1) Consider a group of drives that have different probabilities of getting sick. Individuals of type I have a probabilities of having an accident. Individual of type I, probabilities of having an accident of pI = 0.1. These individuals form 3/3 of the population. have a probability of probability of the symbolity of the population. The second of pI = 0.1. These individuals form 3/3 of the population. The second of pI = 0.1. These individuals form 3/3 of the population. The second of pI = 0.1. These individuals form 3/3 of the population. The second of pI = 0.1. These individuals form 3/4 of the population. The second of pI = 0.1. These individuals form 3/4 of the population. The second of pI = 0.1. These individuals form 3/4 of the population. The second of pI = 0.1. These individuals form 3/4 of the population. The second of pI = 0.1. These individuals form 3/4 of the population. The second of pI = 0.0. These individuals form 3/4 of the population. The second of pI = 0.0. These individuals form 3/4 of the population. The second of pI = 0.0. These individuals form 3/4 of the population. The second of pI = 0.0. These individuals form 3/4 of the population. The second of pI = 0.0. These individuals form 3/4 of the population. The second pipe is a sequent of the information insurance premium must be charged? Probability of your home to be vulnerable to cartiquake is a dw where a is the last 2 digits of your IDM. Second probability at will be damaged? In similar examples that we solved in the class, the answer was far lower than the accuracy of the test. Second in the production technology is Cobb-Douglas: $Y = K^0 (L_1)^{1-0}$. The two fines for accuracy is at the end] ***********************************	FINAL EXAM	FAKE EXAM
geding sick as $pH = 0.15$. These individuals form 1/5 of the population. have a probability of getting sick as $pL = 0.1$. The sequence of the maximal insurance premium that they are willing to pay is 2 times of their expected losses. Assume that they are willing to pay is 2 times of their expected losses. Assume that they are willing to pay is 2 times of their expected losses. Assume that they are will be transmitterin information: insurance frams cannot distinguish between patients. The same insurance contract must be offered to all individuals. The contract is to earn an expected zero profil. Is the equilibruin insurance premium efficient? Explain [The answer is at the end] ***********************************	1) Consider a group of people who have different probabilities	1) Consider a group of drivers that have different
population. Individual of type 1., the remaining 4/5 of the population. Individual of type 1., population. Individual of	of getting sick. Individuals of type H have a probability of	probabilities of having an accident. Individuals of type H
population, have a probability of getting sick as pt =0.1. Treatment costs and compensation for sickness is 20000TL. For each type the maximal insurance premium that they are willing to pay is 2 times of their expected losses. Assume that there is a must be offered to all individuals. The contract is to earn an expected zero profil. Is the equilibrium insurance premium efficient? Explain. [The answer is at the end] ************************************	getting sick as $pH = 0.15$. These individuals form 1/5 of the	have a probability of having an accident of $pH = 0.1$. These
Treatment costs and compensation for sickness is 2000TL. For each type the maximal insurance premium that they are willing to pay is 2 times of their expected losses. Assume that there is asymmetric information: insurance firms cannot distinguish between patients. The sume insurance contract must be offered to all individuals. The contract is to earn an expected port of 2 zro, what is the equilibrium insurance premium must be entropy accuracy. If the answer is at the end] Turkey is 90% accuracy of the test 90 your 10 <i>x</i> . Resiltence tests determine whether your house will be damaged with 99% accuracy. If the resiltence test of your home tells that you your home will not be damaged, what is the probability that i will be damaged? In similar examples that we solved in the class, the answer was far lower than the accuracy of the test, 99%, is your answer also significantly less than 99%, lesy, less than 90%). Explain why. [The answer is at the end] ************************************	population. Individual of type L, the remaining 4/5 of the	individuals form 3/4 of the population. Individual of type L,
For each type the maximal insurance premium that they are willing to pay is 2 tining of their expected losses. Assume that there is maximal insurance premium that they are willing to pay is there is asymmetric information: insurance from seminol distinguish between patients. The same insurance contract must be offered to all individuals. The contract is to earn an expected zero profil. Is the equilibrium insurance premium efficient? Explain. [The answer is at the end] ***********************************	population, have a probability of getting sick as $pL = 0.1$.	the remaining 1/4 of the population, have a probability of
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The utilities of consumers from private and public goods are The utilities of consumers from private and public goods are		~ -
$U_i = (a \ln c_i) + 100(\ln c_i)$ for $i = 1, 2, 3$.		
	$U_i = (a \ln C_i) + 100(\ln G) \text{ for } i = 1,2,3.$	$U_1 = L_1 G^{1/2}$

Calculate the most preferred tax rates for individual <i>i</i> = 1,2,3.	$U_2 = C_2 G^{1/2}$ $U_3 = C_2 G^{1/2}.$ Calculate the most preferred tax rates for individual <i>i</i> = 1,2,3.
Suppose that two political parties <i>A</i> and <i>B</i> compete in the elections. Each political party proposes a tax rate to maximize its votes. Consumers vote for their most preferred tax. What is the election winning tax rate? Explain.	Suppose that two political parties <i>A</i> and <i>B</i> compete in the elections. Each political party proposes a tax rate to maximize its votes. Consumers vote for their most preferred tax. What is the election winning tax rate? Explain.
Answer: $U_i = a \ln((1-t) \times Y_i) + 100 \ln(t \times (Y_1 + Y_2 + Y_3)).$ So $\frac{dU_i}{dt} = -\frac{a}{1-t} + \frac{100}{t} = 0.$ The solution is $t = \frac{100}{100+a}.$ There is no conflict of interest. Everyone votes for the same policy. That is the same explanation for the fake exam question.	

