

2023

**Environmental Science and Natural Resources
CDE Exam - Idaho FFA**

- There are 50 questions on this test.
- There is only 1 correct answer per question.
- Carefully fill in the correct answer on the Scantron
- Return this copy of questions to the test monitor before you leave the room.
- Good luck.

- 1) Organisms unable to manufacture their own food are called _____.
 - a) producers
 - b) decomposers
 - c) providers
 - d) **consumers**

- 2) A perpetual natural resource is one that:
 - a) is found in a fixed amount in nature.
 - b) **comes from an essentially inexhaustible supply.**
 - c) can renew itself by natural processes.
 - d) is also called a stock resource.

- 3) What do all rangelands have in common?
 - a) Currently grazed by some type of livestock.
 - b) Require periodic cultivation to be productive.
 - c) **Include grazing and fire as important ecological processes.**
 - d) Dominated by exotic annual grasses.

- 4) Fire is an important factor in maintaining grasslands because it:
 - a) Converts inorganic compounds to organic nutrients.
 - b) **Weakens or eliminates competing trees.**
 - c) Increases soil infiltration rates.
 - d) Stimulates root growth of woody plants.

- 5) Most rangeland flowers have broad leaves with net-like veins and solid, non-woody stems and are called:
 - a) Shrubs
 - b) **Forbs**
 - c) Grass-like plants
 - d) Weeds

- 6) Which of the following trees are examples of hardwoods?
 - a) Pines and Spruces
 - b) Tamaracks and cedar
 - c) **Oaks and Maples**
 - d) Willows and Rushes

- 7) Which forest type sequesters the most carbon annually?
 - a) Boreal
 - b) Temperate
 - c) Subtropical
 - d) **Tropical**

- 8) A term used by ecologists to describe climates and ecosystems that have low levels of precipitation and dry conditions are called:
 - a) Continental
 - b) **Xeric**
 - c) Mesic
 - d) Tropical

- 9) In ecology, succession refers to:
 - a) **A community gradually being replaced by another.**
 - b) The survival of the fittest.
 - c) A balance of ecological resistance and biotic potential.
 - d) Interactive predator-prey relationships.

- 10) The role an organism plays in the functioning of its ecosystem is called its:
- a) Home Range
 - b) Territory
 - c) Habitat
 - d) **Niche**
- 11) Which of the following species are considered domesticated?
- a) **Honeybees**
 - b) Wild horses
 - c) Elk
 - d) Beavers
- 12) Which of the following animals is an ungulate?
- a) Bears
 - b) Cougars
 - c) **Elk**
 - d) Elephants
- 13) "Old growth" forests are:
- a) Forests with lots of spotted owls and flying squirrels.
 - b) The mid-successional vegetative state of any forest.
 - c) The state of a forest that has the highest logging value.
 - d) **Virgin forests that have never been cut for wood or lumber.**
- 14) The most important factor determining how many and what types of organisms live in an ecosystem is the amount of:
- a) **Precipitation and available water.**
 - b) Solar energy from sunlight.
 - c) Average yearly temperature.
 - d) Amount of clay in the soil.
- 15) The area of land on which all runoff, sediment, and water-soluble substances flow to a single surface water outlet (like a river or stream) is called:
- a) recharge zone
 - b) aquifer
 - c) buffer strip
 - d) **watershed**
- 16) Vegetation communities adjacent to streams or ponds that are a transition zone between upland plant communities and fully aquatic systems are called:
- a) Watersheds
 - b) **Riparian areas**
 - c) Alluvial sites
 - d) Benchlands
- 17) The degree to which a river or stream bends back and forth or meanders is known as:
- a) Agradation
 - b) Gradient
 - c) Order
 - d) **Sinuosity**
- 18) In the water cycle, the movement of water from the leaf surfaces of plants to the atmosphere is called:
- a) percolation
 - b) **evapotranspiration**
 - c) run-off
 - d) stream flow
- 19) Ecosystems that are characterized by partially enclosed coastal bodies of water where salty seawater mixes with freshwater from streams and rivers are called:
- a) Coral Reefs
 - b) Euphotic zones
 - c) Benthic zones
 - d) **Estuaries**

- 20) Ruminant animals can use high fiber forage (such as grass stems) effectively because:
- They secrete enzymes in their saliva that break down cellulose.
 - They have specially shaped teeth that grind cellulose into digestible energy.
 - They have microorganisms in the rumen that break down cellulose.**
 - They digest soluble components and pass the fiber through their digestive system.
- 21) The Fire Triangle concept states that fire needs three things to sustain it. Remove any of these three things and the fire will stop. What are the three elements of the Fire Triangle?
- Heat, Oxygen, and Fuel**
 - Oxygen, Time, and Humidity
 - Wind, Slope, and Fuel
 - Lightning, Sparks, and Flame
- 22) The fire characteristics that have the greatest effect on plant mortality are the:
- ignition source & fire return interval
 - temperature & duration of the fire**
 - severity & extent of the fire
 - flame length & rate of spread
- 23) Which of the following is a land-use problem associated with forest fires?
- Causing large masses of snow occurring the winter after the fire.
 - Major water shortages for farm, industrial, and domestic water consumers.
 - Destruction of trees that would have supplied lumber.**
 - Improved soil infiltration and structure.
- 24) Prescribed burns are fires that:
- Are caused by lightning.
 - Require direct attacked by fire fighters.
 - Are set by humans.**
 - Increase the risk of injury.
- 25) When a pasture is grazed to a level that will not likely damage the future productivity of the pasture it is being used at a _____ rate.
- multiple use
 - overgrazing
 - non-renewable
 - sustainable**
- 26) The relatively constant temperature observed in large bodies of water occurs because water has
- Low melting point
 - High viscosity
 - High surface tension
 - High specific heat**
- 27) In coniferous forests there are species of fungi that grow underground and sometimes connect to tree roots. The fungi use plant sap from the roots for their own energy and in return make nutrients available to the trees through these root connections. These connections between tree roots and fungi are called "mycorrhizal" relationships which would be best described as:
- amensalism
 - symbiosis**
 - parasitism
 - competition
- 28) Low-growing shrublands that occur at high elevations and are characterized by low temperatures, poor nutrients, and short growing seasons are called:
- Elevational savannah
 - Mountain meadows
 - Alpine tundra**
 - Arctic tundra

