**Extra questions for the fake exam:**

1. Consider the growth model of Solow. Assume that the production technology is Cobb-Douglas:

$$Y=K^{a}\left(AL\right)^{1-a}.$$

The law of motion for capital is

$$\frac{dK}{dt}=\left(s×Y\right)-\left(∆×K\right).$$

Assume that the growth rate of $L$ is $l$ and the growth rate of $A$ is $a$. What is GDP per capita

$$\frac{Y}{L}$$

in the long-run?

1. Consider an economy where consumers can be represented by three individuals whose incomes are $\left\{Y\_{1},Y\_{2},Y\_{3}\right\}=\left\{3,6,15\right\}.$
2. Draw the Lorentz curve for this income distribution.
3. Calculate the Gini coefficient.

Assume that the income tax rate is $t$ so private consumption by consumer $i=1,2,3$ is

$$C\_{i}=\left(1-t\right)×Y\_{i}$$

Tax revenues are used to finance a public good $G:$

$$G=t×\left(Y\_{1}+Y\_{2}+Y\_{3}\right). $$

The utilities of consumers from private and public goods are

$$U\_{1}=C\_{1}G^{1/2}$$

$$U\_{2}=C\_{2}G^{1/2}$$

$$U\_{3}=C\_{2}G^{1/2}.$$

1. Calculate the most preferred tax rates for individual $i=1,2,3.$
2. Suppose that two political parties $A$ and $B$ 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.