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- 1 Why doesn't 100% of the energy in a trophic level transfer to the next trophic level?  
A Some energy is destroyed  
B The energy is actually conserved in the cells of the lower trophic level  
C **Some energy is lost to the environment as metabolic heat.**  
D The next trophic level creates its own energy and doesn't need the energy from the previous trophic level.
- 2 Which one of the following gasses comprises about 78% of the earth's atmosphere?  
A Neon  
B Oxygen  
C Argon  
D **Nitrogen**
- 3 Which of these is a benefit of prescribed fire?  
A Increased soil depth  
B Reduced biodiversity  
C **Disease control**  
D Increased canopy cover
- 4 What atmospheric zone is furthest from the surface of the earth?  
A Stratosphere  
B **Thermosphere**  
C Troposphere  
D Mesosphere
- 5 Heat buildup from the sun's rays passing through a clear object resulting in heat being trapped inside is known as...  
A **The greenhouse effect**  
B The ozone effect  
C Radiation  
D Global heating
- 6 Which term is defined as the science of food production, processing and distribution?  
A Botany  
B Herpetology  
C **Agriscience**  
D Ecology
- 7 All of the following are uses of water in a multiple use water management concept except:  
A water skiing  
B **sewage treatment facilities**  
C public drinking supplies  
D fishing

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- 8 Which term refers to the process of desalinating water by evaporating the water and leaving the salt behind.
- A Chlorinating
  - B Distillation**
  - C Evaporative cooling
  - D Transpiration
- 9 Which of the following factors increases a species' susceptibility to extinction?
- A Herbivory
  - B Anthropomorphism
  - C Nonadaptive behavior**
  - D Myrmecophagy
- 10 Which of the following is a means by which reforestation impacts the environment?
- A decreases the property value of the land
  - B increases the rate of wind erosion
  - C provides wildlife habitats**
  - D increases the rate of soil erosion
- 11 Which term is defined as the spacing or dispersion of individuals in a population?
- A Density
  - B Distribution**
  - C Structure
  - D Juxtaposition
- 12 Which of the following is NOT an exhaustible resource?
- A Soil
  - B Mineral resources
  - C Petroleum
  - D Atmospheric air**
- 13 What national park was the first established solely for public enjoyment?
- A Yosemite National Park
  - B Redwood National Park
  - C Yellowstone National Park**
  - D The Grand Canyon
- 14 What form of erosion is caused by natural processes?
- A Accelerated erosion
  - B Geologic erosion**
  - C Gully erosion
  - D Rill erosion

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- 15 Which of the following is the energy source produced from turbines powered by steam from volcanically active areas?
- A Nuclear
  - B Geothermal**
  - C Hydroelectric
  - D Wind energy
- 16 What percentage of the United States was covered by rangeland when Europeans first arrived on the east coast?
- A 25%**
  - B 74%
  - C 100%
  - D 47%
- 17 Which term refers to the excessive increase of nutrients into a body of water?
- A Algal bloom
  - B Eutrophication**
  - C Sedimentation
  - D Nitrification
- 18 Which of the following is a correct list of characteristics of sustainable agriculture?
- A Environmental Stewardship, Social Equity, Short-term profitability
  - B Involves environmental health, supports policies that protects the rights of farm workers, is economically profitable**
  - C Low productivity, involves a high level of hand labor, suited only for small acreage farms
  - D Uses no chemical fertilizers or pesticides, relies on horses for plowing
- 19 Which of the following is the process by which nitrogen gas is converted into plant available nitrogen?
- A Denitrification
  - B Nitrogen fixation**
  - C Nitrification
  - D Volatilization
- 20 If a population increases beyond the environments ability to meet its needs, the population will likely...
- A exponentially increase
  - B evolve rapidly to save the population
  - C decrease to a level the environment can support**
  - D consume itself

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- 21 Which relationship occurs when one animal eats another animal?  
A Commensalism  
B Parasitism  
C Mutualism  
D **Predation**
- 22 The progressive establishment of an ecological community on a newly emerged volcanic island in the middle of the ocean is called...  
A Secondary succession  
B Drift succession  
C Climate change  
D **Primary succession**
- 23 Which of the following includes all the land that drains into a pond, lake or stream?  
A **Watershed**  
B Littoral zone  
C Floodplain  
D Riparian buffer
- 24 Which of these has the following characteristics; Prolonged presence of water, hydric soils and presence of hydrophytic plants?  
A Tundra  
B **Wetland**  
C Grassland  
D Bottomland hardwood
- 25 What is correct management of our mineral resources important?  
A They are all toxic to touch  
B **They are nonrenewable resources**  
C They are in overabundance in the world  
D They react with water
- 26 In the water cycle, by what process is water is returned to the atmosphere?  
A. precipitation  
B. condensation  
C. **transpiration**  
D. infiltration

