Exam A:

There are 6 multiple choice questions (3 points each), and 3 short answer questions. Answer all questions. Good luck!

Multiple choice questions (use answer sheet on last page) (21 points)

1. Suppose in a given country that the expected life span is 70 years. Health policy-makers increase health care spending by 10% and the life span rises to 71 years. The elasticity of life span with respect to health care spending is:

a. 0
b. $+\frac{4}{7}$
c. $+\frac{1}{7}$
d. +1

2. At ____ interest rates, the opportunity cost of capital ____:

a. higher; increases.
b. lower; increases.
c. zero; is zero.
d. zero; is infinite.

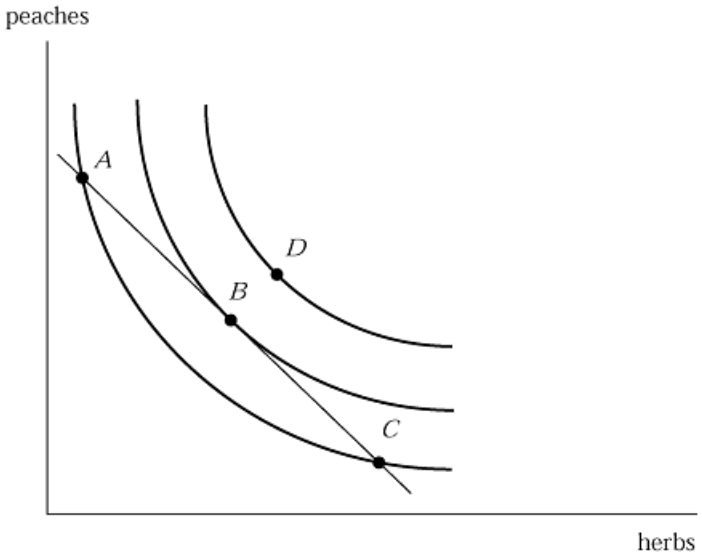
3. Comparing the "cost/cancer saved" of various screening programs is an example of _____ analysis:

a. cost-efficiency.
b. cost-benefit.
c. economic efficiency.
d. all of the above.

4. Calculate the price elasticity of a $1 price change from the market price of $4 when the demand function is P=10-2.6*Q.

5. Quality Adjusted Life Years (QALYs) evaluates interventions in ____ rather than _____.

a. dollars; years.
b. utility; dollars.
c. years; dollars.
d. dollars; utility.



6. Refer to the figure above. Which point can the consumer not afford?

a. A
b. B
c. C
d. D

Short answer question – use diagrams where useful.

1. Demand Supply (25 points)

You are a health economist living in Hawaii. The state government is worried about increased volcano activity and approaches you to analyze 2 closely linked markets; the market for Hospital Services and the Market of Private Doctor Services in case of a major volcano eruption.

a. Draw demand and supply of the two markets. Label all graphs. (2 points)
b. 25% of all Hospitals are close to volcanoes, private doctor practices are on the outskirts and safe from any volcano eruption. Analyze what happens in both markets if there is a major volcano eruption. Will prices for hospital services increase or decrease? How about doctor services? Draw detailed graphs and describe all your assumptions carefully! (8 points)
c. Now concentrate on the Private Doctor Services Market. Assume the following demand and supply: $P=30 - Q$ and $P = 3+2Q$.
    a. Draw a detailed graph and calculate the market prices and quantities and total surplus. (7 points)
    b. Assume a government sponsored program that attracts more private practitioners to the island and vertically shifts supply by $2. Draw the new demand and supply picture and calculate the new equilibrium prices and the effects on welfare (total surplus). Calculate the percentage increase or decrease of TS. Discuss your results and explain the economics of your results. (8 points)

2. Demand - Supply (32 points)

An individual with a demand function for podiatric care of the form P=12-2*Q faces a supply curve of Q = P/2.5 – 1/25

a) What are the equilibrium quantity and price paid by the individual? Draw a detailed graph of demand, supply, and all equilibrium quantities. (10 points)
b) What is the total surplus in the economy? Draw a graph and calculate the actual number. (10 points)
c) Now introduce a price floor of $8 into this market. Draw a graph and calculate the new consumer and producer surplus. Then calculate total surplus. Discuss your results and explain in detail what happens in the new equilibrium. (12 points)

3. CBA and Production Functions: (25 points):

A clean water project in developing country A would affect the health of a village of 500 people (100 children, 300 workers, and 100 elderly people). The project's immediate implementation cost in year 0 is $70,000. It has been estimated that the project would improve the health of workers so that workers can work an extra 200 hours per year, starting next year, 2011. Five years down the road (in 2016) the central government will clean up all the water of the entire country for "free".

The village produces only one good: meat, which is sold in the world market for $5 per pound. The production function for annual meat output is:
Y = 10*K^(1/2)*L^(1/2),
where Y is output of meat in pounds, K is capital and L is labor measured in worker hours.
The village's annual capital stock K is constant at 100 every year and a worker's annual labor hours are 1,500. The current interest rate is stable at 8% and is projected to increase to 10% in 3 years (in 2013). Use CBA and investigate whether to implement the clean water project or not. Carefully describe every step in your analysis.

a. HINTS: Calculate the annual output of meat in pounds in year zero.
b. Calculate the production value of thisbannual output in $s.
c. Next calculate the annual output of meat in pounds and then in dollars if the water cleaning project is installed
d. Calculate the "extra" output due to the water project in dollars. Think carefully about the time horizon that extra benefits are realized and properly discount these benefit streams. Use the appropriate discount factors.
e. What is the present value of benefits and what is the present value of costs (all in $).
f. If you make assumptions, carefully describe them and explain why you make such an assumption!
g. I give partial credit!

Answer sheet: