

Ecosystem — Assignment 1

Class 12 Biology · Topic-wise question bank covering every concept of the chapter · Narayan Gurukul Academy

Instructions: (1) Attempt all questions. This worksheet walks through every concept of the chapter, topic by topic.
(2) The interactive MCQ version of these questions (with instant answer reveal) is available on the notes page.
(3) Universal values: $g = 10 \text{ m/s}^2$ unless stated. Give answers with correct SI units.

Ecosystem Structure and Components

MCQ Questions (choose the correct option)

- The two components of an ecosystem are
 - biotic and abiotic
 - only biotic
 - only abiotic
 - producers only
- Stratification in an ecosystem refers to
 - vertical distribution of species
 - horizontal spread
 - population size
 - energy loss
- An ecosystem is a
 - functional unit of nature
 - community only
 - population only
 - species only
- Decomposers in an ecosystem act on
 - detritus
 - producers only
 - herbivores only
 - sunlight

1 Mark Questions

- What is an ecosystem?
- Name the two components of an ecosystem.
- What is stratification?

2 Mark Questions

- Differentiate between producers and decomposers.
- What is the role of stratification in an ecosystem?

3 Mark Questions

- Describe the structure of an ecosystem.
- Explain the different components of an ecosystem.

Productivity — GPP, NPP and R

MCQ Questions (choose the correct option)

1. GPP stands for
 - (A) gross primary productivity
 - (B) general primary process
 - (C) gross process production
 - (D) gross plant productivity
2. NPP equals
 - (A) $GPP - R$
 - (B) $GPP + R$
 - (C) $GPP \times R$
 - (D) GPP / R
3. NPP is the organic matter available to
 - (A) consumers
 - (B) decomposers only
 - (C) soil only
 - (D) sunlight
4. Respiration loss is represented by
 - (A) R
 - (B) GPP
 - (C) NPP
 - (D) K

1 Mark Questions

1. Define gross primary productivity.
2. Define net primary productivity.
3. What is the relationship between GPP, NPP and R?

2 Mark Questions

1. Define GPP and NPP.
2. What is the significance of NPP?

3 Mark Questions

1. Explain the relationship between GPP, NPP and respiration.
2. Describe productivity in an ecosystem.

Energy Flow and the 10% Law

MCQ Questions (choose the correct option)

1. The 10% law of energy flow was given by
 - (A) Lindeman
 - (B) Darwin
 - (C) Odum
 - (D) Tansley
2. Energy flow in an ecosystem is

- (A) unidirectional
 - (B) bidirectional
 - (C) cyclic
 - (D) random
3. Most energy is lost at each trophic level as
- (A) heat
 - (B) light
 - (C) sound
 - (D) biomass
4. The number of trophic levels is limited because of
- (A) energy loss
 - (B) water loss
 - (C) soil loss
 - (D) light loss

1 Mark Questions

1. What is the 10% law?
2. Why is energy flow unidirectional?
3. Why are trophic levels limited?

2 Mark Questions

1. Explain the 10% law with an example.
2. Why is energy flow unidirectional?

3 Mark Questions

1. Describe energy flow in an ecosystem.
2. Explain the 10% law and its significance.

Ecological Pyramids

MCQ Questions (choose the correct option)

1. The pyramid of energy is always
 - (A) upright
 - (B) inverted
 - (C) spindle-shaped
 - (D) flat
2. The three types of ecological pyramids are of
 - (A) number, biomass and energy
 - (B) number only
 - (C) biomass only
 - (D) energy only
3. In a sea ecosystem, the pyramid of biomass is
 - (A) inverted
 - (B) upright
 - (C) flat

- (D) absent
4. An ecological pyramid represents
- (A) trophic structure
 - (B) species count only
 - (C) soil depth
 - (D) rainfall

1 Mark Questions

1. What is an ecological pyramid?
2. Name the three types of ecological pyramids.
3. Which pyramid is always upright?

2 Mark Questions

1. Why is the pyramid of energy always upright?
2. Why is the pyramid of biomass inverted in the sea?

3 Mark Questions

1. Describe the types of ecological pyramids.
2. Explain the limitations of ecological pyramids.

Decomposition

MCQ Questions (choose the correct option)

1. Decomposition is affected by
 - (A) temperature and oxygen
 - (B) colour
 - (C) sound
 - (D) shape
2. The first step of decomposition is
 - (A) fragmentation
 - (B) leaching
 - (C) catabolism
 - (D) humification
3. Humus is
 - (A) dark organic matter
 - (B) a mineral
 - (C) a gas
 - (D) a metal
4. The breakdown of detritus into simple substances is
 - (A) catabolism
 - (B) fragmentation
 - (C) leaching
 - (D) humification

1 Mark Questions

1. What is decomposition?
2. Name the steps of decomposition.
3. What is humus?

2 Mark Questions

1. What are the factors affecting decomposition?
2. What is humification?

3 Mark Questions

1. Describe the steps of decomposition.
2. Explain the factors affecting decomposition.

Nutrient Cycling

MCQ Questions (choose the correct option)

1. The phosphorus cycle is
 - (A) sedimentary
 - (B) gaseous
 - (C) both
 - (D) neither
2. The carbon cycle is a
 - (A) gaseous cycle
 - (B) sedimentary cycle
 - (C) both
 - (D) neither
3. Nutrient cycling involves the
 - (A) movement of nutrients
 - (B) loss of energy
 - (C) movement of animals only
 - (D) movement of heat
4. The reservoir of the phosphorus cycle is
 - (A) rocks
 - (B) atmosphere
 - (C) oceans only
 - (D) soil only

1 Mark Questions

1. What is nutrient cycling?
2. Name the two types of nutrient cycles.
3. Is the phosphorus cycle gaseous or sedimentary?

2 Mark Questions

1. Differentiate between gaseous and sedimentary cycles.
2. Why is the phosphorus cycle sedimentary?

3 Mark Questions

1. Describe nutrient cycling with examples.
2. Explain the gaseous and sedimentary nutrient cycles.

Ecological Succession and Ecosystem Services

MCQ Questions (choose the correct option)

1. The first organism to colonise a bare area is a
 - (A) pioneer species
 - (B) climax species
 - (C) consumer
 - (D) decomposer
2. Primary succession begins on
 - (A) a bare area with no soil
 - (B) soil
 - (C) water only
 - (D) rock only
3. Ecosystem services are
 - (A) benefits from ecosystems
 - (B) energy losses
 - (C) nutrient losses
 - (D) species counts
4. The stable end stage of succession is the
 - (A) climax community
 - (B) pioneer community
 - (C) sere
 - (D) niche

1 Mark Questions

1. What is ecological succession?
2. What is a pioneer species?
3. What are ecosystem services?

2 Mark Questions

1. Differentiate between primary and secondary succession.
2. Give two examples of ecosystem services.

3 Mark Questions

1. Describe ecological succession and its types.
2. Explain ecosystem services with examples.