UNIT 13 TRADITIONAL THEORIES

Structure

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13.0 OBJECTIVES

After going through this unit you should be able to:

- identify different types of unemployment;
- explain the classical and Keynesian views on unemployment;
- establish a relationship between unemployment and inflation; and
- identify the costs of unemployment and inflation.

13.1 INTRODUCTION

Labour is demanded by firms as it contributes to production of goods and services. In return of its contribution, labour is rewarded with wages. In the market for labour the wage rate is determined at a level where supply of and demand for labour are equal. While human beings supply more labour at higher wage rate, firms demand lower quantity of labour when wage rate is high. Thus supply of labour has a positive relationship with wage rate (implying upward sloping supply curve) while demand for labour has a negative relationship with wage rate (implying downward sloping demand curve).

A fact that has perturbed everyone, no less economists, is that total labour force is not fully employed at the prevailing wage rate. Certain percentage, which fluctuates over time, of the labour force remains unemployed at any point of time. The nature of and the reasons behind unemployment in the economy have been put to much debate in economics. Economists have come up with varied explanations of unemployment, which we will consider in this unit.

13.2 TYPES OF UNEMPLOYMENT

A person can be either in the labour force or not in the labour force of an economy. The person not included in the labour force includes those who are retired, too ill to work, keeping the house, or simply not looking for work. On the other hand, persons counted under the category labour force includes those who are employed or unemployed. By employed persons we mean those who perform any paid work (thus housewives are not included) and those who have jobs. On the other hand, the unemployed as a category includes people who are

not employed but are actively looking for work. Thus while considering unemployment we do not take into account those who are not in the labour force.

There are three kinds of unemployment, viz., frictional, structural and cyclical. Fictional unemployment takes place because people switch over from one job to another. In many cases the tenure of job gets over and workers remain unemployed till they get another job. In other cases workers migrate from one region to another in search of better jobs or opt to remain out of job for short time periods. Frictional unemployment takes place because in an economy with imperfect information job search and matching is not smooth and there are frictions in the economy. Structural unemployment, on the other hand, results from the mismatch between supply and demand for different kinds of jobs. For example, in India in early 1990s, when the information technology sector witnessed a surge in growth, there was a scarcity of computer professionals. In recent years, in response to policy changes, a number of private airlines have come up in India and there is an acute shortage of pilots. Structural unemployment takes place largely due to structural shifts in an economy and adjustments to such shifts take time. Cyclical unemployment arises due to fluctuations in aggregate demand. When aggregate demand declines, there is simultaneous decline in the demand for labour and consequent increase in unemployment. On the other hand, a general boom in the economy increases demand for labour and unemployment decreases. Thus overall employment is pro-cyclical in nature.

Empirical data shows that the labour force in an economy is much less than the total population in the working age group. In the US, for example, for which data are readily available, labour force constitutes about two-third of the adult population. The percentage of population in the labour force, however, varies across countries and depends upon the level of development and social traditions. The rate of unemployment u is defined as the ratio of unemployed persons to total labour force. The rate of unemployment varies across countries and for a country, over time.

13.3 CLASSICAL VIEW ON UNEMPLOYMENT

The classical economists, as we observed in Unit 1 of this course, were of the view that full employment prevailed in the economy all the time. This was consistent with the view that whatever amount of labour was supplied got demanded by firms. A basic assumption in the classical framework was the flexibility in wage rate and prices. Thus the gap between supply of and demand for labour got wiped out through adjustments in wage rate.

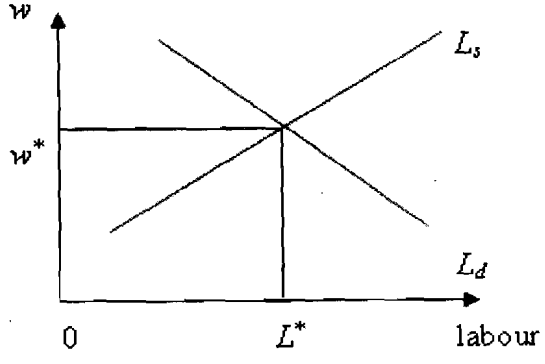

Fig. 13.1: Equilibrium Level of Employment

In Fig. 13.1 we measure real wage rate (w) on y-axis and quantity of labour (L) on x-axis. The equilibrium wage rate reached through interaction of supply of

labour (L_s) and demand for labour (L_d) is w^* and quantity of labour employed is L^*, which represents full employment.

