SECOND MID-TERM

You have 90 minutes to complete this exam. No outside books, notes or tables are permitted. Please do all your work carefully and check your answers before handing the exam in. You are advised to show as much of your work as possible to facilitate the awarding of partial credit. Good Luck!

This exam counts for 25% of your final grade.

PLEASE NOTE:

If you have choice, do any 3 questions of numbers 1-4 worth 20 points each.

If you do not have choice (or don’t take it) do all of numbers 1-4 worth 15 points each.
Let us suppose that there are only five households in Elbonia. Their income is given below.

<table>
<thead>
<tr>
<th>Household</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gratz</td>
<td>100</td>
</tr>
<tr>
<td>Fluggle</td>
<td>30</td>
</tr>
<tr>
<td>Reemer</td>
<td>80</td>
</tr>
<tr>
<td>Tootz</td>
<td>200</td>
</tr>
<tr>
<td>Snorten</td>
<td>70</td>
</tr>
</tbody>
</table>

In the area below, draw their Lorenz curve. Make sure you carefully label and number the axes.

b. I have drawn in the Lorenz curve for the United States. In which nation is the distribution of income more equal?

E: Elbonia - closer to 45° line of perfect equality

b. Show how the Gini coefficient is calculated.

\[
\text{Gini coefficient} = \frac{\text{Area A}}{\text{Area A + B}}
\]

c. What is the actual Gini coefficient for the United States? (A number, please.)

\[
\text{Gini coefficient} = 0.46
\]

d. Suppose the marginal utility for the Tootz family is \( MU_T = 400 - (2 \times \text{Inc}) \) and for the Fluggles it is \( MU_F = 100 - (2 \times \text{Inc}) \). Would a Utilitarian advocate taking a dollar from the Tootzes and giving it to the Fluggles? Demonstrate why or why not?

\[
MU_T = 400 - (2 \times \text{Inc})
\]

f. Would a Rawlsian advocate taking a dollar from the Tootzes and giving it to the Fluggles? Demonstrate why or why not?
2. Suppose the State of Ohio is considering making U.S. 23 a limited access expressway similar to an interstate highway. Suppose that due to concrete technology (and to keep the math simple) the road will wear out at the end of 2008. Given the construction costs and the benefits in terms of lives saved and shortened commuting time, they find

<table>
<thead>
<tr>
<th>Year</th>
<th>Benefits</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>2006</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>2007</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>2008</td>
<td>40</td>
<td>10</td>
</tr>
</tbody>
</table>

Given a 10% social discount rate, please do a cost-benefit analysis to determine the Present Value of the Costs and Benefits.

\[
PV\text{Benefits} = \frac{0}{(1.10)^0} + \frac{40}{(1.10)^1} + \frac{40}{(1.10)^2} + \frac{40}{(1.10)^3} = \frac{40}{1.10} + \frac{40}{1.21} + \frac{40}{1.33} = 30.09 + 32.06 + 30.09 = 92.24
\]

\[
PV\text{Cost} = \frac{50}{(1.10)^0} + \frac{10}{(1.10)^1} + \frac{10}{(1.10)^2} + \frac{10}{(1.10)^3} = \frac{50}{1.10} + \frac{10}{1.21} + \frac{10}{1.33} = 45.45 + 8.26 + 7.52 = 61.23
\]

\[
PV\text{Benefits} > PV\text{Cost} = 92.24 > 61.23
\]

We noted that lives would be saved if the road were improved. What are the two ways that the value of a life may be determined in a cost-benefit analysis? One is lost earnings. Please cite the other one and explain how it works.

Risk aversion. We find out how much people will pay to reduce risk and then pro-rate it to estimate the value of a life. Suppose firemen earn $20,000 more than plumbers. Suppose the skills and training are similar. If firemen have a 12% greater chance of dying the $20,000 = 2 million if we pro-rate.

d. There are several reasons why we have to discount future benefits and costs. Cite and briefly explain one.

Inflation. Future $1 may not be worth as much time value (opportunity cost of money). If we had the money today, we would invest it and have more in the future. Time preference. We want our benefits now; life is short. Cut dessert first.
3. Juan is a 67 year old undocumented (illegal) immigrant in the United States. He
is not eligible for Medicare. His demand for physician visits is given by:

\[ Q_{PV} = 10 - (.05 \times P_{PV}) \]

where \( Q_{PV} = \text{Number of annual physician visits} \)

\( P_{PV} = \text{Price (to Juan) of each physician visit} \)

a. Suppose Juan’s doctor charges $120 per visit and Juan has no insurance.
How many visits will make annually?

\[ Q_{PV} = 10 - 10 \times P_{PV} \]
\[ = 10 - 10 \times 120 = 10 - 6 = 4 \]

b. Suppose that Medicare is extended to immigrants such as Juan. What will
an office visit cost him now? (Assume no deductible, but the actual co-
pay.)

Medicare will pay 80% of the consumer 20%

\[ 20\% \times 120 = 24 \]

c. How many office visits will he make annually if he gets Medicare?

\[ Q_{PV} = 10 - 0.5 \times 10 - 2 = 8.5 \]

d. Based on this information, please calculate Juan’s elasticity of demand for
physician visits. Does this number seem realistic? Please explain.

\[ \frac{\Delta Q}{Q} \times \frac{\Delta P}{P} = \frac{120}{10} \times \frac{120}{80} = -1.5 \]

Elastic. This is not realistic as demand for health care is actually inelastic.

e. Suppose Juan has Medicare insurance and needs to go to a hospital. What are DRGs and how do they limit government health care expenditures?

