UNIVERSITY OF VICTORIA
FINAL EXAM
April 2013

Last Name: _____ **First Name: _____**
STUDENT NUMBER: V00_____

Course Name & No.	Economics 318: Health Economics
Section(s)	A01
CRN:	23314
Instructor:	Auld
Duration:	2 hours

This exam has a total of 14 pages including this cover page and 0 separate handout(s).

Students must count the number of pages and report any discrepancy immediately to the Invigilator.

This exam is to be answered:

- x On the paper
- o In Booklets provided
- o NCS Answer sheets

Marking Scheme (if appropriate) 50 marks total.
Materials allowed (if appropriate)

No calculators, cell phones, other electronic devices, nor references are permitted.

University of Victoria
Department of Economics

Economics 318
Health Economics
Final Examination

Spring 2013

Instructions. Answer all questions in both sections. No electronic devices, including but not limited to calculators and cell phones, are necessary and no such devices may be used during the exam. Please write on only one side of each page of your examination book. Good luck.

1 Multiple choice questions (22 marks).

Instructions. Answer all questions. Clearly record your answers on this page.

MULTIPLE CHOICE ANSWERS

1.	A.	B.	C.	D.	12.	A.	B.	C.	D.
2.	A.	B.	C.	D.	13.	A.	B.	C.	D.
3.	A.	B.	C.	D.	14.	A.	B.	C.	D.
4.	A.	B.	C.	D.	15.	A.	B.	C.	D.
5.	A.	B.	C.	D.	16.	A.	B.	C.	D.
6.	A.	B.	C.	D.	17.	A.	B.	C.	D.
7.	A.	B.	C.	D.	18.	A.	B.	C.	D.
8.	A.	B.	C.	D.	19.	A.	B.	C.	D.
9.	A.	B.	C.	D.	20.	A.	B.	C.	D.
10.	A.	B.	C.	D.	21.	A.	B.	C.	D.
11.	A.	B.	C.	D.	22.	A.	B.	C.	D.

1. A *Pigouvian tax* is a tax intended to

   (a) promote public health.

   (b) control moral hazard.

   (c) maximize revenue for any given level of tax-induced distortion.

   (d) internalize externalities.

2. In the model of physician behavior we discussed in class, a physician who increases her level of inducement in response to an increase in her fee would respond to a lump-sum increase in her income by

   (a) increasing inducement.

   (b) decreasing inducement.

   (c) not changing her level of inducement.

   (d) there is not enough information to determine the effect on inducement.

3. An increase in education in Grossman's model leads to greater health because more education

   (a) causes people to place more value on future outcomes.

   (b) leads to higher wages.

   (c) makes people more efficient in producing health.

   (d) induces people to pursue healthier lifestyles.

4. Econometric evidence suggests that the price elasticity of demand for cigarettes is roughly

   (a) 0.

   (b) 0.5.

   (c) -0.5.

   (d) -1.5.

5. A public health intervention has immediate costs of $14M. The intervention yields immediate benefits of $10M, and another $5M of benefits in one year. The intervention is worthwhile if the annual interest rate used to discount future costs and benefits is:

   (a) greater than 1/4.
   (b) less than 1/4.
   (c) greater than 5/14.
   (d) less than 5/14.

6. In Grossman's model, the aging process is represented by

   (a) eventually increasing rates of depreciation of health stock.
   (b) decreases in the efficiency of health investment.
   (c) MEI schedules which are monotonically decreasing in age.
   (d) decreases in "effective education" levels as memory fades.

7. The U.S. health care system is best characterized as

   (a) free market provision of health care and insurance.
   (b) mixed public and private provision of care and insurance.
   (c) free market provision of insurance but socialized care.
   (d) free market provision of care but socialized insurance.

8. Roughly what percentage of health care in Canada is privately funded?

   (a) 2%.
   (b) 8%.
   (c) 15%.
   (d) 30%.

9. The external costs of cigarette smoking are

   (a) attributable largely to health care costs.
   (b) attributable largely to factors other than health care costs.
   (c) attributable largely to the harm smokers do to their own health.
   (d) irrelevant because cigarettes are a rationally addictive good.

10. Health care financing in Canada, primarily through income taxes and consumption taxes, is overall

    (a) highly progressive.
    (b) moderately progressive.
    (c) roughly proportional.
    (d) moderately regressive.

11. Canada spends less per capita on health care than the U.S. primarily because

    (a) care in the U.S. must cover a profit margin, whereas care in Canada does not.
    (b) Canadians use less health care because the Canadian system efficiently rations scarce care.
    (c) the Canadian single–payer system has lower administrative costs.
    (d) prices and wages in the health sector are lower in Canada.

12. We say GPs in the Canadian health care system act as "gatekeepers" because

    (a) GPs often have large houses with impressive front gates.
    (b) GPs must be contacted first before a patient can see a specialist.
    (c) GPs prescribe most pharmaceuticals.
    (d) GPs typically administer Randomized Controlled Trials (RCTs).

13. The rational addiction model predicts that an increase in the price of heroin

    (a) will have no effect on quantity of heroin demanded.
    (b) may affect quantity demanded by reducing number of users, but will have no effect on existing users' demand.
    (c) will decrease quantity demanded, and the effect will increase in magnitude over time.
    (d) will decrease quantity demanded, and the effect will decrease in magnitude over time.

14. Sally is an expected utility maximizer with utility function $U(W) = \sqrt{W}$. Sally has initial wealth $W = 100$ and faces a 50% probability of needing a surgical procedure which costs \$36. What is the maximum Sally is willing to pay for full insurance against the cost of the surgery?

    (a) \$0.

    (b) \$18.

    (c) \$19.

    (d) \$20.

