Lesson 12 Test Bank – Terrestrial Biomes

Multiple Choice Questions

1. What is a biome?
   1. A population of similar species
   2. A climate zone
   3. A large, stable ecosystem with distinct plant and animal communities
   4. A geological region

Correct Answer: C

1. What two factors most strongly influence biome distribution?
   1. Latitude and soil type
   2. Ocean currents and elevation
   3. Temperature and precipitation
   4. Wind and topography

Correct Answer: C

1. What are biogeographical realms primarily defined by?
   1. Earthquake activity
   2. Solar radiation levels
   3. Evolutionary history and geographic barriers
   4. Population density

Correct Answer: C

1. Which realm includes North America and Greenland?
   1. Neotropical
   2. Nearctic
   3. Indomalayan
   4. Oceanian

Correct Answer: B

1. Which realm is home to marsupials and dominated by deserts and tropical forests?
   1. Neotropical
   2. Oceanian
   3. Australian
   4. Afrotropical

Correct Answer: C

1. Which realm covers Europe, North Asia, and North Africa?
   1. Palaearctic
   2. Nearctic
   3. Indomalayan
   4. Neotropical

Correct Answer: A

1. What is a defining feature of forest biomes?
   1. Dry, sparse vegetation
   2. Densely growing trees with overlapping canopies
   3. Frozen ground and low shrubs
   4. Absence of vegetation

Correct Answer: B

1. What does a dense forest canopy typically do?
   1. Increases surface runoff
   2. Limits sunlight and undergrowth
   3. Prevents soil erosion
   4. Traps greenhouse gases

Correct Answer: B

1. Which forest biome covers the most latitudinal range?
   1. Tropical forest
   2. Boreal forest
   3. Forest biome overall
   4. Deciduous forest

Correct Answer: C

1. What term describes woody vines that climb rainforest trees?
   1. Epiphytes
   2. Forbs
   3. Lianas
   4. Shrubs

Correct Answer: C

1. What type of plants grow on rainforest branches and collect water from the air?
   1. Shrubs
   2. Succulents
   3. Epiphytes
   4. Mosses

Correct Answer: C

1. What causes poor soil fertility in tropical rainforests?
   1. Cold temperatures
   2. Excessive leaching from rainfall
   3. Lack of vegetation
   4. High organic content

Correct Answer: B

1. What is a key threat to tropical rainforests?
   1. Erosion
   2. Acid rain
   3. Deforestation
   4. Volcanism

Correct Answer: C

1. Which biome features deciduous and broadleaf evergreen trees with open canopies?
   1. Tropical rainforest
   2. Mediterranean woodland
   3. Tropical monsoon forest
   4. Tundra

Correct Answer: C

1. What type of growth is promoted by open forest canopies in monsoon forests?
   1. Epiphytes
   2. Dense undergrowth or “tropical jungle”
   3. Xerophytes
   4. Bare soil

Correct Answer: B

1. Mediterranean woodlands are adapted to which climate type?
   1. Humid continental
   2. Tropical wet
   3. Hot, dry summers and wet winters
   4. Polar

Correct Answer: C

1. What adaptation is common in Mediterranean vegetation?
   1. Large soft leaves
   2. Shallow roots
   3. Thick bark and leathery leaves
   4. Year-round flowering

Correct Answer: C

1. Which U.S. region contains Mediterranean vegetation?
   1. Pacific Northwest
   2. Gulf Coast
   3. Coastal Southern California
   4. Great Plains

Correct Answer: C

1. What process allows fire-adapted chaparral plants to regenerate after wildfires?
   1. Photosynthesis
   2. Root resprouting and cone opening
   3. Pollination
   4. Decomposition

Correct Answer: B

1. Which forest biome features both deciduous and coniferous trees in mixed stands?
   1. Boreal forest
   2. Tropical forest
   3. Midlatitude broadleaf and mixed forest
   4. Savanna

Correct Answer: C

1. What dominates the southern part of the midlatitude forest biome?
   1. Conifers
   2. Broadleaf deciduous trees
   3. Tundra vegetation
   4. Shrubland

Correct Answer: B

1. What soil type dominates in temperate broadleaf forests?
   1. Aridisols
   2. Oxisols
   3. Mollisols
   4. Alfisols

Correct Answer: D

1. Which environmental threat most affects remaining temperate forests today?
   1. Earthquakes
   2. Flooding
   3. Acid rain
   4. Overgrazing

Correct Answer: C

1. Where are subtropical broadleaf evergreen forests most commonly found?
   1. Eastern Europe
   2. New Zealand, SE Australia, and Florida
   3. Central Asia
   4. Sahara Desert margins

Correct Answer: B

1. What U.S. forest is an example of a subtropical needleleaf evergreen biome?
   1. Northern Rockies
   2. Southern Pine Forest
   3. Great Basin
   4. Appalachian Hardwood Forest

