Questions and Suggested points for responses to Ecology/Conservation Unit.

The suggested points to cover in an exam answer are not intended to be memorized and listed as written below. Students are to use these suggestions to help form their responses. **Answers to questions that may be on the final exam are to be appropriate for our Biology 213 course expectations even if the questions posed (and suggested answers) may not be at the level of Biology 213.**

Climate Determinants of Ecosystems: Air Circulation and Precipitation

1. To what degree of latitude from the equator does the Hadley cell extend to?
   a. 60°N Answer: b. 30°N
   b. 30°N
   c. 25°N
   d. 45°N
2. What is another name for the Ferrel Cell?
   a. Easterly winds Answer: c. Mid-Latitudinal
   b. Westerly winds
   c. Mid-Latitudinal
   d. Trade winds
3. Where winds converge, air must rise, what happen to the pressure?
   a. Constant Answer: c. Lower
   b. Higher
   c. Lower
   d. Pressure is irrelevant to whether winds converge or not.

Q: What is the cause of the deflection of winds, and what is the name of that effect? Elaborate on the ways it affects our climate.

A: The deflection of winds is caused by the rotation of the earth on its axis in space, and the name of the effect that summarizes the observation of air circulation in respect to the moving earth is known as the Coriolis effect. The ways the Coriolis Effect influences our climate are by because of this effect due to the rotation of the earth, the winds are subject to stronger Coriolis force as they travel in higher latitude. Therefore, as the winds move northward, their speed gradually increases. If an air parcel moves directly north in the Northern Hemisphere, then it begins with a faster west to east velocity than does the place it is heading for, and the air's rotation speeds up as it moves inward relative to the Earth's axis of rotation because its angular momentum must remain constant. The Coriolis effect explains the behavior in movement of trade winds, as well as easterly and westerly, since the winds converge near the equator because the air rise due to the heat from the equator, since pressure is lowered and they diverge because of the sinking of cool air, since the pressure is higher.

Arctic/Alpine Tundra Biome

Question 1:
Name at least three ecologically significant characteristics of the tundra.

Question 2:
Where is the alpine tundra found?

a. Northern hemisphere
b. Only in very very cold climates
c. World wide in high elevations
d. In all mountains

Question 3:
Define permafrost and how it is significant to the tundra?

Answers:

1.
   a. Extreme cold
   b. Low biotic diversity
   c. Simple vegetation
   d. Limitation of drainage
   e. Short growth season
   f. Energy and nutrients in the form of dead organic material
2. C. In high elevations around the world. Typically around 10,000 ft or higher
3. Permafrost is how the soil in the tundra is described since the ground is frozen most of the year. The topsoil may thaw in the short summer months, but the earth below remains frozen. This is significant because it prevents the formation of large rooted plants and inhibits the soil from being very biologically active.

Boreal Forest and Temperate Deciduous Forest

DISCUSSION QUESTION:
List 3 differences between the boreal forest and the temperate rainforest and explain. OR: Explain how trees have adapted to the cold climate in the Boreal Forest.

Temperate Deciduous Forest
According to the temperate deciduous forest presentation, name the five zones of the forest in order form tallest to smallest

Answer
1. Tree stratum zone 2. Sapling zone 3. Shrub zone. 4. Herbal zone 5. Ground zone

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Hot Deserts
Name and discuss briefly three factors that contribute to the slow growth of hot desert plants relative to the plants of other biomes.

1. Reduced leaves result in less photosynthetic tissue and photosynthetic activity.
2. Stomata are open only at night. No CO_2 intake during the day when light is available means less photosynthesis during the day.
3. C-4 and CAM photosynthesis pathways are less efficient than C-3.

Cold Desert
Describe what an alluvial fan is, and its significance in cold desert plant growth.

Answer: Alluvial fans are created by the horizontal spreading of floodwater over porous soil. The significance is the fact that salts are leached from the soil in the process.

Chaparral, Scrub and Mediterranean - Questions not submitted

Grasslands
List and discuss two animal and two plant adaptations observed in the biome grasslands.

