees C. Forests D. Pond**

**Answer:** D. Pond

**Explanation:** Ponds are aquatic habitats, while mountains, trees, and forests are terrestrial (land-based).

**8) Yaks have one of the following on their bodies to keep them warm. This one is**

**A. Feather B. Hair C. Scales D. Shells**

**Answer:** B. Hair

**Explanation:** Yaks have thick hair (fur) to insulate against cold in mountainous regions.

**9) A Habitat consist of**

**A. Living organisms B. Nonliving organisms C. Both A & B D. None**

**Answer:** C. Both A & B

**Explanation:** A habitat includes biotic (living) and abiotic (non-living) components.

**10) Biotic component includes**

**A. Living B. Non-living C. Both living and nonliving D. None**

**Answer:** A. Living

**Explanation:** Biotic components are the living organisms in a habitat (plants, animals, microorganisms).

**11) Biotic component among the following is**

**A. Plants B. Soil C. Temperature D. Light**

**Answer:** A. Plants

**Explanation:** Plants are living (biotic), while soil, temperature, and light are abiotic.

**12) Abiotic component among this is**

**A. Plant B. Cat C. Light D. Rose**

**Answer:** C. Light

**Explanation:** Light is a non-living (abiotic) component, while plants, cats, and roses are biotic.

**13) In some desert animals such as rat the organism survive the scorching heat by living in**

**A. Burrow B. Cave C. Mountain D. Tree**

**Answer:** A. Burrow

**Explanation:** Desert rats live in burrows to escape extreme heat and conserve water.

**14) The plant lose their leaves to prevent**

**A. Transpiration B. Evaporation C. Sublimation D. Hydrogenation**

**Answer:** A. Transpiration

**Explanation:** Plants shed leaves to reduce water loss through transpiration, especially in dry environments.

**15) Most desert plant have**

**A. Short root B. No root C. Long root D. A & B**

**Answer:** C. Long root

**Explanation:** Desert plants like cacti have long roots to reach deep water sources.

**16) The strong hooves for running up the rocky slopes mountain is seen in**

**A. Mountain goat B. Pig C. Camel D. Cat**

**Answer:** A. Mountain goat

**Explanation:** Mountain goats have strong, specialized hooves for navigating rocky slopes.

**17) The large area of land covered with trees and plants is called as**

**A. Desert ecosystem B. Grassland C. Forest ecosystem D. Water ecosystem**

**Answer:** C. Forest ecosystem

**Explanation:** Forests are characterized by dense tree and plant cover.

**18) The trees of mountain region are cone shaped so that they can protect themselves from**

**A. Heat B. Rain fall C. Snow fall D. A & B**

**Answer:** C. Snow fall

**Explanation:** Cone-shaped trees allow snow to slide off, preventing damage.

**19) The advantage of needle like leaves in plants is**

**A. To prevent loss of water B. To gain water C. To conserve water D. To loose water**

**Answer:** C. To conserve water

**Explanation:** Needle-like leaves reduce surface area, minimizing water loss in harsh environments.

**20) The snow leopard has thick layer of fat beneath its skin which helps them in providing.**

**A. Heat B. Insulation C. Food D. Water**

**Answer:** B. Insulation

**Explanation:** The fat layer insulates snow leopards against cold mountain temperatures.

**Fill in the Blanks with Answers**

**21) Desert is a **terrestrial** habitat.**

**22) **Cactus** is most common plant found in desert.**

- 23)** The dwelling place of living things is **habitat**.
- 24)** Ponds, lakes and rivers are **aquatic** habitats.
- 25)** Air, water and soil and **sunlight** components of ecosystem.
- 26)** **Frog** can live in water and on land.
- 27)** Fish is an example of **aquatic** organism.
- 28)** Dolphins and whales breathe through their **blowholes**.
- 29)** In mountain habitat plants are **cone-shaped** in shape.
- 30)** In a habitat non-living things are called **abiotic**.
- 31)** In **forest** eco system living organisms are found in abundance.
- 32)** Desert snakes and rats conserve water in their body by **living in burrows**.
- 33)** The dominant factors in desert ecosystem are **heat and lack of water**.

**Match the Following with Answers**

**34) Column A and Column B:**

Abiotic component → b. Soil

Biotic component → d. Plants & animals

Desert animal → a. Camel

Aquatic organism → c. Fish

**Answer:** D. i-b, ii-d, iii-a, iv-c

**35) Column A and Column B:**

Aquatic ecosystem → c. Tadpole

Grassland ecosystem → b. Lion

Mountain ecosystem → d. Yak

Desert ecosystem → a. Camel

**Answer:** C. i-c, ii-b, iii-d, iv-a