

**Final Exam**

**Thursday, December 20**

**2 hour, 30 minutes**

**Name:** \_\_\_\_\_

**Instructions**

1. This is closed book, closed notes exam.
2. No calculators of any kind are allowed.
3. Show all the calculations.
4. If you need more space, use the back of the page.
5. Fully label all graphs.

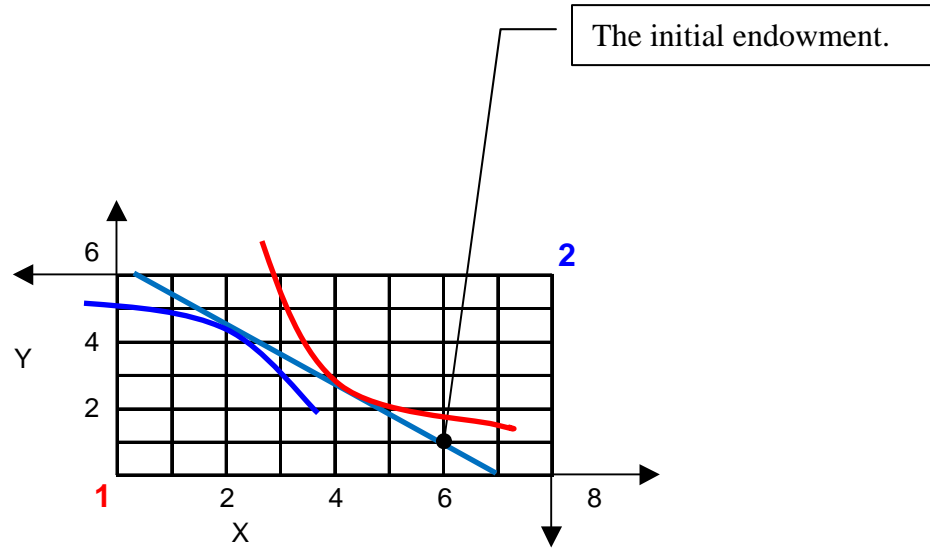
**Good Luck ☺**

1. What challenges did religion present to Arab Islamic and Scholastic writers of economic thought? Give at least one specific example.

The religious laws imposed restrictions on economic thought. For example, charging interest is prohibited according to Judeo-Christian bible, as well as accumulating wealth. So the economists who figured out that borrowing and lending can be beneficial to both parties could not voice their findings since they were against the religious laws.

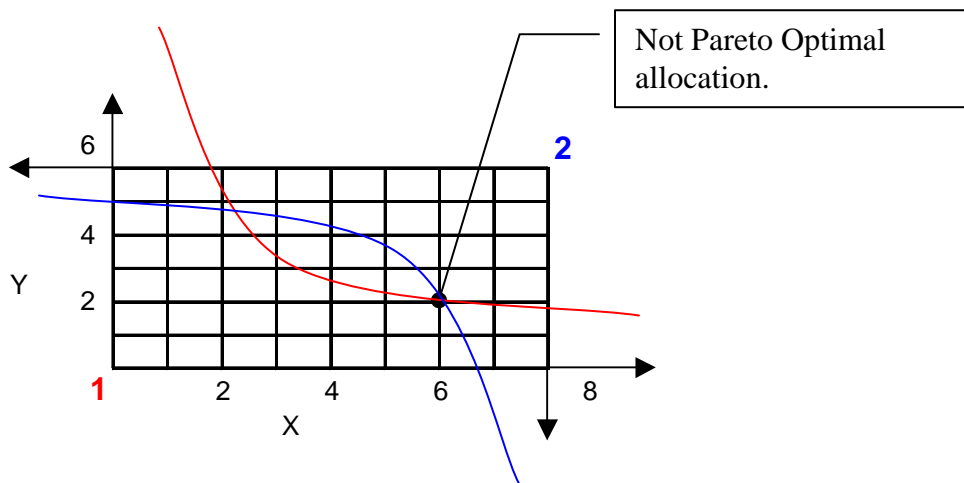
2. Marx's evolutionary theory of economic regimes stated that there is a constant conflict that leads to the switch from feudalism to capitalism then to socialism, and finally to communism. He argued that communism will be the final stage in this evolutionary process since communism is free of internal conflicts. Discuss the possible conflicts within the communist society. (Hint: address the conflicts that arise from (a) lack of private property, (b) the idea of "from each according to their ability to each according to their needs", and (c) the "classless society").
- (a) Today we know that common goods tend to be overused (**tragedy of the commons**) and there is much more conflict over the usage of common goods when property rights do not exist.
  - (b) There is a practical problem with determining each person's abilities and needs. Each person can claim that his abilities are low and his needs are high, which created countless conflicts in countries that tried to follow Marx's model.
  - (c) In Marx's communist society, since there are no property rights, someone should make decisions about how to use the available resources. Usually, this is done by the members of the communist party. These party members also get to decide each one's abilities and needs. Thus, the class of communist party bureaucrats has much more power than the rest of the people, casting doubt on Marx's conclusion that communism is a classless society with no conflicts.

