1. Explain the following concepts using 3~4 lines (with example if necessary) (20 points)
   (1) Public Goods
   Two components: non-excludable and nonrival, e.g. national defense

   (2) Information asymmetry
   On course slides

   (3) Risk Aversion
   On course slides

   (4) Signaling
   On course slides

2. True or False? Explain using 3~4 lines (with examples and graphs if necessary) (20 points)
   (1) According to the Coase Theorem, government intervention is probably not needed to solve major externalities and public goods problems.

   False. The Coase Theorem tells us that if we assign property rights to an externality (e.g. allow a polluter to dump in a river; or allow a fisherperson to have rights to a clean river) AND if there are zero transactions costs (i.e. costs of negotiating) and zero monitoring costs (i.e. everyone can tell who is contributing to the externality and how much) then government intervention (taxes, subsidies, command and control, etc.) is not required to solve the problem. Those assumptions are likely to fail in cases of major externalities and public goods problems. It would be great if everyone paid me for my contributions to a public good, according to their marginal willingness to pay. But even if I had the right to demand those payments from people, it would be incredibly costly to collect from everyone who owes me. And if polluters are going to pay me for the right to pollute the air I breathe, I have to be able to figure out how much each polluter has contributed, in order to bill them for the damage they've caused me. Policy is going to be a better approach to solving problems like these examples. While Coase may be sensibly applied to neighbours sorting out issues over loud music, keeping trees trimmed, weeds controlled, etc.

   (2) Signaling is an action taken by an uninformed party to induce an informed party to reveal information.
   False. Screening is an action taken by an uninformed party to induce an informed party to reveal information.
   (3) Informational asymmetry may apply to a hidden action or hidden characteristic where the informed party may be reluctant to reveal relevant information.
   True.
   (4) Government mandated health insurance coverage for all would not solve the problems caused by asymmetric information/adverse selection (e.g., low risk people are more likely to be uninsured without mandates)
   False. Mandated coverage likely would help some of issues with adverse selection. If cost is average risk price, then everyone will be covered but may involve some redistribution.

3. Multiple Choices (32 points)
(1) How to resolve adverse selection?

   A. Actions taken by the buyer: screening.
   B. Action taken by a third party: appraisal.

C. Actions taken by the seller: signaling.
D. Actions taken by the buyer: signaling.

(2) Cost-effectiveness analysis differs from cost-benefit analysis in that

A. no attempt is made to monetize benefits.

B. geometric discounting is not imposed.

C. costs and benefits in the distant future are not ignored.

D. contingent valuation can be used as a method of measuring outcomes.

(3) In a used car market, asymmetry of information problem helps sellers of cars with:

A. Lower quality

B. Higher quality

C. Average quality

D. None of the above

(4) Which of the following is often referred to as the 'hedonic price' method for valuing environmental assets?

A. Using 'existence value' to estimate the value of an environmental asset.

B. Using 'willingness to pay' to value an environmental asset

C. Using travel costs to estimate the value of an environmental asset.

D. Using linkages between variations in house prices and geographical proximity to an environmental asset.

(5) Economists Lipsey and Lancaster demonstrated that if just one condition for full Pareto efficiency is not met, then the next best outcome can generally be reached only by departing from all of the other conditions. This insight is known as the:

A. Coase Theorem.

B. Second-best Theorem.

C. Benefit-Cost Analysis.

D. Discounting

(6) The theory of "second best" in health economics refers to the fact that:

A. Physicians often don't know what the best thing to do is

B. Physicians know more information than the potential patients

C. We do not know the exact outcome of an uncertain situation

D. Addressing one market imperfection may negatively influence other things unexpectedly

(7) When the buyer knows less than the seller about the characteristics of the good being sold, there is

A. a principal-agent problem.

B. a moral hazard problem.

C. an adverse selection problem.

D. a signaling problem.

(8) The benefits in benefit/cost analysis are derived from:

A. The supply curve

B. The total willingness to pay

C. The marginal costs

D. None of the above

4. (10 points) Consider the following information on Tom's demand for visits per year to his health clinic, if his health insurance does not cover clinic visits (100% coinsurance rate).

P	Q
5	9
10	9
15	9
20	8
25	7
30	6
35	5
40	4

(a) Tom has been paying $30 per visit. How many visits does he make per year? Draw his demand curve (3 pts).
Before insurance, Tom will consume 6 visits at P = $30.

(b) What happens to his demand curve if the insurance company institutes a 40% coinsurance feature (Tom pays 40% of the price of each visit)? What is his new equilibrium demand (3 pts)?
After insurance Tom will consume 9 visits, up to a price of $37.50 ($37.50 = 15/0.4). Above $37.50, he will reduce quantity. For example, at P = $50, Tom's cost is $20, so that he will make 8 visits.

(c) What happens to his demand curve if the insurance company institutes an 20% coinsurance feature (Tom pays 20% of the price of each visit)? What is his new equilibrium demand? Considering about (b), what do you find (4pts)?
After insurance Tom will consume 9 visits, up to a price of $75; ($75= 15/0.2). Above $75, he will reduce quantity. For example, at P = $100, Tom's cost is $20, so that he will make 8 visits. The higher the proportion of insurance, the more consumers will buy. (Discuss the influence of insurance proportion on consumer psychology)

5. (20 points) Discussion Question

In many beachfront communities on the coast, it is impossible to buy private homeowners' insurance to protect homes against storm damage; insurance companies have found that offering such insurance at a 'reasonable' price (that is, a price that is close to the amount of damage that the typical home can be expected to sustain in a storm) is unprofitable because the damage sustained by insured homes tends to be greater than the damage sustained by

uninsured homes. They have also found that nobody buys the insurance if they charge a high price. For many years the government has provided some beachfront homeowners with government insurance. Discuss whether this is an example of appropriate government intervention to correct a market failure, and if so describe the nature of the market failure.

Answer: This may be an example of market failure caused by either moral hazard or adverse selection or both. Recall that moral hazard occurs when people who have insurance against a risk behave differently than they would if they had no insurance. For example, in this case it is possible that consumers with insurance would build flimsier houses or would not take any action to protect their homes in storms. (There are many things homeowners can do to reduce the likelihood of damage and the amount of damage to their homes. For instance, they can put plywood boards over their windows; they can stack sandbags around the house; and they can move furniture and valuable items off of the ground floor or basement). It could also be an example of adverse selection if some beachfront homeowners knew that their houses were more likely to be destroyed by storms than other beachfront homes. In this case, the people with houses most likely to be destroyed would buy the insurance, and when the first storm hit the insurance company would discover that the homes it had insured sustained much more damage than the average home or than uninsured homes. This would drive the price of insurance up, and those with houses least likely to be destroyed would be priced out of the market. However, neither of these market failures necessarily implies that the government should get involved. Government-provided insurance has the same moral hazard and adverse selection problems as private insurance in this case. Furthermore, owners of beachfront homes are usually richer than the average household, so government provision of insurance to them constitutes a transfer of resources from the average household to richer households, and so violates the utilitarian goal of transfering money from richer to poorer households.