

Indian Economy

Higher Secondary – First Year

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Untouchability is a sin
Untouchability is a crime
Untouchability is inhuman



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Chapter I

Economic Growth and Development

Introduction

In this chapter, we shall study in outline the evolution of economic thought, the nature and meaning of the concepts of economic growth and development, the basic characteristics of underdeveloped countries (UDCs), the role of government in economic development and Rostow's stages of economic growth.

Evolution of Economic Thought

The history of economic thought deals with the origin and development of economic ideas and their interrelations. We find economic ideas in the writings of ancient Hebrews, Indians, Greeks, Romans and the scholars of middle ages. In the words of Prof. Bell, "economic thought is a study of heritage left by writers on economic subjects over a period of about 2500 years ; and it freely draws upon all phases of human knowledge". If we study ancient economic thought, we can have a proper understanding of the growth of economic theories and institutions.

The Hebrew Economic Thought

The Hebrews had one of the ancient civilizations of the world. The period dates back to 2500 B.C. The Hebrews never studied economic problems separately. In their writings, they gave top priority for religion and ethics. And they gave importance to agriculture. However, the Hebrews had definite ideas on subjects such as usury (interest), just price, property rights and monopoly.

The Hebrew thought was against lending of money on interest to fellow Hebrews. But they could lend money to strangers and get interest.

In those days, as money was borrowed by the poor for consumption purposes, they thought that it was unethical to charge high rates of interest. We may note that the Hebrew thought on interest is similar to the ancient Indian thought on interest. The Hebrews had many laws against false weights and adulteration. They wanted businessmen to charge a just price and they imposed ceiling on the profit margin. The Hebrews realized the dignity of labour. The Hebrew civilization was a rural and agrarian civilization. One of their proverbs is : "He that tilleth the soil shall have plenty of bread". The Hebrews did not cultivate the land every seventh year. They left it fallow. The object was to conserve the fertility of the soil. Another interesting feature of the Hebrew thought was the 'Jubilee year'. The jubilee year was the 50th year. According to Jubilee year, the land sold to someone was to revert to its owner in the 50th year. Money was used during the Hebrew Period. There are references to different kinds of money in the Old Testament.

The Sabbath : The Sabbath was the weekly day of rest, relaxation and good living. In the words of Spiegel, “ the institution of the weekend was a social invention that has no parallel in the civilizations of Greece, Rome or other ancient cultures”. In short, we find that religion, ethics, law, economics and philosophy were all bound together. Though the economic ideas of ancient Hebrews appear primitive to a modern economist, we should remember that they had a profound influence on men’s minds.

Greek thought, Roman law and Christian religion form the basis of European culture.

Economic Thought in Ancient India

Life, work and thought in ancient India was not based on a negation of life. It was not based on otherworldliness. As Pandit Jawaharlal Nehru put it, “There is no idolatry in them, no temples for the gods. The vitality and affirmation of life pervading them are extraordinary”.

The caste system was an important institution in ancient India. But we have to keep in mind that in the beginning, the basis of caste was profession and not birth. It was only during the latter period that the caste system became rigid and led to many abuses. The joint family was another important institution in ancient India. Agriculture was an important occupation in ancient India and it was held in high esteem and monarchy was the most popular form of Government. There was a certain amount of decentralization. For example, village assemblies enjoyed a measure of autonomy; interest rates were regulated and regulations were there against false weights and measures. Kautilya’s *Arthashastra* gives details of the political, social, economic and military organizations of the past. Thiruvalluvar’s *Thirukkural* is a book of ethics and it deals with Dharma or Aram (ethics), Artha or Porul (Polity) and Kama or Inbam (Love). Valluvar’s economic ideas are found mostly in the second part of the *Thirukkural*, the *Porutpal* or the part dealing with wealth. By *Porutpal*, Valluvar meant all that Kautilya meant by *Arthashastra*.

Valluvar considered freedom from hunger a fundamental freedom. He was against begging. He considered industry as real wealth and labour as the greatest resource. According to Thiruvalluvar, agriculture is the most fundamental activity. He tells that the ploughmen alone live as the freemen of the soil, the rest are mere slaves that follow on their toil. (Kural 1032). For Valluvar, good ethics is good economics.

Medieval Economic Thought : The period from 476 A.D, which marked the fall of the Roman empire to 1453 A.D., the year in which the Turks captured Constantinople is generally regarded as the Middle Ages. The society of the Middle Ages was a feudal society. People in middle ages lived in a natural economy. Men lived largely in small and self- sufficient units. The Church, the Bible and Aristotle exercised a great influence on the life and thought of Middle Ages.

Mercantilism

The economic ideas and policies which were followed by European governments from the 15th century until the second half of the 18th century may be described as *mercantilism*. The mercantilists thought that the wealth of a nation could be increased by trade. And they wanted to have more wealth by increasing the stock of gold and silver.

After feudalism came to an end, strong nation states emerged in England, France, Germany and Spain. And each country considered the other country as its potential rival. So the mercantilists regulated the economic activity of the State in order to create a strong and powerful State. Mercantilism was only economic means for the creation of a strong State.

If a country has mines, it can get gold and silver. Otherwise, it can get gold and silver only by means of trade. They wanted favourable balance of trade. That is, exports should be more than imports. As Alexander Gray put it, “it was thus a primary principle of the typical mercantilist to maximize exports while minimizing imports”.

According to mercantilists, trade was the most important occupation. Industry and manufacture were ranked second in importance. And agriculture was considered the least important occupation.

The State played a very important and powerful role during mercantilism. It encouraged exports and discouraged imports by a number of policies. Sometimes it is said that mercantilists confused money with wealth. But Keynes praised them saying that more money would promote business expansion. If each country wanted maximum exports and almost zero imports, then who would import ? In short, mercantilism was a “policy of power”.

The Physiocrats

The physiocrats developed a body of economic theory in the 18th century in France. Adam Smith, who is regarded as the Father of Economics was greatly influenced by the physiocrats. The term ‘*physiocracy*’ means ‘Rule of Nature’. Physiocracy was essentially a revolt by the French against mercantilism.

The physiocrats developed the concept of natural order. According to them, the natural order is an ideal order given by God. They believed that individual interests were identical with the interests of the society. They advocated *laissez-faire*. It means “let things alone, let them take their own course”. According to this policy, the State will have a minimum role to play. The main functions of government is to protect life, liberty and property. And they believed that agriculture was a productive occupation. It alone produced “net product”. And they considered other occupations as sterile. Quesnay, chief representative of physiocratic school explained how circulation of wealth took place in an economy in his “Tableau Economique” (The Economic Table) among

different classes: the productive class (farmers); the proprietary class; and the sterile class (all those engaged in non-agricultural occupations, e.g., merchants, domestic servants).

The physiocrats were great believers in the institution of private property. And they favoured free trade.

The classical school

Adam Smith, David Ricardo, T.R. Malthus and J.S. Mill are the leading economists of the classical school. Like the physiocrats, the classical economists believed in laissez faire, and market economy based on free trade.

Adam Smith was interested in the nature and causes of the wealth of nations. We can call him the first development economist. Ricardo was interested in the problems of distribution. Malthus, who gave the theory of population was interested in finding out why some countries were prosperous at one time and why they were poor at other times. In other words, he was interested in studying the prosperity and the poverty of nations. J.S. Mill believed in individualism as well as socialism. He advocated socialist reforms in distribution as the laws of distribution were different from the laws of production.

The historical school

The historical school was dominant in Germany during the second half of the 19th century. It was a revolt against the classical school. While the classical economists believed that the laws of economics were of universal application, the economists of the historical school argued that the laws of economics were relative. Thus, while the classical economists advocated free trade, the historical school advocated protection for new industries through tariffs.

Marxism

Karl Marx (1818-1883) was the founder of scientific socialism. He was a great critic of the capitalist system which was exploitative in nature and predicted that capitalism would give way to socialism. According to Marx, "*all history is a history of class struggle*". The teachings of Marx resulted in the birth of a socialist State in Russia and China. Planning which is the gift of former Soviet Russia to the world is based on socialist philosophy.

The Marginal Revolution

The Marginal Revolution that took place in the latter half of the 19th century is important for theory, especially the theory relating to value.

Today, we speak of human development. And man is brought to the centre stage. It was Alfred Marshall who pointed out that economics was on one side a study of wealth and on the other and more important side a part of the study of man.

The Institutional school

The institutional school is a 20th century phenomenon and it is of American origin. It emphasizes the role of institutions in economic life. The term “institutions” includes customs, social habits, laws, ways of living and modes of thinking. For example, slavery is an institution. We celebrate certain days as festivals. That is also an institution.

J.A. Schumpeter (1883-1993) considered economic life mainly as a process of change and development. According to him, innovating entrepreneurs play a key role in the process of economic development.

The Keynesian Revolution

J.M. Keynes is considered the Father of New Economics. During the 1920s and 1930s, when the capitalist countries were affected by the Great Depression marked by bad trade and mass unemployment, Keynes suggested a greater role for government and a bold fiscal policy to tide over the crisis. The New Deal policy of America was greatly influenced by Keynesian policy.

Since 1950s, economic thought has focused on growth and development.

Economic Growth and Development

Economic growth has been defined by Arthur Lewis as *“the growth of output per head of population”*.

In other words, economic growth refers to an increase in per capita national income. It may be noted that the subject matter is growth and not distribution. For example, during the Industrial Revolution in the U.K., there was economic growth. But there was no improvement in the standard of living of the working classes because they were exploited and made to work for long hours at low wages.

According to Arthur Lewis, economic growth is conditioned by (1) economic activity, (2) increasing knowledge and (3) increasing capital. In other words, these three factors are labour, technical improvements and capital. We may add land or resources to the list.

Economic growth and economic development have received a lot of attention in the 20th century. In an economy there must be balanced economic growth of all sectors – agriculture, manufacturing industry and the service sector. Only then, economic growth will benefit all sectors of the population. Not only that, economic welfare depends not only on the growth of output but on the way it is distributed among different factors of production in the form of rent, wages, interest and profits.

In the past, economic growth and economic development were used more or less with the same meaning. For example, they used rate of growth of income per capita or per capita GNP as index of economic development. And they wanted to see

whether the rate of growth of per capita income was greater than the rate of growth of population. We have to note one more thing. The wellbeing of population depends on the rate of growth of 'real' per capita GNP. Real per capita GNP refers to the monetary growth of GNP per capita minus the rate of inflation.

In general terms, we may say if there is decline in poverty, unemployment, and inequality, there is economic development in the country. Otherwise, even if per capita income doubled, we cannot say there is economic development. So when we say there is development, there must be improvement in the quality of life. That means, people must have higher incomes, better education, better health care and nutrition, less poverty and more equality of opportunity. So according to Michael P. Todaro and Stephen C. Smith, "development must be conceived of as a multidimensional process involving major changes in social structures, popular attitudes and national institutions, as well as the acceleration of economic growth, the reduction of inequality, and the eradication of poverty".

Characteristics of underdeveloped countries

The terms "underdeveloped", "less developed", "backward", and "poor" and "developing" are generally used to refer to low income countries. The countries which have low standard of living because of their low per capita incomes are known as underdeveloped countries. Countries are classified into developed and underdeveloped countries according to their per capita income. For example, in 1949, high income countries with 18% of world population enjoyed 67% of world income, whereas low income countries which had 67% of world population got only 15% of world income. The rich countries include United States, Canada, Western Europe and Australia. The poor countries cover most of Asia, Africa, south eastern Europe and Latin America. And there were middle income countries with a population of 15% which got 18% of world income. They consisted of countries such as Argentina, South Africa, Israel and former soviet Russia. The poor countries are collectively referred to as the Third World.

Even in 1973, the Third World with 77 percent of the world population subsisted on only 22 per cent of the world income. Even the meagre income is maldistributed within these countries and the bulk of the population live in abject poverty. According to Meier and Baldwin, an underdeveloped country has six basic economic characteristics. They are : (1) it is primary producing ; 2) it faces population pressures ; 3) it has underdeveloped natural resources ; 4) it has an economically backward population ; 5) it is capital deficient and 6) it is foreign trade oriented.

1) Primary production: The UDCs produce mostly raw materials and foodstuffs. A majority of the population will be engaged in agriculture. Some poor countries depend upon non – agricultural primary production (eg. minerals like tin, copper, aluminium and petroleum). And agricultural productivity is low. So rural incomes are low. There is pressure of population on land.

2) *Population pressures*: Generally, there is over – population in many poor countries. Population pressures take many forms. First, for example, they have rural underemployment. This is sometimes referred to as disguised unemployment. That is, there will be more number of people working on the farm than what is really necessary. The marginal productivity of the extra hands will be almost zero. Second, high birth rates create a large number of dependent children and lastly falling death rates with high birth rates will bring about a large increase in population.

3) *Underemployment*: Natural resources in poor countries are underdeveloped. They are unutilized, underutilized or misutilized.

4) *Economic Backwardness* : The economic backwardness of the population in the poor countries is reflected in low labour efficiency, factor immobility, lack of entrepreneurship, economic ignorance and so on. The population is ruled by customs and traditions. And people are not "economically motivated". The tax system is marked by inefficiency in collection and there is tax evasion. The Government in these countries are generally "weak, incompetent and corrupt".

5) *Capital Deficiency*: Capital deficiency is an important characteristic of poor countries. Capital formation or investment is low in these countries. According to Ragnar Nurkse, low capital formation is one of the basic causes of poverty in these countries. Low capital formation leads to low productivity. Low productivity results in low income and low incomes result in low savings and low savings lead to low capital formation. Thus, it forms a vicious circle of poverty.

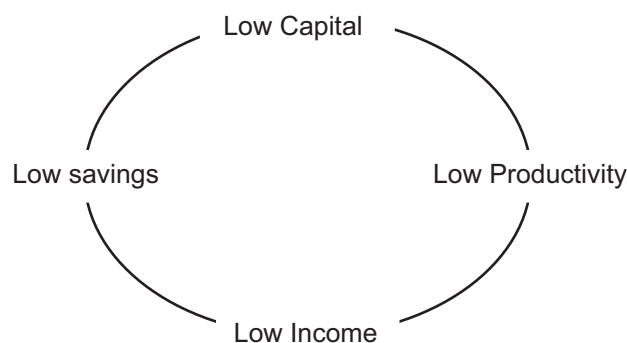


Fig. 1.1 : Vicious Circle of Poverty

6) *Foreign Trade Orientation*: Some of the poor countries depend heavily upon foreign trade. For example, in 1952, cotton contributed about 90 percent of foreign exchange earnings of Egypt. A risk involved here is if there is some serious economic problem in the importing nation, the country which depends on export of one or two commodities will be affected badly. And in the early stages of development, UDCs depended upon imports.

India as UDC: India, has most of the typical characteristics of an underdeveloped country. Nearly 65 to 70 percent of its population depends upon agriculture. And

agricultural productivity is low. There are population pressures. There is under development of natural resources and economic backwardness. Until recently, there was capital deficiency. That is why, we had to borrow heavily from foreign countries and international institutions like I.M.F and World Bank. So we may describe India as a typical undeveloped country. Nowadays, they call it a developing economy.

Role of the State in Economic Development

The State plays an important role in the economic development of nations. Japan after 1870 and Soviet Russia after World War I are good examples. But the economic development of the U.K and the U.S.A took place under a system of market economy and laissez-faire policy.

For underdeveloped countries, laissez-faire policy is a luxury. The State has to play the role of an entrepreneur in the underdeveloped countries. Nowadays, it is agreed that the Governments in these countries have to play a dominant role in implementing plans for economic development. In fact, Government is regarded as a factor of production in poor countries. For example, India is a mixed economy with a public sector and private sector. Until recently, the public sector played a major role in economic planning.

Through Five Year Plans, the State has been making attempts to achieve the goals of increasing economic growth, rapid industrialization, expansion of employment opportunities and reduction of inequalities of income and wealth.

The Government plays a very big role in the field of social services like education and health. Investment in education and health promote human capital formation, which is as important as physical capital formation. Education and health increase productivity of labour.

These are the days of globalization, liberalization and privatization. We invite foreign investment on a large-scale. But they want good physical infrastructure like good transportation, postal and telecommunications, power facilities, and water supply. All these things are referred to as social overhead capital. The Government has to make huge investment in these things. Not only that, there is shortage of entrepreneurs in these countries. So the Government has to encourage them.

There is shortage of foreign exchange in UDCs. The Government has to take steps such as promotion of exports, making investment attractive for foreigners through fiscal measures..

If development is left to market forces, there will be not be• balanced regional development. So the Government formulates policies and programmes in such a way that there is a balanced regional development. And the State has to regulate and control monopolies. Thus, the State has to play a dominant role in economic development.

Rostow's Stages of Economic Growth

W.W Rostow, American economic historian described the transformation of countries from underdevelopment to development terms of stages of growth. He is of the view that all countries must pass through the following stages.

1. The traditional society;
2. The transitional society;
3. The take-off stage;
4. The mature stage and;
5. The age of high mass consumption

The traditional society will be custom-bound and tradition-oriented. There will be economic backwardness. The poor countries of today and good examples of traditional society. In short, the factors which are essential for economic growth will be missing from such a society.

In the transitional society, the conditions for take-off stage will be established. During this stage, the force of customs and traditions will become less ; there will be economic motivation, and there will be improvements in physical and social infrastructure. When once an economy attains the take-off stage, there will be self – sustaining growth. The take-off stage refers to a situation where an economy transforms itself from a predominantly agricultural to a predominantly industrial society. For an economy to attain the take-off stage, it must make an annual investment equal to 20 – 25 percent of GDP mobilized from its own savings. The take-off stage was made possible in some countries by leading sectors like railways and defence. After the take- off stage, when the economy attains self sustaining growth, it enters the mature stage. During this stage, the government has to make some basic decisions. As there will be abundant resources and goods, it has to divide whether it has to use them for strengthening the nation into a strong and powerful state militarily or to use the resources for improving the welfare of the people. The final stage is the age of high mass consumption. During this period, people will consume all kinds of goods especially durable goods like cars on a mass scale.

Rostow's stages of economic growth are only broadly true. All nations have not gone through the order in which he has described the stages.

Chapter 1

Exercise

PART A

1. Choose the correct answer

1. The Sabbath (weak end) was introduced by
 - A. Hebrews
 - B. Greeks
 - C. Romans
 - D. Indians
2. The author of Arthasastra is
 - A. Thiruvalluvar
 - B. Kautilya
 - C. Jawaharlal Nehru
 - D. Mahatma Gandhi
3. The Mercantilists gave utmost importance to
 - A. Agriculture
 - B. Manufacturing industry
 - C. Trade
 - D. Imports.
4. The physiocrats considered only the following as productive occupation
 - A. Manufacturing industry
 - B. Agriculture
 - C. Service sector
 - D. Soldiers.
5. The father of New Economics is
 - A. Adam Smith
 - B. Marshall
 - C. Karl Marx
 - D. J.M. Keynes

II. Fill in the blanks

6. The economic ideas of Thiruvalluvar are found in the _____ Part of Thirukkural
7. The Mercantilists believed in maximum _____ and minimum imports
8. The physiocrats belonged to _____
9. The classical economists believed in _____ policy.
10. The author of stages of growth theory is _____

III. Match the Following

11. Historical school a) Karl Marx
12. Scientific Socialism b) U.S.A

- | | |
|---------------------------|---------------------------|
| 13. Institutional School | c) Germany |
| 14. Low capital formation | d) Value Theory |
| 15. Marginal School | e) Underdeveloped country |

IV. Answer each one of the questions in a word or two

- 16. What is the basis of European culture ?
- 17. Did mercantilism encourages exports or imports ?
- 18. Who was the author of Tableau Economique ?
- 19. Was Ricardo interested in the problems of production or distribution ?
- 20. What is the annual investment that must be made for an economy to take off ?

Part B

Write very short answers

- 21. Why did the physiocrats give importance to agriculture ?
- 22. What are the forms of population pressures ?
- 23. Explain the concept “economic development”
- 24. Write a note on take-off stage.
- 25. What is vicious circle of poverty ?

PART C

Write short answers

- 26. Write a note on Hebrew economic thought.
- 27. What is net product ?
- 28. Why is Keynes considered the father of new economics ?
- 29. What are the main ideas of leading classical economists ?
- 30. Why is India considered an underdeveloped economy ?

PART D

- 31. Discuss the mercantilist thought.
- 32. What are the essential ideas of the physiocrats ?
- 33. Explain the role of the State in economic development
- 34. What are the basic characteristics of underdeveloped countries ?
- 35. Describe Rostow’s stages of economic growth.

