

KYIV SCHOOL OF ECONOMICS

Applied Macroeconomics I, 2013

Instructor: Maksym Obrizan

HOMEWORK 3 (Experimental)

Team Number _____ Team Name _____ (Optional)

by _____ (First and Last Name)

by _____ (First and Last Name)

by _____ (First and Last Name)

Due: Submit homework electronically or as a hard copy any time prior to noon on Monday, October 21st. Homeworks submitted 10 minutes after class begins will receive reduced scores.

Instructions: This homework will require team work - create a team of up to 3 people. Submit **ONE** homework per each group. Answer all questions to the best of your knowledge in the space provided. Each problem has the same weight for a total of 100 points. Similarly, all parts within each problem are equally weighted. To get full credit always show your calculations and not just answers.

I. This question deals with the AK model. Suppose that the production function is given by $Y_t = AK_t$.

a. Verify which of the production function assumptions are satisfied and which are not.

b. Suppose that share δ of K_t depreciates and share s of total Y_t is saved. Write down the law of motion for the aggregate capital.

Assume that population N_t grows at the rate n so that $N_{t+1} = (1 + n)N_t$. Re-write the law of motion in per capita terms.

Can you solve for the steady state k^* ? Explain in 1-2 sentences.

c. Let's measure per capita growth as k_{t+1}/k_t . Under what condition(s) will the AK model exhibit a long-run growth in *per capita capital*?

II. Solve Problem 5 on p. 190 from the Mankiw and Ball text.

III. Solve Problem 1 on p. 221 from the Mankiw and Ball text.

IV. Solve Problem 3 on pp. 221-222 from the Mankiw and Ball text.