Savanna and Thorn Forest

1. Plants in the Savanna have adaptations that include
   A. Thorns to minimize predation
   B. Larger trees grow in groups
   C. grasses grow from bottom up
   D. and B
   E. A and C
   F. B and C
   G. All of the above
   (answer) E

2. Give two impacts that humans have on the Savanna and explain how hey affect the biome
   (answers)
   1. Large areas of the savanna are lost to the desert because of deforestation
   2. Many animals in the savanna are threatened with extinction due to hunting and poaching. This causes a shift in the environmental balance as each species are highly specialized and all depend on each other to keep the balance.
   3. Same answer as #2 except with plants
   4. People overgrazing and farming causes the grasses to be completely eaten up turning the savanna into a desert.

Tropical Deciduous Forest
Please list THREE adaptations or specializations that plants or animals have made in order to thrive in the tropical deciduous forest with its hot climate, and marked wet/dry seasons:

Possible answers:

- Water conservation is a necessity during the dry season, but not during the wet season. As an adaptation to this environment, trees are losing their leaves during the dry season to guard against dehydration. One tree that is dropping its leaves, the Indio desnuda, has photosynthetic bark, in order to carry on photosynthesis even without leaves.
- Other trees have very deep roots to find the water table, or a very wide, shallow root system to increase absorption.
- An adaptation in plants that do not shed their leaves is succulent tissue. An example of a succulent plant is the cactus.
- Trees may also adapt to the hot and dry weather by minimizing leaf surface or holding the leaves in such as way as to minimize sun exposure and dehydration, or by storing water in their roots.
- Some trees are using the advent of the rainy season this way: they will flower right before the rainy season. Their flowers will really stand out and thus attract their animal pollinators.
- Some plant seeds are dispersed by animals that are caching them to store up for the dry season.
- The life cycle of many insects is timed such that the egg stage is taking place during the dry season.
- Some animals may burrow underground or have a lot of exposed skin.
- Some seeds in this biome only germinate after a fire (fires are a regular occurrence in this biome)
- Trees may be resistant to fire if they are monocots and their vascular bundles are scattered throughout the stem. Vascular bundles toward the interior of the stem will survive fire. Grasses will grow back after fire if their underground rhizomes are unscathed.
- Grazing animals will trample and eat vulnerable tree seedlings. As a result, thorny plants such as acacias are at an advantage here.
- Ants that exhibit a mutualistic relationship with acacias
- The acacia provides a home for the ants in its hollow thorns. It will also provide food and water for the ants in structures called nectaries, located at the bases of leaves. In return, the ants attack herbivores and insects on the acacia's behalf, and even kill other plants that grow too close. In addition, some bird species have evolved a relationship with the ants so that the ants will not attack the birds as they build their nests in the acacia trees.
- Some grasses are too bitter tasting for some animals to eat, but not for others. This way, every species of herbivore has its own preferred food source. Also, different herbivore species are picking leaves at different levels of height from the ground or are grazing at different times of day, to avoid food competition.

Tropical Evergreen Forest

Identify and briefly describe the 3 of the 5 layers of vertical stratification of the tropical rain forest.

1. **Emergent layer:** comprised of the tallest trees, widely spaced trees, small, pointed leaves.
2. **Canopy layer:** treetops, or crowns, grow very close together and form a dense lush garden in the air, rich with plants, animals and insects, thickness greatly reduces the available light to layers below, most animals live in the upper canopy due to abundance of leaves, flowers, and fruits.
3. **Understory:** lower canopy, in constant shade, consists of shrubs, plants, and small trees.
4. **Shrub layer:** densest plant growth, 3% of light reaches this layer, contains those plants who have adapted to low light
5. **Forest floor**: thin layer of humus, few plants grow on the forest floor because almost no sunlight reaches here, the leaves and plants which drop from the upper layers provide food and shelter for animals and insects who live on the forest floor, mice, frogs, snakes and insects look for food, larger animals, such as wild boar and deer, also make the forest floor their home.

Geological History and Distribution of Organisms

Short answer - List in order the time periods of the earth and mention one event that occurred during that time period.

1. Precambrian:
    a. Formation of Rodinia
    b. breaking of Rodinia and formation of Pannotia
    c. increasing Oxgyen concentration
2. Paleozoic:
    a. Pannotia broke apart & continents flooded by sea
    b. Extinction of 75% of species via climate change
    c. North America and Northern Europe collide
    d. Plants took over land; fishes took over the seas
    e. Extinction of 75% of species via meteorites
    f. Pangaea almost formed – missing China
    g. Extinction of 96-99% of species died; concentration of oxygen low, carbon dioxide high
3. Mesozoic:

a. China collided with Eurasia; Pangaea is finally formed
b. Extinction of 65% species via meteorite
c. Rainforest disappeared – formed deserts instead
d. Break up of Pangea into Laurasia and Gondwana; Atlantic ocean beginning to form
e. Africa and South America break apart
f. Meteorite killed 76% of the species; dinosaurs included

4. Cenozoic:
a. Mammals and flowering plants took over the world
b. North America and Europe break apart
c. India collides with Asia
d. Australia parts Antarctica

Aquatic Ecosystems - Fresh Water

What are four causes of the decrease in our freshwater supply?

