1. Repeated from Problem Set 6, question 1.

2. Reasons for exclusion of social security budget:
   - as mentioned in the question, social security moneys may serve to compensate for deficits in other government programs, when it is known that these moneys should not be used to cover other government expenditure;
   - as you can read in page 398 of Prof. DeLong’s book, the social security budget is not a current budget but a long-run (75 years) balance between the estimated values of commitments and revenue of the social security system. Hence, it doesn’t make sense to add it to the current values of the other government accounts.

   Reasons for inclusion: again, if you read page 398, you will find there the idea, exposed by some economists specialized in public finance, that the distinction between future social security payments and debt repayments (from deficits of the non-unified budget) is essentially artificial. Instead, these authors argue, we should be evaluating an unified budget that, like the social security accounts, would be referred to a long-run horizon.

3. Not necessarily: they are both partially right, because both policy stances may indeed lead to a rise of interest rates and consequent reduction of investment spending. Nevertheless, there is a difference in the time horizons under which these effects are to be expected. In the short run economic model, an expansion of public (deficit) spending will boost aggregate demand and real GDP without impacting upon the real interest rate and investment. Not so in the long run growth model, where (absent Ricardian equivalence) an increase in public deficits reduces national savings and investment, which reflects in a rise in the interest rate (as measured by the marginal productivity of the capital stock).

4. This has to do with the exogeneity of the money supply and the balance of payments equilibrating forces under the gold standard. Specifically, if country A has a payments deficit vis-à-vis country B:
   - after some time the currency of country A will depreciate enough to make sense to pay the debits to country B in gold (instead of buying
country B’s currency in the foreign exchange market). Gold will flow out of country A, automatically reducing the money supply there, and putting a deflationary pressure on prices and a contractionary effect on incomes. The contrary should happen in country B, although monetary authorities in surplus countries usually preferred to sterilize the monetary inflows to keep prices and incomes stable;

- because country A’s gold reserves may wear out, its monetary authorities would likely try to stop the gold drain by raising interest rates (to attract compensatory foreign investment), thereby aggravating even more the economic contraction. Again, nothing forces country B to reduce its own interest rates, so the problem may only be solved at considerable real cost to country A.

5. In Prof. DeLong’s summary (pages 424-25) they’re mainly three:

- to reduce exchange rate risk to the benefit of international trade
- to spare the economies to large readjustments of their industrial structures in response to exchange rate volatility around its fundamental value and
- to insulate the exchange rate market from political pressures.

6. First, notice that Prof. DeLong’s is using the convention of defining the exchange rate as the price of foreign currency in dollars (that’s way he refers to an “interest rate increase required to keep the exchange rate constant” when \( \varepsilon_0 \) rises).

Assuming very high capital mobility, the condition for \( r \), necessary to keep a stable exchange rate, \( \varepsilon \), is

\[
r = r^f - \frac{\varepsilon - \varepsilon_0}{\varepsilon_r}
\]

So, the required change in \( r \) is \( \frac{\partial r}{\partial \varepsilon_0} = \frac{30}{\varepsilon_r} \), i.e., the higher the interest rate sensitivity of the exchange rate the higher the required rise in interest rates.

The parameter \( \varepsilon_r \) is a function of the foreign exchange market efficiency and integration. The least efficient and integrated the market, the longer interest rate differentials will take to translate into exchange rate adjustments (the smaller \( \varepsilon_r \)), and vice-versa. In the limit, with a perfectly integrated market, \( \varepsilon_r \to \infty \) (domestic interest rates cannot deviate from world rates).

7. Replace the parameter values:

\[
r = r^f + \frac{130 - 100}{10} + \frac{10}{10} \Delta R \Leftrightarrow \Delta R = -3
\]
so that the country would be losing 3 of reserves per month. In alternative the reserves drain could be stopped by raising the domestic interest rate to $r'$, such that:

$$r' = r^f + 3 + \Delta R = r^f + 3 + 0 \Rightarrow r' = r^f + 3$$

i.e. 3 percentage point above foreign interest rates.

8. The dollarization of an economy makes it vulnerable to any shocks that affect the US economy, in general, and the dollar, in particular. Following Mundell’s concept of “optimal currency area”, I would have to get information on how well integrated would that economy be with the US business cycle. Moreover, I would also try to assess the degree of mobility of the factors of production (labor and capital) that, if high, can replace for a low business cycle conmovement. In fact, countries have dollarized for different reasons, especially as a way of “importing” US credibility to control inflationary processes. That they ignored the other underlying factors has sometimes breed economic catastrophes as the prolonged recession and ultimate crisis of Argentina should remind us. Another case in point was the decision of the EU countries to peg their currencies to the Deutschmark, which was very successful in generating a low inflation environment throughout Europe, but may also have contributed (according to some economists) to the dismal real performance of the European economy in the 1990s, for lack of flexibility to deal with regional economic problems.