ECON 2273 Development Economics
PRACTICE Midterm

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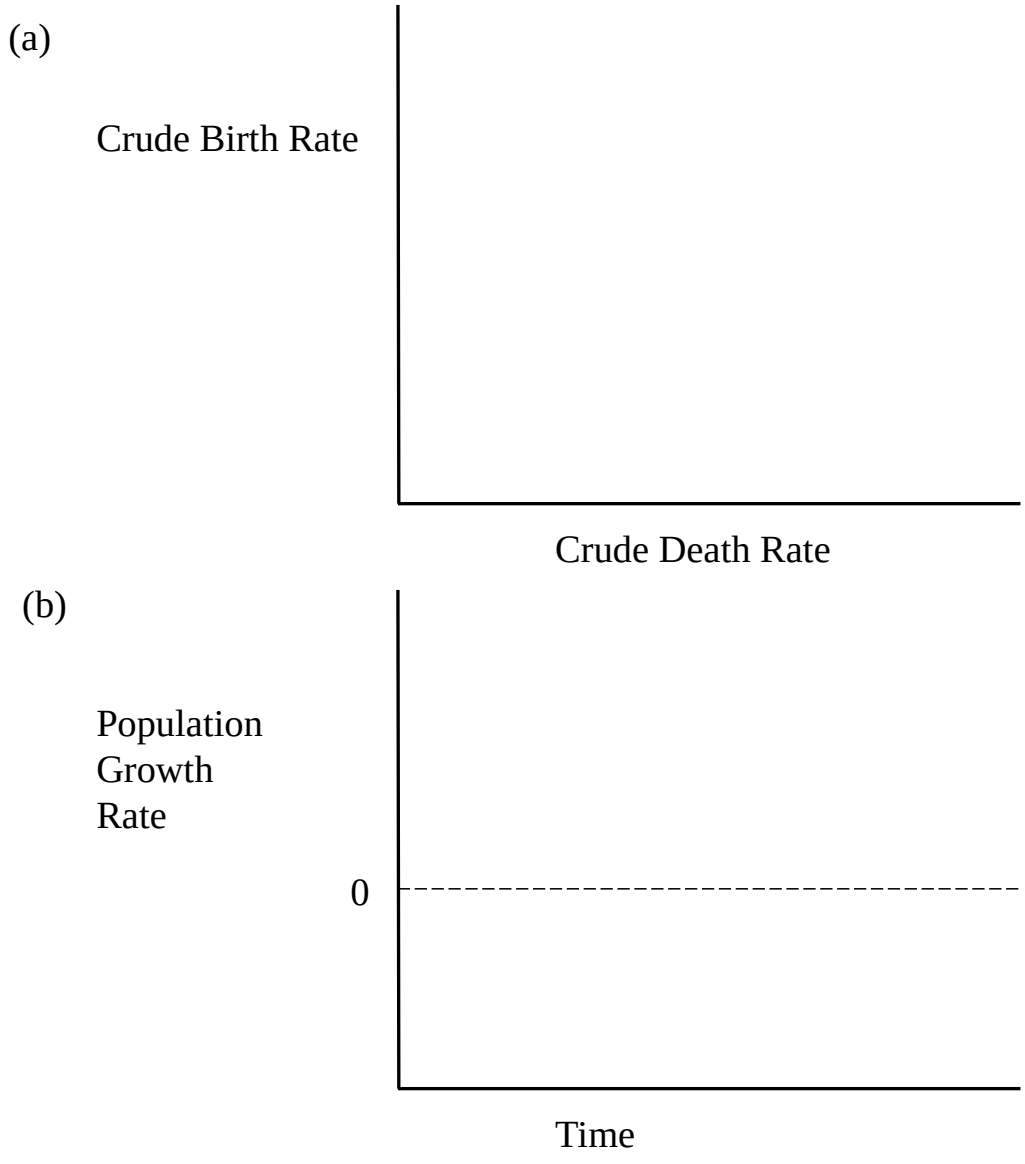
1 True/False (explain)

For each statement write whether it is True or False. If the statement is false you must explain *briefly* why it is false to get full credit. You do not need to write anything for a true statement. A statement is false if any part of it is false. Each statement is worth 2 points.

1. Since people in poor countries tend to pay higher prices, they are often poorer than their incomes suggest.
2. In the Malthus model, an increase in productivity improves living standards in the short and long term.
3. The new Human Development Index combines a Life-Expectancy Index, a GNI Index and an Education Index.
4. Both growth and capital accumulation are persistent over time.
5. In his book William Easterly suggests that the worries about overpopulation are unfounded.
6. The financing gap is the additional interest poor countries pay to borrow on world markets.
7. To Mankiw, Romer and Weil human capital is proportional to the fraction of the school age population in high school.
8. To Amartya Sen, development is the process of extending people's abilities to choose and afford more goods.
9. Since the ancient Egyptians were able to build the pyramids, they must have been richer than poor countries today.
10. In the Big Push model a firm will always want to modernize if all of the other firms have modernized.

2 Questions

1. (12 points) Illustrate the demographic transition on chart (a) below. On your chart label the points that represent a stable population. On chart (b), show population growth over the demographic transition. Label the highest point of population growth on both graphs.



(c) How would you calculate the population growth rate from the crude death and birth rates?

2. (16 points) The empirics of who is rich and poor. The Solow model gives the following equation for the long-term income per person:

$$y = A\left(\frac{s}{n+g+\delta}\right)^{\frac{\alpha}{1-\alpha}}.$$

Mankiw, Romer, and Weil (1992) and Easterly and Levine (2001) consider the implications of this equation.

(a) For a given country which has a subscript c, MRW assume $A_c = A_0(1+g)^t e^{\epsilon_c}$. If countries have different savings rates (s_c) and population growth rates (n_c), MRW show you can write income per person in country c as:

$$\ln y_c = a + a_1 \ln s_c + a_2 \ln(n_c + 0.05) + \epsilon_c.$$

Using the the Solow model and the MRW assumption find the formula for each of a, a_1, a_2, and the number 0.05 in terms of the model parameters.

(b) The following table is from MRW. For the "Non-oil" countries what do they find are the best estimates of a, a_1 and a_2?

TABLE I
ESTIMATION OF THE TEXTBOOK SOLOW MODEL

Dependent variable: log GDP per working-age person in 1985			
Sample:	Non-oil	Intermediate	OECD
Observations:	98	75	22
CONSTANT	5.48	5.36	7.97
	(1.59)	(1.55)	(2.48)
ln(I/GDP)	1.42	1.31	0.50
	(0.14)	(0.17)	(0.43)
ln(n + g + δ)	−1.97	−2.01	−0.76
	(0.56)	(0.53)	(0.84)
$\overline{R}^2$	0.59	0.59	0.01
s.e.e.	0.69	0.61	0.38

(c) Easterly and Levine point out that there is big problem with the assumption that MRW make. What is the problem and how is it evident in the table above?

3. (12 points) Spillovers and externalities.

(a) Give two examples of a model we discussed with a spillover or externality and explain the spillover or externality.

(b) Why might the market not step in to fix the externality, particularly in a developing country?