Instructions. You have one hour and twenty minutes to complete this exam. Please read the whole text carefully and then write legibly in the allotted space. I wish you good luck. I hope you will do well. Notice: These questions were part of a test administered in May 2010.

1. **Zimbabwe.** In the last few years, Zimbabwe had the largest inflation in the entire world. In 2008, for example, the price level grew by about 231 million percent. The inflation pretty much stopped when the government allowed official transactions to be conducted in US dollars and South African rands (unofficial transactions have been conducted in those currencies for years).

   (a) Describe the mechanism by which the abandonment of the Zimbabwean dollar in favor of two foreign currencies led to a sudden and large decline in inflation. (10 points)

   **Answer.** Inflation in Zimbabwe was the result of that country’s central bank habit of monetizing the government’s large budget deficit. Prices of goods and services denominated in US dollars have been stable throughout. Officially allowing for transactions to occur in US dollars meant that inflation is now reported as the change in the dollar value of goods and services.

   (b) Were there any negative side effects to this decision by Zimbabwe’s government? (10 points)

   **Answer.** The abandonment of the currency implied the loss of seignorage revenues. In principle, it also meant the inability of using monetary expansions to help getting out of recessions. However, because of its reckless conduct, Zimbabwe’s Central Banks had lost this ability a long time ago.

(a) Ms Calmes describes GDP as “the size of the economy, as measured by total goods and services produced.” Is she right? If not, explain why. (10 points)

**Answer.** She is not right. GDP is the value of final goods and services produced by establishment located within the country. Final goods only.

(b) What was the likely macroeconomic impact of the increase in government expenditures that took place in 2009 thanks to the Economic Recovery Act? (10 points)

**Answer.** The increase in government expenditures is likely to have induced a short-run increase in GDP with respect to the counterfactual, but by less than 1 for 1. The reason is crowding out: Private consumption expenditures likely declined as a result of the larger expenditures, that were financed by increased government borrowing.

(c) What was the likely macroeconomic impact of the “Making Work Pay” program, which was introduced by the Economic Recovery Act? (10 points)

**Answer.** The objective of the “Making Work Pay” program was to increase the incentives to work for poor individuals that either don’t work or work few hours per week. Effectively, the policy reduced the marginal tax rate for these individuals, by providing them with a tax rebate which was increasing in their labor earnings.

(d) The Council of Economic Advisers argued that, because of the Economic Recovery Act, GDP in the last quarter of 2009 was 2% higher than it would have been otherwise. Is this statement consistent with the data and the theories we studied in our course? [ According to the most recent estimates, in 2009 US GDP was 14.256 trillion dollars. In the fourth quarter, GDP was estimated to be 14.453 trillion (seasonally adjusted at annual rates). ] (10 points)

**Answer.** The answer is no. If the Council of economic advisor was right, without the stimulus GDP in 2009 would have been roughly 13.976 trillion dollars (14.256/1.02). This is roughly 280 billion smaller than it actually was. Still according to the Council’s report, about 263 billion were spent by the end of the year. This means that, according to the Council, the fiscal multiplier was greater than 1. In class, we argued that, because of the crowding out of private consumption and investment expenditures, the multiplier is likely to be less than 1.

3. **Exit Strategy.** In a recent speech, a high-ranking Federal Reserve official said that

“...the Federal Reserve still has a balance sheet of over 2 trillion dollars, swollen by its holdings of unusual securities. In particular, the Federal Reserve owns about 1.1 trillion dollars in agency mortgage-backed securities and about 170 billion dollars in agency debt. The term “agency” refers to the fact that these securities are
issued by government-sponsored enterprises that are involved in housing finance (primarily Fannie Mae and Freddie Mac). Fannie Mae and Freddie Mac create the MBSs by buying mortgages from around the country and bundling them together. The underlying mortgages are all fixed-rate ones, and all of the mortgages in a particular MBS have the same interest rate.

These assets may sound “toxic,” to use the language of 2008. But all of these instruments are guaranteed by the U.S. taxpayer, and so the Federal Reserve itself faces no default or credit risk. Of course, if many borrowers do default on their mortgages, taxpayers suffer losses because taxpayers are backing Fannie Mae and Freddie Mac. But those losses are an issue for Congress and the Treasury – they do not find their way through to the Federal Reserve.

However, the Federal Reserve faces two other forms of risk in these securities. First, these securities are long term, and so their value responds to changes in long-term interest rates. Second, if interest rates fall, then more people will prepay their mortgages as they refinance. This means that the coupon payments that the Federal Reserve receives from a given agency MBS have an additional source of sensitivity to changes in long-term interest rates.

The minutes from the January 2010 FOMC meeting say that the participants were unanimous that, in the long run, they would like the Federal Reserve to have a much smaller balance sheet. There are a number of reasons for this preference, but certainly one is the concern about inflationary risks...

(a) Why should the large Federal Reserve’s holdings of mortgage-backed securities and agency debt raise concerns about inflationary risks? (10 points)

**Answer.** The large Federal Reserve’s holdings of mortgage-backed securities and agency debt raise concerns about inflationary risks, because their purchase was financed by crediting commercial banks’ reserve accounts and therefore increase the monetary base. Should the economic recover pick up steam, banks may decide to start lending out some of these reserves. In turn, this means that the measures of money supply would also increase. In turn, this may lead to inflation.

(b) The official also said that “FOMC participants were also unanimous that, in the long run, the Federal Reserve should be holding only Treasuries. Why does the FOMC feel this way? There are several reasons, and different participants probably put differing weight on them. The first reason is simple. We want to return to our pre–2007 ways of conducting monetary policy. We feel that we understand that framework well – although not perfectly – and want to use it again in the future.” For what reasons it is preferable to conduct open market operations using Treasuries rather other securities? (10 points)

**Answer.** The main reason is that the market for Treasury securities is more
liquid. This means that when the Federal Reserves decides to sell Treasury Bonds, say, is unlikely to have a negative impact on prices. When selling securities that have a less liquid market, a Fed’s sale may lead to a lower price, which in turn would represent a capital loss for the Fed itself.

(c) He went on to argue the following. “So, the bottom line is that we want to have a smaller balance sheet and to get out of agency securities. To accomplish these goals, we could use a passive approach, an active approach, or both. The passive approach is to maintain our existing holdings of securities and engage in no further purchases or sales. Over time, some of the securities will mature. As well, people will prepay the mortgages underlying the MBSs as they sell their houses and refinance. Together, maturation and prepayment will lead to a reduction in the part of our balance sheet in MBSs. The problem with the passive approach is that it is slow. Many of the MBSs bought by the Federal Reserve were new issues that will mature as late as 2040. As a result, if the Federal Reserve relies only on the passive approach, it will still be holding some amount of mortgage-backed securities as late as 2040.” Assume that the Federal Reserve follows the passive approach outlined by the official. Do you expect total reserves to decline in the next 12–24 months? Increase? Stay about the same? Why? How about excess reserves? (10 points)

**Answer.** With a passive approach, total reserves will stay about the same. They will decline only by the (minimal) extent of maturation and prepayment. The evolution of excess reserves depends on banks’ behavior. In case banks increase their lending, the volume of deposits will increase, and so will required reserves. As a result, excess reserves will decline.

(d) If the Federal Reserve decides to follow the passive approach, do you expect it to put in place other policies as well? Why? (10 points)

**Answer.** I expect the Fed to raise the interest it pays on reserves, in order to limit the increase in money supply that would otherwise result from an increase in bank lending’s volume.