As we learnt in Unit 1, the aggregate supply curve according to classical economists is a vertical straight line at the full employment output level. At the equilibrium wage rate everyone seeking employment gets engaged. If the wage rate is above w^* (see Fig.13.1) there is excess supply of labour compared to its demand. In their efforts to get employed some of the currently unemployed workers will be willing to work at a wage lower than the prevailing one and in the process will bring down the wage rate till it reaches w^*. On the other hand, when wage rate is below w^* there will be excess demand compared to supply. Due to shortage of labour firms will compete with each other and will be willing to pay higher wage, as a result of which wage rate will increase. Remember that classical economists were concerned with real wage in the economy, which is defined as the ratio of nominal wage (W) to price level (P) such that $w = \frac{W}{P}$.

Thus flexibility in real wage assured that a rise in price level is accompanied by a proportionate rise in nominal wage. In fact the dichotomy between real and monetary sectors of the economy, as envisaged in classical model, ensures such proportional changes. The classical economists did not rule out the possibility of decrease in nominal wage rate. Nonetheless, it was always in response to decrease in money supply and price level.

In theory, the classical model appears to have a sound base. When compared with reality, however, it does not explain the obvious phenomenon of unemployment in the economy. As we will see below, there is much rigidity in the economy, which does not allow smooth and instantaneous changes in wage rate. Moreover, some amount of frictional unemployment is always present in an economy as workers switch over from one job to another. The neoclassical economists recognized the limitations of classical model and made amendments to the classical position of zero unemployment. They assumed that the economy in normal times has certain minimum unemployment called 'natural rate of unemployment'.

13.4 KEYNESIAN VIEW ON UNEMPLOYMENT

Keynes in his *General Theory* presented a view that fluctuations in aggregate demand (AD) influences the equilibrium level of output. Thus the economy is not necessarily at the full employment output level all the time and equilibrium can be realized at a level of output below full employment and corresponding to that level, part of the labour force remains unemployed. Recall that the Keynesian view emerged on the aftermath of the Great Depression when there was widespread unemployment in the economy accompanied by declining prices and output. At this point Keynes analysed the problem in the short run context and assumed that the aggregate supply (AS) curve is horizontal. It implies that AS is infinitely elastic and any level of output can be supplied without increase in prices so long as unemployment persisted. Keynes diagnosed the problem during the Great Depression to be a result of demand deficiency and suggested that AD should be increased, may be through increases in government expenditure. In fact, fiscal policy through appropriate designing of tax rates and government expenditure emerged as a major policy instrument largely due to the pioneering work of Keynes.

In Fig. 13.2 we present an infinitely elastic AS curve and a downward sloping AD curve, the intersection of which provides us with equilibrium output (Y^*) and prices (P^*). In response to a decline in aggregate demand there is a downward shift in AD to AD_1. Corresponding to this shift there is a decline in

equilibrium output from (Y^*) to (Y_1^*). Note that price level remains unchanged in the above model. In synchronization with the level of output, the quantity of labour used in production varies. For example, corresponding to a decline in equilibrium output the quantity of labour decreases. Simultaneously there is an increase in unemployment.

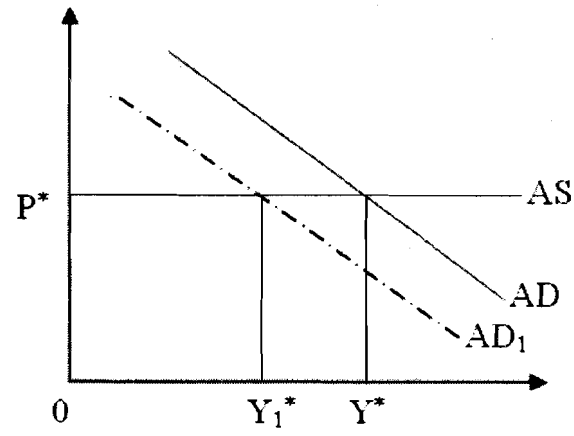

Fig. 13.2: Equilibrium Output in Keynesian Model

On the behaviour of wage rate, Keynes assumed that there is downward rigidity in nominal wage in the sense that workers oppose decline in the money wage, as they perceive it to be a decline in their income. During periods of recession when there is a decline in price level, real wage increases in spite of the fact that nominal wage remains fixed. Recall that we defined real wage as $w = \frac{W}{P}$; hence decline in P would increase w when W is constant. The basic idea behind the simplest Keynesian model is that w varies inversely with P as W remains fixed. Thus in periods of boom, when there is an increase in prices, real wage tend to decline. Consequently, firms hire more labour and unemployment in the economy is lower.

