

**2012**  
**Environmental Science and Natural Resources CDE Exam**  
**Idaho FFA**

**There are 50 questions to this test**  
**There is only 1 correct answer per question**

Carefully fill in the correct answer on the Scantron  
Return this copy of the questions with your answers

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1. A hypothesis is a statement about:
  - a. causal factors that can be tested.
  - b. causal factors that cannot be tested.
  - c. inferences not related to causal agents.
  - d. inferences relate to the experimental design.
2. Which of the following is an example of a non-renewable resource?
  - a. Coal to produce heat and electricity
  - b. Forest harvesting to produce lumber and wood
  - c. Wind turbines used to create electricity
  - d. Livestock production to produce meat
2. What is ecology?
  - a. The branch of science dealing with interactions among nonliving and abiotic aspects of the environment.
  - b. The branch of science dealing with the relationships among plants, animals and their environment.
  - c. Concepts related to the production and management of natural resources.
  - d. The study of human policies and practices that affect the natural environment.
3. An adaptation of animals where they lower their metabolic rate to survive winter or cold conditions is called:
  - a. recruitment
  - b. senescence
  - c. poikilothermy
  - d. hibernation
4. Respiration in plants is a process that:
  - a. produces energy from water and nutrients in soil
  - b. transports inorganic compounds from soil to leaves
  - c. converts chemical bonds of organic compounds into energy for growth
  - d. gathers energy in sunlight to form sugar compounds
5. Detritus feeders:
  - a. Eat animal flesh only
  - b. Consume dead plants and animals
  - c. Are a type of phytoplankton
  - d. Get their energy by breaking apart phosphorous-based compounds
6. In a population of organisms, the number of infants or seedlings that reach breeding age is called the \_\_\_\_\_ rate:
  - a. Replacement
  - b. Fertility
  - c. Survival
  - d. Reproduction
7. 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
8. Compounds needed in the greatest quantity for animal growth are called macronutrients. These include:
  - a. Carbohydrates, protein, and fats
  - b. Nitrate, phosphate, and iodine
  - c. Fiber and calcium
  - d. Minerals and vitamins
9. About 98% of the atmosphere is made up of the following two elements or compounds:
  - a. Water vapor and oxygen
  - b. Nitrogen and water vapor
  - c. Carbon dioxide and argon
  - d. Methane and hydrocarbons

10. Nitrates are.....
  - a. man-made fertilizers used in the production of vegetables and forage plants
  - b. common gases found in the atmosphere
  - c. not useful to plants until converted to nitrites
  - d. consumed by animals to produce proteins
11. The primary products of photosynthesis are:
  - a. Proteins
  - b. Carbohydrates
  - c. Fats
  - d. Amino Acids
12. Grass plants are well adapted to recover after fire or grazing because they:
  - a. elevate seeds early in the growing season so they are out of the reach of herbivores.
  - b. have a symbiotic relationship with bacteria, called rhyzobia, in their roots that fix nitrogen.
  - c. have secondary compounds to fuel a quick recovery.
  - d. keep meristems or growing points near the base or crown of the plant.
13. Hooved mammals that include deer, elk, cattle, and horses are called:
  - a. Artiodactyls
  - b. Ruminants
  - c. Domestic
  - d. Ungulates
14. Ruminant animals can use high fiber forage (such as grass stems) effectively because:
  - a. They secrete enzymes in their saliva that break down cellulose
  - b. They have specially shaped teeth that grind cellulose into digestible energy
  - c. They have microorganisms in the rumen that break down cellulose
  - d. They digest soluble components and pass the remaining fiber through the digestive system
15. The difference between primary and secondary succession is that secondary succession occurs:
  - a. after plants are removed by actions such as fire or cultivation but soil remains on the site.
  - b. after a natural disaster like a volcano or flood removes or covers the existing soil on a site.
  - c. when lichens have begun to break down parent rock into soil.
  - d. when annual plants displace perennial plants.
16. In the components of the following desert food chain, which is the primary consumer:
  - a. small herbs under shrubs
  - b. herbivorous insects
  - c. insect eating lizards
  - d. vultures
17. The primary source of food energy in a food chain comes from:
  - a. Decomposers
  - b. Producers
  - c. Consumers
  - d. Water
18. On the costal prairies, cattle egrets (a bird) often perch on the backs of cattle eating the bugs and other external parasites on their backs. The cattle benefit from the removal of the insect pests and the egrets benefit from the foods source. This relationship would be best described as:
  - a. Mutualism
  - b. Allelopathic
  - c. Parasitism
  - d. Competition
19. Because some energy is lost as heat at each step in a food chain -- there must be:
  - a. more producers than consumers
  - b. more consumers than producers
  - c. more decomposers than producers
  - d. more decomposers than consumers
20. Which of the following is a consequence of soil compaction?
  - a. Decreased soil fertility
  - b. Decreased infiltration of water
  - c. Increased soil salinity
  - d. Increased weathering of rocks

