A105/A303 Summer II 2006 Bob Mucci Quiz # 4 circle the letter of the ONE best answer:

1. Which is NOT part of Lamarck's theory?

A. Spontaneous generation of new organisms happens all the time
B. All fossils have living descendants; every species of early small sea creature survived and changed
C. Organisms strive for perfection, becoming more complex and trying to fulfill their destiny
D. Animals change in new environments by over-using and enlarging some organs at the expense of others
E. Individuals who are more fit to their environments have more offspring
F.. Characteristics you acquire in your lifetime will be inherited by your offspring

1a. Most of the parts of Lamarck's Theory of Evolution have been shown to be wrong; what one part was he right about? _____

2. Darwin's famous book, *Origin of Species,* was published in:

1659 1709 1759 1809 1859 1909 1959

2a. Charles Darwin knew his own theory was incomplete because it lacked explanations both of how inheritance worked, and of why:

A. dominant genes were more common. B. variation did not disappear. C. all mammals have nipples.
D. human anatomy was similar to that of apes. E. evolution was slow and gradual.

3. Which one was NOT part of Darwin's theory of evolution?

A. Inner striving for perfection, essence in each individual B. Natural selection
C. Descent from a common ancestor C. Adaptation of a species to environmental change
E. Variation among members of a species D. Reproductive differential (some reproduce more)

3a. Which is true about natural selection?

A. Many people are uncomfortable with the idea because it suggests that evolution is a random process.
B. Both Darwin and Wallace thought of it C. by itself it tends to reduce variation
D. It cannot work if there is no variation E. ALL of these are true

4. The dozen or so species of finches that Darwin observed in the Galapagos were an example of:

A. Inheritance of acquired characteristics B. Descent from a common ancestor
C. Continental drift D. recessives becoming dominant E. All of these

4a. Your overall physical appearance, what we can see, measure, and test for, is called your:

A. genotype B. gene pool C. phenotype D. chromotype E. phene pool

5. Which is true of Gregor Mendel?

A. discovered the chromosome and described DNA
B. founded a university school of genetic studies
C. Was a close colleague and defender of Darwin and Darwin's theory of evolution
D. discovered that each of the traits he studied in peas had two factors of inheritance: one from each parent
E. proved that inheritance is irreversible blending

5a. The factor for shortness in peas ('dwarf') is 'weak' or recessive. When Mendel crossed pure-bred tall, normal pea plants with short dwarf ones, the hybrids were:

A. all tall B. all short C. in the ratio of 3 tall to 1 short
D. two-thirds tall, one third short E. All intermediate, of medium height

PRINT YOUR FIRST NAME _____ LAST NAME _____

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ONE TO ONE MATCHING: (3 points)

T Malthus C Darwin AR Wallace G Mendel J Lamarck
H Spencer C Lyell H DeVries TH Huxley

_____ an anatomist & Darwin's "Bulldog"; defended Darwin against those who opposed evolution
_____ there is a struggle for survival because all species (including humans) tend to over-reproduce
_____ lack of use would cause an animal's body part to shrink or even disappear
_____ was responsible for popularizing the term "evolution", and originated the idea of Social Darwinism – that conflict between human societies would show which society was "better".
_____ geologist who revived uniformitarianism, disproved catastrophism, & inspired Darwin
_____ spent five years on the HMS Beagle as ship's naturalist and companion to Captain Fitzroy
_____ came up with the idea of evolution and natural selection at the same time as Darwin
_____ showed by experiment that inheritance was particulate, not blending.
_____ rediscovered Mendel in 1900, and discovered mutations that could be inherited

2 points: Darwin's idea of natural selection was based on two ideas: 1) variation and 2) a struggle for survival leading to differential reproduction ("Survival of the fittest"):
use these two ideas to explain how a single species of short-necked giraffes could evolve necks longer than any of the original giraffes over many generations. (Note: there should be no genetics in your answer).

Bonus question: How was Lamarck's explanation of the evolution of long necks different from Darwin's?