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## Economics (43 points)

a)

There are three major components of the balance of payments:

- the **current account (CB)**, which records payments for traded goods and services, foreign investment income and unilateral transfers,
- the **capital (and financial) account (KA)**, which reports public and private investment and lending activities,
- the **official reserve account (changes in reserve assets) ( $\Delta RA$ )**, which records changes in the central bank's holdings of foreign currencies.

When imports exceed exports, net exports are negative and the current account shows a deficit. If this happens over a sustained period of time, then in order to maintain a persistent current account deficit, a country must on a continual basis either sell some of its foreign assets or borrow from the rest of the world (and thus accumulate foreign debt) in order to finance its excess consumption or investment. Also, the greater the accumulated debt as compared with GDP of a borrowing country, the higher will be the interest rate that its residents have to pay for foreign loans. If international lenders lose confidence in the ability of a certain borrowing country (and its individual residents) to repay their international loans, this will lead to a "run on the currency" of the indebted country. The foreign reserves of the country get used up to pay up for essential import and debt servicing and the country ends up with very low foreign reserves. This is termed as a balance of payment crisis.

b)

Current account deficits are not necessarily a sign of economic weakness. A current account deficit can be driven by a large net supply of foreign capital to countries which are perceived by foreign investors as particularly promising in terms of future returns. If foreign investors' confidence rather than domestic overspending is the driving force of a current account deficit, then that deficit is a sign of economic strength.

c)

Free capital mobility, fixed exchange rates and national monetary policy autonomy are mutually inconsistent. Only two of these options are available to governments simultaneously, but never all three. The Indian government wanted to maintain the option of conducting an independent monetary policy. Also since it wanted at the same time to maintain fixed exchange rates, it had to discourage speculation, which required some restraints on capital mobility. Hence a lot of controls were in place on capital inflows and outflows from India during that time.

d)

In the pure floating system, usually referred to as clean float or full float or free float, the exchange rate is determined by the interaction of currency demand and supply. The central bank does not intervene at all. Market participants determine their demands and supplies with respect to price level changes, interest rate differentials, economic growth and other relevant variables. These economic parameters can be influenced by

government's policy. The participants respond to changes by adjusting their current and expected future currency needs.

Free floating arrangements give rise to very volatile exchange rates. High exchange rate volatility is often seen as undesirable and disruptive. A sharp appreciation of a country's currency can imperil export industries. On the other hand, a large depreciation can lead to higher inflation. Furthermore, exchange rate volatility is associated with higher economic uncertainty. International transactions become a risky business due to exchange rate uncertainty.

e)

Inflation in a country is synonymous with the increase of domestic goods prices, which makes the foreign goods cheaper. The country will export less and import more. That, in turn, deteriorates its trade balance (under the Marshall-Lerner condition), as the country becomes internationally less competitive. The demand for foreign currency increases, and hence, foreign currency appreciates against the domestic currency, for purchasing purpose or to hedge against expected inflationary trend, which in turn modifies the exchange rate expectations. As people expect a long-run increase in all domestic prices, including the exchange rate, the expected future exchange rate also increases and causes the rise of the current exchange rate.

Expressing the relation between inflation and exchange rates:

The absolute Purchasing Power Parity (PPP) relation  $P_t = S_t \cdot P_t^F$ , relates the nominal exchange rate at time  $t$  ( $S_t$ ) with the domestic general price level at time  $t$  ( $P_t$ ) and the foreign general price level at time  $t$  ( $P_t^F$ ).

The relationship between the *change in the exchange rate* and the rates of inflation, which is known as relative Purchasing Power Parity (PPP), is approximately given by:  $s_{t-1,t} \approx \pi_{t-1,t} - \pi_{t-1,t}^F$ , where  $\pi_{t-1,t}$  and  $\pi_{t-1,t}^F$  denote domestic and foreign inflation rates between  $t - 1$  and  $t$ .

The anticipated change in the exchange rate between the Indian Rupee (INR) and the US dollar (USD) can be calculated using the relative PPP as below:

Country	Subject Description	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
India	Inflation, annual percent change (Percent) $\pi_{t-1,t}$	9	7.2	13.2	4.7	4	3.8	4.3	3.8	3.8	4.2
United States	Inflation, annual percent change (Percent) $\pi_{t-1,t}^F$	2.9	2.3	1.5	2.2	3.4	2.8	1.6	2.3	2.7	3.4
$s_{t-1,t} \approx$	$\pi_{t-1,t} - \pi_{t-1,t}^F$	6.1	4.9	11.7	2.5	0.6	1	2.7	1.5	1.1	0.8

Since  $s_{t-1,t} \approx \pi_{t-1,t} - \pi_{t-1,t}^F$  is positive, the Indian Rupee (INR) will depreciate against the US dollar (USD) over the period.

f)

The answer to question e) is not in agreement with the values shown in the table.

The reason is that the exchange rate does not depend only on the inflation differential between the two countries but a number of other factors.

- i) According to the balance of payments approach, exchange rates depend on the level of imports and exports from a country. The level of imports and exports in turn depend on the inflation rate and the real national incomes.
- ii) According to the monetary approach, the exchange rate reflects the evolution of the relative supplies and demands for the two monies. Hence, the exchange rate depends on the money supply, the real income and the interest rates in the two countries.
- iii) According to the trade-balance-asset approach, current spot exchange rates can be affected by current international trade flows, as well as by changes in expectations concerning future trade flows.
- iv) The intervention by the Central Bank in the foreign exchange markets also affects the exchange rate.
- v) Most macro-economic variables affect the exchange rate over the long-run. It is observed that the exchange rates don't seem to be affected by economic fundamentals in the short run. The observed deviation could be just a short-term phenomenon.