Chapter 2

Population

The study of human resources is important from the point of view of economic welfare. It is particularly important because human beings are not only instruments of production but also ends in themselves. A study of population is necessary as it is an important determinant of economic development

Meaning of Population

The term population refers to the whole number of people or inhabitants in a country or region.

Factors determining population growth

The basic factors determining population growth are

1. Birth rate
2. Death rate
3. Migration
 - a. Out-migration (Emigration)
 - b. In-migration (Immigration)

Birth Rate

Birth rate has a positive influence on growth of population. Higher the birth rate, higher will be the growth of population.

The birth rate depends on the following factors:

- i) the age of marriage
- ii) the rapidity of child birth
- iii) social customs and beliefs and
- iv) Illiteracy and ignorance of controlling births.

Early marriage, higher child birth, higher the spread of social customs and beliefs (like son preference to do the religious functions) and higher the rate of illiteracy and ignorance of birth controlling measures, higher will be the birth rate and population growth.

Social awareness and spread of education among the people can help to increase the mean age of marriage, increase the knowledge about family planning methods and family welfare measures to control births, reduce the rapidity of child birth and thereby reduce the birth rate.

Death Rate

Lower the death rate, higher will be the population growth and vice versa. High death rates may be due to hunger, starvation, malnutrition, epidemics, lack of proper medical and sanitary facilities. On the other hand, low death rates may be the result of better diet, pure drinking water, improved hospital facilities, control of epidemics and contagious diseases and better sanitation.

Migration

Out-migration will reduce population growth while in-migration will increase the population growth.

Migration is not an important factor contributing to the population growth due to the restrictions imposed by different countries. Thus, the two major causes for the variations in population are birth rate and death rate.

Population and Economic Development

Population growth can be both a stimulant as well as an obstacle to economic development.

Population as a stimulant to economic development

1. In a backward economy, population growth results in increase in supply of labour. This in turn results in the availability of cheap labour in the economy. Therefore, under a given technology with the availability of capital, production can be increased by increasing the labour use.

2. Population growth results in increased demand for products. Increased demand results in increased production, employment and income in the economy. As a result, the economy will develop.

3. Due to population growth, the supply of goods and services increases. Increased supply results in increased production, which in turn results in specialisation. Specialisation will induce technological improvements.

4. Increased demand and increased supply of products result in scarcity of resources, which induce technological improvements.

Population Explosion

Population explosion means the alarming and rapid rate of increase in population.

Causes of Population Explosion

1. High Birth Rate

High Birth rate is a major cause responsible for the rapid growth of population. In India, although the birth rate has declined from 45.8 per thousand during the period

1891-1900 to about 25.8 per thousand in 2001, it is still considered to be substantially high. This shows that the birth rate has not come down considerably in spite of the increase in the widespread propaganda of family planning, family welfare programmes and population education campaigns.

2. Low Death Rate

The phenomenal fall in the death rate in recent years is another important factor that has contributed to the rapid increase in population. The death rate in India is about 8.5 per thousand in 2001. Due to advancement in medical science, dreadful and chronic diseases such as small pox, cholera, plague, typhoid are no longer dreaded. Better facilities for sanitation and cleanliness, provision of pre-natal and post-natal care has reduced infant mortality rate.

3. Early Marriage

The practice of early marriage is another important reason for the rapid increase in population in India. The mean age of marriage for girls is about 18 years, which is low, compared to the other countries of the world, which is about 23 to 25 years. This results in a longer span for reproductive activity and the increase in the number of children.

4. Social and Religious reasons

In India, every person has to marry because marriage is a compulsory institution as per social norms. In joint family system, nobody feels individual responsibility and everybody has access to equal level of consumption. Therefore, people do not hesitate to increase the size of the family. Most of the people think that at least one male child should be born in the family. In the expectation of getting a male child, they go on increasing the family size.

5. Poverty

Poverty is another cause which contributes to the increase in population. Children are source for income of the family. The children at a very young age help their parents in work, instead of going to school and thus prove to be an asset for the family. Every additional child will become an earning member and thus supplement the family income.

6. Standard of living

People whose standard of living is low tend to have more children because an additional child is considered as an asset rather than a liability. Since a majority of the population is uneducated, they are unable to understand the need for family planning. They are unaware that a smaller size of family will help them enjoy a better standard of living.

7. Illiteracy

A major part of the population (about 60%) in India is either illiterate or has the minimum education. This leads them to accept minimal work in which they cannot even support themselves. Unemployment and under-employment further lead to poverty. Moreover due to the prevalence of higher rate of illiteracy, there is widespread ignorance in the form of social customs and beliefs like early marriage and preference for a male child. As a result, there is high rate of population growth in the country.

Population Explosion as an obstacle to Economic Development

India is facing the situation of population explosion. Although we need more labour supply for our economic development, it is also true that if our population keeps on rising, the process of economic development will be affected. The rising population in India affects economic development in the following ways:

(1) Food Shortage

If the population of India goes on rising and there is no proportionate increase in agricultural production, the country will face a serious food problem.

(2) Burden of unproductive Consumers

The greater the increase in population, the greater is the number of children and old persons. Children and old persons consume without their making any contribution to output. The increasing number of children and old people increase the burden in terms of more requirements of nutrition, medical care, public health and education that go unattended to a large extent.

(3) Reduction in National and Per Capita Income

The fast growing population retards the average growth rate of national income and per capita income. This is because whatever is added to the national income is consumed by ever-increasing population.

(4) Low savings and investment

The most serious consequences of a rapid increase in population is that it reduces the capacity to save and invest. The national income and per capita income in India is very low to leave any margin for the people to save. Further, there will be a fall in effective demand as the people's purchasing power is low. Rapid population growth thus makes it difficult to increase the rate of savings which determines the possibility of achieving higher productivity and incomes in a country.

(5) Reduction in Capital Formation

Capital formation is very essential for the economic development of a country, particularly for a developing country like India. Capital formation depends upon saving and investment. This is not possible when there is a rapid growth of population,

which results in more unemployment and underemployment. Thus, the fast-growing population affects the capital formation in the country adversely.

(6). Unemployment and Underemployment

Rising population aggravates the problem of unemployment. The labour force also increases with the increase in population; and this increased labour force is not fully absorbed due to lack of employment opportunities. Therefore, there are more unemployed and underemployed people.

(7) Loss of Women's Labour

Rapid and frequent childbirths make a large number of women unable to take part in productive activity for longer periods. This is a waste of human resource, and it retards economic development.

(8) Low Labour efficiency

The increasing population adversely affects the national income and the per capita income. Due to this, the people have a low standard of living, which makes them less efficient. This hinders the rapid development of the country.

(9) More Expenditure on Social Welfare Programmes

A rise in population increases the number of children. This would demand more social expenditure on medical care, public health, family welfare, education and housing, etc.

(10) Agricultural Backwardness

The increase in population has led to uneconomic holdings through subdivision and fragmentation of land holdings in India. The size of holding is so small that mechanised farming is not possible. Although some successful efforts towards development of agriculture have been made under the Five Year Plans, agricultural production still far short of the requirements of the population and the agro-industries in the country.

(11) Underdeveloped Industries

The rapid growth of population adversely affects industrial development. This is the reason why neither the cottage and small-scale industries nor large-scale industries could develop adequately in the country. Both big and small industries require adequate capital, whereas the rate of capital formation is low in India. Public investment in India is insufficient for the industrial development of the country.

(12) Financial Burden on Government

Rapid increase in population is a financial strain to the government. The resources have to be spent on launching poverty alleviation programmes and social

welfare schemes. This includes provision of good drinking water, housing, sanitary, health and medical facilities in order to increase the standard of living of the people. If the population is controlled, then the government can spend on more productive purposes which would increase the national and per capita income and thereby raise the standard of living of the people.

All these above mentioned factors emphasise the urgency of checking the population growth in India. The rapid rate of population growth affects the economic progress of the country adversely. That is why, it is sometimes said that in India we have to run and run to remain in the same place.

Steps to check rapid growth of population

(1) Couple Protection Rate (CPR)

CPR should be increased, which means the percentage of couples using birth control or family planning methods should go up.

(2) Infant Mortality rate (IMR)

IMR must be reduced further because when infants die in lesser numbers, there is an incentive to adopt small family norm by the people.

(3) Industrialisation of the country

The burden of population on land must be reduced. Cottage and small scale industries must be developed in villages to provide employment to the maximum number of people. This leads to increase in standard of living which acts as a check on population growth.

(4) Increase in Female Literacy Rate and Education

The educated people have a better and more responsible outlook towards the size of their families. They can understand the advantages of a small family and adopt family planning methods to reduce the family size. This will help in reducing the birth rate.

(5) Late Marriages

Late marriages must be encouraged. At the same time, early marriages must be strictly checked. The minimum age of marriage for boys at 21 years and for girls at 18 years should be strictly followed in real life.

(6) Legal Steps

Strict laws must be made and enforced to check early marriages and polygamy.

(7) Family Planning

This is the most important measure to check the rapid growth of population. Family Planning means limiting the size of the family. The Family Planning Campaign should be a national movement. Education about family planning must be made common. People must be made aware of the different methods of birth control.

Theories of Population

Malthusian Theory of Population

The Malthusian theory of population is the most well-known theory on population in economics. Malthus pointed out that an accelerated increase in population would outweigh the increase in food production. This would have an adverse impact on the development of an economy. This theory is explained in the following propositions:

1. The rate of growth of population is limited by the availability of the means of subsistence i.e. food. If the means of subsistence increase, population also increases unless it is checked.
2. Population increases at a faster rate than food production. In other words, while population increases in a geometric progression, food production increases in an arithmetic progression.
3. The preventive and positive checks are the two measures to keep the population on the level with the available means of subsistence.

The first proposition states that the size of population is determined by the availability of food production. In other words, greater production can sustain a larger population. If food production does not increase to match the rate of growth of population, it will lead to poverty. The want of food would result in deaths and thereby automatically limit the population. If the food production increases, the people will tend to increase their family size. This will lead to more demand for food, so the availability of food per person will diminish. This will lead to a lower standard of living.

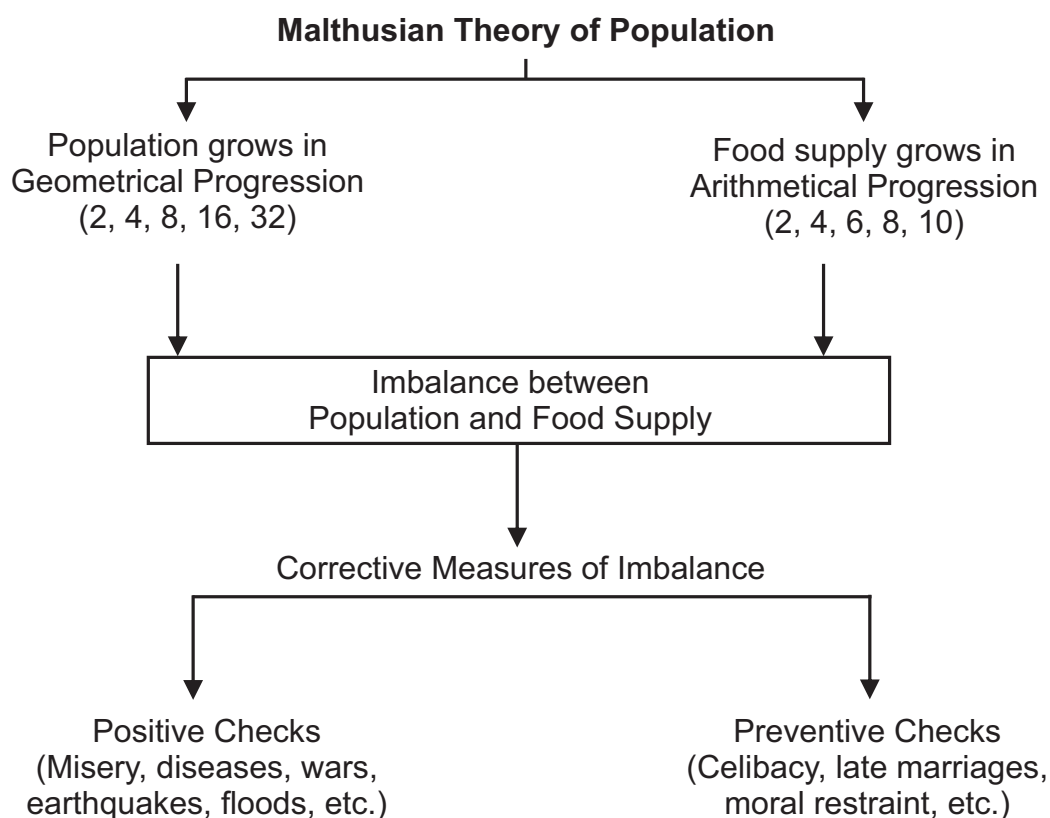
The second proposition states that population would increase at a geometrical progression i.e. in the ratio of 2, 4, 8, 16, 32, etc., but food production would increase at an arithmetical progression i.e. in the order of 2, 4, 6, 8, 10, etc. If population increases there will be a burden on land, which is limited; as a result there will be diminishing returns. This will lead to a decrease in the output per worker and a corresponding decrease in the availability of food per person. The imbalance between the population growth and food supply would lead to a bare subsistence of living, misery and poverty.

This imbalance is corrected by two checks namely preventive checks and positive checks.

Preventive checks are those checks applied by man to reduce the population. The preventive checks include late marriage, self-restraint and other similar measures applied by people to limit the family.

Positive checks affect population growth by increasing death rate. The positive checks on population are many and include every cause either from vice or misery which helps to shorten the life span. Common diseases, plagues, wars, famines unwholesome occupations, excess labour, exposure to the seasons, extreme poverty, bad nursing of children are a few examples for positive checks.

Malthus thus recommended that the preventive checks can be used by mankind to avoid misery or else the positive checks would come into operation. As a result, there will be a balance between population and food production. Malthusian theory is explained in the following Flow Chart.



The Theory of Optimum Population

The modern theory of optimum population brings out the relationship between changes in population and the consequent changes in per capita income. Modern economists such as Sidgwick, Cannon, Dalton and Robbins have propagated this theory.

Optimum population means the ideal population relative to the natural resources, stock of capital equipment and state of technology. There will be an ideal size of population at which per capita output (or real income per head) will be the highest.

In other words, *optimum population is that level of population at which per capita output is the highest*. A country is said to be underpopulated if the population is less than the optimum and overpopulated if the population is more than the optimum.

Illustration

Let us assume that the availability of natural resources, capital equipment and state of technology remain fixed in a country. The population is assumed to be small relative to these resources. When population increases, the labour force in a country also increases. As additional labour is combined with fixed amounts of these resources, the per capita output will initially rise due to greater specialisation and more efficient use of natural and capital resources available. As population increases, a point will be reached when capital and natural resources will be fully exploited and output will be the highest.

Thus, the level of population at which the per capita output is the highest is known as optimum population. Beyond this point, if the population increases, the country will become overpopulated and the per capita output will start decreasing because there are more workers in relation to natural resources in the economy.

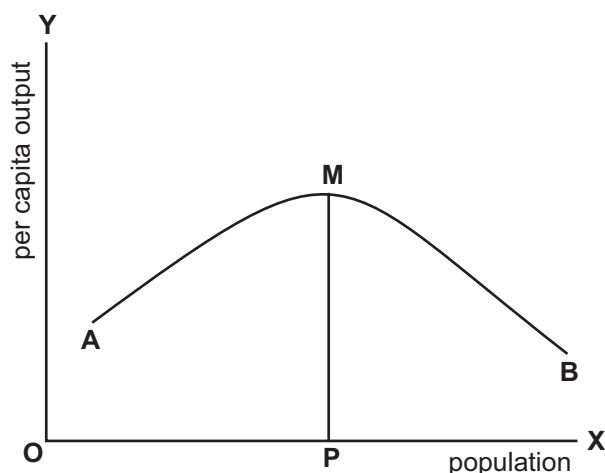
Thus, the given amount of capital and natural resources have to be shared among a larger number of workers resulting in smaller amount of equipment, materials and natural resources available per person to work with. Thus, the average productivity declines. With the fall in the output per head, per capita income and standard of living of the people also decline. Overpopulation leads to a low standard of living, disguised unemployment and food shortage.

Both underpopulation and overpopulation have shortcomings. It is optimum population with the highest per capita output which is best suited for a country. This is explained in Figure 2.1.

In the figure, size of population is measured on the X-axis and output per capita on the Y-axis. It is clear that as population increases, output per capita also increases till OM. At OP level of population, output per capita is the highest and is equal to MP. If population increases beyond the level OP, then per capita output will fall. Therefore OP is the optimum population. If the actual population is less than OP, a country is said to be underpopulated and if it is more than OP, it is overpopulated.

Figure 2.1

Theory of Optimum Population



The following formula measures whether population at a point of time is optimum or not

$$M = \frac{A-O}{O}$$

Where

M = Maladjustment in level of output

A = Actual population

O = Optimum population

If 'M' is zero, then the total population is equal to optimum population

If 'M' is positive, the total population is more than the optimum population.

If 'M' is negative, the total population is less than the optimum population

The Theory of Demographic Transition

The demographic transition brings out the relationship between fertility and motility, i.e. between the birth rate and the death rate. Birth rate refers to the number of births occurring per 1000 in a year. Death rate refers to the number of deaths occurring per 1000 in a year. This theory explains the changes in these rates as a consequence of economic development. This theory points out that there are three distinct stages of population growth.

Stage I: High Birth Rate and Death Rate

In the first stage, the country is backward and less developed. Agriculture will be the main occupation of the people and primitive mode of cultivation will be used. The standard of living of the people will be low. This stage is characterised by high birth rate and high death rate. The high death rate is due to poor diets, improper sanitation and

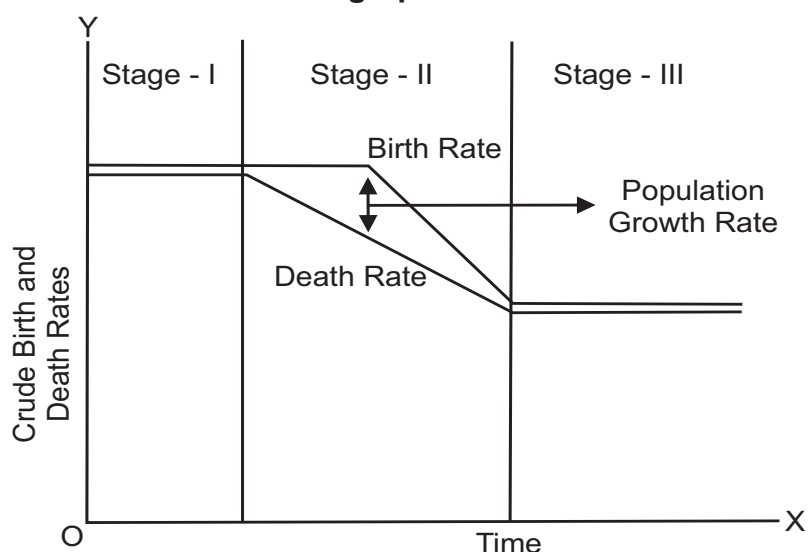
lack of proper medical facilities. Birth rate is high on account of widespread illiteracy, ignorance of family planning techniques, early marriages, social beliefs, customs and attitudes of the people. In this stage, the rate of growth of population is not high since high birth rate is offset by the high death rate and the population growth stagnates.

Stage II: High Birth Rate and Low Death Rate

As a country advances, it might result in increase in industrial activity, creating more employment opportunities. This will raise the national and per capita income of the people, thereby increasing their standard of living. The economy reaches the second stage of high birth rate and low death rate. The advancement in science and technology will result in the availability of better medical facilities.

The eradication of many epidemics and dangerous diseases and better sanitary conditions reduce the incidence of disease and death. The birth rate still remains high due to the resistance to change, and the long established customs and beliefs. Thus there is an imbalance between high birth rate and low death rate resulting in high population growth, and the country witnesses population explosion.

Figure 2.2
The Demographic Transition



Stage III: Low Birth Rate and Death Rate

Economic development leads to change in the structure of the economy from an agrarian to a partially industrialised one. With the increase in industrialisation, people migrate from rural to urban areas, and there is a change in the attitude of the people. With the spread of education, people prefer small families in order to increase the standard of living. Thus the birth rate is reduced.

Implementation of better medical facilities, control of disease and public sanitation result in low death rate. During this third stage of low birth and death rates, the growth of population tends to be stable. Almost all countries have passed through

these three stages (demographic transition) of population growth. The three stages of demographic transition are shown in Figure 2.2.

Census

The term 'Census' can be defined as the process of collecting, compiling, evaluating, analysing and publishing the demographic economic and social data relating to all persons in a country or a well-delimited part of a country at a specified time.