15. The RAND Health Insurance Experiment

    (a) randomly assigned tax rates to different insurance companies.

    (b) randomly assigned levels of health insurance coverage to people.

    (c) randomly assigned levels of health care to people.

    (d) randomly assigned people to different managed care providers, such as HMOs.

16. Which of the following is NOT a valid criticism of the rational addiction model?

    (a) The model assumes people know all future prices, but future prices are actually uncertain.

    (b) The model assumes people fully understand they will become addicted, but people may not know whether or not they are prone to addiction.

    (c) There is only addictive good in the model, but in reality multiple addictive behaviors may interact.

    (d) The model predicts that addicts will regret their past decisions, but not all addicts display regret.

17. Akerlof's "model for lemons" model demonstrates that

    (a) moral hazard can lead to Pareto inefficient allocations.

    (b) adverse selection can lead to Pareto inefficient allocations.

    (c) externalities can lead to Pareto inefficient allocations.

    (d) public goods can lead to Pareto inefficient allocations.

18. In Canada, the value of life typically used in program evaluations is roughly

    (a) \$2,000,000.

    (b) \$7,000,000.

    (c) \$15,000,000.

    (d) infinite.

19. Demand is given by $Q^D = 15 - P$ and supply by $Q^S = P$. Insurance which pays 50% of all health expenditures is introduced. Equilibrium price and quantity in the presence of insurance are

    (a) $P = 7.5,\ Q = 7.5$.

    (b) $P = 10,\ Q = 7.5$.

    (c) $P = 10,\ Q = 10$.

    (d) $P = 12.5, Q = 12.5$.

20. Patients on a new treatment live one year in full health, then they face a 50% probability of dying. If they do not die, they live one more year in health state $q = 5/8$ and then die with certainty. Future outcomes are discounted at an annual rate of 25%. Present expected value QALYs of patients on this treatment are

    (a) 1.05.

    (b) 1.25.

    (c) 1.50.

    (d) 1.75.

21. The average person who has diabetes earns \$40,000 per year, the average person who does not have diabetes earns \$50,000 per year. There are one million diabetics in Canada. Therefore, a new treatment which instantly and costlessly cures diabetes would

    (a) have no effect on GDP.

    (b) increase GDP by somewhere between \$0 and \$10 billion dollars.

    (c) increase GDP by \$10 billion.

    (d) we do not have enough information to calculate the effect of the treatment on GDP.

22. City A and city B differ only in that police officers in city A are more likely to be killed on the job. In city A, a police officer faces a risk of death per year of 8/10,000, whereas an officer in city B faces a risk of 6/10,000. Officers in city A earn $70,000 per year and officers in city B earn $68,000 per year. We infer the value of a statistical life in this population is

    (a) $1,000,000.

    (b) $5,000,000.

    (c) $10,000,000.

    (d) $16,000,000.

2 True/false/uncertain questions (18 marks).

Instructions. Answer all questions clearly and concisely. For each question, assert whether the statement is true, false, or uncertain, and defend your answer. Undefended answers are worth no marks. Clearly label the axes and other objects in graphs.

1. We robustly find that education and health are positively correlated. Therefore, policies which increase educational attainment will also increase health.

2. For every person in a society, increases in income cause increases in health. In this society, costless income redistribution, from relatively rich to relatively poor people, will increase average health.

3. In Grossman's model, an increase in the rate of health depreciation (δ_t) leads the agent to choose to be in lower health.

4. The government spends \$2B per year on highway safety, saving 200 lives, and also spends \$2B per year on food safety, also saving 200 lives. Therefore, funding allocations for these programs are optimal in the sense that no reallocation could save more lives for the same budget.

5. Education (e) and IQ (g) cause income (y) for each individual through the production function

$$y = 2 + 3e + g,$$

and education is determined by IQ through

$$e = 4 - (1/3)g.$$

A policy which exogenously increases each person's education would have no effect on health.

6. Assume that, for every person, increases in income cause increases in health. Then a policy which costlessly redistributes income from high income people to low income people will increase average health.

3 Short answer question (10 marks).

Instructions. Answer all questions clearly and concisely. Undefended answers are worth no marks. Remember to clearly label the axes and other objects in graphs. Remember to please only write on one side of the page.

1. Consider the canonical Becker and Murphy (1988) "rational addiction" model we discussed in class.

   (a) Define "addiction" as the term is used in this framework.

   (b) Suppose people view \$1 with certainty in one year as equivalent to b dollars today, $0 \leq b \leq 1$, where b varies across people. Would you expect people with high values of b to be more or less likely to acquire harmful addictions than people with low values of b? Explain.

   (c) Display a graph with stock of addiction, S, on the x-axis and consumption, c, on the y-axis. Display the set of points such that consumption is just sufficient to maintain S at its current level. Label this set "SS," for steady state.

   (d) Display optimal consumption as a function of S, $c(S)$, for an addict. Assume this function has the properties we assumed in lectures. Label this function "$c(S)$."

   (e) Label the two steady–state equilibria "A" and "B." Indicate which equilibrium is unstable and briefly explain why this equilibrium is unstable.

   (f) Use your graph to illustrate the immediate and the long–run effects of a permanent increase in the price of the addictive good, assuming the price increase is not sufficient to cause the addict to quit.

   (g) On a new graph, illustrate the immediate and long-run effects of a permanent increase in the price of the addictive good, assuming the price increase is large enough to cause the addict to quit.

   (h) What effect does an anticipated increase in the *future* price of the addictive good have a rational addict's current consumption? Briefly explain.

   ANSWER. (*Also use following pages as needed.*)

(Answer to short answer question continued.)

SCRATCH SPACE. Use for calculations or as extra space for written answers.

END.