21. Arable land is land that:
- Has excessive infiltration rates
  - Can be used for growing crops
  - Is recovering from desertification
  - In late stage of succession
22. The dramatic increase in agricultural production that has been made possible by high yield crops and inorganic fertilizers is called the \_\_\_\_\_.
- Green Revolution
  - Bioeconomic Revolution
  - Biotechnical Revolution
  - Greenhouse Effect
23. The location and extent of the terrestrial ecosystems of the world are primarily determined by:
- The Phosphorus Cycle
  - Human Activities
  - Albedo and Fixation
  - Temperature and Precipitation
24. What soil particle holds water the tightest and has the least permeability?
- Sand
  - Clay
  - Gravel
  - Loam
25. Which has the least tendency to form clods, the least moisture holding capacity, and the least fertility?
- Sand
  - Silt
  - Clay
  - Loam
26. The layer of partially and fully decomposed organic materials lying below the litter and immediately above the mineral soil on the forest floor is referred to as:
- littoral mass
  - duff
  - A-horizon
  - ground fuel
27. What is the major cause of eutrophication in water bodies such as ponds, lakes, and streams?
- Excessive nitrogen and phosphorus runoff from surrounding lands
  - Immigration of invasive exotic plants such as Eurasian Milfoil
  - Oil accumulations on the surface that reduce photosynthesis
  - Increased UV-B radiation from the sun that damages bacteria and algae
28. 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:
- recharge zone
  - aquifer
  - buffer strip
  - watershed
29. The hydrologic cycle receives its energy from:
- shifts in ocean tides
  - solar radiation (i.e., the sun)
  - geothermal radiation (i.e., the earth's core)
  - lunar movement patterns (i.e., the moon)
30. Pollution caused by discharging heated water into rivers and streams is created by:
- organic wastes
  - inorganic wastes
  - thermal pollution
  - radioactive materials
31. Which of the following is a leading groundwater contaminant?
- Sewage and wastes
  - Nitrates and pesticides
  - Car exhaust and oil spills
  - Cattle and hog wastes
32. Which of the following trees are examples of hardwoods?
- Pines and Spruces
  - Tamaracks and cedar
  - Oaks and Mesquite
  - Willows and Rushes
33. Of the three major types of forests which has the coldest climate:
- tropical rainforest
  - deciduous forest
  - coniferous forest

34. "Old-growth" forests are:
- Forests with lots of spotted owls and flying squirrels
  - The mid-successional vegetative state of any forest
  - The state of a forest that has the highest logging value
  - Virgin forests that have never been cut for wood or lumber
35. The greatest diversity and biomass of animals in the tropical rain forest are:
- Insects
  - Amphibian
  - Mammals
  - Birds
36. An important factor that maintains grassland ecosystems is:
- Fire
  - Precipitation greater than 50 inches per year
  - Sandy soils
  - Grazing by insects
37. Ecoregions where evaporation exceeds rainfall are called:
- Tundra
  - Grasslands
  - Chaparral
  - Deserts
38. Treeless plains that occur at high elevations and are characterized by low temperatures, poor nutrients, and short growing season are called:
- Chaparral
  - Alpine tundra
  - Tropical savannas
  - Temperate deserts
39. The Palouse is a bunchgrass prairie that once covered large areas in Idaho and Washington. Why does less than 5% of the original Palouse Prairie exist today as native prairie?
- Lack of precipitation
  - Invasion by exotic annual grasses
  - Conversion to urban areas
  - Conversion to agricultural use
40. How much rangeland is there on the earth's land surface compared to forests?
- About the same amount
  - About twice as much rangeland than forest
  - About half as much rangeland as forest
  - About 10% less rangeland than forest
41. Pasturelands are differentiated from rangelands because they:
- are grazed by domestic livestock whereas rangeland may not be
  - are periodically cultivated and managed by agronomic principles
  - occur only in temperate regions whereas rangelands occur worldwide
  - occur on soils that are too saline to support the native grasses and shrubs of rangeland.
42. What is the name of the area in which an individual animal conducts its normal daily activities (i.e., resting, foraging, and drinking)?
- Habitat
  - Home Range
  - Territory
  - Potential Range
43. During the growing season after a fire has occurred, wild and domestic herbivores will:
- be attracted to the burned area.
  - avoid the burned area.
  - show neither preference for or avoidance of burned areas.
  - eat plants in the burned area but lose weight because plants are less nutritious after fire.

44. Warblers, thrushes, tanagers, and vireos are all examples of:
- a. waterfowl
  - b. big game
  - c. upland gamebirds
  - d. neotropical migrants
45. A plant that contains natural chemicals that can cause digestive, neurological or physiological damage to animals when eaten are called:
- a. Herbaceous
  - b. Toxic
  - c. Noxious
  - d. Exotic
46. 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 rangeland.
  - d. An exotic plant that creates an allergic reaction in humans.
47. Control of pests by disrupting their ecological status, as through the use of 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)
48. 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
49. Recreation on forests and rangelands can be described as extractive or amenity. Which of the following would be an amenity form of recreation?
- a. Bird watching
  - b. Hunting and fishing
  - c. Panning for gold
  - d. Collecting native berries
50. The Greater Sage-Grouse is a bird in Idaho and 10 other western states that is being considered for the Endangered Species list. The major threat to sage-grouse populations in Idaho are:
- a. Wildland fires in sagebrush ecosystems
  - b. Historic and current hunting pressure
  - c. Conversion of sagebrush range to alfalfa fields
  - d. Unintended poisoning by agricultural chemicals