Census of population in India was taken in 1872 and then in 1881. From then onwards, the census is taken once in 10 years. The latest census was taken in 2001. Census is very important to know (1) the rate of growth of population (2) the changes in the distribution of the population.

Census is useful for economic planning, and for implementing welfare schemes and measures.

The Use of Population Census

The population census provides comprehensive details of India's population characteristics. The details recorded in the population census are as follows:

- a. Total Population
- b. Sex Composition
- c. Rural versus Urban population
- d. Age Composition
- e. Density of Population
- f. Literacy Rate
- g. Urbanisation
- h. Occupational Pattern

Characteristics of Indian Population

India accounts for about 2.4 percent of the total world area but has to support about 16.84 percent of the world population. The population in our country has been growing very rapidly from 238.5 million in 1901 to 1027 million in 2001. Thus during one century i.e. 100 years, the population of India has increased by nearly 788.5 million people. This order of increase is really alarming and threatening to the whole development process in India.

Table 2.1 Characteristics of Indian Population

India's population growth can be studied from the following table:

Population in 2001 (in million)			Sex Ratio (Females per 1000 Males)		Population Density (Per Sq.k.m.)		Literacy Rate (2001)		
Persons	Males	Females	1991	2001	1991	2001	Persons	Males	Females
1027	531	495	927	933	267	324	65.38	75.85	54.16

Population growth in India

India's population growth during the twentieth century can be classified into four distinct phases as follows.

Census Years	Percentage growth per annum	Nature of Growth
1901 - 1921	0.19	Stagnant Population
1921 - 1951	1.22	Steady growth
1951 - 1981	2.14	Rapid high growth
1981 - 2001	1.80	High growth with definite signs of slowing down

The growth of population was slow up to 1921 but after this year it increased significantly. It is for this reason that 1921 is described as the year of the Great Divide. After 1921, India passed through successively all the phases of demographic transition and now has entered into the fifth phase which is characterised by rapidly declining fertility.

Rate of growth of population is a function of birth rate and death rate. The increase in population in India can be explained by the variations in birth and death rates. The birth rate in India declined from 49.2 per thousand in 1901 to 25.8 in 2001. In the same period, the death rate has fallen from 42.6 per thousand to 8.5 per thousand.

The natural growth rate during 1901-1911 was 6.6 (Birth rate minus death rate during a given period) whereas it was 17.3 in 1991-2001. The increase in natural growth rate explains that the fall in death rate was more than the fall in birth rate. The fall in death rates were due to the development of medical facilities and control of epidemics and diseases. This is a very healthy sign of development. The census results of birth rate shows that the family planning programmes have to target the country especially the rural areas in a much more effective manner so that birth rate can still be reduced.

The National Population Policy (NPP)-2000 recently adopted by the Government of India states that “the long term objective is to achieve a stable population by 2045, at a level consistent with the requirements of sustainable development, and environment protection.”

Population Policy

India was the first developing country to adopt a population policy and to launch a nationwide family planning programme in 1952. The main objective of the population policy is to ensure that there is reasonable gap between the fall of death and birth rates. Population policy refers to the efforts made by any Government to control and change the population structure.

National Population Policy 2000

The National Population Policy (NPP) 2000 has the immediate objective of addressing the unmet needs of contraception, health infrastructure, health personnel and integrating service delivery for basic reproductive and child health care.

It also lays emphasis on the medium term objective of bringing total fertility rates to replacement level by 2010. A Total Fertility Rate of 2.1 is known as replacement level fertility.

The policy's long term objective is to stabilise population by 2045.

A National Commission on population presided over by the Prime Minister, Chief Ministers of all States and other dignitaries as the members has been constituted to oversee and review the policy (NPP-2000) implementation.

Similar to the National Commission, State Level Commissions presided over by the respective State Chief Ministers have also been set up with the same objective of ensuring implementation of the policies.

Measures to achieve a stable population

The National Population Policy has listed the following measures to achieve a stable population by 2045.

1. Reduction of infant mortality rate (IMR) below 30 per 1,00,000 live births
2. Reduction of maternal mortality rate (MMR) to below 100 per 1, 00,000 livebirths
3. Universal immunization
4. To achieve 80 percent deliveries in regular dispensaries, hospitals and medical institutions with trained staff
5. Access to information , containing AIDS, prevention and control of communicable diseases

6. Incentive to adopt two-child small family norm
7. Strict enforcement of Child Marriage Restraint Act and Pre-Natal Diagnostic Techniques Act
8. Raising the age of marriage of girls from 18 to 20
9. A special reward for women who marry after 21

The Action Plan of the programme includes the following:

- (i) Self-help groups at village Panchayat levels comprising mostly of housewives will interact with health care workers and gram panchayats
- (ii) Elementary education to be made free and compulsory
- (iii) Registration of marriage, pregnancy to be made compulsory along with births and deaths

The Government hopes to achieve the objective of population stabilisation by 2045

Chapter 2

Exercise

PART A

I. Choose the correct answer

1. Mention which is not a cause for Population Explosion.
 - a. High BR
 - b. Social customs
 - c. High DR
 - d. Poverty
2. T.R. Malthus published his book "Essay on the Principles of Population" in
 - a. 1896
 - b. 1776
 - c. 1857
 - d. 1798
3. Population increases in a _____ ratio, as explained by Robert Malthus.
 - a. Proportionate
 - b. Geometric
 - c. Arithmetic
 - d. Progressive

4. According 2001 Census, the population of India was
a. 236 million b. 890 million
c. 1000 million d. 1027 million
5. _____ refers to the rate of death occurring per thousand new born babies.
a. Natality b. Mortality
c. infant mortality d. death rate

II Fill in the blanks

6. Density of population rose to _____ per sq. km. in 1991.
7. When per capita income increases rapidly, it lowers the _____ rate.
8. _____ was the first demographer.
9. The quality of population in a country depends on the _____
10. India is said to be in _____ stage of demographic transition.

III Match the following

- | | | |
|--------------------------------|---|------------------------------|
| 11. First census | - | No. of deaths per 1000 |
| 12. Positive check | - | 2000 |
| 13. Death rate | - | Limit the size of the family |
| 14. National Population Policy | - | famine |
| 15. Family Planning | - | 1871 |

IV Answer the following in a word or two

16. Which theory of population is more realistic than the Malthusian Theory of Population?
17. What are the man-made checks of population growth?
18. Which is the most well-known theory of population in Economics?
19. Give examples for preventive checks.
20. What is the meaning of population explosion?

PART B

Answer the following in four or five line

21. Define birth rate.
22. Define Optimum Population.

23. Define Census.
24. Write a note on National Population Policy 2000.
25. What are the factors determining population growth?

PART C

Answer the following in about a page

26. Explain the causes of population explosion.
27. Examine the steps to check rapid growth of population.
28. Explain Malthusian theory of population.
29. What are the measures to achieve stable population?
30. Explain optimum theory of population.

PART D

31. Describe in brief the ways that affect economic development by rapidly increasing population.
32. Explain the theory of demographic transition.

Chapter 3

Poverty and Unemployment

Introduction

Two major problems that the developing countries of the world face are mass poverty and mass unemployment. They are interconnected. People are poor because they do not have income. That is because they are unemployed. There are also cases where people are employed and poor. For centuries, the problem of poverty is there in India. Reducing poverty is one of the major goals of planning in India. We must have knowledge about the poor and their precise social and economic circumstances. Only then the government can adopt effective policies for removing poverty.

Definitions of Poverty

Poverty has been defined in a number of ways. The World Bank (1990) has defined poverty as *“the inability to attain a minimal standard of living”*.

In the words of Dandekar (1981) *“want of adequate income, howsoever defined is poverty...”* Thus, lack of adequate income to buy the basic goods for subsistence living is an important element in the definitions of poverty.

Types of poverty

Absolute poverty and Relative poverty

When people do not have adequate food, clothing and shelter, we say they are in absolute poverty.

Relative poverty refers to differences in income among different classes of people or people within the same group or among people of different countries. If we divide the population of a country into different class intervals based on income and if we compare say, the top 20 percent of population with the bottom 20 percent of population, then we can say we are studying about relative poverty.

Temporary or chronic poverty

In countries like India, when there is poor rainfall, the crops fail and the farmers temporarily enter into a poverty sample. But when they are poor for long, then we call it chronic or structural poverty. For example, when agriculturists in many poor countries are dependent upon rain and when agriculture is marked by low productivity, we say farmers are in chronic poverty.

3. Primary Poverty and Secondary Poverty

Rowntree (1901) made a distinction between primary poverty and secondary poverty. Primary poverty refers to *“families whose total earnings are insufficient to obtain the minimum necessities for the maintenance of merely physical efficiency”*.

“Secondary poverty refers to a condition in which earnings would be sufficient for the maintenance for merely physical efficiency were it not that some portion of it is absorbed by other expenditure, either useful or wasteful such as drink, gambling and inefficient housekeeping.” Rowntree said that secondary poverty prevented many more people from meeting what he called “human needs standard” than did primary poverty (that is, inadequate incomes).

4. Rural Poverty and Urban Poverty

A majority of the people in rural areas are poor because they do not own assets like land and they work as agricultural labourers; their wages are low and they get work only for a few months in a year. The urban poor, on the other hand, work for long hours but they get low incomes. They are employed mostly in the unorganized or informal sector. They are “sub-employed”. Sub-employed are those 1) who work part- time but want full - time work; 2) family heads working full time who do not earn enough to bring their families over the poverty line and 3) discouraged workers who no longer seek work.

Other Dimensions of Poverty

In addition to the income based or economic view of poverty, there are other dimensions of poverty. For example, one can think of being housing poor, healthcare poor, education poor, poor in the possession of desirable physical or mental attributes.

Characteristics of Poor Households

Generally, households with lowest income per person tend to be large, with many children or economically dependent members. Over a typical year, the poor spend nearly all their income on consumption of one sort or another and half of this consumption is likely to be in the form of food. Naturally the relative prices of food staples (food grains, dhalls, oil, vegetables) are crucial to their welfare. Poor households generally invest in education for boys than for girls. The poor play little part in politics. In one sense they are disenfranchised. Of course, there are some exceptional cases. Crime, ill-health and lack of access to the poor are considered other correlates of poverty.

In many countries, poverty is correlated with caste and race. The scheduled caste and tribal people in India and the Blacks in the USA are classic examples.

The extent of poverty in a country depend mainly on two factors: (1) the average level of national income and (2) the degree of inequality in its distribution.

Poverty Line

Poverty Line refers to the minimum income, consumption, or, more generally access to goods and services below which individuals are considered to be poor. The poverty line is the expenditure level at which a minimum calorie intake and indispensable non-food purchases are assured.

It may be noted that even among the poor, there are differences in the degrees of poverty. So the focus of the government policies should be on the poorest of the poor.

Nutrition based poverty lines are used in many countries.

Poverty in India

Dandekar and Rath estimated the value of the diet with 2,250 calories as the desired minimum level of consumption. While the Planning Commission accepted Rs.20/- per capita per month (i.e. Rs.240/- p.a.), Dandekar and Rath suggested a lower minimum for rural population (Rs.180/- per capita p.a.) and a higher minimum (Rs.270/- per capita p.a.) for urban population at 1960-61 prices. At 1968-69 prices, the corresponding figures for the rural and urban population was Rs.324/- and Rs.486/- respectively. On this basis, they estimated that 40 percent of the rural population and about 50 percent of the urban population were below the poverty line.

According to P.D.Ojha, the percentage of those below the poverty line in rural sector increased from 52 percent in 1960-61 to 70 percent in 1967- 68.

B.S.Minhas by taking per capita annual consumption expenditure of Rs.240/- as the barest minimum concluded that nearly half of the rural population (50.6 percent) was living below the poverty line in 1968.

P.K.Bardhan's study concluded that the percentage of rural population below the poverty line increased from 38 percent in 1960-61 to 54 percent in 1968-69.

Montek Singh Ahluwalia's study of rural poverty (1977) arrived at the conclusion that the rural poverty declined initially from 50 per cent in mid – 1950s to around 40 percent in 1960-61, but increased to 56.5 percent in 1967-68. Whenever agricultural performance was good, rural poverty declined and whenever it was poor, it rose. It may be noted that Ahluwalia used an expenditure level of Rs.15/- in 1960-61 prices for rural areas and Rs.20/- per person per month for urban areas. Ahluwalia accepted that this level of expenditure represents an extremely low level of living.

The Seventh Finance Commission used a concept called "the augmented poverty line". In it, along with private consumer expenditure per capita, public expenditure on (1) health and family planning; (2) water supply and sanitation; (3) education; (4) administration of police, jails and courts; (5) roads; and (6) social welfare were taken into account. According to the estimate of Seventh Finance Commission, 52 percent of the population was below the poverty line. It also said that this percentage (52 percent) was applicable to urban as well as rural areas.

The Planning Commission estimated the poverty line by taking Rs.49.1 and Rs.56.6 per capita monthly expenditure for rural and urban areas respectively. The World Bank estimated for India that in 1988, 39.6 percent of the population was below poverty line. The percentage for rural areas was 41.7 percent and urban areas 39.6 percent.

According to the Planning Commission, the incidence of poverty for all-India declined from 54.9 percent in 1973-74 to 39.3 percent in 1987-88. For the same years, rural poverty declined from 56.4 percent to 39.1 percent and urban poverty declined from 49.2 percent to 40.1 percent.

Table 1: Percentage and Number of Poor in India

Year	Percentage of Poor	Number of Poor (in millions)
1973-74	54.9	321
1987-88	38.9	307
1993-94	36.0	320
1999-2000	26.1	260

Source: Planning Commission, Government of India.

At present as per Government of India, poverty line for the urban areas is Rs. 296 per month and for rural areas Rs. 276 per month. That is *people who earn less than Rs. 10 per day is considered to be below the poverty line*. As per GOI, this amount will buy food equivalent to 2200 calories per day, medically enough, to prevent death. At this level of earning, even in a poor country like India, survival on Rs. 10 per day is a nightmare. The greater developmental tragedy in India is that about 260 million people are still living without even Rs. 10 per day.

Causes of Poverty in India

The main causes of rural poverty in India are as follows :

1. Unemployment and underemployment: Even during the year in which there are good rains, agricultural labourers do not get work throughout the year.
2. Population pressures : Because of population pressure, there are many dependents per every earning member. And there is the problem of disguised unemployment. On a farm, there may be work for only four persons. But six or seven persons may be there on the farm. The marginal productivity of the extra persons is almost zero.
3. Indian agriculture is marked by low productivity. So majority of those engaged in agriculture are poor.
4. A majority of people in rural areas do not have enough assets, especially land. The main reason for this is the concentration of land in the hands of a few families.

The regional variations in the incidence of poverty are also high. For example, in 1987-88, 58 percent of the poor people in India were living in five states, namely, Uttar Pradesh, Bihar, Maharashtra, West Bengal and Madhya Pradesh.

Many workers in urban areas suffered from sub-employment. They are the *working poor*. And migration of people from rural to urban areas is also one of the causes of urban poverty.

Poverty alleviation programmes

The problem of poverty eradication is one of providing employment and raising the productivity of low level of employment. The following measures have been taken by the government to remove poverty from the country.

1. Land Reforms

Land reforms legislation has been passed by the state governments, which aim at improving the economic conditions of agricultural landless labourers. For instance, with the abolition of the Zamindari system, the exploitation associated with the system has been removed. Tenancy Laws have been passed in most of the states for protecting the interests of the tenants and helping them to acquire possession over the lands they cultivate. Every state has passed the necessary legislation fixing ceiling on agricultural holdings by which the maximum amount of land which a person can hold has been fixed by law. The surplus lands thus acquired were to be distributed to the landless labourers and small peasants.

2. Jawahar Gram Samridhi Yojana (JGSY)

It was introduced in April 1999 as a successor to Jawahar Rozgar Yojana on a cost sharing basis of 75 : 25 between the Union and States.

3. National Social Assistance Programme (NSAP)

It was launched on August 15, 1995 to provide social assistance benefits to poor households affected by old age, death of primary bread winner or need for maternity care.

4. Employment Assurance Scheme (EAS)

It was started on October 2, 1993 in 1778 backward blocks in drought prone, desert, tribal and hill areas. It was expanded to cover all the 5,488 rural blocks of the country. It gave wage employment to the rural poor. In September 2001, it was merged into new Sampoorna Gramin Rozgar Yojana along with Jawahar Gram Samridhi Yojana.

5. Pradhan Mantri Gramodaya Yojana (PMGY)

It was introduced in the Budget for 2000-2001 with an allocation of Rs. 5,000 crore. Its focus is on health, primary education, drinking water, housing and rural roads.

Common Property Rights in grazing lands, wastelands, forests and water resources were made available to the rural people in the past. They have been cancelled in the recent past due to commercialisation and privatisation of these rural community resources in the country.

6. Swarna Jayanti Shahari Rozgar Yojana (SJSRY)

Urban self-employment and urban wage-employment are the two special schemes under it. It substituted in December 1997 various programmes operated earlier for urban poverty alleviation. It is funded on 75: 25 basis between the Union and the States. The expenditure under this scheme was only Rs. 45.5 crore at the revised stage. It was Rs. 39.21 crore in 2001-02 and an allocation of Rs. 105 crore was provided for 2002-03 (Economic Survey, 2002-03, p.217).

7. Integrated Rural Development Programme (IRDP)

The concept of an Integrated Rural Development Programme was first proposed in the central budget for 1976-77, and a beginning was made in this regard. This programme was intended to assist rural population to derive economic benefits from the development of assets of each area.

The programme with some modifications was introduced on an expanded scale in 1978-79, beginning with 2,300 blocks, of which 2000 were under common coverage with SFDA, DPAP and CADP, with another 300 blocks added up during 1979-80. Its coverage was extended to all the blocks of the country since October 2, 1980.

Besides the smaller and marginal farmers, this programme was more specific in regard to agricultural workers and landless labourers, and additionally brought within its purview rural artisans also. The programme emphasised the family rather than the individual approach in the identification of the beneficiaries.

Unemployment

Meaning of Full Employment

Full employment refers to a situation in which all the workers who are capable of working and willing to work get an employment at reasonable wages. It does not imply that all adults have jobs.

Meaning of unemployment

Unemployment refers to a situation in which the workers who are capable of working and willing to work do not get employment.

Unemployment Estimates

A person working 8 hours a day for 73 days of the year is regarded as employed on a standard person year basis. The following are the three estimates of unemployment generated in the 27th round of NSS (National Sample Survey).

1. Usual Principal Status unemployment: It is measured as number of persons who remained unemployed for a major part of the year. This measure is more appropriate to those in search of regular employment e.g., educated and skilled persons who may not accept casual work. This is also referred to as 'open unemployment'.

2. Weekly Status unemployment: It refers to the number of persons who did not find even an hour of work during the survey week.

3. Daily Status unemployment: It refers to the number of persons who did not find work on a day or some days during the survey week.

Causes of Unemployment

1. High Population growth: The galloping increase in population of our country during the last decade has further aggravated the unemployment problem in the country. Due to rapidly increasing population of the country, a dangerous situation has arisen in which the magnitude of unemployment goes on increasing during each plan period.

2. Insufficient Rate of Economic Progress: Although India is a developing country, the rate of growth is inadequate to absorb the entire labour force in the country. The opportunities of employment are not sufficient to absorb the additions in the labour force of the country, which are taking place as result of the rapidly increasing population in India.

3. Absence of employment opportunities in activities other than agriculture: As enough other employment opportunities are not available, agriculture is the principal area of employment in our country. Thus, pressure on land is high, as about 2/3 of the labour force is engaged in agriculture. Land is thus overcrowded and a large part of the work force is underemployed and suffer from disguised unemployment.

4. Seasonal Employment: Agriculture in India offers seasonal employment; thus agricultural labour remains idle during the off-season.

5. Joint Family System: Existence of joint family system in India promotes disguised unemployment. Usually the members of a family work on their family farms or do family business. There are more workers on a family farm than what would be needed on them.

6. Increasing turnout of students from Indian Universities: During the last decade, educated unemployment has increased due to rapid turnout of graduates by the Indian universities. Moreover, in the Indian educational system, more emphasis is placed on engineering and other Technical subjects rather than on Arts subjects. But there is unemployment amongst technical graduates as well. There is a lack of proper vocational education in the country.

7. Slow Developing of Industries: Industrialization is not rapid in our country and industrial labour finds few job opportunities. The agricultural surplus labour force is not absorbed by the industrial sector. This leads to disguised unemployment in agriculture.

Measures to Solve Unemployment Problem in India

A close reading of the Five-Year Plans reveals that in every Five- Years Plan, employment expansion has been emphasised as an objective of development. Despite all the plan pronouncements, the backlog of unemployment has increased. This is because each Plan was not even able to absorb the new entrants in the labour force.