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- 27            What are Indicator Species?
- A.    **Organisms that show sensitivity to pollution or environmental changes before other organisms**
  - B.    Organisms that are representative of other species in a family
  - C.    Organisms that represent other organisms in a particular habitat
  - D.    Organisms that indicate the energy level on a food pyramid
- 28            Which term encompasses these five categories; minerals and rocks, glacial deposits, loess deposits, alluvial and marine deposits, and organic deposits?
- A.    soil humus
  - B.    soil layers
  - C.    **soil parent material**
  - D.    soil weathering factors
- 29            Which of the following is NOT a result of fires burning through prairies?
- A.    Nutrients are recycled
  - B.    Some tree seeds are stimulated to grow and grasses grow back from roots
  - C.    The carrying capacity for herbivores often increases
  - D.    **Grasslands are eliminated and changed to shrub lands or wastelands**
- 30            Which of the following is a primary factor affecting the amount of space needed by an animal?
- A.    **Size of the animal**
  - B.    The type of biome
  - C.    The lifespan of an animal
  - D.    Feeding habits of the animal
- 31            What are the three factors that determine the severity of a plant disease?
- A.    Plant nutrient status, genetic engineering, rainfall
  - B.    Temperature, the diversity of plants in a field, the number of bacteria in the soil
  - C.    **Plant susceptibility to a disease, the presence of a disease organism, environmental conditions favorable to disease infestation**
  - D.    The presence of disease organisms, plant nutrient status, plant growth rate
- 32            Which of the following is not a benefit of soil organic matter?
- A.    improves water infiltration into soil
  - B.    improves the permeability of soil
  - C.    **kills all microorganisms in the soil**
  - D.    improves soil tilth

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- 33 Which is not an example of a grassland ecosystem found in the United States?  
A. Desert grasslands  
**B. Tundra**  
C. Shortgrass prairie  
D. Tallgrass prairie
- 34 Which of the following is the process by which plant tissues are broken down to produce heat, water and carbon dioxide.  
A. Transformation  
B. Energy  
**C. Respiration**  
D. Photosynthesis
- 35 What is the world's largest biome, making up about 71% of the Earth's surface area?  
A. Grasslands  
B. Arctic  
**C. Marine**  
D. Fresh water
- 36 Which of the following is measured in the units 'Mcf' and 'BTU'?  
A. Oil  
B. Coal  
**C. Natural gas**  
D. Water flow
- 37 What type of landfill design allows natural percolation of precipitation to pass through and into the underlying soil and rocks where leachate is neutralized by microorganisms and soil particles?  
**A. Natural attenuation landfill**  
B. Canyon-fill landfill  
C. On-grade landfill  
D. Trench landfill
- 38 Which of the following chemical elements is not needed to form an organic chemical?  
A. Hydrogen  
**B. Chlorine**  
C. Carbon  
D. Oxygen
- 39 Which of the following is not an anthropogenic emission?  
A. Methane from animal manure  
**B. Burning household garbage**  
C. Volcanic gas emissions  
D. Smoke from a wildfire

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- 40            What type of prescribed fires are set to slowly burn into the wind?
- A.    Wildfire
  - B.    Headfire
  - C.    Flankfire
  - D.    Backfire**
- 41            Which of the following is a benefit of crop rotation?
- A.    The muddy water is held long enough for the sediment to settle out in the form of mud
  - B.    Each row acts like a small dam to stop runoff from moving straight downhill.
  - C.    Runoff is conducted across the slope to some protected areas.
  - D.    Soil tilth is better maintained**
- 42            Which of the following is an example of man-made soil erosion?
- A.    Glaciers forming rivers and lakes
  - B.    Soil washing off of tilled slopes and overgrazed pastures**
  - C.    Water moving across rocks very rapidly
  - D.    Raindrops wearing rock away to form gullies, canyons and valleys
- 43            Which term refers to a shallow, marshy area where freshwater and saltwater mix at the convergence of rivers and oceans and is high in biotic diversity?
- A.    Swamp
  - B.    Tidal zone
  - C.    Estuary**
  - D.    Oceanic zone
- 44            Which of the following is not a component of the Fire Triangle?
- A.    Oxygen
  - B.    Fuel
  - C.    Heat
  - D.    Lightning**
- 45            A system of interrelated organisms and their environment including, soil microbes, fungi, insects, vegetation, herbivores, omnivores and carnivores?
- A.    Population
  - B.    Abiotic system
  - C.    Ecosystem**
  - D.    Niche

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- 46 Which of the following is NOT a characteristic of a desert biome?
- A. **Does not support mammals**
  - B. < 10 inches of annual rainfall
  - C. Plants with short growing seasons
  - D. Hot during daytime, cold at night
- 47 Which of the following is an example of bioremediation?
- A. Insects pollinating flowers
  - B. Sustainable agriculture
  - C. **Bacteria breaking down hydrocarbons in oil spills**
  - D. Birds using dead trees for nest sites
- 48 What happens to energy transfer as acquired energy flows up the trophic levels?
- A. remains constant
  - B. **decreases**
  - C. increases
  - D. none of the above
- 49 Regarding population dynamics, doubling and halving populations indicate what type of growth?
- A. logistic growth
  - B. no growth
  - C. linear growth
  - D. **exponential growth**
- 50 Which of the following is the economic theory that individuals sharing communal property will deplete its' resources due to short term planning and self-interest.
- A. Supply and Demand
  - B. **Tragedy of the Commons**
  - C. Share cropping
  - D. Evolution