FIRST TERM MODEL QUESTION PAPER 2024 WITH ANSWER KEY SET 2

SCIENCE - Standard VII

Time: 2 hours

Max. Marks: 50

(Prepared by www.educationobserver.com)

Instructions:

1. Read the questions carefully before answering.
2. All activities carry equal marks.

Activity 1: Multiple-Choice Questions

1. Which part of the plant is primarily responsible for photosynthesis? a) Root
   b) Stem
   c) Leaf
   d) Flower

2. What is the primary source of energy for the water cycle? a) Wind
   b) Solar energy
   c) Ocean currents
   d) Gravitational force

3. Which of the following methods is used for vegetative propagation in plants like roses and hibiscus? a) Seed sowing
   b) Grafting
   c) Layering
   d) Pollination

4. Which type of energy is converted into electrical energy in a hydroelectric power station? a) Chemical energy
   b) Solar energy
   c) Kinetic energy
   d) Thermal energy

5. Which of the following organisms play a key role in decomposing dead organic matter? a) Herbivores
   b) Carnivores
   c) Fungi
   d) Birds

Activity 2: Short Answer Questions (5 Marks)

1. Explain the process of hybridization in plants. Provide examples of plants where hybridization is commonly practiced.
2. Discuss the different stages of the nitrogen cycle and its importance in agriculture.

Activity 3

Explain the process of vegetative propagation and provide examples of plants that reproduce through this method. Use a diagram to illustrate layering and grafting methods.

Activity 4

Describe the adaptations of desert plants and animals that help them survive in arid conditions. Provide examples from the textbook.

Activity 5

Discuss the role of renewable energy sources in sustainable development. Explain how solar energy is harnessed and its advantages over non-renewable energy sources.

Activity 6

What are the steps involved in artificial pollination? How does artificial pollination lead to the production of hybrid seeds? Explain with examples from the textbook.

ANSWER KEY

Activity 1: Multiple-Choice Questions

1. c) Leaf
   Explanation: The leaf is primarily responsible for photosynthesis, where chlorophyll captures sunlight to produce food for the plant.
2. b) Solar energy
   Explanation: The sun's energy drives the water cycle by causing evaporation, leading to cloud formation and precipitation.
3. b) Grafting
   Explanation: Grafting is a vegetative propagation technique used in plants like roses and hibiscus.

4. c) Kinetic energy
   Explanation: The kinetic energy of flowing water is converted into electrical energy in hydroelectric power stations.
5. c) Fungi
   Explanation: Fungi are decomposers that break down dead organic matter, returning nutrients to the soil.

Activity 2: Short Answer Questions (5 Marks)

1. Hybridization in Plants: Hybridization is the process of crossing two plants with different characteristics to produce a new variety with desirable traits. For example, hybridization is practiced in crops like wheat and rice to increase yield and disease resistance.
2. Nitrogen Cycle: The nitrogen cycle involves the conversion of nitrogen in different forms to make it available to plants. The key stages are:
   - Nitrogen fixation: Converting atmospheric nitrogen into ammonia.
   - Nitrification: Converting ammonia into nitrites and nitrates.
   - Assimilation: Plants absorb nitrates to produce proteins.
   - Ammonification: Decomposition of organic matter releasing ammonia.
   - Denitrification: Converting nitrates back to atmospheric nitrogen.

The nitrogen cycle is vital for replenishing soil fertility.

Activity 3

Vegetative Propagation:

Vegetative propagation is the process of growing new plants from parts like stems, roots, or leaves. Examples include:

- Layering: In plants like jasmine, a branch is bent and buried in soil, where it forms roots.
- Grafting: In plants like roses, a part of one plant is attached to another for growth.

Diagram: (Students should include diagrams showing layering and grafting methods.)

Activity 4

Adaptations of Desert Plants and Animals:

- Plants: Desert plants like cacti have thick, waxy stems to store water, spines instead of leaves to reduce water loss, and shallow roots to absorb surface moisture quickly.
- Animals: Desert animals like camels store fat in their humps, have long legs to keep their body away from the hot ground, and can survive with little water.

Activity 5

Renewable Energy and Sustainable Development:

Renewable energy sources like solar energy are sustainable and do not deplete over time. Solar panels capture sunlight and convert it into electricity. Advantages of solar energy:

- Environmentally friendly with no harmful emissions.
- Reduces dependency on fossil fuels.
- Cost-effective in the long term.

Activity 6

Artificial Pollination:

Artificial pollination involves manually transferring pollen from the male part (anther) to the female part (stigma) of a flower. This process is used to create hybrid seeds with specific traits. For example, in crops like tomatoes and brinjals, artificial pollination is used to produce high-yield varieties.