Answer Key#4
Econ 333

Q1.

The Harrod Domar Model assumes a one-sector economy, presumably the modern industrial sector. It focuses on capital accumulation but overlooks the process by which labor is incorporated in production. A particularly interesting issue in development is the transformation of labor from the agricultural to the modern sector. Lewis model explicitly studies this phenomena by arguing that the capital accumulation of the Harrod Domar type (given a Leontief production function) can occur only if there is a large surplus of labor in the rural sector that can be transplanted in the modern sector. Lewis proposes a self-sustaining process of growth that is driven by the existence of surplus labor in the rural sector which allows capitalists to reap profits (due to low wages) that are then reinvested in the modern sector creating a cycle of job creation and labor absorption as long as the labor surplus exists. Lewis model as a result explain the structural change in developing countries where labor has moved rapidly from agriculture to manufacturing and services.

Q3.

This question is a broad overview of the Lewis model, its assumptions, conclusions and criticisms. Please see my class notes or the text book for a description of the model.

Q.4

In the Lewis Model, industrialization and growth occurs as long as there is a labor surplus in the rural sector. Higher population growth in Country A leads to a larger labor surplus. Since the marginal product of this labor is zero, the average product in agriculture declines lowering the subsistence wage the industrial sector has to pay to absorb labor. This increases capitalists' profits and speeds up industrialization and growth. This kind of painless growth can occur in Country A for longer because the labor surplus lasts longer. (One important point Lewis ignores here is that food production per capita declines with population growth, so there must be some kind of technological change in agriculture to sustain the increasing population). The conclusion of the Lewis model is that the country A with higher population growth has a higher rate of growth and industrialization. This of course is not consistent with the real world.. all you have to do is look at countries like India, Pakistan and Kenya on the one hand, and Japan, US and Singapore on the other.

Lewis arrives at this strange conclusion because he assumes that labor can be painlessly absorbed in to a fixed proportions production process so there is constant returns to capital accumulation. As we see in the Solow model, a more realistic production function tells us that the key to industrialization and growth is the increase of capital relative to labor. (K/L)

Q5.

Labor saving technology refers to types of technology that allows us to produce more output without increasing labor. Large harvesters that are used in US agriculture are an example of labor saving technology.

Capital flight refers to when the profits of firms (and savings of individuals) are used to buy foreign assets (stocks, bonds, real estate etc.). If there is capital flight, very little of the profits made by firms are re-invested in building up the domestic capital stock. Think of this as a leakage out of the domestic economy.

Lewis Model assumes that there is no labor saving technological change and no capital flight. If there were labor saving technological change, the capitalists would able to increase industrial output without using up the surplus labor. This breaks down the central point in the Lewis Model that surplus labor is necessary to sustain industrial growth. If there were capital flight and little of the profits are re-invested domestically, the industrial sector would not grow as Lewis predicted (i.e. the marginal product of labor curve will not shift out). Therefore an economy with

capital flight will not provide enough employment opportunities to absorb the surplus labor. Growth of industry and the economy as a whole will be low.

Capitalists will like to engage in labor saving technology if labor is relatively more expensive than capital. This could be because labor is scarce (like in the US) or because wages are artificially kept high (minimum wages, unions etc.) Capitalists will engage in capital flight if it is more attract to invest their profits abroad. This could be because foreign countries have higher interest rates, lower inflation, lower risks or if the capitalist (the recipients of profits) reside abroad (e.g. multinational companies).

QUESTION SIX

In the original Lewis model, the labor surplus exists in the agricultural sector, and this surplus is gradually absorbed by the industrial sector as new jobs are created. Lewis argued that the industrial sector will attract the surplus workers by offering a wage slightly higher than the subsistence wage. At this wage, the entire surplus will be willing to work, i.e. the labor supply is elastic. At the subsistence wage, the number of people willing to work at this wage is greater than the number of jobs available. This creates an excess supply of labor in the industrial sector. Many agricultural workers will migrate to cities looking for jobs. Since the wage is not market clearing (jobs are rationed), they must be allocated in some other way because if the firms lower wages, everyone will go back to the village. In this situation, jobs may be allocated in a first come first serve basis, so that being first in the queue matters. This interpretation of the Lewis model suggests that people will move from the rural sector looking for jobs, but may not find one. The rural sector, on the other hand, will not have much unemployment because there is no need to look for jobs if you don' t have one because you get the average product anyway.

QUESTION SEVEN

Free import of technology will slow down development of the Lewis type if this technology is labor saving, so that labor absorption slows down (see question five). Unrestricted investment abroad will also slow down development because capital flight will lead to a slow build up of domestic capital, the key factor in the Lewis type growth process.

Government policies to restrict free import of labor saving technology
1) direct controls of technology flows
2) tax incentives for the development of capital saving technology
3) policies to make wages more competitive (remove minimum wages, weaken unions etc.)

Government policies to restrict capital flight
1) direct capital controls (exchange controls, laws etc.)
2) taxes on capital outflows
3) higher domestic interest rates
4) policies to improve the domestic financial environment (lower risks, stability etc.)