Correct Answer: B

1. What defines the temperate rainforest biome?
   1. Year-round snow
   2. Low biodiversity and poor soils
   3. High rainfall and dense undergrowth
   4. Open canopies and dry air

Correct Answer: C

1. Where is the temperate rainforest biome found in North America?
   1. Rocky Mountains
   2. Pacific Northwest
   3. Midwest
   4. Florida Panhandle

Correct Answer: B

1. What is a major cause of biodiversity loss in temperate rainforests?
   1. Fire
   2. Overgrazing
   3. Logging of old-growth forests
   4. Urbanization

Correct Answer: C

1. What tree species dominate boreal forests?
   1. Broadleaf evergreens
   2. Cacti
   3. Needleleaf conifers
   4. Bamboo

Correct Answer: C

1. What are taiga forests?
   1. Alpine shrublands
   2. Dense rainforest interiors
   3. Open, stunted conifer forests near tundra
   4. Dry deciduous woodlands

Correct Answer: C

1. What type of soil dominates in boreal forests?
   1. Mollisols
   2. Spodosols
   3. Aridisols
   4. Alfisols

Correct Answer: B

1. What is a key adaptation of boreal forest trees?
   1. High transpiration
   2. Horizontal leaf orientation
   3. Needle retention year-round
   4. Broadleaf shedding in summer

Correct Answer: C

1. What root systems do taiga trees typically have?
   1. Deep and fibrous
   2. Compact and shallow
   3. Taproots only
   4. None

Correct Answer: B

1. What is the dominant vegetation in the savanna biome?
   1. Mosses
   2. Shrubs and lichens
   3. Grasses with scattered trees
   4. Deciduous trees

Correct Answer: C

1. What adaptation helps the Acacia tree survive dry seasons in savannas?
   1. Wide, shallow roots
   2. Ant partners and thorns
   3. Leaf curling
   4. Nocturnal flowering

Correct Answer: B

1. What tree stores water in its trunk in the savanna biome?
   1. Acacia
   2. Sequoia
   3. Baobab
   4. Cypress

Correct Answer: C

1. What makes grassland soils highly suitable for agriculture?
   1. Rich in clay
   2. Formed from volcanic ash
   3. Deep, organic-rich mollisols
   4. Shallow and rocky

Correct Answer: C

1. What ecosystem has lost over 99% of its native tallgrass prairie in the U.S.?
   1. Tundra
   2. Desert
   3. Humid grasslands
   4. Taiga

Correct Answer: C

1. What is a common disturbance that maintains grassland health?
   1. Flooding
   2. Fire
   3. Snowfall
   4. Glacial melt

Correct Answer: B

Written Response Questions

1. Define the term “biome” and explain the two primary environmental factors that influence biome distribution.

Correct Answer: A biome is a large, stable ecosystem characterized by specific plant and animal communities and climate conditions. The two main environmental factors that influence biome distribution are temperature and precipitation.

1. What are biogeographical realms and how are they determined?

Correct Answer: Biogeographical realms are large geographic areas defined by evolutionary history and natural barriers like oceans or mountains. They reflect long-term biological separations that shaped species distribution.

1. Describe the vertical structure of a tropical rainforest and explain how it affects biodiversity.

Correct Answer: Tropical rainforests have multiple layers: emergent, canopy, understory, and forest floor. This vertical stratification supports high biodiversity by providing varied light, moisture, and space conditions for different organisms.

1. Compare and contrast the canopy and forest floors of the tropical rain forests and the tropical monsoon forests.

Correct Answer: The tropical rain forests are considered an open forest while the tropical monsoon is considered a closed forest. The crowns of tropical rain forest trees intermingle creating a dense canopy that inhibits the penetration of light to the surface. This prevents much dense undergrowth to develop on the forest floor. The tropical monsoon forest has a dense undergrowth as the canopy is more open allowing light to the surface.

1. Explain the role of lianas and epiphytes in the rainforest ecosystem.

Correct Answer: Lianas are woody vines that climb trees to access sunlight, while epiphytes grow on tree branches and derive moisture from the air. Both increase biodiversity and make efficient use of vertical space in dense forests.

1. What makes tropical rainforest soils nutrient-poor despite lush vegetation?

Correct Answer: Heavy rainfall leaches nutrients from the soil, and most nutrients are tied up in living biomass. The rapid decomposition and uptake cycle means little organic matter remains in the soil.

1. Compare the structure and seasonal dynamics of tropical monsoon forests and rainforests.

Correct Answer: Monsoon forests have open canopies and experience a pronounced dry season, resulting in seasonal leaf drop and dense undergrowth. Rainforests are evergreen with dense canopies and year-round rainfall.

1. Identify two major adaptations of Mediterranean vegetation and explain how these help plants survive.

Correct Answer: Mediterranean plants have thick, leathery leaves and deep or widespread roots. These adaptations reduce water loss and allow access to deep moisture during hot, dry summers.