In Fig. 13.2 we discussed the extreme Keynesian case where AS curve is horizontal. On the basis of Keynesian ideas, economists analyse the unemployment issue by resorting to an upward sloping AS curve. As mentioned above, real wage falls when prices increase, as a result of which more labour is demanded. The outcome of such an increase is production of more output. Thus as price level increases we have increasing level of output, implying an upward sloping AS curve. The change in level of employment due to change in price level can be explained through the following diagram.

Fig. 13.3 comprises three segments. In panel-a we have described a production function such that corresponding to each level of output we can find out the level of employment. Thus when output produced is at full employment level (Q_f) we have corresponding level of employment at L_f. In panel-b we plot the AS curve which depicts the output supplied (Q) at each price level (P). Thus when Q_f is the output produced prevailing prices is P_f. In panel-c we depict real wage (W/P) on y-axis and employment level on x-axis. Note that we assume nominal rigidity in prices so that W is fixed. Thus real wage (w) increases as P decreases. Through the interaction of L_s and L_d we have full employment (L_f) in the economy corresponding to real wage $W_f=W/P_f$. Thus we assume the initial position of the economy to be full employment corresponding to Q_f, L_f, P_f and W/P_f.

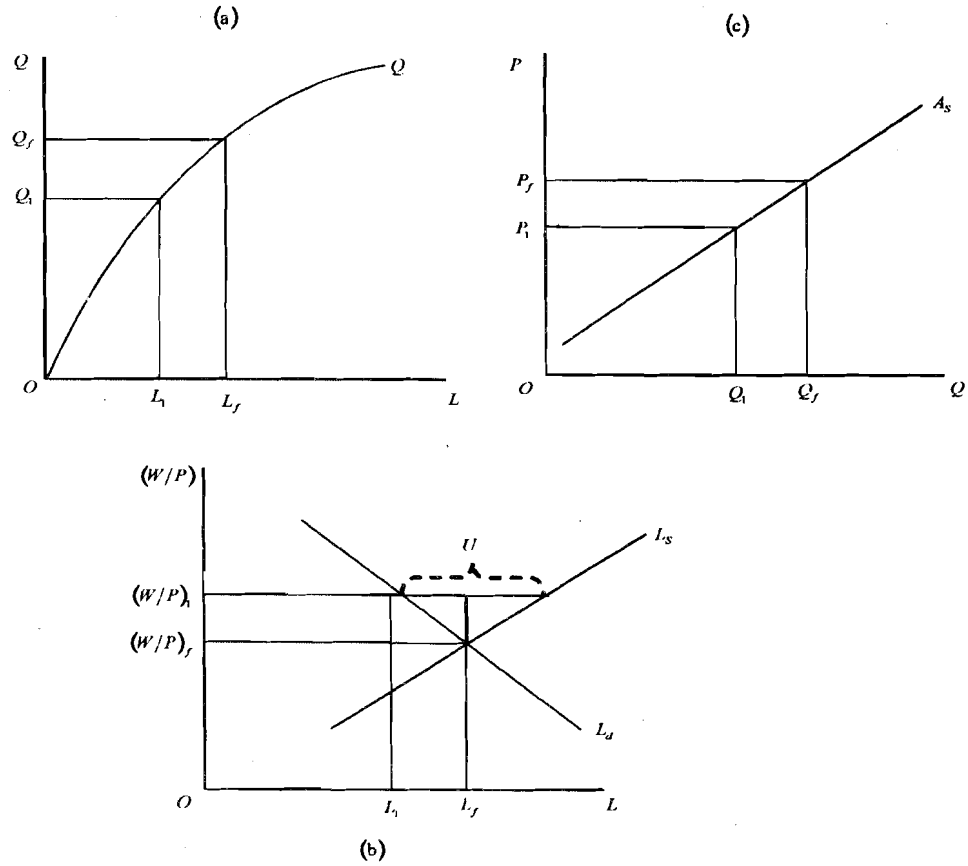

Fig. 13.3: Unemployment in Keynesian Model

Suppose there is a decline in AD (not given in the figure). Consequently, there is a decline in equilibrium output from Q_f to Q_1 and decline in prices from P_f to P_1 (see Fig. 13.3 (b)). Corresponding to the new output level Q_1, the level of employment is L_1, which is less then L_f. In fig. 13.3(c) we see that a decrease in prices from P_f to P_1 leads to an increase in real wage from W/P_f to W/P_1. At this level of real wage there is excess supply of labour compared to its demand. Thus unemployment to the extent 'U' (as shown in Fig. 13.3(c)) takes place.

In Fig. 13.2 where we assumed the short run AS curve to be horizontal, upward shift in AD resulted in increase in output, keeping prices unchanged. In Fig. 13.3, on the other hand, AS is assumed to be upward-sloping and shift in AD influenced both output and prices.

We observe that nominal wage is not completely sticky in an economy. Keynes in fact recognized that nominal wage would adjust to the requirement of labour market equilibrium. However, such adjustments would be too slow so that full employment may not prevail always. Adjustments in nominal wage in response to price changes is always with a lag. For example, if nominal wage adjusts in period 2 but prices increase in period 1, there is a decline in real wage in period 1. In period 2, however, nominal wage can be increased proportionately and real wage at the previous level be maintained. Salary indexation followed in India on a six-monthly basis is an example of such a lag in wage adjustments.

When we compare the classical and Keynesian positions we find that rigidity in wage rate gives rise to unemployment in the economy. We will learn more about real and nominal rigidities and their implications on unemployment in Unit 15.

Check Your Progress 1

