UNIQUE STUDY POINT

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Class: VI	**Subject:** Science	**Session:** 2025-26
Chapter: 02 - Diversity in the Living World	**Time:** 1½ Hours	**Max. Marks:** 40

General Instructions:

1. All questions are compulsory.
2. This question paper contains 20 questions divided into five sections A, B, C, D and E.
3. Section A contains 10 MCQs of 1 mark each.
4. Section B contains 4 questions of 2 marks each.
5. Section C contains 3 questions of 3 marks each.
6. Section D contains 1 question of 5 marks.
7. Section E contains 2 Case Study Based questions of 4 marks each.

SECTION A - Multiple Choice Questions (1 mark each)

Q.1 The variety of plants and animals found in a particular region is called:

(a) Habitat

(b) Biodiversity

(c) Adaptation

(d) Venation

Q.2 Plants with parallel venation usually have:

(a) Taproot system

(b) Fibrous root system

(c) Adventitious roots

(d) None of these

Q.3 Which of the following is an example of a herb?

(a) Rose

(b) Mango

(c) Tomato

(d) Neem

Q.4 The pattern of veins on the leaf is called:

(a) Adaptation

(b) Venation

(c) Reticulation

(d) Classification

Q.5 Animals that can live both on land and in water are called:

(a) Terrestrial animals

(b) Aquatic animals

(c) Amphibians
(d) Arboreal animals

Q.6 The main root in a taproot system is called:
(a) Fibrous root
(b) Taproot
(c) Lateral root
(d) Adventitious root

Q.7 Which plant is an example of a dicot?
(a) Maize
(b) Wheat
(c) Rice
(d) Chickpea

Q.8 The place where plants and animals live is called:
(a) Ecosystem
(b) Habitat
(c) Environment
(d) Biosphere

Q.9 Cactus plants are found in:
(a) Mountains
(b) Deserts
(c) Oceans
(d) Forests

Q.10 Which of the following has a streamlined body?
(a) Goat
(b) Fish
(c) Camel
(d) Lion

SECTION B - Short Answer Questions (2 marks each)

Q.11 Differentiate between herbs and shrubs with one example of each.

Q.12 What is the difference between reticulate and parallel venation? Give one example of each.

Q.13 Define the term 'adaptation'. Give one example of adaptation in plants.

Q.14 What is the difference between terrestrial and aquatic habitats? Give one example of each.

SECTION C - Short Answer Questions (3 marks each)

Q.15 Explain the relationship between the type of root system, leaf venation, and number of cotyledons in a plant.

Q.16 How are camels adapted to live in desert conditions? Explain any three adaptations.

Q.17 What is biodiversity? Why is it important to protect biodiversity?

SECTION D - Long Answer Question (5 marks)

Q.18 Describe the different ways in which plants can be grouped. Explain the classification of plants based on their height and nature of stem with suitable examples.

SECTION E - Case Study Based Questions (4 marks each)

Q.19 Case Study 1:

During a nature walk, students observed different types of plants. They noticed that some plants like grass were short with soft green stems, while rose plants had many hard woody stems branching near the ground. They also saw tall trees like mango with thick woody stems and branches starting higher up.

Based on the above information, answer the following questions:

(a) What type of plant is grass? (1 mark)

(b) How is a shrub different from a tree? (2 marks)

(c) Why is grouping of plants important? (1 mark)

Q.20 Case Study 2:

A student collected seeds of chickpea and maize. When he soaked them in water and removed the seed coat, he observed that chickpea seeds split into two parts while maize had a single thin structure. He also noticed that chickpea plants had reticulate venation and taproots, while maize plants had parallel venation and fibrous roots.

Based on the above information, answer the following questions:

(a) What are the two parts of a chickpea seed called? (1 mark)

(b) How many cotyledons does a maize seed have? (1 mark)

(c) Explain the relationship between leaf venation and root type in these plants. (2 marks)

DETAILED ANSWER KEY - PAPER 01

SECTION A - Answers to MCQs

Ans.1 (b) Biodiversity

Explanation: Biodiversity refers to the variety of plants and animals found in a particular region. It contributes to the richness and diversity of life in that area.

Ans.2 (b) Fibrous root system

Explanation: Plants with parallel venation (monocots) generally have fibrous root systems, where roots appear as a bunch of similar-sized thin roots arising from the base of the stem.

Ans.3 (c) Tomato

Explanation: Tomato is a herb. Herbs are typically small plants with soft and green stems. Rose is a shrub, while mango and neem are trees.

Ans.4 (b) Venation

Explanation: Venation is the pattern of veins on the leaf. There are two main types: reticulate venation and parallel venation.

Ans.5 (c) Amphibians

Explanation: Amphibians are animals that can live both on land and in water, such as frogs and salamanders.

Ans.6 (b) Taproot

Explanation: In a taproot system, there is one main root called the taproot, with small side roots arising from it.

Ans.7 (d) Chickpea

Explanation: Chickpea is a dicot plant (two cotyledons). Maize, wheat, and rice are monocots (one cotyledon).