- 29) The most common element (or gas) in the earth atmosphere is:
- a) Oxygen
 - b) Nitrogen**
 - c) Carbon
 - d) Sulfur
- 30) About 70% of the earth is covered by water. Of this amount, about what percent of it is suitable for human consumption and use?
- a) **less than 5**
 - b) 10
 - c) 25
 - d) 50
- 31) A measure of the optical clarity of a liquid, like water, is called its:
- a) Vagueness
 - b) Turbidity**
 - c) Polarity
 - d) Alkalinity
- 32) A modern approach to crop production that tracks crop yield of specific areas in a field, using GPS and GIS technologies, and then strategically applies water, fertilizer, herbicides, or pesticides to some areas of a field more than others is called:
- a) **Precision Farming**
 - b) Regenerative Agriculture
 - c) Industrial Farming
 - d) Sedentary Tillage
- 33) Control of pests by disrupting their ecological status, using organisms that are natural predators, parasites, or pathogens is known as:
- a) Organo-Culture
 - b) Integrated Pest Management (IPM)
 - c) Biological Control (or Biocontrol)**
 - d) Genetically Modified Organisms (GMO's)
- 34) Arable land is land that:
- a) Has excessive infiltration rates.
 - b) Can be used for growing crops .**
 - c) Is recovering from desertification.
 - d) In late-stage of succession.
- 35) Very stable ecosystems are usually characterized by:
- a) many pioneer species and low biodiversity
 - b) short food chains and low biomass
 - c) complex food chains and great biodiversity**
 - d) Mostly producers with few decomposers or tertiary consumers
- 36) A noxious weed is one that:
- a) Requires control as designated by state or federal law.**
 - b) An invasive plant that is toxic to animals.
 - c) A plant that escapes from agricultural fields into adjacent pastures.
 - d) An exotic plant that creates an allergic reaction in humans.
- 37) Which of the following characteristics would be an abiotic feature of wildlife habitat:
- a) Plants that provide food or contain toxins.
 - b) Light intensity such as shade or full sun.**
 - c) Risk of predation by carnivores.
 - d) Other animals in an individual's herd or flock.

- 38) The acronym "BMP" in relation to land management stands for:
- a) Beneficial Monitoring Program
 - b) Biological Monitoring Program
 - c) **Best Management Practices**
 - d) Beneficial Management Practices
- 39) Pollutants that are broken down by natural processes are called:
- a) Perpetual
 - b) Non-degradable
 - c) **Biodegradable**
 - d) Non-renewable
- 40) Soils characterized by a mix of sand, silt, and clays are called:
- a) Loess
 - b) Mixed sediment
 - c) Colluvium
 - d) **Loams**
- 41) Leaching in soil occurs when:
- a) humus is dissolved.
 - b) **water removes soluble nutrients.**
 - c) rock is shattered by frost action.
 - d) water is taken up by plant roots.
- 42) Fixation is a word for several processes by which:
- a) Phosphate in the soil is converted to phosphorus gas in the air.
 - b) **Nitrogen gas in the air is converted to nitrate or ammonia.**
 - c) Carbon dioxide in the air is converted to glucose.
 - d) Solar energy is captured by rocks and water to heat the earth.
- 43) Resources (such as food and clean water) and processes (such as purifying water or reducing floods) that are supplied to humans by a natural ecosystem are called:
- a) Biosphere balancing
 - b) Biological control
 - c) **Ecological services**
 - d) Amenity values
- 44) In the Endangered Species Act, a(n) _____ species is one that is likely to become endangered within the foreseeable future.
- a) endemic
 - b) feral
 - c) **threatened**
 - d) resilient
- 45) What Federal Act was the first to guarantee ranchers leases for grazing on federal lands and gave rise to the Bureau of Land Management?
- a) Morrill Act
 - b) Soil Conservation Act
 - c) **Taylor Grazing Act**
 - d) Range Improvement Act
- 46) Which of the following is a leading groundwater contaminant?
- a) Sewage and wastes
 - b) **Nitrates and pesticides**
 - c) Car exhaust and oil spills
 - d) Cattle and hog wastes
- 47) Vitamins and minerals offered to livestock are considered:
- a) Macronutrients
 - b) **Micronutrients**
 - c) Non-essential nutrients
 - d) Pseudo nutrients

- 48) Recreation on forests and rangelands can be described as extractive or amenity. Which of the following would be an amenity form of recreation?
- a) **Hiking and picnicking**
 - b) Hunting and fishing
 - c) Collecting elk antler sheds
 - d) Gathering wild mushrooms
- 49) Of all the land in the US, which of the following Land agencies has the LEAST acres of land to manage?
- a) Bureau of Land Management
 - b) National Park Service**
 - c) Fish and Wildlife Service
 - d) Forest Service
- 50) Land managed by the Bureau of Land Management (BLM) and the Forest Service (USFS) is managed by the concept of _____ which means that resources are managed simultaneously to create the greatest combined value.
- a) Sustainability
 - b) Renewable Regeneration
 - c) Multiple-Use**
 - d) Collaborative Management