1) Under certain basic assumptions the classical economists could rule out the possibility of unemployment. Elaborate.

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2) In the Keynesian model why does unemployment take place?

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13.5 PHILLIPS CURVE

The Phillips curve, named after A. W. Phillips, describes the relationship between unemployment and inflation. In 1958 Phillips, then professor at London School of Economics, took time series data on the rate of unemployment and the rate of increase in nominal wage rate for the United Kingdom for the period 1861-1957 and attempted to establish a relationship. He took a simple linear equation of the following form:

$$\dot{w} = a - bu$$

where $\dot{w}$ is the rate of wage increase, a and b are constants and u is the rate of unemployment. He found that there exists an inverse relationship between $\dot{w}$ and u, with the implication that lower rate of unemployment is associated with higher rate of wage increase. The policy implication of such a result was astounding – an economy cannot have both low inflation and low unemployment simultaneously. In order to contain unemployment an economy has to tolerate a higher rate of wage increase and vice versa.

Subsequent to the publication of the results by Phillips, economists followed suit and attempted similar exercises for other countries. Some of the studies carried out refinements to the simple equation estimated by Phillips such as the use of inflation (the rate of increase in prices) instead of wage rate increase. In many cases the scatter of plot of variables appeared to be a curve, convex to the origin. As empirical studies reinforced the inverse relationship between the rate of inflation and the rate of unemployment the Phillips curve soon became an important tool of policy analysis. The prescription was clear: during periods of high unemployment the government should follow an expansionary monetary policy which leaves more money in the hands of people. It may accelerate the rate of inflation while lowering unemployment.

13.6 COSTS OF UNEMPLOMENT AND INFLATION

In an economy both unemployment and inflation have adverse effects and policy makers formulate policy instruments to contain both the problems. The costs of unemployment at the macro level could be loss of potential output and wastage of valuable resources (manpower). At the household level it is a loss of income and consequent deterioration in standard of living of the household. It is difficult to measure the human cost of unemployment with precision as social stigma and psychological trauma of the problem are also involved. On the whole, policy makers and political leaders see to the fact that the cost of unemployment is minimal. Ideally the economy should not have a rate of unemployment higher than the natural rate of unemployment.

Inflation is defined as a situation of persistent price rise. While the rate of inflation varies over time and across countries there is much debate on permissible rate of inflation. While inflation rate has been moderately high in certain countries, there are instances of hyperinflation in some countries where rate of inflation has been more than 1,000 per cent per year (for example, Latin American countries in 1980s and former socialist economies in 1990s).