Possible answers:

- Increase in population through increasing life expectancy
- Increase in per capita water use
- Climate change is also likely to change the availability and distribution of fresh water across the planet
- Supply of freshwater is diminishing due to a great amount being polluted beyond human use
- Big industries dump chemicals and waste into our waters
- We are mining water faster than it can be replaced
- The use of water by humans for activities such as irrigation and industrial applications
- The desire of many people to live in warm climates that have naturally low levels of fresh water resources

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Aquatic Ecosystems – Wetlands

1. Wetlands can be compared to which of the following human organs?
A. The liver of the earth
B. The spleen of the earth
C. The lungs of the earth
D. The kidneys of the earth
E. The heart of the earth

Answer: D. The kidneys of the earth

2. What are the 4 major types of wetlands?
A. bogs, swamps, furrows and marshes
B. marshes, sloughs, swamps and bogs
C. swamps, slews, bogs and marshes
D. bogs, marshes, fens and knolls
E. marshes, bogs, swamps and fens

Answer: E. Marshes, bogs, swamps and fens

3. 25% of the world's wetlands are located here:
A. Australia
B. New Zealand
C. Canada
D. United States
E. Europe

Answer: C. Canada

Aquatic Ecosystems - Marine Benthic and Pelagic

1) As you travel deeper and deeper into the depths of the ocean the amount of light decreases but also _____.
A. oxygen increases
B. pressure deceases
C. diversity of life decreases
D. phytoplankton become less abundant
E. oxygen decreases
AB. density and salinity increases
AC. currents become slower and weaker
AD. A, B, and C
AE. E, AB, D, and AC

Answer is AE

2. The Pelagic Zone is above the _____ Zone and is composed of the _____, the _____, and the _____.
   A. Benthic, Abyssopelagic, Mesopelagic, and Bathypelagic
   B. Benthic, Mesopelagic, Bathypelagic, and Epipelagic
   C. Benthic, Epipelagic, Mesopelagic, and Hadopelagic
   D. Hadopelagic, Epipelagic, Bathypelagic, Mesopelagic
   E. Epipelagic, Benthic, Mesopelagic, and Bathypelagic

Answer is B

3) Name and give examples of two adaptations of animals that live in the Epipelagic Zone.

Answer - One one way animals have adapted to living in the Epipelagic is to filter feed on plankton such the Manta Ray or Baleen Whales. Another adaptation of animals in the Epipelagic is to use counter shading as a predation technique; some animals using this technique include the Great White. Another adaptation of animals found in the Epipelagic Zone are schooling fish such as herring or tuna. Body shape of fish also tend to be more streamlined with caudal fins having more of a crescent shape for speed and some animals that include this are Sailfish. The last adaptation mentioned was that some cnidarians, like the Portuguese Man-of-War, have developed a gas-filled sac to float along the surface.

Aquatic Ecosystems - Marine Coral Reefs

Q: Discuss the three reef types and how they differ from one another.

A: Atolls reefs are modified horse-shoe shaped reefs that rise out of very deep water far from land and enclose a lagoon. They are found only in the Indo-Pacific area with very few exceptions. Barrier reefs and fringing reefs both occur adjacent to a landmass, making them hard to distinguish. However, barrier reefs are separated from the landmass by a greater distance and deeper water channel than the fringing reefs.

