

SOME SAMPLE EXAM QUESTIONS FOR ECOLOGY TOPICS IN THE FIRST EXAM SECTION

1. Is there an essential difference between ecology and environmentalism, and if so what is it?

- a. Ecologists study organisms only, environmentalists study organisms and their environment
- b. Environmentalism is policy advocacy, ecology is science
- c. They really are the same things
- d. One is a philosophy and the other is a thought process

2. Which statement is most accurate?

- a. Botanists exploring the world in the 1800's contributed greatly to the development of modern ecology
- b. There was no science of ecology before about 1950
- c. For North America, the roots of modern ecology are in California
- d. Modern ecologists are experts in all aspects of ecology (e.g., physiological, ecosystem, behavioral ecology, etc.)

3. British scientist who published book on animal ecology

- a. H.C. Cowles
- b. Ernst Haeckel
- c. Charles Elton
- d. J.E.B. Warming
- e. Alexander von Humboldt

4. Coined the term "ecology"

- a. H.C. Cowles
- b. Ernst Haeckel
- c. Charles Elton
- d. J.E.B. Warming
- e. Alexander von Humboldt

5. Recognized that increases in latitude and altitude had similar effects on vegetation

- a. H.C. Cowles
- b. Ernst Haeckel
- c. Charles Elton
- d. J.E.B. Warming
- e. Alexander von Humboldt

6. Published one of the first text books on general ecology

- a. H.C. Cowles
- b. Ernst Haeckel
- c. Charles Elton
- d. J.E.B. Warming
- e. E.P Odum

7. What do organisms use to maintain proper homeostasis?

- a. Negative feedback mechanisms
- b. Positive feedback mechanisms
- c. Lack of physiological controls
- d. Biomes

8. Which kind of mathematical distributions illustrates the law of tolerance according to the textbook?

You will have a set of drawings to chose from on the exam

9. The two most important climatic factors affecting the distribution of

world biomes are:

- a. Temperature and precipitation
- b. Altitude and temperature
- c. Latitude and temperature
- d. Humidity and precipitation

10. In the following diagram of a forest in the northern hemisphere, where would you expect mesic(moisture loving) plant species to be most abundant?

A set of points on drawings to chose from on the exam

11. deleted

12. Why does water stick together with unusual strength and have a high specific heat?

- a. Molecule has two covalent bonds
- b. Molecule is polar and therefore forms hydrogen bonds with other molecules
- c. Osmosis
- d. Hydrogen molecules are larger than the oxygen molecule

13 deleted

14. Why have spruce, northern pine and birch tree species in North America migrated northward in the past 18,000 years?

- a. Region of moist climates has shifted southward
- b. Increase in rate of hurricanes
- c. They heard that the Hokies are coming
- d. Mean annual temperature has warmed

15. When a drought occurs, plants with mycorrhizae can continue growth because:

- a. Fungus increases surface area for absorbing water
- b. Leaves have less spongy mesophyll
- c. Roots go deep into soil for water
- d. Roots have active transport of ions

16 Why do large numbers of rivers exist?

- a. Global precipitation over land is less than global evaporation from land
- b. Global precipitation over land exceeds evaporation from land
- c. Water flows from the ocean underground to the land
- d. Vapor pressure deficits are negative

17. What is the point at which the soil has maximal available water after gravitational water has drained?

- a. Infiltration
- b. Wilting Point
- c. Stem flow
- d. Field capacity

18. Which would have the greatest cooling effect for a plant?

- a. Close stomata
- b. Evaporate water (i.e., convert from liquid to gas)
- c. Melt water (i.e., convert from solid to liquid)
- d. Use sugar at faster rate

MATCH THE FOLLOWING terms to plant locality types for Questions 19-22:

- a. Halophyte
- b. Mesic species
- c. Xeric species
- d. Hydric species

19. Plant growing in an upland forest

20. Plant adapted to salty environments

21. Plants living in deserts

22. Plant adapted for growth in wetlands

23. What major disadvantage does a poikilotherm have compared to a homeotherm?

- a. More energy for growth and reproduction
- b. Ability to grow and reproduce at temperatures near freezing
- c. More rapid respiration rate
- d. Greater anaerobic respiration

24. What important thermal balance objective is facilitated by countercurrent circulation in mammals?

- a. Hyperthermia
- b. Sweating
- c. Homeostasis for core of body or vital organs
- d. Homeostasis in extremities

26. Plants avoid damage during extreme cold by:

- a. Freezing between cells, supercooling within cells
- b. Supercooling between cells, freezing within cells
- c. Diapause
- d. Hyperthermia

26. Which has the least leaf area index (LAI)?

- a. Desert
- b. Grassland
- c. Tropical rainforest
- d. Deciduous forest

KEY

1. b.

2. a.

3. c.

4. b.

5. e.

6. e.

7. a.

8. drawing

9. a.

10. drawing

11. deleted

- 12. c.
- 13. deleted
- 14. d.
- 15. a.
- 16. a.
- 17. b.
- 18. b.
- 19. b.
- 20. a.
- 21. c.
- 22. d.
- 23. d.
- 24. d.
- 25. c.
- 26. a.
- 27. a.