The following measures have been suggested for solving the unemployment problem in our country:

1. A Change in the pattern of investment

The planning process in the initial stages gave importance to an investment-allocation pattern with a high capital-labour ratio. Therefore, a shift in the emphasis to mass consumer goods industries would generate more employment to absorb the unemployed labour force. Moreover, increase in the supply of such goods may help arrest the rising price-level and increase the economic welfare of the people. This is the wage-goods model of development suggested by Vakil and Brahmanand.

2. Encouragement to small enterprises as against big enterprises

The employment objective and the output objective can be achieved, if greater investment is directed to small enterprises rather than to large enterprises. Now that the Government wants to undertake decentralised development with emphasis on small-scale enterprises, it would be desirable to reorient credit, licensing, raw material allocation and other policies in such a manner that both employment and output are enlarged simultaneously.

3. Problem of Choice of technique

It would be better to switch over to intermediate technologies till the process of industrialisation gets such a powerful momentum that the new entrants to labour force can be absorbed. During the period of rapid growth in the labour force, it would be advisable to adjust the choice of techniques consistent with the employment objective. Intermediate technology would be more suited to Indian conditions.

4. Encouragement of New Growth Centres in Small Towns and Rural Areas

Experience of planning has revealed that the overcrowded metropolitan centres have received a large share of investment. Therefore, the smaller towns should be developed as new growth centres for the future. The establishment of small industrial complexes can increase employment opportunities and provide flexibility to the economy.

5. Subsidies on the Basis of Employment

All schemes of subsidies and incentives to large and small industries have helped output maximisation and greater use of capital resources. The pattern of

subsidies should be altered. Creation of more employment should be treated as the basis for the grant of subsidies and incentives. This will shift the entire structure of government support from the large-scale producer to the small-scale producer as this is more consistent with the objective of employment generation and achieving equality and social justice.

6. Reorientation of Educational Policy

One great defect of our educational system is that it leads one to take up the professional degree only. The high degree of unemployment among the educated signifies the urgent need to reorient our educational system to greater employment opportunities. Education system should be more diversified. It should have more short term vocational courses that will cater to the local employment needs. Development of quality education is a prerequisite for the development of a nation as it is the remedy for all problems including the problem of unemployment in the country. Hence, a high priority needs to be accorded for education in public expenditure.

7. Underemployment in Rural Areas

N.S.S. data have revealed the existence of a high degree of underemployment in India. The total number of underemployed persons available and willing to take up additional work is estimated to be more than two crores. It is necessary to organise the Rural works Programme. Failure of implementation of Rural Works Programme underlines the relatively low importance given to the rural sector to provide additional employment to millions of landless labourers and small and marginal farmers. Urgent action is needed in this direction so that work opportunities grow in the rural areas. This will raise the level of income and employment in rural areas and reduction in poverty levels.

Chapter 3

Exercise

PART A

I Choose the correct answer

1. Basic needs like food, clothing and shelter are _____ needs.
 - a. Physical
 - b. Social
 - c. Psychological
 - d. Cultural
2. When a person lives below the minimum subsistence level, he is said to live in poverty.
 - a. Absolute
 - b. Relative
 - c. Abstract
 - d. None

3. All poverty alleviation programmes implemented so far have less or no effect due to
 - a. Unemployment
 - b. Joint family system
 - c. inequality
 - d. corruption
4. The Planning Commission of India defined poverty on the basis of
 - a. Income
 - b. Consumption
 - c. Calorie intake of food
 - d. Employment
5. Agriculture gives rise to _____ unemployment.
 - a. cyclical
 - b. stru.
 - c. seasonal
 - d. professional

II Fill in the blanks

6. Poverty is of _____ types.
7. India presently suffers from _____ unemployment which exists in open and disguised forms.
8. Our planning was not at all _____
9. Many workers in urban areas suffered from _____
10. Existence of joint family system in India promotes _____

III Match the following

- | | | |
|----------------------------------|---|-----------------------------|
| 11. Employment assurance scheme | - | April 1999 |
| 12. Disguised unemployment | - | Engineering |
| 13. Jawahar gram samridhi yojana | - | Rural works programme |
| 14. Indian Educational System | - | low productivity employment |
| 15. Underemployment | - | 199 |

IV Answer the following in a word or two

16. What is the major goal of planning in India?
17. What was the basis on which Planning Commission defined poverty line in rural areas?
18. What is the main reason for poverty in India?

19. What is the prerequisite for the development of a nation?
20. How many underemployed persons are there in India?

PART B

Answer the following in four or five lines

21. Why unemployment among educated people is increasing?
22. Name the 5 states in India where 58% of the poor people live?
23. Define Poverty.
24. Define Poverty line.
25. Define unemployment.

PART C

Answer the following questions in about a page

26. Distinguish between Rural and Urban poverty.
27. What are the estimates of unemployment?
28. What are the causes of poverty in India?
29. What are the causes of unemployment?
30. Examine the extent of poverty in India?

PART D

31. Describe the various measures taken to solve unemployment problem in India?
32. Briefly explain the programs implemented to alleviate poverty.

Chapter 4

National Income

Some countries are rich, some are poor and yet some others are in-between. How do we measure the performance of an economy? Performance of an economy is related to the level of production (of goods and services) or total economic activity. Measures of national income and output are used in economics to estimate the total value of production in an economy. The standard measures of income and output are Gross National Product (GNP), Gross Domestic Product (GDP), Gross National Income (GNI), Net National Product (NNP), and Net National Income (NNI). In India, the Central Statistical Organisation has been estimating the national income.

You measure your academic performance in relation to other students by the percentage of the marks scored by you. Similarly a country's economic performance has been measured by indicators of national income such as GDP or GNP. Further, measuring national income is essential for various purposes that include projection about the future course of the economy, assisting government as the basis to design (or redesign) suitable development policies, helping firms in forecasting future demand for their products and facilitating international comparison.

National income per person or per capita income is often used as an indicator of people's standard of living or welfare. However, many development economists have criticized that GNP as a measure of welfare has many limitations. They argued that human well-being does not depend on national income alone. As measures of GNP exclude poverty, literacy, public health, gender equity, and many human issues of well-being, they developed other measures of welfare such as the Human Development Index (HDI).

Some rich countries in terms of national income are poor in human development. Similarly, poor countries in terms national income have performed well in human development. In the case of India, though the GDP is growing faster, its performance in terms of HDI is far below than that of many countries.

Definitions of National Income

National income is a measure of the total value of the goods and services (output) produced by an economy over a period of time (normally a year). It is also a measure of the income flown from production, and/or the sum total of all the spending involved for the production of output. The following are some of the notable definitions.

Alfred Marshal :

“The labour and capital of the country acting on its natural resources produce annually a certain net aggregate of commodities, material and immaterial, including

services of all kinds... This is the net annual income or revenue of the country, or the national dividend.”

Irving Fisher:

“The national dividend or income consists solely of services as received by ultimate consumers, whether from their material or from their human environment.”

National Income Committee of India,:

“ National income estimate measures the volume of commodities and services turned out during a given period counted without duplication.”

Paul A. Samuelson:

“ Gross national product (GNP) is the most comprehensive measure of a nation’s total output of goods and services. It is the sum of the dollar (money) value of consumption, gross investment, government purchase of goods and services and net exports”.

Though there are some variations among these definitions, the basic idea is very clear – national income is simply the income of the whole nation. The basic concepts will help to understand it more precisely.

Basic Concepts

Gross National Product

Gross National Product (GNP) is the total value of output (goods and services) produced and income received in a year by domestic residents of a country. It includes profits earned from capital invested abroad.

Gross Domestic Product

Gross Domestic Product (GDP) is the total value of output (goods and services) produced by the factors of production located within the country’s boundary in a year. The factors of production may be owned by any one – citizens or foreigners.

$GNP - \text{Net income earned from abroad} = GDP$

Thus, GDP measures income from where it is earned rather than who owns the factors of production.

Net National Product

Net National Product (NNP) is arrived at by making some adjustment, with regard to depreciation, in GNP. As noted above, GNP is the total value of output produced and income received in a year by domestic residents of a country. Over this one year period, the available plant and machinery (capital) will wear and tear and get condemned. Such decline in the capital assets due to wear and tear is measured as

‘capital depreciation’. NNP is arrived at by deducting value of such depreciation from GNP.

$$\text{That is } \text{GNP} - \text{Depreciation} = \text{NNP}$$

Net Domestic Product

Net domestic product (NDP) is also arrived from GDP by making adjustment with regard to depreciation in the same way described above. (NDP is calculated by deducting depreciation from GDP)

$$\text{GDP} - \text{Depreciation} = \text{NDP}$$

Per Capita Income

Per capita income (or) output per person is an indicator to show the living standards of people in a country. If real PCI increases, it is considered to be an improvement in the overall living standard of people. PCI is arrived at by dividing the GDP by the size of population. It is also arrived by making some adjustment with GDP.

$$\text{PCI} = \frac{\text{GDP}}{\text{Total number of people in a country}}$$

GDP and GNP

While GDP indicates productive capacity of an economy, GNP is a crude indicator for living standard. The significance of the distinction between GNP and GDP depends on the nature of a particular economy. For instance, if a country has more non-resident inflows and produces a considerable portion of its output by multinational corporations (i.e. with the help of external factors of production), its GNP will be higher than GDP. Otherwise the distinction will be negligible.

Many countries have foreign firms. In the case of US Ford Motors in Chennai, the income from the car factory would be counted as Indian GDP and not as US GDP. But the amount of profit the company sends to US will be added to their GNP. Similarly, our GNP can be arrived by adding to our GDP the net factor income receipts from abroad for the factor inputs owned by Indians. That is, the non-resident Indians income will be added to GDP to arrive at our GNP.

NI at Current Prices and Constant Prices

The concepts of national income discussed above can be measured either at ‘current price’ or at ‘constant price’. The measure based on current price uses the ongoing market prices to compute the value of output. It is quite possible that the current price may always be higher than real value due to many factors like taxes and inflation (or rising prices). Hence, national income arrived at ‘current price’ includes such influences as inflation and taxes.

With inflation as a common feature in almost all the economies, it is necessary to measure the national income after deducting any such increase in the value of any output or income. National income at 'constant price' measures the national income after making necessary adjustment to eliminate the effect of inflation. Thus it is based on unchanged price of output. As the national income at 'constant price' is computed based on the real worth of the purchasing power of income, it is also called as 'real national income' or national income in 'real' terms.

Need for the Study of National Income

A national income measure serves various purposes regarding economy, production, trade, consumption, policy formulation, etc. The following are some such needs.

1. To measure the size of the economy and level of country's economic performance.
2. To trace the trend or speed of the economic growth in relation to previous year(s) as well as to other countries.
3. To know the structure and composition of the national income in terms of various sectors and the periodical variations in them.
4. To make projection about the future development trend of the economy.
5. To help government formulate suitable development plans and policies to increase growth rates.
6. To fix various development targets for different sectors of the economy on the basis of the earlier performance.
7. To help business firms in forecasting future demand for their products.
8. To make international comparison of people's living standards.

Circular Flow of Income

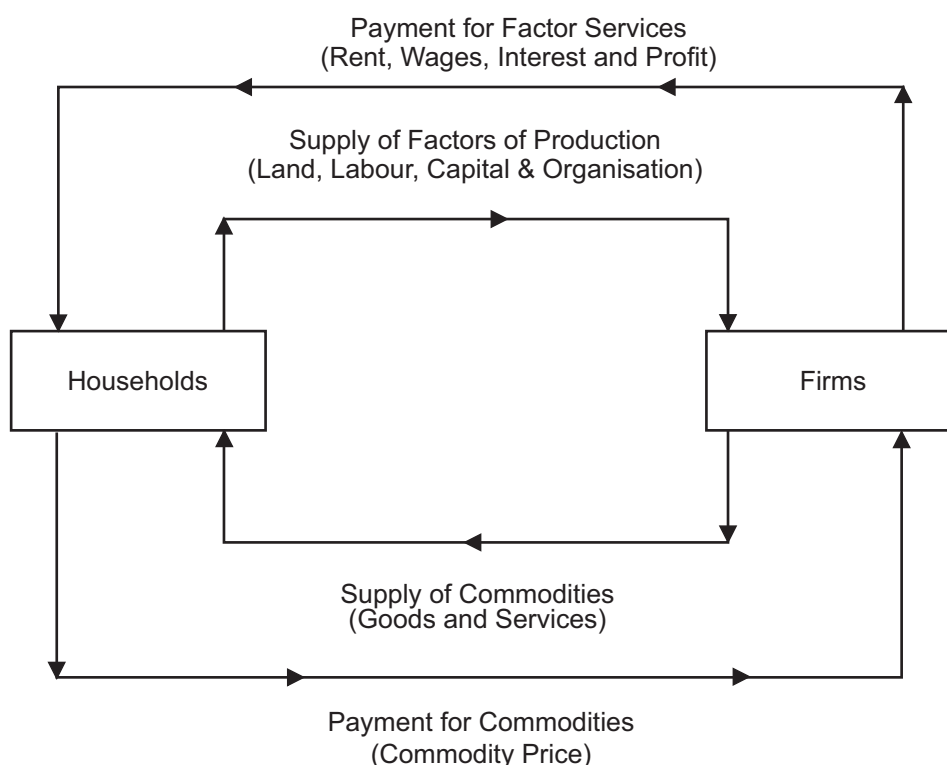
Before discussing the calculation of national income, a brief introduction of the circular flow of income would be helpful. The circular flow of income is explained with a simplest model consisting business (firms or producers) and public (households or consumers). The public own the productive resources (i.e. factors of production namely land, labour and capital). Business sector or producers employ the factors of production to produce the goods and services. Such goods and services are bought by the public.

Thus public own the factors of production and provide them to producers. The producers employ the factor *inputs* to produce *output* of goods and services, which is bought by the consumers (public). For the employment of factor services, the public receive the factor *income* namely rent (for land), wages (for labour) and interest (for

capital). This *income* flows back from the public to the business sector as consumption *expenditure* to buy the goods and services.

Thus, the flow chart consist two segments – real flow and money flow. As the outer flow in Figure 4.1 shows the flow of *input* (factors viz. land, labour, capital and organisation) and *output* (goods and services), they represent the real economy (or real flow). The inner flow shows the money received as factor *income* (rent, wage, interest, and profit) and it goes to the producer as consumption *expenditure* (commodity price) to buy the goods and services. As this flow chart involves only income received and expenditure made in terms of money, it represents the money economy (or money flow).

Figure 4. 1 Circular Flow of Two Sectors



The most important point to be noted for the computation of national income is that income (Y) received is equal to the consumption expenditure (C) made by the consumers, i.e. $Y=C$.

This simple circular flow model is explained without the other components of national income namely savings or investment (I), public expenditure by government (G) and expenditure on net exports (X-M). If we include all the above components of national income $Y= C$ will become

$$Y = C + I + G + (X-M)$$

Thus national income is the aggregate summation of income or expenditure made through these four components, consumers (C), investors (I), government (G) and foreign trade (Exports [X] – Imports [M])

Methods of Calculating National Income

There are three different methods of calculating national income. They are

1. Product or Output Method
2. Income Method
3. Expenditure Method

As noted above, GDP is the measure of an economy's total output. It is also used as a measure of total income and total expenditure in that economy. Figure 4.1 clearly shows that factor *incomes* received by the public is being *spent* to buy the *output* of goods and services produced.

Hence, *income* is equal to *expenditure* and expenditure is equal to the value of *output* produced in the economy.

$$\text{Income} = \text{expenditure} = \text{output}$$

$$Y = E = O$$

The model can further be extended by adding the other components of national income namely investment (I), government (G), and foreign trade (X-M). In the extended model, savings of public, taxes and import payments will be deducted from the income. Hence, they are called leakages from the circular flow. Similarly, investment expenditure, government expenditure and net expenditure on trade will be added in to the circular flow. These additions are called injections. However, after aggregating all leakages (outflow) and injections (inflow) in any one year, the total income components of the economy will be equivalent to the total expenditure or total output. Therefore, all the three methods are supposed to give same results.

Output or Product Method

In the output or product method, the measures of GDP are calculated by adding the total value of the output (of goods and services) produced by all activities during any time period, such as a year. The major challenge of this method is the problem of double-counting.

The output of many businesses is the inputs of some other businesses. For example, the output of the tyre industry is the input of racing bike industry. Counting the final output of both industries will result in double-counting of the value of tyre. This problem can be avoided by including only the value added at each stage of production or by adding only the final value of output produced.

Income Method

In the income method, the measures of GDP are calculated by adding all the income earned by various factors of production which are engaged in the production of output. The various incomes included to compute the gross national income are:

- Wages and salaries
- Income of self-employed
- Profits and dividends of business corporations
- Interest
- Rent
- Surplus of government enterprises
- Net flow of income from abroad

All of them are known as factor incomes and they are paid in return for the inputs engaged in some productive process which have resulted in corresponding output. The sum of all these incomes (or factor prices) provide us the measure of national income.

Expenditure Method

In the expenditure method, the measures of GDP are calculated by adding all the expenditures made in the economy. The essential components of expenditure are:

C	=	consumption expenditures
I	=	domestic investment
G	=	government expenditures
X	=	exports of goods and services
M	=	imports of goods and services
NR	=	net income receipts from assets abroad

The sum of all these aggregate expenditure provides us the measure of national income.

$$GDP = E = C + I + G + (X-M)$$

where E is aggregate expenditure.

All the above three methods must yield the same results because the total expenditures on output must by definition be equal to the value of the output produced which must be equal to the total income paid to the factors that produced these goods

and services. However, in practice, there will be minor differences between these results due to changes in inventory levels and timing discrepancies. The following are some of the national income identities.

NNP = GNP - Depreciation

NNI = NNP - Indirect taxes

PI = NNI - Retained earnings, corporate taxes and interest on public debt

PDI = PI - Personal taxes.

Where, GNP - Gross National Product

NNP - Net National Product

NNI - Net National Income

PI - Personal Income

PDI - Personal Disposable Income

Problems in calculating National Income

The measurement of national income encounters many problems. The problem of double-counting has already been noted. Though there are some corrective measures, it is difficult to eliminate double-counting altogether. And there are many such problems and the following are some of them.

Black Money

In countries where level of illegal activities, illegal businesses and the level of corruption are very high, the circulation of black money is so high, it has created a 'parallel economy'. It means unreported economy which is equivalent to the size of officially estimated size of the economy. GDP does not take into account the 'parallel economy' as the transactions of black money are not registered. In India, black money is all-pervasive, affecting not only the economy but also the society at large. The black economy as percentage of GDP is estimated to have grown from about 3 percent in the mid-fifties to 40 per cent by 1995-96.

Non-Monetization

In most of the rural economy, considerable portion of transactions occurs informally and they are called as non-monetized economy. The presence of such non-monetary economy in developing countries keeps the GDP estimates at lower level than the actual.

Growing Service Sector

In recent years, the service sector is growing faster than that of the agricultural and industrial sectors. Many new services like *business process outsourcing* (BPO)

have come up. However, value addition in legal consultancy, health services, financial and business services and the service sector as a whole is not based on accurate reporting and hence under-estimated in national income measures.

Household Services

The national income analysis ignores domestic work, and housekeeping and social services. Most of such valuable work rendered by our women at home does not enter our national accounting.

Social Services

It ignores volunteer and unpaid social services. For example, the wonderful services of Mother Teresa is invaluable for millions of poor, destitute, orphans and the diseased but at the same time not included in our GDP.

Environmental Cost

National income estimation does not distinguish between environmental-friendly and environmental-hazardous industries. The cost of polluting industries is not included in the estimate.

National Income Series in India

After independence, a regular national accounts system was initiated in the mid-sixties. Indian system of national account statistics (NAS) follows the United Nation's (UN) system of national accounts (1968). Based on the National Income Committee's recommendation (1954), the Central Statistical Organisation (CSO) has been making continuous efforts to improve the quality of these statistics. Shifting the base year to revise the series is one such effort.

The CSO revised its national accounts series by shifting the base year to 1970-71. With improved data base and extended coverage, the CSO revised its series again by shifting the base year to 1980-81, and then to 1993-94. Recently CSO has revised its series within six year period by shifting the base to 1999-2000.

Trends in National Income

As noted already, national income is a rough indicator to measure the economic growth performance of a country. The outcome of India's development effort can be seen, to some extent, in terms of the size, growth and the composition of our national income.

Table 4.1 Growth of National Income in India (in percent)

Sector	1950-1980	1980-2005
GDP Total	3.5	5.6
GDP Per capita	1.4	3.6

Source: Computed from Central Statistical Organisation.