Aquatic Ecosystems - Marine Intertidal and Estuaries

1. Develop a chart that shows the intertidal zones showing the availability of organisms in each area.
http://www.seattle.gov/transportation/images/glossaryimages/intertidal_zone_1.jpg

2. Discuss the human impact on the estuaries.

Estuaries are one of the world's largest producers and have a chemical make up that is delicately balanced between fresh water and salt water with the salinity level dependent upon the way the mixture occurs. Estuaries cover a very small percentage of the world and are located in areas where fresh water mixes with salt water such as a river pouring into the seal. Different organisms survive in the salinity of water specific to their needs. Storms, rain run off and drought changes the salinity but so do humans. Since fresh water carries pollutants to an estuary they are concentrated here. The organisms living in these area often die. The concentration of the salinity will be disturbed as well. These locations are very important to the survival of organisms such as fish, marsh or wet land species. Estuaries are the prime location for humans to live because of the availability of fresh water next to the scenic oceans. This destroys habitats to make room for houses, businesses and people. Many estuaries currently have no or very little native species such as New York City.

Population Dynamics: Demographics and reproduction Rates
Population Growth Patterns: Exponential and Logistic Patterns

1. The most common dispersion method among a population is _____.
   A. Uniform
   B. Clumped
   C. Random
   D. Spread Apart
   Answer is B

2. Dispersion is known as the pattern of spacing among_____ within the _____ of the population.
   A. Individuals and Area,
   B. Plants and Boundaries,
   C. Animals and Boundaries,
   D. Individuals and Boundaries.
   Answer is D.

3 When there is no limitation on growth of a population within the environment it displays_____ rate of increase?

A. Exponential
B. Logarithmic
C. Linear
D. Scattered.

Answer is A Exponential.

4. The graph of a population demonstrating logistic growth resembles an _____ curve

A S shaped
B L shaped
C Parabola open downward
D Parabola open upward

Answer** A S shaped

5. The graph of a population demonstrating exponential growth resembles an _____ curve

A. S shaped
B. Continuous upward curve
C. Continuous downward curve
D. Parabola open downward

Answer** B. Continuous upward curve

6. What is the carrying capacity and what causes a carrying capacity within a species? What happens when the carrying capacity is exceeded?

Answer** The carrying capacity of a species is that amount of individuals that can successfully live in an environment while maximizing use of all resources. The limitation of resources is what causes a carrying capacity. When the carrying capacity is exceeded death rates are greater then birth rates.

Human Population Growth and Environmental Impact

Name and briefly discuss 4 of the 6 factors that could become scarcer and describe how their impact can affect us and our environment?

ANSWER:

1. Water Scarcity – much needed life and health resource as well as much needed in environmental purposes to keep plants and other living species alive.
2. Global Warming – is on the rise, due to heavy uses of emissions from cars and industries which is changing our world in numerous was from climate change to habitat loss to plant life.
3. Deforestation – we're cutting down forests which are knocking away other species habitats to build croplands which in a couple years are depleted due to poor soil.
4. Cropland Scarcity – More populations are coming in, and taking away croplands to build more housing, less crops means higher prices on produce in our markets
5. Depleted Fisheries – The need for fish for food resources is astoundingly high, as we continue to fish, renewing fishes in our waters is becoming harder and less and less fish will be available over time.
6. Species Extinction – Habitat destruction due to population growth is on the rise where less species have places to stay and can be hunted or killed in the process. Less species could lead to an abrupt shift in food chain making it less stable.

Evolution and Life History Patterns

Q: Distinguish between r-strategists and K-strategists in terms of habitat, number of offspring, age of maturation and reproduction and parental care. Include what r and K means.

A:

r-strategists are species whose life history strategies allow for high growth rate (r) in unstable and low quality habitats by increasing number of offspring and lowering age of maturation and reproduction. These offspring get no parental care.

K-strategists are species whose life history strategies allow them to persist at or near the carrying capacity (K) of their environment. These species have long maturation time and reproduce when older. They have few numbers of offspring and raise them with extensive care. Their habitats are specific, stable and high quality.

Density Dependent Population Growth Factors – Questions not submitted

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Community Interactions - Competition

1. How are plants that are shaded by larger trees able to develop shade tolerance?

A. Some plants, such as understory trees and shrubs, have the ability to utilize far red light more effectively. Far red light is able to penetrate the canopy more so than red light and shade tolerant plants are capable of doing photosynthesis at such wavelengths.

2) Allelopathy:
A. is the study of different alleles within a certain population
B. is when one plant species releases toxic chemicals that inhibit germination and survival of other potential competitors
C. is a type of exploitative competition, which is when one species uses a resource more effectively, therefore depleting the availability of that resource for other species
D. occurs when the availability of a resource is inadequate for the needs of all species

Answer: B

Community Interactions – Predation

Written Question:

Differentiate between the following terms: Grazing, Predation, Detritivory, Parasitism.

