NAME:_____ **Monday, February 24, 2014**
Due: Wednesday, February 26, 2014

MULTIPLE CHOICE: (25 pts)

1. Habitat can best be defined as
   a) The place where an organism eats
   b) The study of how organisms interact with their environment
   c) The assessment of what an organism needs to survive
   d) The place an organism lives

2. A trout cannot live in a slow, warm stream because the oxygen concentration in the water is too low. In this case, the oxygen concentration is
   a) A range of tolerance
   b) A niche
   c) A limiting factor
   d) A delineating factor
   e) None of the above

3. In ecology, the process of more successful individuals surviving and reproducing larger numbers of offspring than unsuccessful individuals can reproduce is called
   a) Natural selection
   b) predation
   c) mutualism
   d) speciation
   e) none of the above

4. In a grassland, when tall grasses shade out short, shade-intolerant species, ecologists call this interaction
   a) parasitism
   b) predation
   c) habitat destruction
   d) competition
   e) commensalism

5. Commensalism is
   a) A type of symbiosis in which one organism benefits and the other is not affected
   b) A community structure in which all organisms share resources
   c) A form of parasitism
   d) None of the above

6. Which of the following is not an example of a symbiotic relationship between organisms?
   a) parasitism
   b) competition
   c) commensalism
   d) mutualism
   e) all of the above are examples

7. Secondary consumers are
   a) Herbivores
   b) Omnivores
   c) Herbivores and carnivores
   d) Carnivores

8. Which of the following is NOT an example of a major role an organism can have in an ecosystem?
   a) producer
   b) consumer
   c) decomposer
   d) trophic supervisor
   e) all of the above are examples

9. Which term names the trophic level in which energy from the sun is chemically trapped?
   a) carnivore
   b) herbivore
   c) producer
   d) decomposer
   e) none of the above

10. Which of these is the highest level of organization and includes all the others?
   a) community
   b) ecosystem
   c) species
   d) population

11. A group of individuals of a particular type that are able to successfully reproduce to give fertile offspring(s) is called
   a) community
   b) ecosystem
   c) species
   d) population

12. An organism's _____ includes its _____.
   a) ecological niche, habitat
   b) habitat, ecological niche

13. Which of these includes both organisms and the physical environment?
   a) population
   b) community
   c) ecosystem
   d) species

14. The productivity of an ecosystem refers to the
   a) Amount of food consumed by the organisms per unit space
   b) Average number of offspring produced per adult female per unit time
   c) Amount of biological material produced during a certain period of time
   d) Reproductive output

15. The word *trophic* refers to
   a) Food or feeding
   b) One of two phases of photosynthesis
   c) The consumption of plant material by animals and other non-photosynthetic life forms
   d) The transformation of other forms of energy into chemical bond energy

16. Which have the most diverse diet?
   a) Photosynthetic plants
   b) herbivores
   c) omnivores
   d) carnivores

17. To be classified as a member of trophic level IV, an organism's principal food would have to be
   a) plants
   b) animals that eat plants
   c) animals that eat animals that eat plants
   d) animals that eat animals that eat animals that eat plants
   e) animals that eat animals that eat animals that eat animals that eat plants

18. Which two kinds of organisms are most important in an ecosystem?
   a) plants and primary consumers
   b) plants and animals at the very top of the food chain
   c) animals in trophic levels II and IV
   d) animals in trophic levels III and IV
   e) plants and decomposers

19. The pyramid of energy in an ecosystem, with its progressive diminishment of energy contained within successively higher trophic levels, exists because
    a) of the progressive loss of energy as waste heat as energy moves from one trophic level to another
    b) animal flesh contains a greater density of calories per gram of body weight than plants
    c) plant mass contains a greater number of calories per gram of body weight than animal flesh
    d) the higher the trophic level, generally, the larger the animals become

20. Decomposers are a critical component of which cycle(s).
    a) nitrogen
    b) carbon
    c) phosphorus
    d) all of the above

21. The final breakdown and recycling of organic material is accomplished by
    a) top level consumers
    b) decomposers
    c) scavengers
    d) carnivores

22. Natural selection involves all of these EXCEPT
    a) there is variation in traits within a population
    b) those individuals with more beneficial traits have a greater chance of surviving than other individuals
    c) individuals with a greater chance of surviving have a greater chance of having offspring than others
    d) all individuals in a population have the same likelihood of dying over a given period of time

23. Which of the following would be included in a species ecological niche?
    a) what it eats
    b) what eats it
    c) how it escapes predators
    d) all of the above are parts of the niche

24. Red winged blackbirds chase away other red wings from the area around their nests. This behavior is called _____ and is an example of _____ competition.
    a) co-evolution, intraspecific
    b) territoriality, intraspecific
    c) commensalism, intrapecific
    d) territoriality, interspecific
    e) co-evolution, interspecific