Diagnosis Related Groups: When a patient is admitted to a hospital they are placed
in a DRG based on their diagnosis. Medicare pays a fixed amount based on the
DRG. If it costs more than an admission fund, the hospital must absorb the
additional cost, which limits expenditure. If the government hospital has incentive to
cut costs.
4. a. Suppose that Marc consumes only two goods: food and clothing. He has $200 of income. In the space provided please draw his budget line and label it AB.

b. Let us suppose that Marc consumes $100 of food and $100 of clothing. Please draw an indifference curve that reflects this. Label it U₁.

c. Let us suppose that the government gives him $50 worth of food stamps. Please draw his new budget line and mark it with a +++++ so that it is easy to observe the entire budget line.

d. Draw a new possible indifference curve that in light of your answer in (b). Label it U₂.

e. How much does he spend on food now? The answer will vary depending on how U₂ placed.

f. Was there an income effect for food? If so, show it.

g. Was there a substitution effect for food? If so show it.

h. In general, Marc would prefer income over food stamps, yet society chooses to give food stamps rather than cash. We cited several reasons in class for this. Cite two and explain in a sentence the reason.

- Donors have wishes. They would rather see Marc buy necessity of food rather than clothing.
- If Marc is head of family, we ensure at least some of expenditures will be spent on food.
- Agricultural lobby wants money spent on farm.
5. An in-kind transfer is a
   a) transfer made by people to be kind to others.
   b) transfer of wealth.
   c) transfer of goods and services instead of cash.
   d) system of clearing checks by local banks.

6. Generally, official poverty measures ignore
   a) the impact of taxes.
   b) the value of in-kind transfers.
   c) the value of medical expenses that are paid by the government.
   d) all of the above.

7. The ________ of whites in poverty in the U.S. is greater than that of blacks and Hispanics.
   a) percentage
   b) total number
   c) fraction
   d) none of the above

8. Who is eligible to receive food stamps?
   a) poor families without children
   b) childless single men
   c) childless single women
   d) all of the above
   e) a and c

9. Under TANF, the time limit for receiving benefits during a lifetime is
   a) 12 years.
   b) 13 weeks.
   c) 60 months. = 5 years
   d) 5 months.
   e) unlimited.

10. Which is the largest cash transfer program for the poor?
    a) TANF
    b) Medicare
    c) SSI
    d) Medicaid
    e) Section 8

11. The Earned Income Tax Credit (EITC)
    a) provides more income to those people on welfare.
    b) is a tax on low income workers.
    c) provides additional tax credits to low income workers.
    d) is a tax break for the wealthiest Americans.
    e) was eliminated by the Bush administration.
12. The gross replacement rate is
   a) the proportion of pretax earnings replaced by unemployment insurance.
   b) a rate of employment in key sectors of the economy.
   c) the percentage of each paycheck that is removed for unemployment
   d) the rate that tax receipts are used to cover tax expenditures.
   e) none of the above.

13. The percentage of unemployed Americans that actually collects unemployment
    insurance benefits is
   a) < 10 percent.
   b) 10-20 percent.
   c) 20-30 percent.
   d) 30-40 percent.

14. When workers save less during their working lives due to the fact that they have been
    paying Social Security taxes, this is known as
   a) the Social Security effect.
   b) the wealth substitution effect.
   c) the bequest effect.
   d) the life cycle hypothesis.

15. There are two forms of health care provided by the government: Medicare is provided for
    the poor, and Medicare is provided for the elderly.
   a) HMO; Medicare
   b) PMI; HMO
   c) Medicaid; Medicare
   d) Medicare; Medicaid
   e) SSI; Medicare

16. If some percentage of a doctor visit must be paid by the patient, even if she has
    insurance, this is known as
   a) an HMO.
   b) a cost reimbursement strategy.
   c) DMI.
   d) a down payment.
   e) a co-payment.

17. When the average buyer of an insurance policy is likely to have higher risk than
    others in his class, this is known as
   a) adverse selection.
   b) moral hazard.
   c) asymmetric information.
   d) a HMO.
   e) none of the above.
8. For a government to be efficient, a project should be funded up to
   a) $MB = 0$
   b) $MB = \infty$
   c) $MC = 0$
   d) $MC = \infty$
   e) $MB = MC$

19. Which statement is false?
   a) income inequality has been increasing in the United States in recent years
   b) income inequality is greater in the United States than other developed nations
   c) the Gini coefficient is lower in the United States than Germany and France
   d) the federal poverty line is not adjusted for the local cost of living
   e) mean family income in the United States is greater than median income

20. TANF
   a) allows states to exempt some families from time limits on the receipt benefits
   b) reduces the supply of labor compared to AFDC
   c) has in part been responsible for the increase of the number of families on welfare.
   d) cannot be given to families that are on Food Stamps

21. When looking at the data for Minnesota, we saw that
   a) lower income students tended to go to schools with higher tuition levels
   b) lower income students tended to go to schools with a smaller subsidy from the state than high income students.
   c) both a & b are true
   d) neither a nor b is true

22. Social security gives a higher return on money paid to
   a) men than women
   b) low income workers than high income workers
   c) single people than married people
   d) immigrants than native born Americans.

23. In Canada
   a) health care is not rationed
   b) the government acts as a single payer
   c) people are barred by law from seeking health care in the United States
   d) diagnoses of depression are down since the hockey strike.

24. Suppose we assume a ten percent social discount rate. Last night you should have
   a) studied more
   b) slept more
   c) ate more
   d) remember the benefits come later. Very, much later
   e) (OK, everyone gets credit for this question, unless you answer “f”)