Suggested Answer:

- Grazing doesn't kill the victim and targets multiple individuals.
- Predation immediately kills victim.
- Detritivory has a dead victim or dead part.
- Parasitism focuses on one host and kills over time.

Community Interactions - Symbiosis – Commensalism

1. Commensalism is…
   A. Both organisms benefit
   B. One organism benefits, while one organism is unharmed
   C. One organism benefits, while one organism is harmed
   D. Neither organism benefits

2. Phoresy is what type of commensalism?
   A. Use of dead organisms
   B. Shelter
   C. Transport
   D. Defense

3. Symbiotic relationships began due to…
   A. Competition over resources
   B. Adaption to environments
   C. Increase overall efficiency of at least one organism
   D. All of the above

KEY:
1. B
2. C
3. D

Community Interactions - Symbiosis – Mutualism

1. What is trophic mutualism?
   A. When one partner gains shelter and the other gains resources.
   B. When one partner gains protection and the other gains resources.
   C. When both partners gain resources.
   D. When both partners gain protection.

Answer: C

2. Which is an example of mutualism?
   A. Hermit crab and shell.
   B. Crab and Algae
   C. Mistle toe and silver birch.
   D. Acacia and Ant.

Answer: D

3. What would be a type of dispersive mutualism?
   A. Bees pollinating flowers.
   B. Intestinal flagellates in termites.
   C. Birds eating parasites off of elephants.
   D. Fly laying eggs in rotting meat.

Answer: A

Community Interactions – Parasitism

1. List 3 types of adaptions/behaviors that predators and prey use to maximize their ability to obtain food (prey) and avoid predation. Give a brief explanation for each.
   Camouflage: organisms blending in with their background
   Mimicry: organisms having same appearance as another
   Social predation: organizing hunts to kill large prey

2. What is one similarity and one difference that predation and parasitism share?
   Similarity: they both reduce the fitness of their prey/host
   Difference: in predation, the prey is usually smaller than the predator; in parasitism, the host is usually much larger than the parasite

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Ethnobotany

1. What is ethnobotany?

2. True or False: Ethnobotanists document how plants are used as currency, clothing, and rituals.

3. Barriers an ethnobotanist must overcome are
   A. Laboratory facilities
   B. Ecosystem transformation
   C. Legal Restrictions
   D. All of the above

   Answers are available in the handout provided for the presentation.

Ecological Succession

1 List the order the plants are grown in ecological succession.

   A. Tree & shrubs, lichen, fern & moss, grasses & wild flower
   B. Lichen, grasses & wild flower, fern & moss, tree & shrub
   C. Lichen, fern & moss, grasses & wild flower, tree & shrub
   D. Grasses & wild flower, fern & mosses, lichen, tree & shrub

ANSWER: C

2 Examples of disturbance include
   A. glaciers
   B. volcanic activity
   C. floods
   D. forest fires
   E. falling trees in woodland
   AB. land clearance
   BC. all the above

ANSWER: BC

3 Short answer question: Compare and contrast primary and secondary sucession.

ANSWER: Primary succession starts out with rocks and there is no soil and lack of organisms. As for secondary succession, the place does contain soil and it was once a home of organisms that got destroyed. Also in secondary succession, the emergence of organisms will be faster than primary because there's no time interval where rocks needed to be broken up to create soil. The similarity that both have is that the pattern of plants growing are the same, and eventually the environment will provide a habitat for animals to live in.

Trophic Structure and Food Webs

Define the following: herbivore, carnivore and omnivore? Why are these animals heterotrophic?

An herbivore is an animal that eats only plants. Carnivores eat only other animals. Omnivores eat both plants and animals. These animals are heterotrophic because they cannot synthesize their own "food" (organic carbon nutrients from inorganic carbon sources) so they must obtain "food ready to be eaten" (food with preformed organic carbon nutrients) .
(Instructor Note: Answers should be phrased appropriate to Biology 211-213 education)

Energy Flow in Ecosystems
Describe two reasons why organisms do not store the majority of the energy they intake as chemical energy in their cells.

ANSWER: Organisms lose a large percentage of their energy due to the second law of thermodynamics, which states that any system will, over time, have a decrease in the amount of useful energy found in it. Another reason the energy is not stored in the organism is because it must be used in respiration to keep the organism alive.