3. Draw an Edgeworth box and illustrate graphically a case of disequilibrium in both goods.



The above graph shows excess demand for X and excess supply of Y.

**Remark:** Most of the students drew the following figure, which illustrates allocation that is **Not Pareto Optimal**, as shown in the next graph.



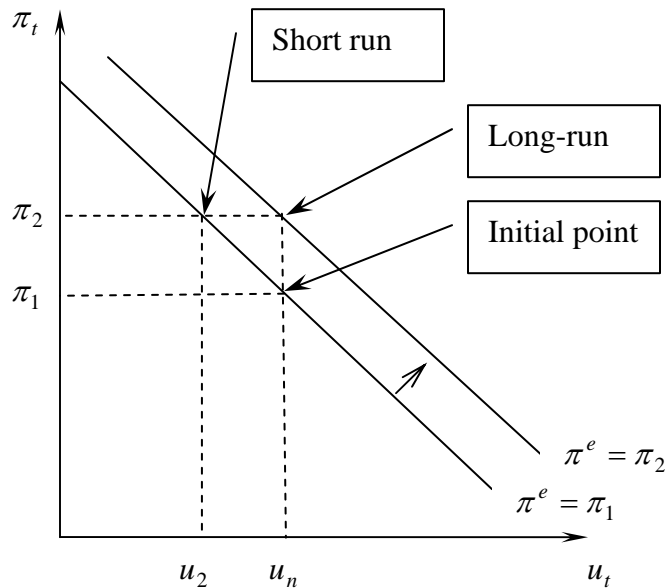
The question however asks to illustrate disequilibrium in both goods, so the correct answer must illustrate that supply is not equal to demand in both goods. The last graph, which most students drew, does not illustrate any trade in goods, and therefore we do not see whether demand is equal to supply or not. The correct answer must contain a budget line from which consumers choose the quantity demanded for both goods.

4. What is the importance of **Arrow's Impossibility Theorem**?

For a long time economists were trying to find a **social welfare function** which aggregates all the preferences within the economy and can help the society make certain choices. For example, society as a whole needs to decide how much to spend on national defense, education, health, etc. Any society needs to decide what kind of laws it should have. If there was a social welfare function that represented the social preferences, it would have been possible to maximize it to find the optimal choice of policies.

Arrow proved that such function cannot be constructed in such a way that it would possess some basic desired criteria. Although it is a negative result, it is important to know the limits of economics as a science – what economics can do and what it cannot do.

5. Can the central bank exploit the Phillips curve (increase inflation in order to decrease unemployment), in the short run or in the long run, according to:
- Friedman and Phelps
  - Lucas
- Illustrate your answer with a graph.



According to Friedman and Phelps, there is a short run tradeoff between inflation and unemployment, under the assumption of **backward looking expectations**, i.e. if people expect the future inflation to be the same as the current inflation. In the above graph, if the central bank increases the inflation rate from  $\pi_1$  to  $\pi_2$ , the public still expects  $\pi^e = \pi_1$ , and the labor contracts are set according to those expectations. Since the actual inflation is  $\pi_2$ , the real wage goes down and unemployment falls below the natural rate. In the long run however, the public will adjust the expectations to higher inflation ( $\pi^e = \pi_2$ ), and the economy will experience higher inflation with natural rate of unemployment.

Lucas demonstrated that with rational expectations the public will anticipate the rise in inflation, and even in the short run, there is no tradeoff between inflation and unemployment.