Table 4.1 provides the trend of the GDP growth from the year 1950 to 2005. The size of the national income at constant prices has increased by about 15 percent during this period. The growth rate of national income has increased from 3.5 percent during 1950-80 to 5.6 percent during 1980- 2005.

Trends in Per Capita Income

Table 4.1 also gives the trend of per capita income. The size of the per capita income at constant prices has recorded only five fold increase from 1950 to 2005. The growth rate of per capita income during the same period has increased from 1.4 percent to 3.6 percent. The per capita income is not the correct indicator for the living standards of people. The actual income of the people would have deviated well above or below than that of the per capita income. Some measure of poverty and income inequality would help us to understand the actual distribution of the income growth achieved.

Sectoral Composition of National Income

National income is derived from many sectors. We generally classify them into three major sectors namely primary, (agriculture), secondary (manufacturing) and tertiary (services). During the initial stage of development, share of primary sector in the national income will be high. But this will decline during the course of development and share of industry will be greater. At very high level of development, the share of service sector in the national income will be more.

Table 4.2 Sectoral Composition of National Income (in percent)

Year	Primary	Secondary	Tertiary	Total GDP
1950-51	59	13	28	100
1980-81	42	22	36	100
2002-03	24	24	52	100

Source: Central Statistical Organisation.

Note : Figures upto 1990-91 are based on 1993-94 series. From 2000-01 onwards, figures are based on the new series with 1999-2000 as the base year.

Table 4.3 Sectoral Growth Rate of National Income in India (in percent)

Sector	1950 - 80	1980 - 05
<i>Primary Sector</i>	2.2	2.9
<i>SecondarySector</i>	5.3	6.1
<i>Teritary Sector</i>	4.5	7.1

Source: Central Statistical Organisation

The sectoral composition of national income presented in Table 4.2 confirms such general pattern but partially. The share of primary sector has declined from 59 per cent to 24 percent. However, the industrial sector has not grown to the expected level. Instead, the service sector has almost reached more than half (52 %) of our national income. The growth rates of these three sectors presented in Table 4.3 also show similar trend.

International Comparison of National Income

We have compared the growth performance of India since independence to date. How has India performed with other countries of the world? Table 4.4 provides such a comparison of per capita income with reference to some select countries. The performance of India in terms of the per capita dollars in 2001 in relation to high and middle income countries of the world is far below. With a per capita dollar of 460, India has just managed to be marginally above the average per capita income of (430) very poor countries in the world.

Table 4.4 International Comparison of National Income (2001)

Name of the Country	Per Capita Income in dollars)
<i>High Income Countries</i>	26,710
<i>MiddleIncome Countries</i>	1850
<i>Low Income Countries</i>	430
India	460

Chapter 4

Exercise

PART A

I. Choose the correct answer

1. The growth of an economy is indicated by an
 - a. Increase in general prices
 - b. Increase in national income
 - c. Increase in savings
 - d. Increase in investment
2. The per capita income of an economy can be calculated by
 - a. Dividing GDP by population
 - b. Dividing GNP by population
 - c. Multiplying GNP by population
 - d. Dividing GNP by number of people employed
3. The total money value of final goods and services produced in the country excluding depreciation is called
 - a. NDP
 - b. GDP
 - c. NNP
 - d. GNP
4. The difference between NNP and NDP is
 - a. Depreciation
 - b. Current transfers from rest of the world
 - c. Indirect tax
 - d. Net factor income from abroad.
5. National income as commonly understood by every one refers to
 - a. GNP
 - b. NNP
 - c. GDP
 - d. NDP

II Fill in the blanks

6. Net value added method of calculating National Income is also known as _____ method.
7. Consumption of fixed capital should be _____ the GNP to arrive at the NNP.
8. In estimating the national income at constant prices, latest base year used in India is _____
9. In India _____ specification is still incomplete.
10. _____ will give an exaggerated figure of National income.

III Match the following

- | | | |
|----------------------------|---|--------------------------------|
| 11. GDP | - | 1993-1994 |
| 12. Net Income from abroad | - | X-M |
| 13. GNP –Depreciation | - | Personal income-personal taxes |
| 14. CSO 's latest series | - | NNP |
| 15. PDI | - | Foreign trade excluded |

IV Answer in one or two words

16. What is obtained by dividing the National income by total population?
17. What is the method of estimate of national income from the distribution side is called?
18. How many methods are there to compute national income?
19. What should be added to the three sector economy to make it to form four sector economy?
20. Give formula for per capita income.

PART B

Answer the following in four or five lines

21. Define national income.
22. What is the indicator of a country's economic development?
23. What does national income at constant prices mean?
24. Mention the names of national income series in India.
25. Write a note on double counting?

PART C

Answer the following questions in about a page

26. Explain the basic concepts of national income.
27. Distinguish between national income at current and constant prices.
28. Why do we study national income?
29. Explain the trend in national income from 1950 to 2005.
30. Explain the sectoral composition of national income.

PART D

31. Examine the methods of calculating national income.
32. Describe the problems in calculating the national income.

Chapter 5

Economic Planning

Meaning and Need for Planning

The 20th century was an era of planning. Almost every country had some sort of planning. In socialist countries, planning is almost a religion. Even in countries like the U.S.A. and the U.K. with a capitalistic system, they have partial planning. The 19th century State was a *Laissez faire* state. It followed a policy of non – intervention in economic affairs. But the modern State is a Welfare State. The two World Wars, the Great Depression of 1930s and the success of planning in former Soviet Russia have underlined the need for planning. Planning is a gift of former Soviet Russia to the world. For, it was the first country to practise economic planning on a national scale.

According to Lionel Robbins, “strictly speaking, all economic life involves planning.... To plan is to act with a purpose, to choose and choice is the essence of economic activity”.

In the words of Barbara Wootten, “Planning may be defined as the conscious and deliberate choice of economic priorities by some public authorities”.

Many economists today agree that planning is an organized, conscious and continuous attempt to select the basic available alternatives to achieve specific goals. Planning involves the economizing of scarce resources.

Most of the underdeveloped countries of the world became independent only fifty or sixty years back and most of them were poor at that time. So it became the main business of the Governments of the newly emergent nations to provide food, clothing and shelter to their people. For that, first of all, they had to increase their national income. Since most of them were agricultural countries, they had to evolve some programmes for agricultural development. Not only that, they had to industrialize their economies. And they had to provide more jobs to their people. That means, they had to do something for expanding employment opportunities. Further, as most of them were wedded to some kind of socialism, they had to reduce inequalities of income and wealth. All these things, the poor countries attempted to do by means of economic planning.

Laissez faire policy is a luxury for modern governments. So they have economic plans. In the developed nations of the world, they plan for economic stability. But in the underdeveloped nations, they plan for economic growth and development.

Another main reason for the emergence of planning in underdeveloped countries is the failure of the market mechanism. The capitalist economy is basically a market economy and price mechanism works through the market system. The price system is a basic institution of capitalism. The allocation of resources and distribution of rewards are done through the price system. All decisions of the businessmen, farmers,

industrialists and so on are guided by the profit motive. If the market is perfect, price system is good. But if there is monopoly and other types of imperfect competition, the market system fails. And it calls for government intervention by way of planning.

The dispute between planning and *Laissez faire* is essentially about efficiency. The case against *Laissez faire* rests on the following grounds:

1. Under *Laissez faire*, income is not fairly distributed. As a consequence, less important and less urgent goods are produced for the wealthy people while the poor lack basic goods like education, health, housing, good food and ordinary comforts. Under such a situation, the State can control economic activity by means of planning and reduce inequalities of income and wealth.

2. The market economy is a victim of trade cycles. And there will be alternating periods of prosperity and depression. And during depression, there will be bad trade, falling prices and mass unemployment. So there is need for state intervention. By means of proper planning, the State can control trade cycles as they did in the case of former Soviet Russia.

During the latter half of the 20th century, planning was popular in many underdeveloped countries, in addition to former Soviet Russia and Eastern European countries. It does not mean that they believed in complete central planning. The central issue in planning is not whether there shall be planning but what form it shall take. The debate, in fact, centered on whether the State shall operate through the price system or by getting rid of it.

Problems of Planning in backward countries

Planning is much more necessary and much more difficult to execute in backward than in advanced countries. First of all, “planning requires a strong, competent and incorrupt administration” (Arthur Lewis). But most of the economically backward nations have weak, incompetent and corrupt administration. Further, they have democratic planning. So they cannot do things in a quick manner as was done in former Soviet Russia. They have to go slow. And agriculture is the main stay of their economies. Since agriculture depends upon natural factors which are uncertain, there is a lot of uncertainty about their agricultural programmes. Over-population and low capital formation are some other important problems of planning in underdeveloped nations.

Characteristics of Economic Planning

In a planned economy, major economic decisions such as what and how much is to be produced, when and where it is to be produced and to whom it is to be allocated will be determined by a central authority such as the State, through the Planning Commission.

And the Government will have the powers of implementation. Before the Plan is drawn up, a detailed survey of all available resources – physical resources, financial resources and human resources – has to be made. For example, in the former Soviet Russia, after the Revolution in 1917, there was War Communism between 1918 – 1921. And there was New Economic Policy (NEP) from 1921 to 1924. And from 1924, the Government made a detailed survey of all available resources and only in 1928, it implemented its First Five Year Plan. After the survey of resources, the objectives of planning will be determined. For example, one of the long term objectives of Soviet Planning was that Soviet Russia should catch up with the production levels of the leading capitalist nation of the world, namely U.S.A., in steel, coal and electricity. Keeping in mind, the objectives of the Five Year Plan, the physical targets will be fixed. And ways and means of mobilising financial resources will be explored. The Plan will also spell out the details in which the fruits of planning will be distributed in a fair and just manner.

The nature of planning is determined by the type of economic system – capitalism, socialism, mixed economy - in which it is practised.

There will be partial planning in a capitalist economy, (e.g., U.K.) but a socialist economy is a totally planned economy (e.g., Former Soviet Russia). In a mixed economy like India, both public sector and private sector play important roles in economic planning.

Usually, the period of a Plan is five years. The Plan has to be drawn in advance. It is done by the Planning Commission in India. A plan will be of a definite size and it will fix the targets for the Plan period and it will also indicate the ways by which the financial resources are to be mobilized for the Plan.

The first step in drawing up a Plan is to determine a growth target for an economy over the Plan period. The planners then divide the economy into a number of sectors such as agriculture, industry and service sector. The planners will fix the physical targets for the sectors and also decide how much investment must be made in each sector to achieve the targets. Then they will decide the right type of investment projects and production techniques. As the UDCs are poor, labour-intensive techniques will expand employment opportunities. But some heavy industries like steel have to be capital – intensive. The success or failure of a Plan depends upon the choices that are made.

Types of Planning

1. *Centralized Planning* : In a socialist economy (eg. Former Soviet Russia), there was centralized planning; it was planning by direction. In a socialist state, most of the means of production are owned by the State. All basic economic decisions such as whether priority is to be given for industrialization or for development of agriculture ; if it is decided to give importance to industrialisation, whether to give importance to basic

and heavy industries or for consumer goods industries will be made by the central authority.

2. *Planning by Inducement* : In a democracy, Planning is done by inducement. For example, ours is a mixed economy where there is a public sector and a private sector. The government has to persuade the industries in the private sector to fulfil the goals of the Plan through inducements such as tax concessions and by providing incentives.

3. *Indicative planning* – In this type of planning, the government invites representatives of industry, and business and discuss with them in advance what it proposes to do in the Plan under question and indicates to them its priorities and goals. Then the Plan is formulated after detailed discussions with varied interests. Planning in France is a good example of indicative planning. After we embraced liberalization and privatization policies in 1991, even Indian planning, in a way, has become indicative planning.

Economic plans can also be divided into midterm plans, shortterm plans and perspective plans. Our Five Year Plans are in fact, midterm plans. Short term plans are Annual Plans. During the period of implementation, Five Year Plans operated by dividing them into Annual Plans. Perspective Plans are long term plans and the period ranges from 20 to 25 years. The Five Year Plans are formulated by taking into account the long term objectives of the Perspective Plan.

Rolling Plan : Unlike the Five Year Plan with fixed targets, in the case of the rolling plan, at the end of each year, targets will be fixed by adding one more year to the Plan. That is, without fixed targets for all the five years, depending upon the performance of the Plan in the current year, targets will be fixed for one more year. Like this, it will go on a continuous basis. That is the idea behind the rolling plan.

A great advantage of centralized planning is that plans can be implemented with great speed and targets and goals can be achieved. For example, by means of planning, former Soviet Russia transformed its economy, which was predominantly agricultural into a predominantly industrial nation, within a short span of 12 years. But a demerit of centralized planning is that as the State enjoys a considerable degree of monopoly, in the absence of competition, it is rather difficult to test the productive efficiency of state owned units. Under planning by inducement (democratic planning), though there is a good deal of freedom for people, because of the procedures and delays associated with the democratic process and because of Parliamentary democracy, there will be a lot of delay in the implementation of programmes and economic growth will be slow.

Evolution and Objectives of Planning in India

The National Planning Commission was set up in India in 1950. A major function of the Planning Commission was to “formulate a plan for the most effective and balanced utilization of the country’s resources”. The Planning Commission formulated

the First Five Year Plan for the period (1951–56). Since then, we completed nine Five Year Plans and we are now in the midst of Tenth Five Year Plan (2002–2007).

Objectives of Planning in India

The central objective of planning in India is to raise the standard of living of the people. Our Five Year Plans aim at increasing output. At the same time, they aim at reducing inequalities of income and wealth and providing equal opportunities for all. Growth with social justice is our basic goal.

The major objectives of developmental planning in India may be listed as follows:

1. To raise the national income. This is known as Growth Objective ;
2. To increase investment to a certain level within a given time ;
3. To reduce inequalities in the distribution of income and wealth and to reduce concentration of economic power over resources ;
4. To expand employment opportunities ; and
5. To remove bottlenecks in agriculture, manufacturing industry (especially capital goods) and the balance of payments. In the agricultural sector, the main objective was increasing agricultural productivity and attaining self-sufficiency in foodgrains. In the industrial sector, the emphasis was on basic and heavy industries. In the foreign trade sector, the emphasis was on having a 'viable balance of payments position'. The strategy adopted in Indian Planning is often referred to as 'Mahalanobis strategy'. In this strategy, emphasis was laid on rapid industrialization with priority for basic and heavy industries.

Though achieving regional balance is mentioned in our plans, we have not succeeded much in reducing regional imbalances. In agriculture, there are surplus states and deficit states, with reference to foodgrains. In manufacturing industry, there are advanced regions and backward regions. Not only that, industrial growth is concentrated in and around Mumbai, Kolkata and Chennai.

Our Five Year Plans pay attention to the problems of poverty and unemployment. The average Indian is among the poorest of the world. So, our Plans want to remove poverty and improve the lot of the common man and the weaker sections like SC/ STs, OBCs, women and children. The standard of living depends upon per capita consumption and per capita consumption depends upon per capita income. And this in turn depends upon employment. So our plans have looked at employment as an integral part of the problem of the removal of poverty.

In the rural sector, there is concentration of land in the hands of a few persons even today. In spite of our land reform programmes, nearly 50 percent of agricultural land is owned by 10 percent of the population. And Green Revolution has helped largely big landlords. Even the ownership of industrial assets is concentrated. Of course, the

basic causes of poverty in India are low agricultural productivity and rapid growth of population resulting in low savings and disguised unemployment.

The Government has not succeeded much in solving the problems of rural unemployment and underemployment by giving support to cottage and small scale industries.

There is an urban bias in Indian Planning. Agriculture did not receive enough funds in the past. But we cannot say the planners have neglected agriculture.

India began the process of planned economic development five decades back. The First Five Year (1951-56) stated that the purpose of planning in India was to initiate “ a process of development which will raise living standards and open out to the people new opportunities for a richer and more varied life”. The Second Five Year Plan (1956-61) aimed at rapid industrialization with particular emphasis on the development of basic and heavy industries. It was during the Second Plan period, the Government embraced the goal of *democratic socialism*. The Third Five Year Plan aimed at self – reliant and self – generating economy. After the Third Plan, we had a “*Plan Holiday*”. The Fourth Plan did not commence immediately after the Third Plan. We had three Annual Plans (1966-69). The Fourth Five Year Plan (1969 – 74) had two basic objectives: 1. Growth with stability, and 2. Progressive achievement of self-reliance.

The Fifth Plan (1974-79) focused on growth with social justice. The slogan during the period was *Garibi Hatao* (Removal of Poverty). So, the two main objectives of the Fifth Plan were removal of poverty and attainment of self-reliance. When Janata Party was in power at Centre, it formulated the Sixth Plan (1978 – 83). But when the Congress came back to power, it discarded it and formulated a new sixth Five Year Plan (1980 – 85). It aimed at a direct attack on poverty by creating conditions for an expanding economy. The Seventh Five Year Plan (1985-90) emphasized on accelerating agricultural growth in foodgrains production, increasing employment opportunities and raising productivity in all sectors. When the final version of the Eighth plan (1992 – 97) was formulated, there were major changes in our economic policy marked by liberalization, privatization and globalization. The Eighth Plan 1992 – 97 reflected these changes and aimed at accelerating economic growth and improving the quality of life of the common man.

The main objectives of Planning in India may be grouped under four heads: Growth, modernization, self-reliance and social justice.

Growth

In the first 30 years of planning, the trend rate of growth of national income was 3.5 percent. Eminent economist Raj Krishna called it the *Hindu rate of growth*. Agricultural production increased at an average rate of 2.7 percent and industrial production at 6.1 percent. And per capita income increased at the trend rate of 1.3 percent. Though

these rates appear rather small, we must remember that throughout the British period, for almost a century, there was stagnation in the Indian economy. For example, in the undivided India from 1901 – 46, the trend growth rate of the national income was only 1.2 percent. So one of the achievements of planning in Indian economy is that it has overcome stagnation and we have had a slow but steady economic growth.

Table 5.1 Growth Rates of National Income (in percentage)

S.No.	Plan	Target	Actuals
1.	First Plan	2.1	3.6
2.	Second Plan	4.5	4.0
3.	Third Plan	5.6	2.2
4.	Fourth Plan	5.7	3.3
5.	Fifth Plan	4.4	5.2
6.	Sixth Plan	5.2	5.2
7.	Seventh Plan	5.0	5.8
8.	Eighth Plan	5.6	6.7
9.	Ninth Plan	6.5	5.4
10.	Tenth Plan	8.0	–

Sources : Various Five Year Plans and Tenth Plan (2002 – 2007) Approach paper.

The growth performance of the economy during different plan periods is given in Table 5.1. From the Table, it can be seen that there are shortfalls in the growth targets during early plan periods except the First Five Year Plan. During the Ninth Plan period, the GDP growth rate was 5.4 percent as against the target of 6.5 percent.

Modernization

The term ‘modernization’ refers to a number of structural changes in the economy. Under planning, Indian economy got transformed from a colonial economy to an independent and modern economy. There has been a change in the composition of national income. For example, now agriculture contributes less and service sector contributes more. In agriculture, after the Green Revolution, there has been a change in the technology of agriculture.

Self – Reliance

During the early phase of our planning, we depended on external assistance for many things – food, technology and foreign exchange. But since the Fifth Five Year Plan, self–reliance has become one of the major goals of our planning.

Social Justice

By social justice, we mean equal opportunities for all. That means, improving the standard of living of the poorest groups and reduction in inequalities in income and wealth.

Ninth Five Year Plan (1997 – 2002)

The Ninth Plan covered the period from 1997 to 2002. The focus of the Ninth Plan was on growth with social justice and equality. The Planning Commission wanted it to be a people oriented plan where the people at large, particularly the poor will participate. The Plan was formulated keeping in mind the quality of life of people, generation of productive employment, regional balance and self – reliance.

Main objectives of the Ninth Plan

The main objectives of the Ninth Plan are as follows :

1. Priority to agriculture and rural development so as to generate adequate productive employment and to eradicate poverty ;
2. Growth with stable prices;
3. To ensure food security to all, especially vulnerable sections of the society;
4. Providing basic minimum services of safe drinking water, primary health care facilities, universal primary education, shelter and connectivity to all in a time bound manner ;
5. Containing the growth of population ;
6. Ensuring environmental sustainability of the development process through people's participation ;
7. Empowerment of women and socially disadvantaged groups such as SC/STs and OBCs and minorities as agents of socio- economic change and development ;
8. Promotion and development of Panchayati Raj institutions, co-operative and self-help groups where the participation of people is large ; and
9. Strengthening efforts to build self-reliance.

The Ninth Plan considered (1) Quality of life of citizens, (2) generation of productive employment and (3) regional balance as areas of special importance for State intervention.