Inflation is widely considered as a social evil. Policy makers are always on the look out for price trend so that high inflation can be checked through appropriate policy measures. General public also are widely vigilant about price movements so that pressure can be exerted on the government if there is acceleration in inflation rate. During inflation money loses its purchasing power and nominal costs of goods and services increase. Moreover, there is a reduction in real income of fixed income groups (salaried class, for example), as their income does not change at the same pace as price rise. When there is a price rise borrowers gain in fixed interest rate environment as the value money they return is lower than anticipated at the time of borrowing. On the other hand, lenders stand to lose as the value of money they receive after a lapse of time gets eroded.

During periods of high inflation, there is fair chance that government revenue is much less than government expenditure resulting in huge fiscal deficits. In order to finance the deficit the government has three options: borrow from public, run down on foreign exchange reserve, and print money. Usually a government running huge deficit is already under heavy debt and paying a high amount of interest. Hence, further borrowing becomes difficult. Moreover, such governments also have low foreign exchange reserve and therefore, printing money becomes an easy option which fuels the rate of inflation further. You can recall the Indian condition in 1990-91 when it was loaded with heavy debt, foreign exchange reserve was abysmally low and there was double-digit inflation. In general, high inflation put the economy out of gear and it becomes difficult to maintain economic stability.

When inflation is anticipated correctly then individuals take precaution and adjust their future payments/receipts keeping the rate of inflation in mind. However, unexpected inflation provokes income re-distribution between income groups. Usually the wage earning class who have a fixed nominal wage are the looser as real wage gets deteriorated due to price rise while profit earning class gain handsomely.

13.7 NON-ACCELERATING INFLATION RATE OF UNEMPLOYMENT

During 1970s economists encountered a puzzle in the sense that inflation and unemployment data did not fit into the Phillips curve for many developed economies. In fact many countries witnessed 'stagflation' – a combination of stagnation (a situation of high unemployment) and high inflation. The instability in the Phillips curve prompted economists to look into the possible reason of high inflation in spite of high unemployment in the economy.

A limitation of the Phillips curve is that both workers and employers take decisions on the basis of real wage, not nominal wage. As we mentioned earlier when we enter into a contract on a future date we incorporate expected inflation into it. Milton Friedman and Edmund Phelps suggested that since real wage is what matters, the change in nominal wage has to be corrected by inflationary expectations. In the short-run the Phillips curve is stable but in the long run it shifts from one level to another, which makes the long run. Phillips curve a

vertical straight line. We explain the process through which shifts in Phillips curve takes place in Fig. 13.4.

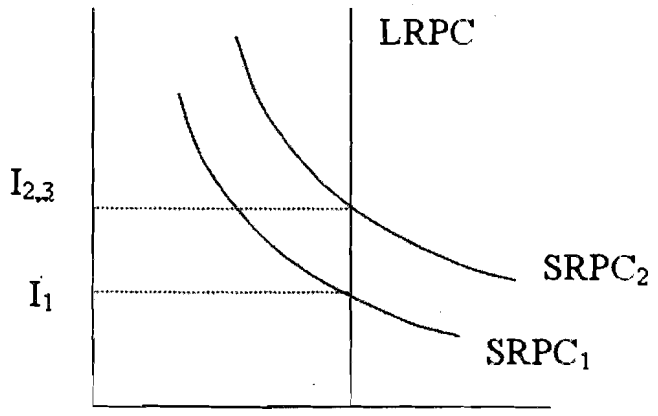

Fig. 13.4: Shift in Phillips Curve

In order to explain the long run Phillips curve (LRPC) we take an example from Samuelson (2005). Let us assume an economy which is operating at the natural rate of unemployment (u^*). The economy is operating at point A with low inflation rate I_1 as in Fig. 13.4. People expect inflation rate to continue at I_1 in the next period also.

In the second period suppose the government follows an expansionary policy so that unemployment declines and is lower than u^*. In this environment firms compete with each other to hire workers as a result of which wage rate increases. With little scope for further expansion in output the expansionary policy results in an increase in wage rate and prices so that the economy moves to point B on $SRPC_1$ in Fig. 13.4. We note that inflation expectation has not changes so far and the economy is operating on $SRPC_1$.

