St. Andrews Scots School
Adjacent Navniti Apartment Patparganj
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Session-2026-27

Class: VI | **Subject: Science** | **Chapter: Discovering Diversity In The Living World**

Multiple Choice Questions (MCQs). Tick (✓) the correct options. (Page 21)

(d)

Assertion-Reason-based Question:

(c)

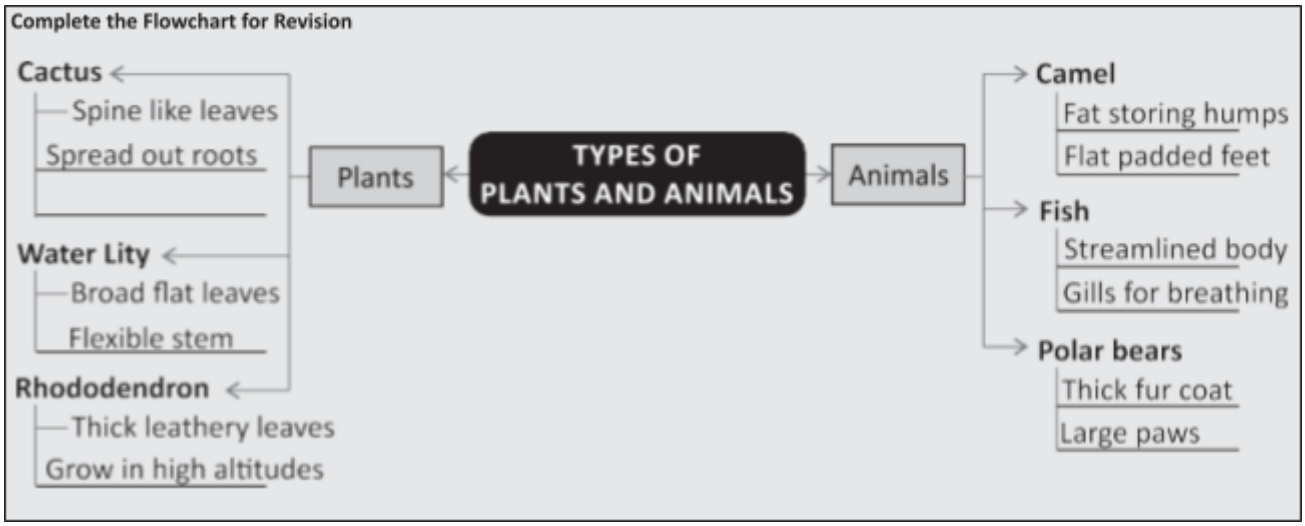
Multiple Choice Questions (MCQs). Tick (✓) the correct options. (Page 24)

(d)

Assertion-Reason-based Question:

1. (a). **2.** (b) **3.** (b)

(Flowchart) **(Page 26)**



EXERCISES

Section-A

A. Oral Questions:

1. Cacti have spines to reduce water loss and thick, fleshy stems to store water.
2. A taproot has a single main root, while fibrous roots are thin and spread out close to the surface.

B. Multiple Choice Questions (MCQs). Tick (✓) the correct options.

1. (b) 2.(b) 3.(c) 4.(c) 5. (b) 6.(d)

C. Case-Based Questions:

1. (b)
2. (b)
3. Because money plant is a climber with a weak stem . It cannot stand upright on its own, so it needs support to grow upward.

SECTION – B

A. Very Short Answer Questions:

1. The spines of a cactus reduce water loss by minimising the surface area exposed to the sun and preventing loss of water by reducing transpiration, helping the cactus conserve water in the dry desert environment.

2. Each animal and plant has a role in nature, like being food for other animals or helping plants grow. If one type of plant or animal disappears, it can upset the balance of the ecosystem and affect the food chain for other living beings. So, biodiversity provides alternatives in the food chain

B. Short Answer Questions:

1. Monocots typically exhibit parallel venation, where veins run parallel to each other, while dicots display reticulate venation, forming a network of interconnected veins. For example, grass (a monocot) has parallel venation, while a maple leaf (a dicot) shows reticulate venation.

2. The leaf structure of a water lily is broad and flat, allowing it to float on the water's surface, maximising sunlight exposure for photosynthesis. The stomata are located on the upper surface to facilitate gas exchange with the atmosphere while minimising water loss.
3.

Aquatic Plants	Desert plants
a) Have broad and flat floating leaves	a) Leaves are changed into spines.
b) Stems are soft ,weak and having air spaces.	b) Stems are thick, green and fleshy
c) Stomata are present on the upper surface	c) Fewer stomata to reduce water loss
d) Roots are small and weak	d) Roots are long and deep

C. Long Answer Questions:

1. **Roots:**

- Anchor the plant and stabilise it.
- Absorb water and nutrients from the soil.
- Root hairs increase surface area for better water uptake.

