The Selfish Gene Question Set 2

Chap 5. Aggression: stability and the selfish machine
1. What sorts of things do organisms compete for? What is worthwhile competing for?
2. In your own words describe what an ESS is.
3. How is a price-fixing conspiracy a pretty good strategy for economic success, but not an ESS?
4. How does the idea of an ESS help to explain how genes can be selected to be cooperative?

Chap 6. Genesmanship
5. What is "Green Beard Altruism?" Is it an evolutionary stable strategy?
6. How does Dawkins suggest that a gene could "recognize" copies of itself in other individuals?
7. How is that parents and children certainly share half their genes, but siblings only share half their genes on average?
8. How do you calculate the coefficient of relatedness?
9. What is the coefficient of relatedness for first cousins? Aunt and niece? Grandfather and granddaughter?
10. Dawkins (p.93 ) says a suicidal gene would increase in frequency if it caused the death of its bearer but saved the life of five brothers, but not if it saved the life of only five cousins. Why?
11. Why should grandparents be more altruistic toward grandchildren than grandchildren to grandparents?
12. How can all this work if individuals are not conscious of their coefficient of relatedness?
13. What does Dawkins mean by an "evolutionary arms race?" Can you think of other examples?
14. Why is the "coefficient of certainty" also important in the evolution of altruism?
15. Dawkins (p.106) says that in some human societies a mother's brother may be more inclined to be altruistic to the mother's child than the child's father is to the mother's child. Why?

Chapter 7. Family Planning
16. Why does Dawkins think that the separation of parental care from other types of altruism is a mistake? What does he think about the relationship between parental care and reproduction?
17. Why can't a pure caring strategy be stable?
18. What types of ideas did Wynne-Edwards espouse?
19. How is population growth affected by offspring number?
20. How is population growth affected by age at first reproduction?
22. Under what conditions would a bird of with a clutch of 3 eggs have higher fitness than a bird with a clutch of 4 eggs? When would a bird with 4 eggs have higher fitness?
23. In a variable environment, how could a bird know that in any given year is better to lay 3 eggs or 4 eggs?
24. How are social welfare systems unstable?
25. What is an epideitic display? How does Dawkins explain them?