Ans.8 (b) Habitat

Explanation: The habitat is the place where plants and animals live. It provides them with food, water, air, shelter, and other needs for survival.

Ans.9 (b) Deserts

Explanation: Cactus plants are found in deserts. Their thick and fleshy stems store water, helping them survive in hot, dry conditions.

Ans.10 (b) Fish

Explanation: Fish have streamlined bodies that help them swim efficiently in water by reducing resistance.

SECTION B - Answers to Short Answer Questions

Ans.11 Difference between herbs and shrubs:

Herbs: Small plants with soft and green stems. Example: Tomato plant.

Shrubs: Plants with many hard, woody stems that branch near the ground. They are not as tall as trees. Example: Rose plant.

Ans.12 Difference between reticulate and parallel venation:

Reticulate venation: A net-like pattern of veins on both sides of a thick middle vein. Example: Hibiscus leaf.

Parallel venation: Veins run parallel to each other. Example: Banana leaf or grass leaf.

Ans.13 Adaptation:

Adaptation refers to the special features that enable plants and animals to survive in a particular region or environment.

Example: The conical shape and sloping branches of deodar trees help them survive in mountainous regions with heavy snowfall, as snow can slide off easily.

Ans.14 Difference between terrestrial and aquatic habitats:

Terrestrial habitat: Places where plants and animals live on land. Example: Forests, deserts, grasslands, mountains.

Aquatic habitat: Places where plants and animals live in water. Example: Ponds, lakes, rivers, oceans.

SECTION C - Answers to Short Answer Questions

Ans.15 Relationship between root system, leaf venation, and cotyledons:

There is a clear relationship between these three features in plants:

Dicot plants (Dicotyledons):
- Have two cotyledons in their seeds
- Show reticulate venation in leaves
- Possess taproot system
- Example: Chickpea, mustard

Monocot plants (Monocotyledons):
- Have one cotyledon in their seeds
- Show parallel venation in leaves
- Possess fibrous root system
- Example: Maize, wheat, grass

Ans.16 Adaptations of camels to desert conditions:

Camels have several adaptations to survive in desert conditions:

1. Long legs and wide hooves: Help camels walk on sandy desert without sinking into the sand.

2. Humps for food storage: Camels store food in their humps, which helps them survive during scarcity of food.

3. Water conservation: Camels excrete small amounts of urine, their dung is dry, and they don't sweat. This helps them conserve water and survive for many days without drinking water.

Ans.17 Biodiversity and its importance:

Biodiversity: The variety of plants and animals found in a particular region is called biodiversity.

Importance of protecting biodiversity:
• Each member of biodiversity has a different role to play in the ecosystem
• Plants and animals are dependent on each other for survival
• Loss of biodiversity can disrupt ecological balance
• Biodiversity provides resources like food, medicine, and raw materials
• It helps maintain healthy ecosystems and environmental stability
• Protecting biodiversity ensures that our planet is full of life and helps plants and animals survive and thrive

SECTION D - Answer to Long Answer Question

Ans.18 Grouping of plants:

Plants can be grouped in different ways based on various features:

Different ways to group plants:
• Based on presence or absence of flowers
• Based on type of stem (hard/soft)
• Based on leaf venation (reticulate/parallel)
• Based on root system (taproot/fibrous)
• Based on number of cotyledons (monocot/dicot)
• Based on height and nature of stem (herbs/shrubs/trees)

Classification based on height and nature of stem:

1. Herbs:
• Small plants with soft and green stems
• Usually short in height
• Tender stems
• Example: Tomato, mint, coriander

2. Shrubs:
• Medium-sized plants
• Have many hard, woody stems
• Branches start very close to the ground
• Stems are hard but not as thick as trees
• Example: Rose, hibiscus

3. Trees:
• Tall plants with hard, thick, brown, and woody stems
• Branches start higher up on the stem, away from the ground
• Have strong and thick trunks
• Example: Mango, neem, banyan

Importance of grouping: Grouping makes it easier to understand and study plants based on their similarities and differences.

SECTION E - Answers to Case Study Based Questions

Ans.19 Case Study 1:

(a) Grass is a herb. It is a small plant with a soft and green stem.

(b) Differences between shrub and tree:
• Shrubs have many stems that branch close to the ground, while trees have a single main trunk with branches starting higher up
• Shrubs are medium-sized plants, while trees are tall plants
• The stems of shrubs are hard but not as thick as tree trunks

(c) Grouping of plants is important because it makes it easier to understand and study plants based on their similarities and differences. It helps in organizing our knowledge and identifying plants systematically.

Ans.20 Case Study 2:

(a) The two parts of a chickpea seed are called cotyledons. Each part is one cotyledon.

(b) Maize seed has one cotyledon (single thin structure). Plants with one cotyledon are called monocotyledons or monocots.

(c) Relationship between leaf venation and root type:
• Chickpea is a dicot plant with reticulate venation and taproot system
• Maize is a monocot plant with parallel venation and fibrous root system
• Generally, plants with reticulate venation have taproots, while those with parallel venation have fibrous roots
• This relationship is consistent across most flowering plants

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