

# Econ 203 Problem Set 2

February 20, 2019

## **1 Concepts(16 points)**

*Give concise definitions of the following concepts.*

1. budget constraint
2. indifference curve
3. price-consumption curve
4. income effect
5. substitution effect
6. inferior good
7. elasticity of demand
8. consumer surplus

## 2 Market Demand Curve(9 points)

Professor Adams and Brown make up the entire demand side of the market for summer research assistants in the economics department. If Adams's demand curve is  $P = 50 - 2Q_A$  and Brown's is  $P = 50 - Q_B$ , where  $Q_A$  and  $Q_B$  are the hours demanded by Adams and Brown, respectively, what is the market demand curve for research hours in the economics department?

## 3 Revenue Maximization(15 points)

Umass Amherst is committed to its current policy of allowing the children of its faculty to attend the university without paying tuition. Umass Amherst plans to admit  $\bar{Q}$  students in the coming academic year. Suppose the demand curve of Umass Amherst faculty children (UFCs, currently  $q$  such children applying for college) for slots in other universities is given by  $P = 30 - 5Q_0$ , where  $P$  is the tuition price charged by other universities (in thousand of dollars) and  $Q_0$  is the number of UFCs who attend those universities. Umass Amherst is now considering a proposal to subsidize some proportion  $k$  of the tuition charged to UFCs who attend other universities. Suppose Umass Amherst knows that it can fill all its available slots with non-UFCs who pay tuition at the rate of \$45,000/yr. Assuming that all UFCs who do not attend other universities will go to Umass Amherst, what value of  $k$  will maximize Umass Amherst's tuition revenues, net of outside subsidies, if the tuition price at all other universities is \$24,000/yr?