Bir de 1. ve 2. soruların cevaplarını detaylı şekilde görelim. Sağ tarafta Avesis'e yüklediğim sizin zaten elinizde olan cevapları görebilirsiniz.

Answer of Q1:	Answer of Q1: (Bu cevap önceden paylaşılmıştı)
For this question, observe that the insurance companies can	For this question, observe that the insurance companies can
offer a premium with only two possible outcomes: 1) both H	offer a premium with only two possible outcomes: 1) both H
and L types would purchase the policy, 2) only H types would	and L types would purchase the policy, 2) only H types
purchase the policy.	would purchase the policy.
(Remark: Why is there no possibility of a policy where only L	(Remark: Why is there no possibility of a policy where only
would purchase it? Because, if L is in the premium would be	L would purchase it? Because, if L is in the premium would
cheap which ensures that H is also in)	be cheap which ensures that H is also in)
Let us consider the first scenario:	Let us consider the first scenario:
$\pi = p - Expected \ losses = 0.$	$\pi = p - Expected \ losses = 0.$
Note that	Note that
Expected losses = $\left(\frac{4}{5} \times 20K \times \frac{1}{10}\right) + \left(\frac{1}{5} \times 20K \times \frac{1.5}{10}\right)$	Expected losses = $\left(\frac{3}{4} \times 8K \times \frac{1}{10}\right) + \left(\frac{1}{4} \times 8K \times \frac{1}{20}\right)$
= 2,2K.	= 0,7K.
So the policy which everyone buys costs 2,2 <i>K</i> under the	So the policy which everyone buys costs $0,7K$ under the
condition of zero profit. But does everyone actually buy it? H	condition of zero profit. But does everyone actually buy it? H
types would pay at most	types would pay at most
$2 \times 20K \times \frac{1.5}{10} = 6 > 2,2.$	$8K \times \left(1 + \frac{1}{3}\right) \times \frac{1}{10} > 800 > 700.$
This talls us that I types would have I types would pay at	This talls us that H types would have I types would pay at

This tells us that H types would buy. L types would pay at most

$$2 \times 20K \times \frac{1}{10} = 4 > 2,2.$$

So L types would also buy. The result is that "a policy that everyone buys in competitive market exists".

Second scenario: Only H types buy the policy.

$$\pi = p - Expected \ losses = 0$$

Note that

Expected losses =
$$\left(20K \times \frac{1.5}{10}\right) = 3K.$$

This tells us that H types would buy. L types would pay at most

$$8K \times \left(1 + \frac{1}{3}\right) \times \frac{1}{20} < 700$$

So L types would not buy. The result is that "a policy that everyone buys in competitive market does not exist". Second scenario: Only H types buy the policy.

$$\pi = p - Expected \ losses = 0.$$

Note that

Expected losses =
$$\left(8K \times \frac{1}{10}\right) = 0.8K$$
.

But L types would also buy this policy. Why? Because they are willing to pay at most

$$2 \times 20K \times \frac{1}{10} = 4 > 2,2.$$

The result is "only H buys" an is impossible scenario.

a) The outcome is efficient. Because L types are insured just as H are. In other words, there is no beneficial trade that do not take place at the equilibrium. This is efficient.

Answer of Q2:

To solve this question we should use the Bayes' Rule:

$$P(A|B) = P(B|A) \times \frac{P(A)}{P(B)}.$$

In this question, we are asked P(A|B) =

 $P(No \ Damage|+test)$. Event A is "No damage" and event B is a positive test result. Therefore, P(A) = 1 - (a/100)

$$P(A) = 1 - (a/100).$$

$$P(B|A) = 0,99.$$

$$P(B) = P(B|A)P(A) + P(B|not A)P(not A)$$

we a = 50.

Suppose
$$a = 50$$
.

$$= 0,99 \times 0,5 + 0,01 \times (1 - 0,5) = 0,5$$

As a consequence,

Cumpor

$$P(A|B) = 0.99 \times \frac{0.5}{0.5} = 0.99.$$

[The explanation below was also given in the class for the example of European ancestry. The explanation is still the same.]

So the result is very close to the accuracy rate. Explanation? The event A is a very common event. So the accuracy rate perfectly reflects the conditional probability. If the event A were a rare event such as being infected by the Corona virus, then the result would be different than the accuracy rate.

The equilibrium is p = 0.8K and H types would buy this policy. Why? Because they are willing to pay at most

$$8K \times \left(1 + \frac{1}{3}\right) \times \frac{1}{10} > 800.$$

a) The outcome is not efficient. Because L types are not insured even though they are willing to pay more than their expected losses. In other words, there is beneficial trade between L types and the insurance companies that do not take place at the equilibrium. This is inefficient.

Answer of Q2: (Bu cevap önceden paylaşılmıştı)

To solve this question we should use the Bayes' Rule:

$$P(A|B) = P(B|A) \times \frac{P(A)}{P(B)}$$

In this question, we are asked P(A|B) = P(European anc. |+test). Event A is "European lineage" and event B is a positive test result. Therefore,

$$P(A) = 0,3.$$

$$P(B|A) = 0,95.$$

$$P(B) = P(B|A)P(A) + P(B|not A)P(not A)$$

$$= 0,95 \times 0,3 + 0,05 \times (1 - 0,3) = 0,32$$

As a consequence,

$$P(A|B) = 0.95 \times \frac{0.3}{0.32} \approx 0.89.$$