Short Answer (6 points each question)

1. (a) Explain in words the limitation of using the conventional model of consumer choice (e.g. that presented in Economics 100) to explain individual demand for health care services.

(b) On an appropriate diagram show consumer choice between consumption of non-health goods and the level of health. Now suppose the person, previously uninsured, receives health insurance from the government at no cost. On the same diagram, show the effect on consumer choice between consumption of non-health goods and level of health. State, with explanation, whether or not out-of-pocket expenditure on medical goods consumption has increased for your diagram.

(c) On an appropriate diagram show the relationship between the marginal return to an individual’s health capital and the amount of health capital. Now suppose that the real return to financial investments falls greatly due to a severe recession. On the same diagram, show the effect on health capital.
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2. Circle True or False to each of the following statements about the U.S. health market in 2012. [One point each.]

(a) **True**  **False**  U.S. health expenditures exceed 15% of GDP.

(b) **True**  **False**  The biggest use of U.S. health expenditures is physician care.

(c) **True**  **False**  Private sources (mostly health insurance) are the source of funds for approximately one-half of U.S. health expenditures.

(d) **True**  **False**  DRG’s are used in a prospective payment system for hospitals.

(e) **True**  **False**  The original impetus of licensing of doctors in the U.S. (the Flexner report) was to improve doctor quality.

(f) **True**  **False**  The majority of hospitals in the U.S. are for-profit hospitals.

3. Consider the following table

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>4.55</td>
<td>340</td>
<td>.128</td>
<td>409</td>
<td>86.8</td>
<td>10.3</td>
<td>749</td>
<td>750</td>
</tr>
<tr>
<td></td>
<td>(.168)</td>
<td>(10.9)</td>
<td>(.0070)</td>
<td>(32.0)</td>
<td>(.817)</td>
<td>(.45)</td>
<td>(.39)</td>
<td>(.39)</td>
</tr>
<tr>
<td>25 Percent</td>
<td>3.33</td>
<td>260</td>
<td>.105</td>
<td>373</td>
<td>78.8</td>
<td>8.4</td>
<td>634</td>
<td>617</td>
</tr>
<tr>
<td></td>
<td>(.190)</td>
<td>(14.70)</td>
<td>(.0090)</td>
<td>(43.1)</td>
<td>(1.38)</td>
<td>(0.61)</td>
<td>(.53)</td>
<td>(.49)</td>
</tr>
<tr>
<td>50 Percent</td>
<td>3.03</td>
<td>224</td>
<td>.092</td>
<td>450</td>
<td>77.2</td>
<td>7.2</td>
<td>674</td>
<td>573</td>
</tr>
<tr>
<td></td>
<td>(.221)</td>
<td>(16.8)</td>
<td>(.0116)</td>
<td>(139)</td>
<td>(2.26)</td>
<td>(0.77)</td>
<td>(144)</td>
<td>(100)</td>
</tr>
<tr>
<td>95 Percent</td>
<td>2.73</td>
<td>203</td>
<td>.099</td>
<td>315</td>
<td>67.7</td>
<td>7.9</td>
<td>518</td>
<td>540</td>
</tr>
<tr>
<td></td>
<td>(.177)</td>
<td>(12.0)</td>
<td>(.0078)</td>
<td>(36.7)</td>
<td>(.176)</td>
<td>(.055)</td>
<td>(.448)</td>
<td>(.47)</td>
</tr>
</tbody>
</table>

(a)(i) Which numbers in this table, if any, are puzzling? Explain.

(ii) What do the numbers in parentheses tell us?

(b) Calculate the arc price elasticity of demand for adjusted total expenses in moving from the 25% plan (with effective coinsurance rate of 16%) to the free plan.

(c)(i) Explain the benefit of a randomized experiment, compared to using data from surveys of individuals on prices faced and amount consumed, to determine how health care consumed varies with price.

(ii) Explain why randomized experiments are not used more often in this setting.
4. (a)(i) On an appropriate diagram show the impact of licensure on price and quantity of medical services (assuming licensing of doctors does not change people’s preferences to see doctors).

(ii) On the same diagram show the gain or loss in consumer surplus due to licensure.

(b) Suppose, for simplicity, that a doctor trains for 1 year, is a resident for 1 year and works one year. You are given the following data for a doctor and for a typical college graduate (who begins work immediately after college) over three years. The discount rate is 10% and you are to do calculations in year 1 dollars.

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor</td>
<td>-30</td>
<td>55</td>
<td>110</td>
</tr>
<tr>
<td>College Graduate</td>
<td>20</td>
<td>44</td>
<td>66</td>
</tr>
</tbody>
</table>

Given these data what is financially better? Being a doctor or being a typical college graduate? Explain.

(c)(i) From assignment (ii) is there considerable variation in doctor income by area of specialization? Explain your answer.

(ii) From assignment (ii) which hospital seemed to have better outcomes on average: UCD Medical Center or Sutter General Sacramento?
5.(a)(i) Give the expected loss for someone who faces loss of $1000 with probability 0.8 and loss of $10,000 with probability 0.2.

(ii) This part unrelated to parts (a) and (b). Suppose an insurance company insures 10,000 identical individuals, where each individual has an expected claim of $6,000 with standard deviation of $5,000. Give a 95% confidence interval for the average claim (averaged over the 10,000 individuals).

(b) On an appropriate diagram show the change in well-being when a person facing income of either $50,000 or $100,000 with equal probabilities is instead able to fully insure at the actuarially fair premium.

(c) Suppose all individuals face a loss distribution that is uniformly distributed on ($0, $20,000). This means that any value between $0 and $20,000 is equally likely and the expected value is $10,000. Suppose each person knows their losses in advance and that all people are risk neutral.

(i) If an insurance company offers insurance at the actuarially fair premium of $10,000 then which individuals will choose to buy the insurance? Explain your answer.

(ii) Now suppose that all the people you identified in part (1) choose to buy the insurance. For this group what is the actuarially fair premium? Explain your answer.
Multiple Choice (1 point each)  Note: You should spend 15-20 % of time on these!

1. Major changes in health insurance in the United States include
   a. extensive employer-provided private insurance by the 1920’s
   b. extensive public insurance for the elderly and the poor introduced in the 1960’s
   c. both a. and b.
   d. neither a. nor b.

2. The Oregon Medicaid Experiment
   a. randomly assigned individuals to Medicaid
   b. randomly assigned individuals to several different health insurance plans
   c. neither a. nor b.

3. Studies find that the price elasticity of demand for health care is in the range
   a. 0 to -0.25
   b. -0.25 to -0.50
   c. -0.50 to -0.75
   d. -0.75 to -1.00
   e. less than -1.0

4. The main reason for the dramatic increase in the real cost of a hospital patient bed day over the past fifty years is
   a. increased price of medical equipment
   b. increased quantity of medical equipment
   c. increased wages and salaries
   d. increased use of labor

5. A risk-averse person’s expected health expenses equals the actuarially fair premium for the policy. Then
   a. they will definitely buy the insurance policy
   b. they will definitely not buy the insurance policy
   c. they are indifferent between buying and not buying the policy
   d. it’s unclear given the information - they may either buy or not buy the policy.

6. Methods to reduce adverse selection include
   a. coinsurance and copayments
   b. deductibles
   c. both a. and b.
   d. neither a. nor b.