Focus on Chapters 40, 41, 43. You may use a wide range of resources in addition to the text. These questions are thought, critical thinking analyses.

1. Ecologists want to know where species occur but also why species occur where they do. What factors influence the distribution of species? Discuss each one and how they apply to a specific population in a specific location. (20 points)
2. Recent research has highlighted the role that pathogens has played in regulating both animal and plant populations. Answer the following. A. Explain how the presence of pathogens alter the carrying capacity of an animal population. Cite a specific example. B. You are testing that increased population density of a plant population increases the rate at which a pathogenic fungus infects the plant. Since the fungus causes visible scars on the leaves, you can easily determine whether a plant is infected. Design an experiment to test your hypothesis. ((20 points).
3. A new fish population is discovered. You are put in charge of developing it sustainable. What ecological data might you want on the new fish population? Why? What criteria would you apply for the development of the new fish population? (20 points)
4. You are studying a population of bears in Yosemite National Park that has a population cycle of 10 years. How long would you need to study the species to determine if the population size were increasing, declining, or stabilizing? What specific factors would you consider in your analysis? Explain. (20 points).
5. The biodiversity of our planet appears to be declining. Although extinction is a natural process, the rate of extinction has increased over the past years due to many factors, human influenced, natural influence, genetic influence..... Consider one animal or plant species. Is it endangered, threatened, on the brink of extinction? What specific factors are causing harm to this species? What specifically is being done today to prevent it from becoming extinct? Are the efforts working? Explain.