Leaves:

- Conduct photosynthesis using sunlight to produce food (glucose).

- Contains chloroplasts for capturing sunlight to perform photosynthesis.
- Stomata allow gas exchange (CO_2 in, O_2 out).

The roots have numerous root hairs that helps the plant to absorb water from the soil. The leaves have a large surface area and chloroplasts that contain chlorophyll are the green pigment that trap sunlight and perform photosynthesis.

2. Habitat:

- Natural environment where organisms live comfortably.
- Provides necessary conditions for survival (food, water, shelter).

Examples of adaptations:

1. Desert:

- Cacti store water and have spines to reduce moisture loss.
- Camels have thick fur to tolerate and manage heat.

2. Aquatic:

- Water lilies have broad leaves to float and maximise sunlight.
- Fish have gills to extract oxygen from water.

3. If all plants and animals were the same, the ecosystem would face severe consequences:

- **Loss of Biodiversity:** With only one type, ecosystems may lose their balance and become more fragile.
- **Food Chain Collapse:** A single plant and animal type cannot meet the dietary needs of all species, leading to starvation and imbalance.
- **Habitat Loss:** Various plants and animals together create unique habitats. With only one type, many organisms would lose their natural habitats.

D. Application-Based Questions:

1. The plant sapling most likely belongs to the monocot group. This is because monocots typically have fibrous root systems and leaves with parallel venation, which is distinguishing characteristics of this group.

2. The gardener should look for xerophytes, plants adapted to very dry conditions. Xerophytes have adaptations like thick, waxy cuticles to reduce water loss, deep or extensive root systems to absorb water, and small or modified leaves (such as spines) to minimise transpiration**.**

3. A cactus would struggle to survive in a rainforest because its adaptations are designed for dry environments. Its thick, water-storing stem, minimal leaves (spines), and slow transpiration are suited for conserving water**.** In the rainforest's high humidity and constant rainfall, these adaptations could lead to excess water retention, root rot and an inability to compete with other plants adapted to wetter conditions.

E. Picture Based Questions:

1. In the images shown as pictures a and b, there are two types of leaves visible:

   Leaf a: This leaf shows a reticulate venation pattern, where the veins form a network. Leaves with reticulate venation are commonly found in dicot plants.

   Leaf b: This leaf has a parallel venation pattern where the veins run parallel to each other. Leaves with parallel venation are characteristic of monocot plants.

2. (a) Adaptations of Each Animal: Camel (Desert Environment):

- **Hump:** Stores fat, which provides energy and water in times of scarcity, allowing the camel to survive long periods without food or water in the desert.

Polar Bear(Cold Adaptation):

- If we assume a polar bear (a common cold environment animal):
- Thick Fur and Fat Layer: Helps to insulate and retain body heat in cold environments, keeping the bear warm in freezing temperatures.

(b) Comparison of Adaptations for Extreme Temperatures:

- **Camel (Desert Adaptation):** The camel's hump allows it to store resources to survive without water, and its ability to conserve water helps it tolerate hot, dry conditions. Camels also have a thick coat that insulates against the daytime heat and protects from cold desert nights.
- **Polar Bear (Cold Adaptation):** The polar bear's thick fur and layer of fat provide insulation, trapping body heat to protect it from freezing temperatures. Its white fur also blends with the snow, providing camouflage for hunting.

F. Life Skills:

1. Importance of Biodiversity in a Neighbourhood or School Garden

- **Diversity Benefits:** Different plants and animals have unique roles— trees provide shade. It provides Oxygen needed by the animals to live, flowers attract pollinators, and birds control pests, creating a balanced ecosystem. In return animals provide carbon dioxide to perform photosynthesis.
- **Protection Methods:**
  - Grow native plant species to support local wildlife.
  - Avoid pesticides to protect beneficial insects.
  - Participate in clean-ups to keep habitats safe.
  - Educate others on the value of biodiversity.
  - Do not cut trees/ break the plants

2. Adaptations and Personal Growth

(a) Survival in Extreme Environments:

- **Desert:** Lightweight clothing, water storage tools, and shade- seeking skills.
- Snowy Region: Insulated clothing, fire-starting tools, and snow travel gear.

(b) Adapting in Life:

- Adapting to new environments, like a new school, helps develop flexibility, resilience, and social skills enabling us to grow and thrive in various situations.