



Department of Economics

**Course name:** Intermediate Macroeconomics  
**Course code:** EC2201  
**Examiner:** Lars Calmfors  
**Type of exam:** Retake  
**Semester:** Spring 2016  
**Number of credits:** 7,5 credits (hp)  
**Date of exam:** Saturday, April 23, 2016  
**Examination time:** 5 hours (09-14)

**Write your identification number on each paper and cover sheet (the number stated in the upper right hand corner on your exam cover).**

**Use one cover sheet per question.** Explain notions/concepts and symbols. If you think that a question is vaguely formulated, specify the conditions used for solving it. Only legible exams will be marked. **No aids are allowed.**

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The exam consists of 5 tasks. Tasks 1 and 4 are worth 20 points each, tasks 2 and 3 are worth 25 points each and task 5 is worth 10 points – 100 points in total. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

**Only students who have NOT received a course credit from the seminar exercises should do task 5. Students who have received a course credit should not do task 5 (and cannot get any extra points from doing it).**

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Your results will be available on your “My Studies” account ([www.mitt.su.se](http://www.mitt.su.se)) on Monday the 16<sup>th</sup> of May the latest.

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**Good luck!**

### Question 1 (Maximum 20 points)

Give short answers (maximum two pages per question).

- (a) The Mankiw and Krugman-Obstfeld-Melitz textbooks both use the concept *real exchange rate* but define it slightly differently. Give the definitions used in the two books and explain in what directions the real exchange rate changes according to the two definitions when there is a real depreciation. In principle such a real depreciation can be achieved in three ways. Explain which they are and how easily they can be used. (Maximum 5 points)
- (b) Derive the equation for the aggregate supply curve from the sticky-price model. Draw the curve. Show how it is related to the expectations-augmented Phillips curve. (Maximum 5 points)
- (c) Real-wage rigidity, i.e. that the real wage is higher than the level consistent with equality between labour supply and labour demand, may be a cause of unemployment. Discuss what factors could explain such real-wage rigidity. (Maximum 5 points)
- (d) What does the Balassa-Samuelson effect say about the relationship between income per capita and the price level? Explain mathematically how the effect arises. (Maximum 5 points)

### Question 2 (Maximum 25 points)

Use the AA-DD-model in Krugman-Obstfeld-Melitz to answer the following questions.

- (a) Assume that there is a *temporary tax cut*. How are the nominal and real exchange rates, output, the price level and the interest rate affected in the *short run* under a *flexible exchange rate*? (Maximum 5 points)
- (b) How are the nominal and real exchange rates, output, the price level and the interest rate affected in the *short run* by a *temporary tax cut* under a *fixed exchange rate*? Compare the short-run equilibrium in this case with the short-run equilibrium in (a). (Maximum 5 points)
- (c) Assume now that there is a *permanent tax cut*? How are the nominal and real exchange rates, output, the price level and the interest rate affected in the *short run* under a *flexible exchange rate*? How does the short-run equilibrium in this case differ from the one in (a)? (Maximum 5 points)
- (d) How are the nominal and real exchange rates, output, the price level and the interest rate affected in the *short run* by a *permanent tax cut* under a *fixed exchange rate*? Compare the short-run equilibrium in this case with the short-run equilibria in (b) and (c).
- (e) How does the analysis in (a)-(d) change if Ricardian equivalence holds? (Maximum 5 points)

**Question 3 (Maximum 25 points)**

This question is about the DAS-DAD model in Mankiw.

- (a) Write down and explain the five equations in the model: for aggregate demand, for the real rate of interest, for aggregate supply (the Phillips curve), for expected inflation and for monetary policy (the Taylor rule). (Maximum 5 points)
- (b) Explain which variables are exogenous or predetermined and which variables are endogenous. (Maximum 5 points)
- (c) Define and characterise the long-run equilibrium (steady state) of the model. What values will the endogenous variables then take on? (Maximum 10 points)
- (d) What does the Taylor rule imply for the relationship between the real interest rate and inflation? Explain why this relationship is crucial for the stability of the economy. (Maximum 5 points)

**Question 4 (Maximum 20 points)**

There has recently been a large inflow of refugees into Sweden. As a consequence government expenditure is projected to increase substantially. Discuss the likely effects of these developments on actual and equilibrium unemployment rates in the short run and in the longer run. Do you see any problems for the fiscal balance? What fiscal and employment policies would you recommend? **Note that you need not agree with the views of the lecturer in the course; what counts is that you give a well-motivated answer!**

**Task 5 (Maximum 10 points)**

**THIS TASK SHOULD BE SOLVED ONLY BY THOSE WHO DO NOT HAVE A COURSE CREDIT FROM THE SEMINAR EXERCISES. THOSE WHO HAVE A CREDIT DO NOT OBTAIN ANY POINTS FROM THIS TASK.**

- (a) Show both mathematically and diagrammatically how the steady-state levels of capital and output (per capita) are derived in the simplest version of the Solow model with no population growth and no technological progress. How are the steady-state levels of capital and output affected by a fall in the savings rate? (Maximum 5 points)
- (b) What is meant by the golden-rule level of capital in (a)? Show how the golden-rule level is determined? (Maximum 5 points)