In the period 3 workers and employers perceive that there is an unexpected increase in inflation rate. Such a surprise prompts them to revise their inflationary expectations and they incorporate inflation at the rate I_2 into their decisions. This results in an upward shift in the short run Phillips curve from $SRPC_1$ to $SRPC_2$. Note that we have drawn $SRPC_2$ with inflation rate I_3 which is equal to I_2. With inflation at the rate I_3, there is a decline in demand for labour the unemployment rate starts increasing and the economy moves to point C in Fig. 13.4.

The outcome of the above process is that the economy ends up with higher inflation rate although the rate of unemployment remains the same. Real GDP of the economy remains unchanged while nominal GDP is higher.

The natural unemployment rate mentioned above is called non-accelerating inflation rate of unemployment (NAIRU). When unemployment is equal to NAIRU there will be stability in the rate of inflation. When unemployment departs from NAIRU, there is acceleration or deceleration in inflation rate. Thus if actual unemployment is less than u^*, inflation will continue to accelerate-higher and higher in subsequent years. The concept of NAIRU and expectations formation explains the hyperinflation witnessed by some Latin American countries. Unless unemployment returns to its natural rate inflation spiral will keep on accelerating. The recessionary trend can also be explained by NAIRU. When unemployment is more than u^*, inflation will tend to fall as long as unemployment is above u^*. You have already read about expectations formation in Unit 5, Block 3 of this course. The details of inflation-unemployment trade off under adaptive and rational expectations have been given there. We have recapitulated the basic results in this Unit.

Researchers have attempted to estimate NAIRU for certain countries. It is observed that NAIRU varies across countries, and over time for the same country.

Check Your Progress 2

1) What are the policy implications of Phillips curve?

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2) What do you mean by NAIRU? What are its implications?

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13.8 LET US SUM UP

Unemployment results in loss of not only potential output at the macro level but also in income at the individual level. Many a time widespread unemployment culminates into a crisis situation in the economy. The social sigma and psychological trauma associated with unemployment often compels policy makers to cut down on the rate of unemployment.

The classical economists assumed flexibility in real wage and prices, which ensured full employment in the economy for all the time. Keynesian economists, however, contest such an assumption and speak about rigidities in wage rate and prices. In case of sticky prices there is a possibility of unemployment as per the Keynesian model.

Phillips curve describes the inverse relationship between inflation and unemployment. It shows the possibility, or rather the compulsion on the part of policy makers, that unemployment can be reduced at the cost of higher inflation. Empirical observation from some economies, however, shows that Phillips curve is not stable in the long run. Due to change in inflationary expectations on the part of workers and employers there is a possibility of shifts in the Phillips curve. While short run Phillips curve is convex to the origin, the long run Phillips curve is vertical straight line at an unemployment rate equal to NAIRU.

13.9 KEY WORDS

Aggregate Demand: It tantamount to the sum of expenditure on consumption, investment, government expenditure and net exports. In symbols, AD = $C + I + G + (X-M)$.

Fiscal Policy: The policy of a government with respect to government expenditure and taxation.

Labour Force: The sum of population who are willing to work, and either employed or unemployed.

NAIRU: It is the abbreviation for non-accelerating inflation rate of unemployment. It is an unemployment rate that is consistent with a constant inflation rate. The NAIRU is the unemployment rate at which the long-run Phillips curve is vertical.

Phillips Curve: It is a graph named after A. W. Phillips, which shows the trade off between unemployment and inflation.

Real Wage: Nominal wage divided by price level.

13.10 SOME USEFUL BOOKS

Dornbusch, R., S. Fischer and R. Startz, 2004, *Macroeconomics*, Ninth Edition, Tata McGraw-Hill, New Delhi.

Sachs, Jeffrey. D. and Felipe Larrain B., *Macroeconomics in the Global Economy*, Prentice Hall Inc., New York.

Samuelson, P. A. and W. D. Nordhaus, 2005, *Economics*, Eighteenth Edition, Tata McGraw Hill, Delhi.

13.11 ANSWER/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) The basic assumptions underlying classical approach is flexibility in real wage and prices. Elaborate on the classical model based on Section 13.3

2) Keynes assumes rigidity in nominal wage rate. In the even of decline in prices, there is an increase in real wage, which does not clear the market for labour. Excess supply of labour compared to demand results in unemployment. Go through section 13.4.

Check Your Progress 2

1) Go through Section 13.5 and answer. You have to explain the nature of trade-off between inflation and unemployment.

2) Go through Section 13.7 and answer.