

## EC111 Class 11 Solution

## Question 1

a. Long-term growth is normally defined as sustained increase (over a series of years) in real per capita national income,  $y$  (typically measured as GDP). Annual growth is measured as  $(y_t - y_{t-1})/y_{t-1}$ . Over the long run, small differences in the average growth rate can lead to large differences in the *level* of real GDP. This reflects the outward shift of the PPF due to capital accumulation and improved technology. Increases in GDP per capita are closely related to the overall increase in living standards. Hence it is an important policy target.

b. Economic instability is the year-to-year fluctuations in real national income around the long run trend. This is often called the output gap. Economic instability creates uncertainty that may influence economic decisions such as investment. If people are risk averse they will prefer income to grow along a steady path; the same applies to policy makers. Note that if investment is lower as a result of uncertainty, this may slow down capital accumulation and harm long run growth.

c. The unemployment rate is normally defined as the proportion of the labour force that is unemployed and looking for work  $U/(U+E)*100$ . While the unemployed enjoy more leisure, if they are constrained by lack of job opportunities then their utility will be lower than if they had a free choice. So there will be a serious welfare loss. Some people may be unemployed for long durations so that the burden of unemployment falls on a minority.

d. Inflation is the price of change of the price index, measured as  $(P_t - P_{t-1})/P_{t-1}$ , where  $P$  is the price level, for example the CPI. If inflation becomes very high (as in hyperinflations) then it imposes direct costs (changing prices very often) and it also creates uncertainty in making transactions, which may lead to a retreat from the market and lower growth.

## Question 2

There are a number of reasons why GDP does not correspond to welfare. Before considering this, first note that GDP and GNP differ due to  $GNP = GDP +$  net income from abroad. Ignoring this foreign trade distinction, output measures traded goods and therefore omits the welfare benefits from

- leisure;
- home production and non-traded goods;
- public goods
- unrecorded trades of the underground economy;
- and so on.

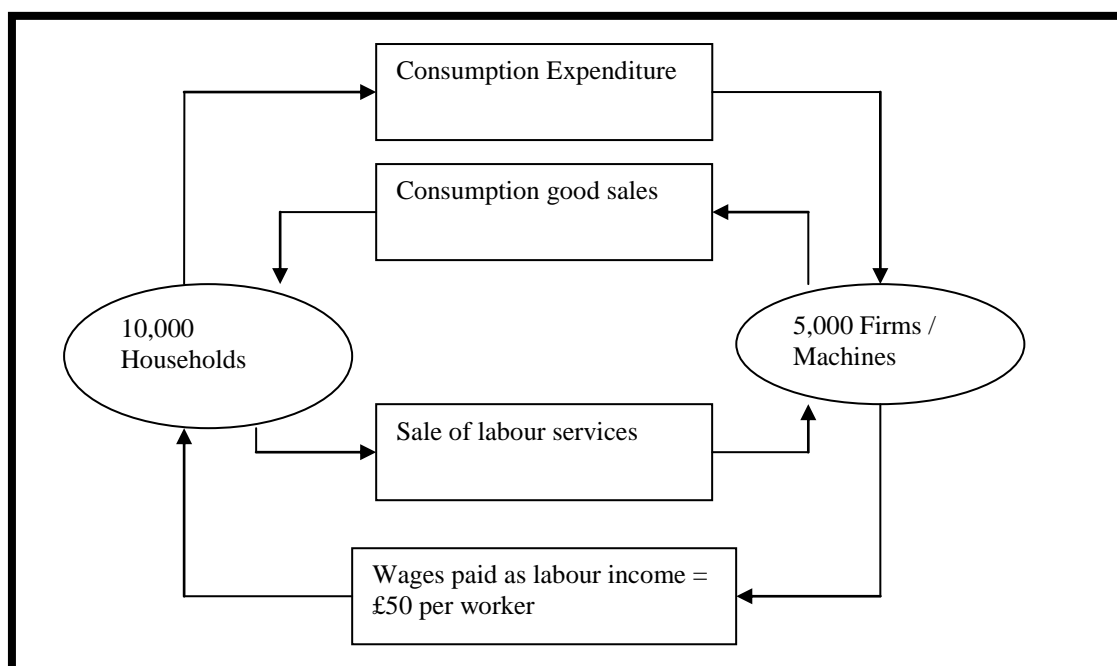
Note as well that the value of trades are recorded at market prices so if these prices do not reflect the social costs and benefits of trade (i.e. there are externalities), there will

be mis-measurement of the value of output. Aggregate welfare may depend as well on the distribution of income in each economy.

If GDP per capita increases, then welfare may fall if these or other factors also change. There is, however, an even easier answer. If inflation occurs, per capita GDP may rise even if production falls.

### Question 3

a. Circular Flow Diagram.



Note that the lower half depicts the labour market, the upper half the consumption goods market.

b. The economy is at its full potential when all markets are in equilibrium. If the labour market is in equilibrium, all workers are employed, each earning £50, for a total flow of income of £500,000. If the goods market is in equilibrium, all machines produce 1 litre of the consumption good, hence potential output of this good equals 5,000 litres. By assumption all labour income, £500,000, is spent on these litres. The price of each litre must therefore equal £100 in equilibrium. Note that this implies each household consumes .5 of a litre.

c. Given the fixed proportions technology, there will not be enough machines for each worker. This illustrates the knife-edge nature of production in this economy. Recall there is no investment so no way in which to remedy this imbalance.

d. At full employment, workers will demand more consumption than is produced. Each will want  $\frac{£50}{£90} = .5555$  litres of the good. Too much income is chasing too few litres. Either the price of the consumption good must rise to £100 or wages must fall to £45. This illustrates the need for either wage or price flexibility but not necessarily both.