**Post quiz**

**1: What is the definition of disturbance in ecology?**

a) Any event that disrupts the ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment

b) Any event that creates disorder in ecosystems and changes the landscape

c) Any event caused by abiotic or biotic factors that alters the ecosystem

**Answer: a) Any event that disrupts the ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment**

**2: What is an example of an indirect human impact on ecosystems?**

a) Selective logging

b) Windthrow

c) Increase in greenhouse gas emissions

d) None of the above

**Answer: c) Increase in greenhouse gas emissions**

**3. What is one potential impact of treefall gaps on a forest ecosystem?**

a) Increased availability of resources for pollinators

b) Decreased availability of light for plants in the understory

c) No change in the biodiversity of the ecosystem

d) Decreased plant growth rates

**Answer: a) Increased availability of resources for pollinators**

**4. How does increased light availability in treefall gaps affect tropical forests?**

a) It limits plant growth in the understory

b) It leads to the germination of seeds in the soil

c) It decreases the biodiversity of the ecosystem

d) It has no impact on plant species composition

**Answer: b) It leads to the germination of seeds in the soil**

**5. What is one of the most important factors for plant growth?**

a) Water

b) Nutrients

c) Light

d) other animals

**Answer: c) Light**

**6. What process do plants use to convert sunlight into energy?**

a) Photosynthesis

b) Respiration

c) Transpiration

d) Glycolysis

**Answer: a) Photosynthesis**

**7. What do plants use to obtain nutrients from the environment?**

a) Water

b) Sunlight

c) Soil microbial symbionts

d) Air

**Answer: c) Soil microbial symbionts**

**8. Why is nitrogen important for plants?**

a) It is a component of Rubisco

b) It is a component of DNA

c) It is a component of proteins

d) All of the above

**Answer: d) All of the above**

**9. What is the role of nitrogen-fixing bacteria in the mutualistic relationship with plants?**

a) They provide sugars to the plants

b) They fix atmospheric nitrogen

c) They break the triple bond in nitrogen molecules

d) They enhance soil nitrogen from decomposition

**Answer: b) They fix atmospheric nitrogen**

**10. How do researchers measure symbiotic nitrogen fixation?**

a) By counting the number of root nodules

b) By weighing the root nodules

c) By using isotopes to determine nitrogen source or fixation rate

d) All of the above

**Answer: c) By using isotopes to determine nitrogen source or fixation rate**

**11. How do arbuscular mycorrhizal fungi benefit plants?**

a) They exchange soil nutrients for carbon provided by the plants.

b) They help plants evolve onto land.

c) They form symbiotic relationships with 80% of vascular plants.

d) They explore the soil for essential nutrients like phosphorus and water.

**Answer: a) They exchange soil nutrients for carbon provided by the plants.**

**12. How is plant investment in mycorrhizal fungi estimated?**

a) By quantifying the amount of carbon a plant gives to the fungi.

b) By measuring the percentage of a plant's root system colonized by the fungi.

c) By analyzing the hyphae present in the roots under a microscope.

d) By dyeing the roots with Trypan Blue stain.

**Answer: b) By measuring the percentage of a plant's root system colonized by the fungi.**

**13. How is "Percent Root Colonization" measured?**

a) By analyzing 10 different views of a 1 cm root piece under a microscope.

b) By quantifying the amount of carbon a plant gives to the fungi.

c) By dyeing the roots with Trypan Blue stain.

d) By looking at the percentage of hyphae leaving the roots.

**Answer: a) By analyzing 10 different views of a 1 cm root piece under a microscope.**

**14. What is the main purpose of the tripartite symbiosis among legumes, nitrogen-fixing bacteria, and mycorrhizal fungi?**

a) To exchange carbon for soil nutrients

b) To support plant growth after disturbance

c) To restore ecosystem nutrient cycling

d) To help forests recover from disturbance

**Answer: a) To exchange carbon for soil nutrients**

**15. Is there a net benefit to the plant in the tripartite symbiosis among mycorrhizal fungi, nitrogen-fixing bacteria, and legumes?**

a) Yes

b) No

c) It is unclear

d) None of the above

**Answer: c) It is unclear**