2. (18 points)

a. Briefly explain the difference between positive economics, normative economics, and the art of economics.

Positive economics is the study of “what is,” normative economics is the study of “what ought to be,” and the art of economics is a “system of rules for the attainment of a given end” according to John Neville Keynes. Collander interprets J.N. Keynes’ art of economics as applied economics, the bridge between the abstract theory of positive economics and the social values embodied in normative economics.

b. Distinguish between induction and deduction. What were the views of John Neville Keynes on induction and deduction?

Induction is inference of a generalized conclusion from particular instances, that is, the process of reasoning from a part to a whole, from particulars to generals, or from individual to universal. seeks to establish general principles by examination of particular. In contrast, deduction is inference from general or universal premises to particulars. If premises are true, then the conclusion must also be true.

J.N. Keynes found both induction and deduction useful, but preferred to use deduction (Oser and Blanchfield handout).

c. Support the following statement with three arguments from the reading: “One cannot disprove a theory by disproving the assumptions.”

Friedman advances the following arguments. Much of the phrasing below is extracted directly from his 1953 paper, “The Methodology of Positive Economics.” (Full cite on syllabus.)

Assumptions define the circumstances under which a theory predicts well. If a model predicts well, the assumptions need not be true.

Assumptions are unrealistic by their nature. Are they sufficiently good approximations for the problem at hand?

If a hypothesis is deemed unacceptable because of unrealistic assumptions, any alternative hypothesis will fall to the same argument since the complexities of the economy must be reduced to something manageable by simplifying assumptions.

Economic agents may not literally act in accordance with assumptions (e.g., calculate maximum profits), but they act as though they do.
3. (5 points) What concept in the required reading for *Wealth of Nations* by Adam Smith continues to serve as a fundamental concept in economics today? State the name of the concept and explain its meaning.

The productivity gains from specialization, i.e., the division of labor, is introduced in that section of *Wealth of Nations*. In a large work force, if each worker performs just one task, productivity increases and costs decline. The dramatic example of the pin factory illustrates the tremendous gains from the specialization of labor.

The concept of the invisible hand does not appear in this section.

4. (8 points) Define four types of error affecting the accuracy of survey results.

- **Sampling error** occurs when only a subset of the population is surveyed instead of the entire population.
- **Coverage error** occurs when the chance of being in the sample differs across members of the population of interest.
- **Measurement error** occurs when a respondent’s answer to a question is inaccurate, imprecise or cannot be compared to other respondents’ answers.
- **Nonresponse error** occurs when a significant number of people in the potential sample do not respond and differ from those who do in ways important to the study.

5. (6 points) Distinguish between a practical problem and a research problem and give examples of each.

See BCW, p. 57-59, and sample answer handout from class.

6. (9 points) Identify three different kinds of contradictions, i.e., arguments that you might make against points in other studies, and provide examples of each.

See BCW, pp.72-74, and sample answer handout from class.

7. (6 points) Briefly discuss the uses of research.

Research can be used to solve a puzzle or answer a question. The inquisitive nature of humans motivates some research. Research helps you to learn and understand the topic of interest. To solve a practical problem, such as how to fix a water pipe or how to get a passport, we find information by researching the problem. Research stimulates discovery, invention, innovation and technical change, and informs consumers and voters to make better decisions.
8. (8 points) What factors contributed to the development of the paper by Akerlof on “Lemons” in the Quarterly Journal of Economics? Why do you think that the paper is still influential?

The profession as a whole was turning away from the traditional model of perfect competition and moving toward models specific to particular settings. The “Lemons” paper fit right in by modeling the used car market with asymmetric information. Akerlof’s classmates at MIT were outstanding scholars, and discussion among them stimulated thought. Solow’s work on growth theory introduced new math tools to account for quality variation in capital. Akerlof was also influenced by the work of Denison and Schultz on education and growth, and recognized that the sorting of educated and uneducated workers into high-wage and low-wage jobs might result from education signaling ability rather than truly increasing productivity. This asymmetry in information between employer and job applicant would apply to the buyers and sellers of used cars as well. With a greater interest in macroeconomics, and the issue of unemployment in particular, Akerlof focused on new and used car markets; new car sales were an important cause of business cycles at the time. Tom Rothenberg, a colleague at Berkeley, encouraged Akerlof to pursue the lemons paper. Akerlof did so and wrote the first draft using topology. Rothenberg told him to write the paper using demand and supply, the preferred method of the audience, and Akerlof took the advise.

The paper is still influential because it provides a foundation for studying markets in which information is not symmetric, a common occurrence in the economy. In any used market, sellers will often have more information than buyers, and buyers of insurance usually have more information than sellers, particularly for health insurance. Consumers applying for loans will have more information about their reliability than lending institutions.

Question 1, article summary, is worth 30 points maximum, and Question 9, outline for paper, is 10 points.