The Ninth Plan aimed at achievement of an average growth rate of 6.5 per cent of GDP (at market prices). The Plan aimed at investing 28.2 percent of GDP during the Plan period.

Table 5.2 Proposed Investment as percentage of GDP

<i>Private corporate sector</i>	9.1%
<i>Household sector</i>	9.7%
<i>Public sector</i>	9.4%
<i>Total</i>	28.2%

It may be significant to note that the Plan did not contemplate deficit financing as one of the sources for mobilizing financial resources for the Plan.

Appraisal of the Ninth Plan

1. The growth rate of GDP during the Ninth Plan was 5.35 percent as against the target of 6.5 percent.
2. The Plan did not achieve the target of investment. It aimed at an investment of 28.2 percent of GDP but it achieved only 24.2 percent.
3. The size of the public sector plan got reduced by 18 percent.
4. The fiscal deficit of the central and state governments increased during the Ninth Plan period.
5. The Plan failed on the external trade front. The export target was 11.8 percent but actual increase was 5.6 percent. Imports increased by 4.1 percent as against the target of 10.8 percent and
6. The Ninth Plan failed to create 50 million jobs to reduce unemployment

Tenth Five Year Plan (2002 – 2007)

The Tenth Five Year Plan aimed at explicitly addressing the issues of equity and social justice. It fixed a target of 8 percent GDP growth rate for 2002 – 2007.

The key targets fixed for the Plan are as follows :

1. Reduction of poverty by 5 percentage points by 2007 and 15 percentage points by 2012.
2. Gainful employment to the addition to the labour force during the Plan period;
3. Universal access to Primary education by 2007 ;
4. Reduction in the decadal rate of population growth between 2001 to 2011 to 16.2 percent ;
5. Increase in literacy to 75 percent by 2007

6. Reduction in infant mortality rate (IMR) to 45 per 1000 live births by 2007 and to 28 by 2007;

7. Reduction of maternal mortality ratio (MMR) to 2 per 1000 live births by 2007 and to 1 by 2012.

8. Increase in forest and tree cover to 25 percent by 2007 and to 33 percent by 2012 ;

9. All villages to have access to potable water by 2012 ; and

10. Cleaning of all major polluted rivers by 2007.

The past experience raises doubts about fulfilment of many targets such as the GDP growth rate of 8 percent, and fulfilment of employment target. Agriculture and small scale industries are still at a low priority level. And there is too much of faith in the private sector.

Conclusion

So far, we implemented nine Five Year Plans and we are in the last year of the Tenth Plan. Growth with stability will be a real challenge for the government and the people. And we have not yet solved the problem of unemployment. Though we have reduced poverty to a certain extent, a lot has to be done in the area. An encouraging feature is since the Fifth Five Year Plan, employment schemes have been integrated into poverty alleviation programmes. Unless we contain the growth of population, it would be rather difficult to achieve the goals of economic planning in India. Furthermore, we have to increase our savings, investment and exports. Above all, the administrative machinery must become strong, competent and incorrupt to make our economic planning a success. Since the introduction of economic reforms in 1991, there has been a qualitative change in our planning. In due course, it may become indicative planning.

Chapter 5

Exercise

PART A

I. Choose the correct answer

1. The first country to introduce Five Year Plan was

- a) U.K. b) U.S.A. c) Former Soviet Russia d) France

2. Planning in India is

- a) Centralized planning b) Democratic planning
c) Partial Planning d) Indicative planning

3. Perspective Plan covers a period of
 - a) 5 years
 - b) 10 years
 - c) 20 to 25 years
 - d) 15 years
4. The first Five Year Plan of India was launched in
 - a) 1947
 - b) 1951
 - c) 1956
 - d) 1961
5. There was plan holiday in India from
 - a) 1966 – 69
 - b) 1961 – 63
 - c) 1980 – 84
 - d) 2002 – 2004

II. Fill in the blanks

6. In Soviet Russia they had _____ planning
7. Market Economy is a victim of _____ cycles
8. The planning strategy in India has been described as _____ strategy.
9. Former Soviet Russia launched its First Five Year Plan in _____
10. During the Second Plan period, India adopted democratic _____

III. Match the Following

- | A | B |
|------------------------------------|---|
| 11. Industrial development in U.K. | a) Indian FiveYear Plans |
| 12. Increasing standard of living | b) Laissez Faire Policy |
| 13. Second FiveYear Plan | c) <i>Garibi Hatao</i> (Removal of poverty) |
| 14. Fifth FiveYear Plan | d) Equity and social Justice |
| 15. Tenth FiveYear Plan | e) Rapid industrialization |

IV. Answer each one of the questions in a word or two

16. Who was the Prime Minister of India when the First Five Year Plan was launched?
17. What was the policy followed during the 19th century ?
18. What is the body that draws Five Year plans in India ?
19. What is the period of the Tenth Five Year Plan ?
20. Who gave the name “Hindu rate of growth” ?

PART B

Answer for each question should be about four or five lines

21. Define Planning.
22. What is the main problem of planning in underdeveloped countries ?
23. What is a rolling plan ?
24. Explain the concept of Indicative planning ?
25. What is Mahalanobis strategy ?

PART C

Answer for each question should be about a page

26. What are the problems of planning in underdeveloped countries ?
27. What are the major objectives of planning in India ?
28. What are the key objectives of the Tenth Plan ?
29. Discuss the case against Laissez Faire.
30. Explain the need for economic planning.

PART D

Answer for each question should be about three pages

31. Discuss the problems of planning in backward countries.
32. Describe the characteristics of economic planning.
33. Explain the various types of planning.
34. Discuss the objectives and achievements of planning of India.
35. Explain the objectives and achievements of the Ninth Five Year Plan

Chapter 6

Agriculture

Role of Agriculture in Economic Development

Agriculture occupies a very important place in the economic life of our country. It is the backbone of our economic system. Agriculture has been the major source of livelihood in the Indian economy. India is primarily an agricultural country. The fortunes of the economy are, even now, dependent on the course of agricultural production. The importance of agriculture in the national economy can be best explained by considering the role of agriculture under the following heads.

1. Contribution to National Income

Agriculture contributes even now a major share of the national income in India. The distribution of national income by industrial origin for the period 1950-51 to 1979-80 shows that the share of various agricultural commodities, animal husbandry and ancillary activities has always been more than 40 percent. As a matter of fact, during the fifties, it contributed around half of the national output. During eighties and nineties, a further fall in this proportion took place. During 2002-03, it stood at about 25 percent.

2. Major source of Livelihood

The main source of livelihood is agriculture. Six out of every ten persons in India depend upon agriculture. In industrially advanced countries like U.K., U.S.A., etc, the number of people dependent on agriculture is very low as compared to India. Over the years 1921-2001, the size of labour force dependent on agriculture had more than doubled. The sector is plagued by evils such as underemployment, disguised unemployment and low productivity employment.

3. Provider of Employment

Agriculture provides employment and work to an overwhelming majority of the Indian masses. In villages, about seventy per cent of the people earn their livelihood from cultivation and allied agro-industries. In absolute terms, agriculture provided employment to 97 million persons in 1995; the number of people working on land (cultivators and agricultural labourers) increased to 235 million.

4. Industrial development

Agriculture provides raw materials to the industries. Cotton and Jute textile industries, sugar, vanaspathi and plantations – all these depend on agriculture. Many of our small scale and cottage industries like handloom weavings, rice husking, coir, khadi etc., depend upon agriculture for their raw materials. There are many other industries, which depend on agriculture in an indirect manner.

5. International Trade

Indian agriculture plays an important role in the country's international trade. The main exported agricultural commodities are tea, oil cakes, fruits and vegetables, spices, tobacco, cotton, coffee, sugar, raw wool and vegetable oils. Agriculture contributes to a sizeable part of exports and it is an important segment of imports of the economy. The agricultural sector is a net earner of foreign exchange.

6. Capital Formation and Investment

The major part of production assets of the country is in the form of agricultural assets like land, irrigation facilities, tractors, agriculture implements, ploughs, pump sets and storages. Since agriculture contributes about 25 percent of the national income, this sector is the primary source of savings and hence capital formation for the economy.

7. Food and Fodder

In India, agriculture meets almost the entire food requirements of the people. Agriculture also provides fodder to sustain livestock whose number runs to several crores.

8. Economic Planning

Agriculture is the backbone of the Indian economy and prosperity of agriculture can also largely stand for the prosperity of the Indian economy. Importance of agriculture in the national economy is indicated by many facts. For example, agriculture is the main support for India's transport system, since railways and roadways secure bulk of their business from the movement of goods. Internal trade is mostly in agricultural products. Agricultural growth has direct impact on poverty eradication.

9. International Ranking

At the global level, Indian agriculture has ranked in certain commodities. In the case of groundnuts, India stands first in the world, for rice production it ranks second and in the case of tobacco it occupies third rank in the world.

The significance of India arises also from the fact that the development in agriculture is an essential condition for the development of the national economy. According to Ragnar Nurkse, surplus population in agriculture should be removed and used in newly started industries and public works in rural areas. By doing so, agricultural productivity will be increased on the one hand and on the other, new industrial units would be set up with the use of surplus labour. Agriculture is not only the largest and most important sector of the Indian economy, but also the most backward one. The growth of agriculture, therefore, is of vital importance for the growth of the entire economy.

Contribution of Agriculture to Economic Growth

Simon Kuznets identifies four possible types of contribution that the agricultural sector is capable of making for overall economic development. These are:

1. Product contribution i.e., making available food and raw materials.
2. Market contribution i.e., providing the market for producer goods and consumer goods produced in the non-agricultural sector.
3. Factor contribution i.e., making available labour and capital to the non-agricultural sector and
4. Foreign Exchange contribution.

Relationship between Agricultural and non-agricultural sector

During the process of development, inter-dependence between agriculture and industry has become stronger through the

1. Production linkages
2. Demand linkages and
3. Savings and investment linkages.

Production Linkages

Production linkages arise from the interdependence of agriculture and industry for productive inputs i.e., supply of agricultural materials such as cotton, jute, sugar cane etc., to agro-based industries and supply of fertilizers, machinery and electricity by industry to agriculture over the last five decades. These linkages have got further strengthened with agriculture's dependence on industry reflecting the modernization of agricultural sector.

2. Demand linkages

There are strong demand linkages between the two sectors. The impact of incomes and industrialization on the demand for food and agricultural raw materials is generally recognized.

3. Savings and Investment linkages

Equally significant is the impact of rural income on industrial consumption goods, i.e., clothing, footwear, sugar, edible oils, TV sets, washing machines, refrigerators, motor bikes, etc. A recent study concludes; "Rural bazaar outbuys urban market".

Components of Agricultural Growth

An increase in agricultural production can result from an increase in area under cultivation (horizontal expansion) and /or from an increase in the productivity (vertical expansion). Productivity has two aspects to it, viz., land productivity and labour productivity.

Productivity of Indian Agriculture

India with its sizable agricultural sector has to face a number of problems. Low production and low productivity are at the core of agricultural problem In India. The productivity of agriculture is relatively low in India compared to other countries with comparable natural environment. There have been some improvements in recent years. But conditions in agriculture have not changed much. It will be useful to analyze the factors responsible for the backwardness of are agriculture. The factors are classified into

1. Demographic factors
2. General factors
3. Institutional factors and
4. Technologies factors

1. Demographic factors

The most important demographic factor responsible for low yield in agriculture is the increasing pressure of population on land. With population growth rates being what they are, an increasing addition to the labour force could be expected to be absorbed in the industrial sector of the economy. But the rate of growth in the industrial sector has been far from adequate. Consequently, the increasing population has fallen back on land for its livelihood, with the result that the population pressure has created a number of problems like fragmentation and subdivision of holdings; the supply of improved practices and services has always fallen short of requirements. It has created conditions of unemployment and disguised unemployment. All these evils, taken together have been responsible for low productivity in agriculture.

2. General Factors

a) Excess or surplus labour in Agriculture

The main cause for the low agricultural labour productivity is the overcrowding in agriculture. There are many people who depend on agriculture. As population increases, the pressure on land also increases, because natural increase is not absorbed by the industrial sector.

b) Discouraging Rural climate

The farmers of India generally are poor, ignorant, superstitious, conservative, and illiterate and bound by outmoded customs and institutions such as the caste system and the joint family system. Superstition and belief in fact are the curses, which keep the farmers fully satisfied with their primitive system of cultivation. Except for a small group of farmers, who adopted quickly modern techniques of production, vast majority of farmers are not motivated by considerations of economic progress.

c) Inadequate non-farm services

Indian agriculture has suffered because of the inadequacy of non-farm services such as provision of finance, marketing etc. All these facilities are inadequate in India. Marketing system is defective and costly. Modern warehousing is inadequate and indigenous. Storing methods are defective and costly. Modern credit facilities are still poorly developed for the farmers. Farmers still depend on moneylenders for their day-to-day requirements.

3. Institutional factors

a) Size of holdings

The average size of holdings in India is very low. About 80 percent of the land holdings are less than 2 acres. Not only agriculture holdings are small but they are fragmented too. In certain parts of the country, plots of land have become so small that it is impossible to move even ordinary plough. Since the average agricultural holdings are too small, no scientific cultivation with improved implements, seeds etc. are possible. Small size of holdings lead to great waste of time, labour and cattle power, difficulty in proper utilization of irrigation facilities, quarrels and consequent litigation among farmers, wastage of crops in the absence of fencing etc.

a) Defective land tenure structure

The land tenure system in India has been depressing and disincentive ridden. It has built in features to support stagnation. The main features have been the presence of intermediaries; exploitative owner-tenant relationship; small and fragmented holdings; and the heavy and ever increasing pressure of population on land.

4. Technological factors

a) Poor inputs and techniques

The method and techniques of cultivation have been old and inefficient. It results in high cost and low productivity. These methods have not undergone any change for centuries. The investment in agriculture in the form of manures and fertilizers, improved seeds, irrigation, tools and implements and other types of assets has been miserably low.

b) Inadequate irrigation facilities

One of the basic causes for the weakness of Indian agriculture has been that most of the farmers throughout the country have to depend upon rainfall and very few of them can avail the facilities of artificial irrigation.

c) Indebtedness of the farmers

It is said that the farmers in India are born in debt, live in debt, die in debt and bequeath debt. The causes of their indebtedness are many such as hereditary debt, litigation, want of supplementary incomes and wasteful social expenditure.

d) Inadequate Research

Benefit of research and development has not reached all the farmers. Extension is confined to a few individuals and the modern pattern of farming is yet to take roots in the countryside.

e) Remedial measures

The above causes of low agricultural productivity also suggest their own remedies. Following remedial measures should be taken in order to solve various problems of Indian agriculture.

1. Co-operative joint farming should be launched on a national scale
2. Check on the population growth
3. Arrangements for better manures
4. Use of better seeds
5. Alternative arrangements for irrigation facilities.
6. Improvements in agricultural credit
7. Reclamation of waste lands
8. Consolidation of holdings
9. Use of new implements
10. Soil conservation and intensive cultivation
11. Improvement in marketing system
12. Encouragement to agricultural research and plant protection.

It is our responsibility to do all within our means to improve agriculture in India. The future of our rural population, solution of food and food problems and industrial development of our country depend upon agriculture only.

Agricultural Crops and Cropping Pattern

With the introduction of economic planning in 1950-51 and with the advent of Green Revolution after 1965, there was a steady increase in area under cultivation and a steady rise in average yield per hectare (or) rise in agricultural productivity. As a result, general production of all agricultural crops recorded a rising trend.

India's major food crops are rice, wheat, maize, cereals and pulses. The major cash crops are sugarcane, jute, cotton, tea, coffee, groundnut and other oil seeds. In the pre-green revolution period, i.e. 1949-65, foodgrains production increased from 55 million tonnes to 89 million tonnes. It was accounted for 3.2% of annual rate of growth. In the post-green revolution period, i.e. 1965-2001, the production of food grains has

increased from 89 million tonnes to 195.9 million tonnes. But the annual rate of growth was only 2.2%.

Cropping Pattern in India

Cropping pattern means the proportion of area under different crops at a point of time. In other words, it means a ratio of different crops cultivated at a particular time. A change in cropping pattern implies a change in the proportion of area under different crops.

Table: 6.1 Nature of crop distribution since 1951

The table indicates the share of different categories of crops in the total area shown.

Factors affecting cropping pattern

Natural Factors: Natural factors include the type of land, climate, rainfall and average temperature etc. These are the most important factors affecting cropping pattern because the role of Nature is more important than man in agriculture.

Crops	1950-51	1980-81	2000-01
a) All Crops	100	100	100
b) Foodgrains	74	80	75
c) Non-foodgrains (or) cash crops	26	20	25

Size of Holdings: If the size of holding is small, farmers will prefer food grains and if the size of holding is sufficiently large, they may choose commercial crops.

Price of Agricultural Products: Farmers like to produce the crops, which may yield maximum profit to them.

Availability of Agricultural Inputs: If the farmers have inputs of high quality, they may go in for commercial crops. For this purpose, they require agricultural implements, fertilizers, chemicals, high yielding seeds and irrigation facilities.

Social Factors: Social customs and attitude of farmers towards new technology and development also affect cropping pattern of a country. If the farmers are willing to accept new technology and development, they will be induced to go for commercial crops.

Government Policy: Government may also affect cropping pattern of the country by giving incentives to some particular crops.

Knowledge about Cropping Pattern: If the farmers were aware of the improvements they can bring in their cropping pattern, they would like to change it.

Crop Insurance Scheme: Crop insurance scheme helps in diversifying cropping pattern of a country. This scheme helps farmers in adopting the crops, which involve risks.

Government Efforts: Government can also help in the diversification of cropping pattern by adopting following measures – (i) To distribute high yielding variety seeds through government agencies, ii) To make chemical fertilizers available at concessional rates iii) To provide the facilities of storage and transportation regarding agricultural products, iv) to make the marketing system of agricultural products effective so that the farmers may get fair price for their products.

Agricultural Holding

Agricultural holding is the main determinant of the quantity, quality and structure of agricultural production. Agricultural holding means the size of land owned and cultivated by a farmer. It may be defined on the basis of ownership, (agricultural holding means the size of land owned by a farmer) and on the basis of cultivation. Agricultural holding means the size of land cultivated by a farmer at a particular time.

Consolidation of holdings

A major cause of low agricultural productivity is the fragmentation and sub-division of holdings which has resulted in uneconomic holdings. Besides the tenancy system and the ownership pattern, the programme of land reforms covers the task of consolidating the scattered holdings of the small farmers so as to make them compact units in one place.

Land Reforms

Land reforms refer to all kinds of policy-induced changes relating to the ownership, tenancy and management of land.

Objectives of land reforms in India

In India the land reform programme has been one of the major policies for rural development. The major objectives of land reforms are as follows:

- i) Restructuring of agrarian relation to achieve egalitarian social structure.
- ii) Elimination of exploitation in land relations
- iii) Actualization of the goal of 'land to the tiller'
- iv) Improvement of socio-economic conditions of the rural poor by widening their land base.
- v) Increasing agricultural production and productivity

- vi) Facilitating land based development of rural poor
- vii) Infusion of a greater measure of equality in local institutions.

Land reform measures in India

The land reforms programme in India has been done through three different methods:

- i) Voluntary adoption facilitated by incentives provided by the State through measures like co-operative farming and consolidation of holdings.
- ii) Voluntary adoption supplemented by statutory compulsion made possible by the enactment of legislation as in the case of consolidation of holdings.
- iii) Compulsion exercised through different legislative measures, as with the abolition of intermediaries', tenancy reforms, ceilings on holdings etc.

Agricultural marketing

Agricultural marketing means the economic process under which agricultural goods are exchanged. Process of agricultural marketing determines the value of agriculture products in terms of money and delivers them to their final consumer.

Importance of agricultural marketing

Agricultural marketing is a specific part of marketing. It is related to agricultural products only. It is the base of most of the economic activities of a country. It brings marketable surplus to the market for sale. Farmers will keep a portion of their produce for self-consumption and cattle and the remaining portions are left for sale. Higher level of marketable surplus leads to greater economic development. The importance of agricultural marketing is as follows:

- 1) Provides raw materials for industries.
- 2) Provides foodgrains for the entire population and fodder for cattle.
- 3) Provides a base for expansion of internal market of a country.
- 4) Helps in the expansion of international market also when marketable surplus found in excess of the demand of a country, fetches a considerable amount of foreign exchange.

At present, most of the farmers sell their produce through village level markets, fairs, mandies; co-operative societies and government also purchases agricultural produce direct from farmers.