1. Explain how fire benefits Mediterranean ecosystems such as chaparral.

Correct Answer: Fire clears old vegetation, releases nutrients, and triggers seed germination. Many plants are fire-adapted and regenerate quickly through resprouting or heat-activated cones.

1. What environmental conditions support the midlatitude broadleaf and mixed forest biome?

Correct Answer: This biome occurs in regions with moderate to high precipitation and seasonal temperature changes, supporting both deciduous and coniferous trees in mixed stands.

1. Describe how the vegetation and climate change going from the west coast to the east coast of the United States along the 35N parallel.

Correct Answer: Sclerophyllus Woodland (Dry Summer Subtropical Climate) ->Mountain ( Undifferentiated Mountain Climate)-> Cool Shrub Desert (Midlatitude Desert Climate) Short Grass Prairie (Midlatitude Steppe Climate) -> Tall Grass Prairie (Humid Continental Climate) Midlatitude Deciduous Forest (Humid Continental Climate) -> Southern Coniferous Forest (Humid Subtropical Climate).

1. What is a savanna and which climate(s) is a savanna usually associated with?

Correct Answer: The savanna biome is characterized by drought tolerant grasses with scattered trees. The tropical savanna is associate with the wet/dry tropical climate.

1. Compare and contrast the vegetation and climate conditions associated with short and tall grass prairies.

Correct Answer: The short and tall grass prairies reflect the climate the flourish under. Short grass prairie, as its name implies, is comprised of short grasses (e.g., little bluestem grasses, generally less than 2 feet tall and will appear in clumps or patches, especially where the climate (midlatitude steppe) is drier. The tall grass prairie lying on the drier side of the humid continental and moist side of the midlatitude steppe has grasses that stand 2 to 4 feet and sometimes taller. Big bluestem grasses and Blackeyed Susans are common plants.

1. Why has so much of the original tallgrass prairie been lost in the United States?

Correct Answer: The tallgrass prairie has rich mollisols that are excellent for farming. Large-scale agriculture, especially for grains like wheat and corn, has replaced over 99% of native prairie.

1. How do regular fires help maintain the structure and biodiversity of grasslands?

Correct Answer: Fires reduce woody plant encroachment, recycle nutrients, and promote growth of fire-adapted grasses. This disturbance maintains open grassland structure and supports diverse herbaceous species.

1. What is a taiga, and how does it differ from a dense boreal forest?

Correct Answer: Taiga refers to the sparse, stunted, northern edge of boreal forest near the tundra. It has open canopy cover, shallow root systems, and trees adapted to extreme cold and limited nutrients.

1. Permafrost is common to the tundra. What is permafrost and how does it influence the habitability of the tundra for both vegetation and humans?

Correct Answer: Permafrost refers to permanently frozen ground. Actually, the ground has two layers which freeze. A surface layer, called the active layer, thaws during the short "summer" and often subsides. Beneath the active layer is the inactive layer which stays frozen throughout the year. Permafrost creates a barrier to the root development. Larger trees can grow along better drained river valleys where the depth to permafrost is greater. The annual freezing and thawing disrupts root systems inhibiting the growth of very tall vegetation. Permafrost creates an unstable surface for the construction of buildings and other structures.

1. Explain how the vegetation of the Mediterranean woodland has adapted to the dry summer subtropical climate.

Correct Answer: Thick bark and small, waxy leaves are two adaptations to prevent excessive loss of moisture during the severe summer drought experienced in the dry summer subtropical climate.

1. How does desertification occur?

Correct Answer: Desertification is the expansion of dry lands due to poor agricultural practices (e.g. overgrazing, degradation of soil fertility and structure), improper soil moisture management, salinization and erosion, forest removal, and climate change.

1. Describe the characteristics of the temperate rain forest (marine west coast forest) and explain what is responsible for them.

Correct Answer: The temperate rain forest is comprised of lush vegetation and home to some of the largest trees on earth, the coast redwoods. It lacks the diversity of species that the tropical rain forest has made up mostly of a few species of broadleaf and needle leaf trees, huge ferns, and thick undergrowth. The lush vegetation is due to its location on the windward slopes of the Cascade and Coast ranges in North America that receive over 100 inches of rainfall.

1. Describe the characteristics of the Northern Coniferous Forest (boreal forest) and explain how it has adapted to the subarctic climate in which it is found.

Correct Answer: The Northern Coniferous forest is dominated by coniferous trees, with hardy deciduous trees mixed in. Trees in the northern coniferous forest primarily possess pine needles instead of broad leaves like those of the temperate forests to the south. Being dark in color they absorb what little light falls on their surfaces. Retaining their needles at the end of each growing season gives the tree a head start at growth during the spring as they do not have to waste their energy in producing new foliage. The sloping sides of the conical canopy helps catch the low angle sun rays typical of high latitude locations.

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