Biogeochemical Cycling in Ecosystems - Carbon Cycle
1. Carbon enter the marine ecosystem by...
   - A. Photosynthesis
   - B. Combustion
   - C. Dissolved CO2
   - D. Weathering of rocks
   - E. A B and C
   - AB. B C and D
   - AC. A B and D
   - AD. A C and D

Answer: AD

2. The level of atmospheric CO2 is
   - A. Steadily Rising
   - B. Steadily Decreasing
   - C. A constant value

Answer: A

3. Why is Atmospheric CO2 essential for human life?

Suggested answer: Humans, as wells as other terrestrial animals receive their energy by eating plants, or by eating other animals that eat plants. The plants use CO2 from the atmosphere to in photosynthesis to store energy in carbohydrates. Without atmospheric CO2 plants could not build carbohydrates, and humans would not be able to gain energy from them.

Biogeochemical Cycling in Ecosystems - Water Cycle
and
Biogeochemical Cycling in Ecosystems - Nitrogen Cycle
1. The atmosphere is primarily comprised of what element.
   - A oxygen
   - b nitrogen
   - c helium
   - d nitrogen

Answer D- Nitrogen

2. Rhizobium is responsible for what % of nitrogen fixation?
   - A. 70
   - B. 5
   - C. 10.
   - D.30

Answer is A. 70%

3. In the earth's hydrosphere, what is the largest reservoir?
*Ocean

4. Warmer air can hold more or less water?
*more

Biogeochemical Cycling in Ecosystems - Phosphorus Cycle
1. What is true about phosphorous?
   - i. It is not found in the atmosphere
   - ii. It is a renewable resource

iii. Only plants require phosphorous
iv. Phosphorous based fertilizers can pollute local ecosystems

A. i
B. ii
C. iii
D. iv
E. All of the above
AB. i and iv

2. 85-90% of phosphorous in the human body is found in:
   A. DNA and RNA
   B. ATP
   C. Phospholipid Membrane
   D. Bones and Teeth

3. Which of the following can help us prevent phosphate depletion?
   A. Make inorganic fertilizers more efficient
   B. Use organic fertilizers
   C. Recycle food waste as compost
   D. All of the above

Answers:
1. AB
2. D
3. D

Community Structure and Biodiversity – Questions not submitted

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Habitat Disturbance and Biodiversity

1). Which of the following are types of habitat disturbance?
   A. Pollution
   B. Global climate change
   C. Over exploitation
   D. Functional Extinction
   E. A, B, C, and D
   F. A, B, and C

2. Define functional extinction.

3. Habitat disturbance can result in:
   A. Economic loss
   B. Extinction of species
   C. Functional extinction
   D. Reduction in population
   E. All of the above

Answers:
1. F
2. Functional extinction is when a species becomes so rare it does not fulfill its ecological role.
3. E.

Environmental Stress - Species Exploitation

Question: List and describe 3 ways that humans exploit different species.

Example Answer: Humans exploit Tigers to obtain their body parts for use in traditional medicine. Humans exploit elephants to use their Ivory as ornaments and in knife handles. Humans exploit Ipê trees for boardwalks, benches, playgrounds, and decking.

Environmental Stress – Agriculture

Explain 3 Negative effects that agriculture has on the environment.

Answer:

1. Pesticides are harmful to animals and humans if exposed
2. Water is used inefficiently
3. Soil degradation or loss of soil quality each year
4. Toxic runoff into the ocean creates dead zones
5. Habitat Destruction

Environmental Stress – Deforestation

1. Around what event in human history did deforestation rates greatly increase?
   A. Manifest Destiny
   B. Industrial Revolution
   C. The Renaissance
   D. WWI

2. According to the UN-FAO the overall rate of deforestation has?
   A. increased exponentially
   B. Increased
   C. remained constant
   D. decreased
   E. decreased exponentially

3. What day is common in most developed countries that celebrates the forest and trees?
   A. Earth Day
   B. Arbor Day
   C. Forest Day
   D. Green Day (not the horrible 'emo' band)
   E. No such day exists

Environmental Stress - Climate Change

Discuss one of the following climate change conditions and how they relate to plants: Carbon Dioxide Levels, Heat, or Change in Seasons."

Answers:

Carbon Dioxide Levels: Increased Carbon Dioxide levels would allow plants to photosynthesize sugars better. Due to more readily available concentrations, plants would be able to utilize it more readily. In this way, plants will increase in growth and have a positive affect from these increased levels. However, some studies indicate that there may be a carbon dioxide intake cap for some species of plants.