Marketable Surplus

Marketable surplus may be defined as the residual of produce left with the producer after meeting his requirements for family consumption, farm needs etc. It also

means the portion of produce left for sale. Marketable surplus, which is genuine and not artificial or forced, is the fountain source of not only agricultural development but also of overall economic development. It is the real surplus generated by agricultural sector. It can be measured thus:

(Old stocks + Current output) – (Consumption + waste + inventories for next season)

Marketable surplus is referred to as 'gross surplus' from agriculture, while marketed surplus is referred to as 'net surplus' from agriculture.

Determinants of marketable surplus

The various variables that determine marketable surplus are i) size of holding ii) production of crop iii) size of family and iv) non-farm income. In addition to this, the quantity of marketable surplus will also depend on an efficient marketing system.

Importance of marketable surplus

Rising marketable surpluses are the real surpluses, which determine the real income, real savings, real capital formation and real investment and have great importance in raising the welfare in inflation free economies. Fall in the real marketable surpluses in less developed economies, raise the prices of not only foodstuffs but also of other wage goods and invariably the real levels of living of working class may go down.

Food Problem in India

Food, clothing and shelter are the basic necessities of a person. Among these, food is the first most important necessity. No one can survive without sufficient food. It is a prime duty of every government to provide sufficient food to all the people of a State. If a government fails to provide sufficient and nourishing food to her people, she fails on all the economic social and political fronts. Therefore, sufficient food should be provided to all the people of a State. Production of foodgrains should be sufficient to meet their demand. If the production is less than demand, the country will have to import food grains which will create the problem of adverse balance of trade and balance of payments.

In India, food problem is a chronic problem. It dates back to 1937, the time of separation of Burma from India and 1947, the time of partition. Unemployment has further aggravated the problem.

Nature of food problem in India

India is the second most populated country of the world. Being so, food requirements of the country are increasing day by day. Food problem in India covers four important aspects.

1. Quantitative Aspects

Quantitative aspects of food problem are related to the demand and supply of food grains. Production of foodgrains has been less than their demand for a long period. Though in the last few years, domestic production of food grains has increased considerably, yet the country has to import foodgrains in large quantities from time to time.

2. Qualitative Aspects

Qualitative aspect of food problem is related to nutritive elements in food. Proteins, vitamins, minerals, carbohydrates etc. are the important elements of a balanced diet but these elements are not available in sufficient quantities to most of the Indian people. According to experts, a person should get 3,000 calories per day but on an average 2100 calories are available to the people in India. Most important reason of this situation is the poverty of most of the people in India.

3. Distributive Aspects

Distributive aspects of food problem are related to the system of marketing of agricultural products. Due to defective system of distribution, most of the persons do not get foodgrains in sufficient quantities, at right time, and at fair prices. Anti-social elements create artificial shortage of these products in market and sell them at unreasonable prices. Most important reason for this situation is administrative sluggishness.

4. Economic Aspects

Economic aspects of food problem are related to purchasing power of people. National income and per capita income of India are very low. The result is that most of the people in India are not in a position to afford the purchase of nourishing foodgrains in sufficient quantities.

Causes of food problem in India

Important causes of food problem in India are as follows:

- i) Rapid growth of population.
- ii) Low agricultural productivity.
- iii) Natural calamities.
- iv) Development of commercial crops.
- v) Changes in the consumption pattern.
- vi) Increase in income demand for food.
- vii) Economic development and urbanisation.
- viii) Hoarding and black – marketing.

Food policy of Government of India

Soon after independence, the government took the problem of shortage of food grains seriously. Several important measures have been taken by government to solve this problem. These measures may be enumerated as follows:

Increase in Production of Foodgrains

Agricultural development has been accorded top priority in almost all the Five Year Plans. Several programmes have been launched to increase agricultural production and productivity such as intensive farming, multi – crop programme, development of high yielding varieties of seeds, intensive use of fertilizers. As a result of these efforts, production of foodgrains has increased from 50.8 million tonnes in 1950-51 to 192.4 million tonnes in 1997-98.

Import of Foodgrains

To meet the shortage of foodgrains, the government has been importing food grains from time to time. 48 lakh tonnes of food grains were imported in 1951 which increased to 103 lakh tonnes in 1966. During 4 years 1991,1992,1995 and 1996, the imports have been almost nil.

Procurement of foodgrains

Government adopted the system of procurement of food grains. Under the system, government procures foodgrains from market every year. For this purpose, procurement prices or minimum support prices are announced by government every year for all the important foodgrains and all the government purchases are made at these prices. It helps in protecting farmers against the malpractices of traders and commission agents.

Public Distribution of Food grains

Government adopted public distribution system to ensure fair distribution of food grains at controlled prices. Under the system, fair price shops are opened. Each such shop is envisaged to serve a population of about 2000. As on 31st March, 1998, there were about 4.50 lakh fair price shops (Ration shops) in the country. These shops supply rice, wheat, sugar, edible oils and kerosene to people in certain quantity at controlled prices.

Buffer Stock Scheme

Government started a scheme of maintaining buffer stock of important food grains to ensure their regular supply throughout the year. Whenever there is a rise in their prices, government releases them from buffer stock to stabilise prices. Buffer stock operations are normal these days and they have become a normal part of the food policy of Government of India.

Establishment of Specific Institutions

A number of specific institutions have been established by government to promote agricultural production and productivity and to ensure regular supply and fair distribution of food grains. Important institutions are: National Seeds Corporation, Agro-industries Corporation, Agricultural Prices Commission, Food Corporation of India, Fertilizer Corporation of India, etc.

Agricultural Research & Development

Government is taking serious steps to promote agricultural research and development. A number of agricultural universities and Indian Council of Agricultural Research (ICAR) have been established to undertake research activities.

Public Distribution System (PDS)

Public distribution system means the regulated and controlled distribution of essential goods among people. Under the system, essential consumer goods are provided to people at fair prices through government agencies.

Main Constituents of Public Distribution System

Fair Price Shops or Ration Shops

Public distribution system ensures supply of essential commodities through a network of fair price shops. At present, there are about 4.50 lakh fair price shops in India, out of which about 3.60 lakh shops are operating in rural areas and 0.90 lakh shops are operating in urban areas. Each shop is envisaged to serve a population of about 2000.

Consumers Co-operative Stores

Consumer co-operatives play an important role in the supply of quality goods at reasonable rates to common people. There is a three-tier structure of consumer co-operative societies in India. They are primary consumer co-operative societies, central consumer co-operative stores and state level consumer federations. More than 50,000 village level societies are engaged in the distribution of consumer goods in rural areas.

Shops selling Cloth at Controlled Prices

These shops sell cloth at controlled prices to consumers on the basis of their ration cards. More than 66,000 shops are selling such cloth throughout the country.

Super Bazaars

Super bazaars are the bazaars which provide all the goods of daily needs at controlled prices. These markets enable the consumers to complete their purchases from one place. These bazaars are working in almost all the major cities of India.

Kerosene Retailers

In some states, kerosene is distributed through fair price shops while in other states, specific retailers have been licensed for the purpose.

Commodities of Distribution

Six key essential commodities viz., wheat, rice, sugar, imported edible oils, kerosene and soft coke are distributed to consumers through public distribution system. Besides, state governments are empowered to include other essential goods in the system.

Responsibility of Supply of Commodities

Different institutions have been assigned the responsibility of procurement, allocation and distribution of different goods as under:

- i) Food Corporation of India for wheat, rice and other food grains,
- ii) Indian Oil Corporation and Ministry of Petroleum for Kerosene,
- iii) Coal India Limited for soft coke,
- iv) National Textiles Corporation, and
- v) State Trading Corporation for imported edible oils.

Agricultural Price Policy

Agricultural price policy means a policy to determine, regulate and control the prices of agricultural products. Important objectives of agricultural price policy are: (i). To determine, regulate and control agricultural prices; (ii). To prevent violent fluctuations in agricultural prices; (iii) To provide fair prices for agricultural products to the farmers; (iv) To provide quality goods to households at reasonable prices; (v) To maintain an appropriate relationship and balance between the prices of foodgrains and non-foodgrains; (vi) To integrate prices between various states.

Price Policies of the Government

1. Minimum support prices

A minimum support price is declared by government, normally at the beginning of sowing season for every important agricultural commodity. These prices are a long term guarantee to farmers that the prices of these products will not be allowed to fall below a certain level. These prices assure the farmers and encourage them to carry on and to expand their production. They put their best efforts to get maximum production. If the prices fall below minimum support prices, government will buy the entire marketable surplus at procurement prices.

2. Procurement Prices

These are the prices which are declared by government, generally at the time of harvest of crops. These are the prices at which the government buys agricultural products from farmers. These prices serve two important objectives:

- (i) To provide guarantee to the farmers that the prices of these products will not be allowed to fall below a certain level. If market prices fall below this level, the farmers can sell their products to government.
- (ii) It enables government to procure these products for maintaining public distribution system and buffer stocks. These prices are announced by government on the recommendations of Commission for Agricultural Costs and Prices (CACP). These prices are widely used by government for the procurement of wheat and rice. Procurement prices are generally higher than minimum support prices.

3. Issue Prices

Issue prices are the prices at which food grains are allocated and supplied by Food Corporation of India (FCI) to the states and union territories. These prices meet the requirements of public distribution system. Prices of goods to be supplied through fair price shops directly depend upon issue prices. Issue prices are normally less than market prices and higher than procurement prices.

4. Retail Prices

Public distribution system is carried on through the network of fair price shops (ration shops). These shops supply essential consumer goods to households at the prices fixed by government. These prices are known as retail prices. Retail prices are higher than issue prices so that the expenses of public distribution system may be recovered and the licensees may get a certain margin.

5. Buffer Stock Operations

Buffer stock operations refer to buying and selling of food stocks by government. These operations serve two important purposes:

- (i) To regulate and control price fluctuations within a reasonable limit.
- (ii) To enable government to procure food stocks so that regular supply of these stocks may be ensured throughout the year as well as throughout the country. These operations are carried on by Food Corporation of India (FCI). Whenever there is a fall in the prices of food stocks, FCI starts buying them at procurement prices and whenever there is a rise in these prices, FCI starts selling. Thus, buffer stock operations play an important role in stabilizing agricultural prices.

Agricultural Productivity

Agricultural productivity is the ratio of agricultural inputs and output. It indicates the efficiency with which the inputs have been utilized. It indicates how much production has been obtained from a given amount of inputs. It can be measured as:

$$\text{Agricultural Productivity} = \frac{\text{Total Production}}{\text{Amount of Inputs Employed}}$$

$$\text{Productivity of Land} = \frac{\text{Total Production}}{\text{Area of Land}}$$

$$\text{Productivity of Labour} = \frac{\text{Total Production}}{\text{No of Workers Employed}}$$

$$\text{Productivity of Capital} = \frac{\text{Total Production}}{\text{Total Capital Employed}}$$

Trends of Agricultural Productivity in India

1. Productivity of Land

Productivity of land in India is very low in comparison to that of average productivity of land in other countries. It has been made clear in following two tables:

Table 6.2 reveals that though productivity of land is improving and is more than double than that at the beginning of planning era, still it cannot be regarded as satisfactory. When we look at the productivity of land of other countries of world (see Table 6.3), we find that India lags far behind. Average production per hectare in India is much below the world average in all the crops. We are far behind the productivity of agricultural lands in both the developed and developing countries of the world.

2. Productivity per Worker

Agricultural productivity per worker is very low when compared with the productivity per worker in industrial and other sectors. According to an estimate, productivity per worker in the field of agriculture is only one-third when compared with that of large industries and one-half when compared with that of small industries. In this regard, in agriculture the part played by Nature is more important than the part played by man. Secondly, investment of capital per worker in agriculture is much less than that of in industry.

Table 6.2 Yield per Hectare of Major Crops (k.g./hectare)

Crops	1950-51	1970-71	1990-91	2003-04
Food grains	522	872	380	1731
Cereals	542	949	1571	1987
Pulses	441	524	578	637
Rice	668	4423	740	2077
Wheat	663	1307	2281	2713
Oil seeds	481	579	771	1067

Table 6. 3

**International Comparison of Yield of Selected commodities
(k.g per hectare)**

Commodity	Country	
Rice	Thailand	2597
	India	2915
	Egypt	9135
	U.S.A	7372
Wheat	Bangladesh	2164
	India	2770
	China	3885
	U.K	8043
Ground nut	China	2986
	Argentina	2329
	Brazil	2043
	India	794

Source: Economic Survey, 2005-06

Chapter 6

Exercise

PART A

I. Choose the correct answer

1. Nearly 64% of labour force in India is engaged in
 - a. Agriculture
 - b. Industry
 - c. Service sector
 - d. Foreign trade
2. Agricultural productivity can be measured in terms of
 - a. consumption of fertilizer
 - b. Irrigational facilities
 - c. Land and labour productivity
 - d. Mechanization
3. Nearly 20% of the cultivated area is irrigated by
 - a. Tube wells
 - b. Storage canals
 - c. Perennial canals
 - d. Tanks
4. The contribution of agricultural sector to the GDP has declined to
 - a. 29.7%
 - b. 56.1%
 - c. 27.9%
 - d. 26%
5. Green revolution increased the foodgrains production especially in
 - a. Rice and sugarcane
 - b. Rice and wheat
 - c. Wheat and sugarcane
 - d. Ragi and rice

II. Fill in the Blanks

6. _____ has been the major source of livelihood in the Indian Economy.
7. Agriculture provides _____ to the Industries.
8. _____ means the proportion of area under different crops at a point of time.
9. _____ means the size of land owned and cultivated by a farmer at a particular time.
10. _____ means the economic process under which agricultural goods are exchanged.

III Match the following

- | | | |
|--|---|--------------------------------|
| 11. Sub- division and fragmentation | - | NewAgricultural price policy |
| 12. Sudden increase in production per acre of land | - | Decline of joint family system |
| 13. Zamindari system | - | Green revolution |
| 14. Disguised unemployment | - | British period |
| 15. 1986 | - | Agriculture |

V Answer the following in a word or two

16. What is the yield per hectare called?
17. What are the ways in which agricultural productivity can be measured?
18. Is capital-output-ratio small in agriculture?
19. Give example for natural factors affecting cropping pattern?
20. Is crop insurance scheme essential for the farmers?

PART B

Answer the following in four or five lines

21. What is the contribution of agriculture to economic growth?
22. What are the components of agricultural growth?
23. List out the factors responsible for the backwardness of agriculture.
24. Define cropping pattern.
25. Define agricultural holding.

PART C

Answer the following questions in about a page

26. Explain the relationship between the agricultural and non-agricultural sectors.
27. Examine the remedial measures to solve the various problems of Indian agriculture.
28. Describe the factors affecting cropping pattern.
29. Explain the objectives and measures of land reforms in India.
30. Discuss the importance of agricultural marketing.?

PART D

- 31 Express in detail the role of agriculture in economic development.
32. Discuss the factors responsible for the backwardness in agriculture.
33. Describe in detail the factors affecting the cropping pattern.

Chapter 7

Industrial Sector

Need for Industrialisation

The need for and role of industrial sector have been fully recognized by the development thinking all over the world. Industrial sector through its forward and backward linkages with other sectors plays a very important role in achieving rapid growth and development. Most modern and rich countries have well developed industrial sector through their early industrial revolution.

Industrialization means widespread development of manufacturing vast quantities of goods, employing a large number of people, promoting international market, characterization of specialized skill, science, technology, increasing application of electrical, electronic, computer technologies to enhance productivity. Absence of such rigorous industrialization is the main reason for the backwardness of many poor countries too.

Hence, the modern development strategies attach more emphasis to rapid industrialization to achieve faster growth and progress. The following are some of the important needs for the industrial sector.

Raising National Income

Vigorous industrialization ensures a solid and sustained base to increase the national income of an economy. A larger share of national income of industrially advanced economies comes from industrial sector.

Employment Opportunities

Availability of surplus labour and unemployment are the major challenges of development strategy. Industrialization uses the productive resources of the economy and expands employment opportunities which in turn will improve the income and well-being of the people.

Higher Living Standard

The increasing national income through industrialization helps to meet the demands of the people for industrial products. It is also expected to improve the standard of living of the people by increasing their per capita income. This is possible only through a well designed growth process.

Promoting Exports

Industrially advanced countries are able to export more and earn large foreign exchange. The income elasticity of industrial goods is very high than that of the primary goods. Hence, exports can be promoted to earn adequate foreign exchange by producing advanced industrial goods.

Capital Formation

Expanding employment opportunities, income generation through rapid industrialisation will also lead to increased saving and capital formation in the economy. This will help to diversify and expand the industrial base further through higher investment.

Technological Progress

Industrial sector will also promote technological progress through its course of development and expansion. The technological advancements and their dynamic contents provide the required elements to strengthen the economy as a whole.

Patterns of Industrial Development

The pre-independent India, mostly characterised by backwardness, did not have an organized industrial sector. The Second World War made small beginning in the industrial development. Still the share of industries in the country's national income was relatively small.

There had been a marked shift in the advancement of the industries after the implementation of five year Plans in the independent India. The significant role of industrialization as the major channel of rapid economic growth and allround development has been recognized by the planners of modern India.

Besides rapid growth and prosperity, the Indian strategy of development planning, inspired by economic nationalism, aimed at achieving self-sufficiency under the direction of public sector. It also aimed to translate the economic growth into improved standard of living of the masses. Maximum production and full employment, and the attainment of economic equality were the long term objectives declared by the First Five Year Plan.

The policies aimed at achieving economic growth with distributive justice. Then the rapid development of industries and their diversification are considered to be absolutely necessary for development.

The experience of state dominated development planning for a period of more than five decades has brought out many significant achievements in the growth and structure of Indian industries.

'Growth with social justice' has been the main objective of planning since 1951. It has been defined to be inbuilt in the production process so that the major beneficiaries of the development planning are the majority of the people and the rapid and diversified industrialization serves the needs of the masses by generating adequate employment and income distribution.

The new policy environment focused on a mixed economy framework where the public sector will play a major role in building the industrial base of the economy

with the objectives of accelerating growth, generating employment, reducing regional disparities, checking concentration of economic power and achieving self-reliance.

Significance of Public Sector

The pattern of industrial growth depends on the relative roles of private and public sector. Public sector means the part of the economy that is publicly owned as distinct from those owned by private individuals or firms. It has a number of absolutely essential functions.

By employing productive resources, the public sector provides most of the public goods, like primary education, public health, drinking water, social services, child nutrition, women and labour welfare, social security, sanitation, poverty eradication, road, defence, etc. All of them will facilitate the overall development of the economy and people.

As privately owned organizations or firms will not provide these public goods, the public sector has to assume such responsibility. Thus, the mixed economy consisting both the private sector and public sector, has been the feature of many modern states.

The post-Independent Indian State assumed a greater role in the reconstruction of the country that includes regulation, facilitation and welfare promotion. To meet these requirements, the Indian State adopted the public sector dominated, heavy industry based import substituting development planning over five decades since independence.

Public sector is playing a significant role in terms of its contribution to GDP in many developed as well as developing countries.

Much of the developing world in the early 1950s adopted an inward oriented strategy of industrialization guided by the objective of self-reliance and a philosophy of economic nationalism. The promotion of public sector through development planning is basically used to direct the resources towards optimum utilization and equitable distribution.

India too adopted similar development strategy of expanding public sector to the commanding heights of the economy to meet the constitutional obligation that “the material resources of the community are so distributed as best to subserve the common good”.

Since Independence, public sector played an important role to be the principal driving force behind steady growth of the fifties, sixties and seventies and eighties. The contribution of the public sector to national income has increased from 7.5% in 1950-51 to 24% in 1982-83.

The contribution of the public sector through its basic, heavy and strategic industries to the economy and its growth are very significant. The role and contribution

of the public sector in the development of many sectors like manufacturing industry, agriculture, and infrastructure and for the development of the whole private sector is noteworthy. The rapid growth of public sector investment in industries has obviously created a strong diversified industrial base.

All such contributions have helped the economy in many ways.

It has promoted small scale and ancillary industries as a result of the backward and forward linkages.

It has promoted agro-based industries and supported agriculture sector by providing many inputs like fertilizer, power, etc.

It has created a sound infrastructural base to help the private sector.

Public sector has exerted a greater influence on the welfare of the people through its vast employment opportunities.

However, all these development rationale have been criticized since nineties by the proponents of market economy and private sector. Still public sector plays many critical roles.

Pattern of Industrial Growth

The specific pattern of industrial growth can also be seen through the use based classification of industries. This classification consists of four major components viz.

1. Basic goods such as cement, chemicals, fertilizers, etc.
2. Capital goods such as machineries, machine tools, and engineering goods.
3. Consumer goods such as cycle, television, refrigerators, bikes, cars, food articles, soft drinks, etc.
4. Intermediate goods such as paint, plywood, pipe & tube, ancillary parts, etc.

