Phil 147
Winter 2006

Final Exam: Directions and Essay Questions

On the final exam I will include questions for Part I and select three essays from those
below for Part II. You may either complete Part I and write essays on two of the prompts
for Part II *OR* write essays on all three prompts for Part II. I will then scale the points to
equal 100. (You may also elect to do Part I and all three essays on Part II. *If it will help
you*, I will then either use your Part I score to replace your score on Part I of the mid-
term, or use your lowest essay score to replace one of your mid-term essay scores.)

Part 1. This part will consist in 6 short answer questions, each worth 5 points, to be
answered in 2-3 sentences each.

Part 2. This part will consist of three of the following questions on which you are to write
an essay (each worth 35 points).

1. What is the difference between being adaptive and being an adaptation? How do these
concepts relate to the use of the concept of function in the biological sciences? Is it
important to have a single, clear notion of function? Does it need to be tied to either
adaptiveness or adaptation?

2. Aristotle construed teleology as something additional to material and efficient
causation. What role did it play for him? A number of theorists have tried to explain
teleology within the framework of efficient causation. Discuss what you see as the most
promising ways to do this and assess their success. Do the approach(es) you discuss
account for what Aristotle was concerned with or redefine the word *teleology*? If
redefinition has/is occurring, has biology answered the claims of Aristotelian teleology or
merely brushed them aside (properly or improperly)?

3. With Darwin, the notion of a species became problematic. Explain why. What are
some of the major contemporary views as to what a species is? Discuss the advantages
and disadvantages of the different views from the point of view of evolutionary theory.
Should coherence with evolutionary theory be the prime consideration in addressing the
question of what species are?

4. How could Mendelian genetics have appeared to some biologists as in opposition to
Darwin's theory of evolution and to others as its savior? How did Fisher go about trying
to reconcile these two theories? To what degree was he successful? Are their important
features of Darwin's view of evolution that are not adequately incorporated into Fisher's
account?

5. When the molecular structure of DNA was first discovered, it seemed like a reduction of Mendelian genetics to molecular genetics would be in the offing. What would it be to reduce Mendelian genetics to molecular genetics? What has made this prospect eventually appear more problematic? Can Mendelian genetics and molecular genetics be integrated? Is reduction the best way to think about such integration or are there alternatives that might work better?

6. Many people find the notion that individual organisms are simply "survival machines" for their genes deeply disturbing. What leads theorists such as Dawkins to construe organisms as simply interactors serving their replicator genes? What leads others to question or reject the claim that this provides a correct account of evolution? Does viewing individual organisms as simply serving the function of promoting their genes provide a sufficient account of organisms?

7. What is meant by *altruism* in the context of natural selection and what is the problem it poses to theories of natural selection? How are the notions of kin selection, reciprocal altruism, and group selection invoked to explain such altruism?

8. Discuss the different views and critiques of adaptationism. What is the appeal of the adaptationist approach? What do Gould and Lewontin mean by a spandrel? How do such ideas as developmental constraints figures into the discussion of adaptationism? How could one determine whether a specific trait or traits in general were adaptations?

9. What fundamental issues divide defenders of Developmental Systems Theory and Sociobiology? How would each defend his or her position against the objections of the other? Evaluate the disagreement.