Heat: Due to plants being unable to cope with intense heat, this would have a very negative affect on plants. Not only would they be overwhelmed by the increase in temperature, but this increase in temperature may cause drought. With decreased water levels, plants will not survive. However, some plants are being genetically modified to grow in barren areas where drought is common.

Change in Seasons: Plants are very seasonal organisms. If seasons are to change drastically, plants will not be able to adapt to the alterations. Plants rely in a steady seasonal pattern for seed dispersal, pollination, and growing seasons. If these are to change entirely, plants will end up unable to disperse their seeds, get appropriate pollination, and finally may end up dying due to the growing seasons changing.

Environmental Stress - Air and Water Toxins

1. The Environmental Protection Agency is working to prevent or minimize the output of how many different types of pollutants?

   A. 79
   B. 187
   C. 2,000
   D. 4,221

Answer: B

2. The act of "fracking" consists of:

   A. Fracturing an underground formation of rock for removal of oil and natural gas
   B. Breaking ground for agricultural purposes
   C. Fracturing an above ground formation of rock so that it may be removed from the area more easily
   D. Falling off of a rock and breaking a bone

Answer: A

3. Non-methane volatile organic compounds (VOCs include:

A. Benzene
B. Toluene
C. Xylene
D. All of the above

Answer: D

Environmental Stress - Human Impact on Habitat/Species Loss – Questions not submitted

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Environmental Stress - Invasive/Introduced Species – Questions not submitted

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Environmental Stress - Managing Populations

Question: List and describe the two types of wildlife management.

Answer: Manipulative management is when there is action taken either indirectly or directly to influence population numbers. This type of management is often used in cases where populations are ready for harvest, populations dip to unacceptably low level, or populations rise to uncontrollably high levels. The other type of wildlife management is called custodial management. Custodial management are for preventive or protective measures of populations with the purpose to minimize external disturbances on populations and their habitat. Examples of custodial management can be the conservation of an endangered species where the threat is from an external source rather than internally from the system.

Population Conservation/Landscape Preservation

What is a landscape and why should we protect it?

a landscape is an area of land that contains patterns of ecosystems that affect one another in ecological processes held within it. Protection of this area of land will insure that all the species and processes that inhabit the area will continue to survive protecting biodiversity.

Ecosystem Recovery - Biodiversity Preservation
and
Biodiversity and Ecotourism

1. Why is biodiversity important ecologically?
   A. All living organisms play a role in an ecosystem so if one species is depleted, it will have a large effect on many other organisms
   B. Everything in an ecosystem is apart of a web of life
   C. Biodiversity benefits humans by supplying food, medicine and shelter among many other things.
   D. All of the above

Answer: D

2. Why is biodiversity important economically?
   A. Us greedy humans need to make money!
   B. Species and ecosystems provide a variety of goods and services that we rely on daily.
   C. The welfare of humans is directly correlated to that of wildlife.
   D. For travel and vacation, which brings a lot of money to cities.

Answer: B

3. What are the criteria for ecotourism?
   A. Minimize impacts
   B. Support Human rights and democratic movements
   C. Stay local at destination
   D. Have fun
   E. All of the above

Answer E

4. Which ecotourism site is home to part of the Wildebeest migration?
   A. Costa Rica
   B. Kenya
   C. Yellowstone

D. Washington State
E. None of the above

Answer: B

Restoration Ecology Issues

1. In current times, what is one of the central issues across all fields of restoration ecology?
   A. Dictatorships
   B. Disease
   C. Hunger
   D. Biodiversity

2. Which fictional character was the figurehead of a paradigm that is now believed to represent a mistaken direction in ecology restoration?
   A. McGruff the Crime Dog
   B. Smokey Bear
   C. Woodsy Owl
   D. Captain Planet

3. What is an unanswered question in today's world of restoration ecology?
   A. Should an ecosystem be restored to its "natural" or "stable" state?
   B. How much resources should be apportioned to conservation vs. restoration?
   C. What does an ecosystems "natural" or "stable" state look like?
   D. How can ecologists and policy makers best work together to achieve the restoration of ecosystems?
   E. All of the above

Answers: 1-D, 2-B, 3-E

Sustainable Development Initiatives – Questions not submitted