25. An example of primary productivity would be
    a) A wild fern plant growing 30 grams of new leaf mass during a day of photosynthesis
    b) A young bird growing 10 more grams of muscle during a feeding trip to a fruit bush
    c) A young owl growing 10 more grams of body mass by killing and eating many geckos
    d) More than one of the above

TRUE OR FALSE: (10 pts)

_____ Ecological concepts include limiting factors and habitat and /or niche.

_____ A predator can actually benefit a prey population.

_____ Humans have little or no impact on the nutrient cycles.

_____ Habitat and niche are essentially the same thing.

_____ The niche of an organism is the functional role it has.

_____ The concept of "species" is a population concept.

_____ Charles Darwin is generally credited with developing the concept of natural selection.

_____ As energy passes through the trophic levels in a food chain, the amount of energy in each higher trophic level increases due to the second law of thermodynamics.

_____ Commensalism occurs when both species that interact are benefited and the relationship is *obligatory*.

_____ The *functional role* an organism has in its surroundings is called the organism's *habitat*.

FILL IN THE BLANKS: (45 pts)

1. A branch of science that deals with the relationships between organisms (interactions of organisms with one another) and their environment is defined as _____.

2. The nonliving factors that influence the life and activities of an organism are called _____ while the _____ are linked to the living organisms.

3. _____ is the direct or indirect interaction between organisms over limited resources (food, space…). In this case both organisms are _____.

4. _____ are photosynthetic plants or algae that make their own food from simple molecules (inorganic matter) in the environment. They are also named _____. They convert sunlight energy into chemical energy and store it in the form of energy-rich molecules that can be used as fuel for consumers. This is called _____, which only occurs, in cells that have _____ (green pigments) and other associated pigments.

5. The space that the organism inhabits is known as the _____. We link to it by "where it lives" or its address/place. While the total role an organism plays in its ecosystem is the _____. Since it describes what it "does", we often refer to it as its profession/role/occupation.

6. _____ means living together (of two different species) and the partners are called _____.

7. A process that determine which individuals within a species will reproduce more effectively and therefore results in changes in the characteristics within a species is named _____ .

8. The anemone fish and the sea anemones is an example of _____. Another example, would be he relationship between a shark and the remora fish that attach to the shark and feed on the sharks feeding debris.

9. The one primary condition of the environment that determines population size of an organism is (critical to a particular species success) is named the _____ .

10. The relationship between organisms where both partners benefit is named _____. Often one provides primarily food or nutrients, the other shelter. An example of such relationship is the coral polyp and the zooxanthellae.

11. A group of organisms that can interbreed and produce offspring capable of reproduction is known as a _____.

12. All the different populations of organisms that live in the same place (share the same habitat) is known as a _____.

13. _____ are organisms that cannot synthesize their own food but obtains food (energy) from organic matter. They are also named _____.

14. Consumers that feed directly on the producers i.e. animals that eat plants directly are named _____ .

15. _____ implies that one partner, the _____, benefits (obtain nourishment) at the expense of the other, the _____. Examples of such relationship include: lices/humans; tapeworms/humans; mosquitos/humans.

16. The chemical process involved in the release of energy from organic matter is called _____. It is the inverse of _____.

17. A community, or interacting communities, plus the physical environment in a large, more or less self-contained area is called an _____.

18. An organism that eats both plants and animals is classified as a _____.

19. A classification of organisms based on what they are eating or using as source of energy and material i.e. a step in the flow of energy through an ecosystem is named the _____.

20. _____ are organisms that use dead organic matter as a source of energy. They are also named _____. They are an indispensable link in the food web, since it permits the recycling of organic matter into its respective constituents that will serve as nutrients for the _____. This process is known as _____.

21. Organisms that kills and eats animals are named _____.

22. Depending on the ecosystem, between about _____ and _____ of the energy is passed from one trophic level to the next. The average is about _____.

23. All matter is made up of _____. These, in turn are "cycled" between the living and nonliving portions of an ecosystem. _____ , _____, _____ (plus oxygen and hydrogen) are important elements found in organic molecules which are found in all kinds of living things. The flow of these atoms between the abiotic and biotic portions of an ecosystem is important. This process of movement of matter within or between ecosystems, caused by the living organism, the geological forces, or the chemical reactions is commonly known as _____.

24. The relationship between the coral polyp and the zooxanthellae is known as _____.

25. At 10% efficiency, if 1000 Kg of grass is fed to cows, what is the amount of cow meat that will potentially be produce? _____.

BONUS QUESTION: (5 pts)

26. The human impact on nutrient cycles has significantly altered these cycles in many ways. For example, burning fossil fuels and converting forests to agricultural land have had great consequences on the _____ cycle. This has created the _____ and the _____. On another hand, large amount of _____ and _____ are used as "fertilizers" in agriculture. Much excess is eroded and ends up in the aquatic systems. This in turn, furnishes excess nutrients in the water, which is commonly named "eutrophication".