True or False (write ‘true’ or ‘false’; 10 points total; 1 point each)

1. _______ Construction of freeways is often an effective way to reduce traffic congestion as urban areas grow.

2. _______ Extinction rates of species seem to have been accelerated recently because of human alteration of the biosphere.

3. _______ The total fertility rate in developed countries is 3.1, whereas it is a meager 1.6 in developing countries.

4. _______ As a defense mechanism, the vinegarroon can shoot acetic acid from glands near its anus.

5. _______ The 2nd Law of Thermodynamics impairs our ability to use energy efficiently.

6. _______ Women do approximately 2/3 of the work done in the world, and yet make up about 70% of the world's poor.

7. _______ The amount of oil that will likely be pulled out of the Arctic National Wildlife Refuge could sustain the U.S., without any additional oil imports, for about 10 years.

8. _______ The leading cause of loss of biodiversity is introduced exotic species.

9. _______ Shrimp consumption by humans as a protein source seems to have very little impact on the environment.

10. _______ According to Karyn Fox, in the context of development agencies, current theoretical frameworks focus more on household livelihood security than on just food security.
Fill in each blank with the appropriate letter (8 points total, 2 points each):

I. Which of these age structure diagrams has the fastest growth rate? _____
II. Which of these has a negative growth rate? _____
III. The U.S. population is best reflected by figure _____.
IV. Populations in developing countries most often look like _____.

NAME________________
Multiple Choice (questions have only one correct answer; 12 points total; 2 points each)

1. How many shipments of nuclear waste will be expected per day in the U.S. over the next 30 years if Yucca Mountain becomes a nuclear waste repository?
   a) <1
   b) 6
   c) 22
   d) 50
   e) 127

2. What can be done to reduce the potential for loss of the San Pedro River perennial stream flow and the associated flora and fauna?
   a) water conservation
   b) recharge of the aquifer
   c) conversion of irrigated agriculture to less water-intensive agricultural practices
   d) reduce the population size of Sierra Vista
   e) all of the above

3. What principles important to this class did the Mountain Lion organism-of-the-day illustrate?
   a) effects of urbanization
   b) effects of habitat fragmentation
   c) importance of nurse plants
   d) a and b only
   e) a, b and c

4. Topsoil (especially good for growing crops if thick and full of humus) is also known as the
   a) A horizon
   b) B horizon
   c) C horizon
   d) T horizon
   e) O horizon

5. Most multicellular species are
   a) grasses
   b) bacteria
   c) protozoans
   d) vertebrates
   e) insects

6. Approximately what percent of the world's cropland land is degraded?
   a) 4%
   b) 10%
   c) 25%
   d) 40%
   e) 73%
Fill in the Blank (2 points per blank; 16 points total)

1. This Fun Guy had a room to rent. The best possible tenant was Mr. Al G. (he was also a good cook).
   Pretty soon, Fun Guy and Al G. took a _________________ to each other.

2. Saguaro cacti tend to be found on _____________________ -facing slopes.

3. The three functions of a biosphere reserve are: _____________________, development, and logistics.
   The Zoning pattern of a biosphere reserve includes a transition area, a _________________ zone,
   and a _______________________ area.

4. Biodiversity includes several potential definitions including genetic, _________________, ecological, and ____________________.

5. One of the leading causes of deforestation is the construction of new _________________.
Really Short Answer (choose 8 of the following 10 questions; not more than a sentence; 32 points total; 4 points each)

1. Define net energy.

2. What would you describe as the largest cost related to Nuclear Energy production?

3. Define bycatch.

4. What are two characters you used in constructing your dichotomous keys for desert plant identification?

5. How can the use of genetic research techniques inform us about threats to long-term Desert Tortoise viability?

6. With respect to soils, how are salinization and irrigation connected?

7. List two factors presented in lecture and in your text that contribute to decreased fertility rates or decreased death rates (circle the one for which you are providing the answers).

8. Define intercropping or Green Revolution (circle the one you are defining).

9. List two important extinction factors exhibited by the Quitobaquito Desert Pupfish.

10. Why might the current price of gasoline be considered too low in the U.S.?
Short Answer
(45 points total; 9 points each; several sentences are required for an adequate answer)

1. Compare natural gas to coal with respect to economic cost, pollution, and long-term reserves.

2. Island biogeography. Use the empty graph frame below to draw the elements that are used to calculate the species equilibrium of an island. Explain briefly the effects that island size and distance to shore have on these elements.

3. What did the rainforest conservation video illustrate about global interconnectedness
4. How are Biosphere Reserves and National Parks the same or different?

5. According to Dr. Tom Swetnam, what do tree rings tell us about the historical fire regime in the Catalina Mountains? How has the fire regime changed in the past 100+ years and why?