Table 7.1 Pattern of Industrial Growth

	Average Annual Growth Rates		
	1980-91	1992-2000	2001-05
<i>Basic goods</i>	7.4	5.9	4.6
<i>Capital goods</i>	9.4	5.4	8.6
<i>Consumer goods</i>	6.0	6.5	8.0
<i>Intermediate goods</i>	4.9	8.6	4.5

Source : CSO

Table 7.1 indicates the trends in the average annual growth rates of all these four sectors. The pattern shows that the industrial growth was consistently led by the growth of consumer goods industries. Its growth has increased from 6 per cent in eighties to 8 per cent during 2001-05.

The growth rate of capital goods industries has declined from its peak of 9.4 per cent during eighties to 5.4 per cent during nineties before making a recovery to 8.6 per cent in recent years.

The growth of basic goods is declining steadily since eighties.

Steel Industry

Steel industry, being the key industry, forms the base for almost all other industries. Manufacturing, mining, construction, power, transport and other infrastructures and service sectors are all using steel as their inputs.

Thus the development of steel had a multiplier effect on almost all other sectors of the economy. Hence, it is popularly called as 'mother industry'.

Its critical role and importance in terms of its contribution to industrialization, national income, employment generation, is noteworthy. However, unremunerative prices, inefficient management practices of giant public sector, mostly by bureaucrats rather than technocrats are some of the major problems of the steel industry.

The Steel Authority of India (SAIL) was established in mid-seventies to extend support regarding raw materials and coordinate the development of many steel industries. The removal of price and distribution controls were the significant policy reform made in 1992.

The production of steel has increased more than about fifty seven times since independence. It has increased from .7 million tons per annum in 1951 to 40 million tons in 2004-05.

Textiles

Textile industry is one of the oldest as well as the largest industries in India. It has spread to almost all parts of the country. It has been well organized in terms of the labour employed and turnover of the output.

Textile industry accounts for 20 per cent of the total industrial output. It also employs 25 million people. The fabric produced during the First Plan period was 4775 million square metres. The industry underwent many changes since then. The production of fabrics in 2004-05 was 45378 million square metres. This is almost tenfold increase since independence.

The major problems of the industry are non-availability of enough raw material (cotton), increasing input costs, low profitability of small mills, and high cost of modernisation.

In recent years, budgetary concessions, rationalisation of duty structure and assistance under the Technology Upgradation Fund Scheme (TUFS) started paying some marginal dividends in the textile sector.

Cement

Cement is one of the emerging major industries with greater development potential. Cement, being the key raw material of the construction industry, plays a significant role in the country's current phase of development. The industry is almost self-sufficient in terms of raw materials, machinery, technology and increasing local demand.

India, with all such advantage, produces only 6 per cent of world cement production. It has recorded an annual growth rate of 8.4 per cent over the last two decades. Cement industry has an installed capacity of 140.53 million metric tons (mmt) with 120 large and 365 mini plants. The capacity utilization of large plants has been very high at 80 percent.

The current policy reforms are expected to increase the capacity utilisation further. High input costs and poor export infrastructure are some of the problems facing the industry. The Tenth Plan has fixed a production target of 203 mmt and the estimated investment during 2002-07 would be Rs. 17,600 crore.

Sugar

Sugar industry is an important agro-based industry. Its contribution to the economy is manifold. This industry has been the source of rural development through employment and income generation, and increased transport and communication facilities. In addition, sugar industry also provides input for some other industry. It is also earning from abroad through exports.

India has emerged as the largest sugar producing country in the world. It contributes 15 per cent of the world sugar production. However, the share of India's sugar in the international trade is very meagre at 0.05 per cent. Underutilization of capacity, unremunerative prices to sugar cane cultivators, industrial sickness and industrial closure are some of the major problems of the sugar industry.

Adequate support from government, banks and financial institutions should come forward to provide enough relief to revive the sick units. The Tenth Plan has estimated an investment of Rs. 1300 crore during 2002-07.

Industrial Policies

During the pre-independent period the industrial sector was very small and the country did not have any significant industrial policy. After independence, the first formal initiative towards industrialization was the declaration of the Industrial Policy Resolution of 1948.

However, the more comprehensive, concerted and real planned effort towards industrialization commenced from the era of First Five Year Plan (FFYP) 1951-1956. The major step towards industrialization has been attributed to Industries (Development and Regulation) Act 1951.

Through this Act, the Union Government brought many key and basic industries under its control. The sectors of national importance namely atomic energy, arms and ammunition, aircraft, ship building, telephone and telegraph, iron and steel, coal, minerals, oils etc. have been brought under the exclusive sphere of government.

The Second Five Year Plan (SFYP) made a marked shift in the industrial policy and development of the country. The main aim of the second plan was to accelerate the growth of the economy through rapid industrialization.

The basic framework and direction for such rapid industrialization was laid down by the Industrial Policy Resolution of 1956 in tune with many provisions of the 1950's Constitution.

The resolution of 1956, having declared "the adoption of the socialistic pattern of society as the national objective" urged that all industries of basic and strategic importance or in the nature of public utility services should be in the public sector for planned and rapid development. Thus, the State has, therefore, to assume direct responsibility for the future development of industries.

Another strategic dimension of the 1956 resolution was its emphasis on basic and heavy industries and capital goods industries to attain self-reliance in important sectors. This strategy also believed that rapid development within a limited span of time is possible through the development of capital goods industries rather than the consumer goods industries. The Plan created a strong foundation for the future economic development and provided support to the agriculture, village and small-scale industries and infrastructures.

Public Sector Restructuring

The macro economic policy reforms launched from 1991 onwards have restructured the public sector enterprises to a significant extent. The new policy reforms are expected to alter drastically the basic parameters of erstwhile Indian economic policies that were followed since Independence. The national economy has been weaned away from regime of state controls and towards a market dependent one. The process of macro economic stabilization through which a planned economy is changed into a market driven competitive economy is called as economic policy reforms.

The process includes liberalization, privatization and globalization (LPG). These new set of policies reduced the then dominant role of public sector through various policy measures like new Industrial Policy 1991, disinvestment, promotion of private and foreign investment.

All these policy initiatives have restructured the Indian public sector thoroughly. The employment generation, income distribution and welfare objectives of public sector have been replaced by profit maximization objectives.

The performance of the sector has been criticized on various grounds; particularly the question of efficiency is measured in terms of profit and not by employment and labour welfare. The welfare oriented pricing policy has also been subjected to criticism.

New Industrial Policy 1991

The New Industrial Policy declared was on July, 1991 with the major aim of loosening the barriers to entry for private firms to encourage competition in the industrial sector. The industrial policy acted to consolidate the earlier gains and to build further by correcting the distortions that might have crept in the Industrial structure developed in the earlier decades. It also aims to sustain growth in the productivity and gainful employment and to attain international competitiveness.

The specific reforms related to the restructuring of public sector enterprises are as follows.

- (i) To encourage private participation in the economy. The areas of industry reserved for the public sector has been considerably reduced from 17 to 8. In particular, telecommunication, power, air transport, petroleum, sectors were opened for private sector.
- (ii) The disinvestment of shares of some public sector enterprises in order to raise the resources and to encourage private participation in the public sector enterprises.
- (iii) Public enterprises which are sick, will be referred to the Board of Industrial and Financial Reconstruction for rehabilitation or reformulation.
- (iv) An improvement of performance and accountability has to be ensured through new rules and only potentially viable public sector undertakings (PSUs) can be revived.
- (v) Budgetary support to sick public sector industries will be reduced drastically.
- (vi) Only potentially viable PSUs can be revived and others will be closed down.

In 1998-99, another two sectors were removed from the exclusive public sector domain and subsequently only 3 sectors have been left under the public sector domain leaving the rest open for private and foreign investments. Thus the Industrial Policy of 1991 has dismantled the industrial controls, regulations in a significant way to restructure the public sector and to promote private sector.

Disinvestment of Public Enterprises

The process of industrial restructuring continued in response to the new industrial policy of 1991. The new policy suggested the partial disinvestment of public sector without fixing any ceiling. Citing fiscal crisis as the reason, comprehensive efforts have been initiated subsequently to disinvest the equity of public sector undertakings to a greater extent. This is nothing but the outright process of privatization. There are three models viz. public offer, strategic sale and cross holding. The Government announced in 1998 to sell more than 51 percent in strategic sales and the new cap was fixed at 74% to 100%.

The objective of disinvestment is to mobilise enough resources by way of withdrawing from some sector in order to invest in priority areas like particularly social sectors. The mobilized resources are used to repay the public debt of the government to pay for various VRS schemes, labour retrenchment and redeployment schemes under the exit policy.

The other objectives include the promotion of private sector, enhancement of efficiency and competition. In 1991-92, over Rs.30 billion was raised through the disinvestment of public sector. In 1992-93, Rs.18.6 billion against a target of Rs.35 billion was raised. Until 2002-03, a huge resource of around Rs.300 billion was raised through the disinvestment policy.

Though the policy of disinvestment is criticized vehemently by the left parties and trade unions, the government is moving towards further disinvestment of many Public Sector enterprises including the strategic and profit making enterprises.

Liberalization and Privatization

Liberalism means the order of the market or capitalist economy relying predominantly on competition and private sector. It envisages free trade, full convertibility and non-discriminatory tariffs. Liberalisation policies aim at minimizing the roles and functions of the government in the economy to promote private sector. It aims at more external capital inflows to finance the current account deficit, to augment capital formation to generate exports earnings to raise efficiency of capital used in India to improve the quality of the products. In India, the forms of liberalisation policy initially have been on general liberalisation of controls or marketisation and deregulation followed by privatization.

Privatization policy has been adopted as a part of the liberalisation. Privatization is defined as transfer of ownership from public sector to private sector. It is the process of reducing the role of State or public sector in the economic activities of a country. Privatisation is expected to ensure efficiency in the allocation of resources and promote faster growth.

In India, the process of intense privatization has been initiated since 1991. The various methods through which it has been undertaken includes disinvestment measures (i.e. setting the public ownership to private sector), deregulation and delicensing measures for the entry of private sector industries into the reserved public sector domains, surrendering the control and management of public sector enterprises to the private sector and by halting any further public investment and diversification.

Thus, public sector restructuring refers mainly to disinvestment or denationalization of existing public sector enterprises, liberalisation and privatisation through deregulation and delicensing ultimately limiting the role of public sector to social and economic infrastructure.

The Eighth Five Year Plan (1992-97) clearly argued that considerable restructuring was necessary to reach the new goals of public sector within the framework of New Economic Policy. The new goal is 'public sector industry has an important role as an autonomous, competitive and efficient sector to provide essential infrastructure goods and services, development of natural resources and areas of strategic concern'. The following are the integrated strategies devised by the Eighth Plan for public sector restructuring:

1. Restructuring involving modernization, rationalisation, product-mix changes, selective exit and privatisation.
2. Increase in autonomy and performance accountability through the system of Memorandum of Understanding (MOU) between the administrative ministries and central public enterprises launched in the Seventh Plan.
3. Changes in management practices at specific enterprises level to promote efficiency, dynamic leadership, resourcefulness and innovation.
4. A major effort by state governments to promote reforms in public sector.
5. Technology upgradation through an integrated R & D effort and import of technology.
6. Re-orientation of approach in ministries and other government agencies regarding liberalisation and dismantling of regulations.

Environmental Hazards

Environmental hazards have become a matter of very serious concern of humanity. The western societies, having been driven by the culture of consumerism, increased their production rapidly to meet the accelerated consumption. This has resulted in mounting wastages and greater damages to the environment. The culture of rampant consumerism of the West has shifted to the East accompanied by vast number of 'use and throw' products.

Further, the pressing developmental needs of the less developed countries like India have resulted in a critical trade-off between growth and environment. The rich countries, after having done enough damage to the environment, now wants to impose many restrictions on the industrial development of less developed countries. At the same time they refuse to transfer many environmental friendly technologies free of cost in order to help the poor countries as well as to protect the environment.

After independence, India launched its heavy industry based development strategy which has resulted in the setting up many new industries, upgradation and modernization of existing industries. Industrialisation and the environmentally unfriendly Green Revolution technology have inflicted heavy damages to the environment. Further, deforestation and aquaculture have also caused severe damages to our environment.

Many legislations and regulatory measures for the protection, conservation and development of the environment have been introduced both by the Union and State governments. Pollution control boards have been set up at different levels of government to address the issues.

The following are some of the recent public policy initiatives in India to control environmental pollution.

1. Formulation of National Environmental Policy
2. Setting up of National Clean Development Mechanism (CDM) Authority as per Kyoto Protocol.
3. Reengineering environmental clearance process
4. Revising the Coastal Regulation Zones (CRZ)
5. Developing a National Chemical Management Profile for the country.

Inspite of all such efforts, polluting industries, particularly many large scale industries, aqua culture, thermal and nuclear power plants have been a significant source of air, water and land pollution on a large scale. At the international level, large scale bombardment of cities, oil fields and continuous wars like the one that Americans are waging against Iraq, frequent nuclear tests conducted by big and small countries, etc are the major sources of environmental damage.

Industrial Finance

Finance is the backbone of industrial development. The financial requirement of industries may be for the short term to meet 'working capital' requirements. Or it may be for a long term to meet the 'fixed capital' requirements. To meet such requirements, the industries raise finance from different sources. In India, as in many other countries, industrial finance is available under two broad sources viz. external and internal sources.

Internal Sources

Internal sources of industrial finance consist of funds mobilized from own sources as in the case of small scale units, paid-up capital in the form of equity shares subscription as in the case of large units, own surpluses and reserve funds of industries.

External Sources

External sources of industrial finance include raising of borrowed finance from sources such as public deposits, equity capital, debenture issues and availing loans from commercial banks and other financial institutions.

Financial Institutions

The short term financial requirements can be met from internal sources like public deposits, share capital and commercial bank loans. However, for long term requirements, industries will approach specialized 'financial institutions'. Financial institutions in developing countries are also referred to as development banks. This implies that their role must be development oriented and not mere lending alone. Thus, they are capable of inducing the course of development through their policies and programmes. The following are some of the financial institutions available at different levels in India.

At National Level

1. Industrial Finance Corporation of India (IFCI)
2. Industrial Development Bank of India (IDBI)
3. Industrial Credit and Investment Corporation of India (ICICI)
4. Industrial Investment Bank of India (IIBI)
5. National Small Industries Corporation (NSIC)

At State Level

1. Tamil Nadu Industrial Investment Corporation (TIIC) (First of its nature to be set up in India in 1949)
2. State Financial Corporations (SFC)
3. State Industrial Development Corporations (SIDC)

At Intermediate Level

1. Unit Trust of India (UTI)
2. Life Insurance Corporation of India (LIC)
3. General Insurance Corporation of India (GIC)

Role of Small Scale Industries in Economic Development

Small Scale Industries (SSIs) play an important role in the economic development of a country. Their role in terms of production, employment generation, contribution to exports and facilitating equitable distribution of income is very critical. The small scale sector consists broadly of 1) the traditional cottage and household industries viz., khadi & village industries, handicrafts, handlooms, sericulture and coir industries; and 2) modern small scale industries.

The traditional village and cottage industries as distinguished from modern small scale industries are mostly unorganised and located in rural areas and semi-urban areas. They normally do not use power operated machines/appliances and use relatively lower levels of investment and technology. But they provide part-time employment to a very large number of poorer sections of the society. They also supply some essential products for mass consumption and exports.

The modern small scale industry is mostly defined in terms of the size of investment and labour force. The Industries (Development & Regulation) Act 1951 defines SSI having less than 50 workers with the aid of power or less than 100 workers working without the aid of power. The more formal definition is in terms of the fixed assets less than Rs. 35 lakh (1981). In 1991 the limit was raised to Rs. 60-75 lakh. The Ninth Plan fixed the ceiling at Rs. 100 lakh and the Tenth Plan increased it to 50 crores in the case of hi-tech and export oriented sectors.

Government is extending various steps to the SSI. In India, a unique instrument called reservation in the sense of legal ban on production by large units introduced in 1970s was for the protection and promotion of SSI. During Ninth Plan period, SSI was producing about 8000 items out of which 812 items (15%) were reserved for protection in the small scale sector. In addition, the SSI has been supported and encouraged by various government policies for infrastructure support, technology upgradation, preferential access to credit, preferential policy support, etc.

Over the last five decades the small scale industries (SSIs) have emerged as a dynamic and vibrant sector of the Indian economy by helping to generate more new employment avenues, supplying variety of products, contributing to exports facilitating equitable distribution of income, emerging as outsourcing designations.

The SSI sector has been able to achieve 1 to 2 percentage points higher growth than the growth achieved by the whole industries sector. There were 3.4 million small scale industrial units in India that account for more than 40% of the gross value of output in the manufacturing sector and about 35 % of total exports by the end of march 2002.

The following are some of the specific contributions of SSIs.

1. The contribution of SSIs to the manufacturing sector and GDP as a whole is significant in terms of its share in total value added.
2. SSI performs a very significant role in generating employment opportunities in a sustainable manner.
3. SSI can play a role in mitigating the problem of imbalance in the balance of payment accounts through its export promotion.
4. While the large scale industries are expected to increase the inequities of income and concentration of wealth, SSI is expected to help widespread equal distribution of income and wealth.
5. SSI may provide opportunities to a large number of capable and potential entrepreneurs who are deprived of appropriate opportunities.
6. It can help to release scarce capital towards productive use.
7. SSI can reap the benefits of lean production and can find new cost-efficient techniques of lean production.
8. As small units can use resources more efficiently to the full capacity without any wastage, they may have higher allocative efficiency.
9. As the element of risk is minimum in small scale sectors, more resources will be employed by large number of labour force.

Problems of Small Scale Industries

SSIs are facing many problems. The following are some of their major problems.

- a) Scarcity of inputs
- b) Inadequate capital
- c) Marketing
- d) Under-utilization of capacity
- e) High cost of production

Government Policy on SSI

1. Having realized the importance of small scale industries to the Indian economy, the government has supported the SSI through various policy measures since independence.
2. The appointment of Karve Committee by the Planning Commission in 1955 was the first major effort towards the improvement of small scale industries.

3. During the second Five Year, a Japanese team of experts studied the organisation of SSIs in India and made many recommendations including the setting up of industrial estates in large numbers to promote small scale industries.
4. The policy of reservation of items for manufacturing in small scale industries was introduced in 1967. This has received a statutory banking in 1984.
5. A policy package for SSI has been announced in 1991 with the primary objectives of imparting more utility and growth impetus to SSIs.
6. The Tenth Plan announced a policy package on the basis of the recommendations made by S. P. Gupta's Study Group. It includes policies regarding
 - a) enhancement of excise duty exemption limit
 - b) increase in loan limits
 - c) credit facilities
 - d) enhancement of investment limit

Chapter 7

Exercise

PART A

I Choose the correct answer

1. The productive capacity of a nation is represented by the progress of

a. agriculture	b. Infrastructure
c. Export	d. Industries
2. A nation's real strength is reflected in its

a. agriculture	b. Export
c. Import	d. Industrial development
3. The process of industrialization is the essential pre- requisite for

a. Generating employment	b. Inducing investment
c. Achieving economic development	d. Increasing per capita income
4. The new industrial policy was announced in

a. 1980	b. 1984
c. 1991	d. 2001

5. Which of the following is called as an important agro-based industry
- | | |
|----------|-----------|
| a. Steel | b. Cement |
| c. Sugar | d. Jute |

II Fill in the blanks

6. is one of the oldest as well as the largest industries in India.
7. The main aim of thewas to accelerate the growth of the economy through rapid industrialization.
8.means the order of the market or capitalist economy relying predominantly on competition and private sector.
9.is defined as transfer of ownership from public to private sector.
10.plays an important role in the economic development.

III Match the following

- | | | |
|---------------------------|---|----------------------------|
| 11. Disinvestment process | - | Traditional industries |
| 12. Cottage industries | - | Privatization |
| 13. Delicensing | - | Labour intensive |
| 14. Small scale units | - | Intermediate good |
| 15. Cement | - | Industrial policy of 1991. |

IV Write in one word or two

16. Give an example of a country that follows mixed economic system.
17. Give an example for large scale industry.
18. Is sugar industry an agro-based industry?
19. Expand LPG.
20. What was the main aim of Second Five Year Plan?

PART B

Answer the following in four or five lines

21. Define industrialization.
22. Define mixed economy.
23. Define Privatization.
24. What is the use based classification of industry?
25. Define liberalization.

PART C

Answer the following questions in about a page

26. Explain the significance of public sector.
27. Explain the position of industrialization under pre and post independence period.
28. List out the organizations which provide industrial finance.
29. Write about the disinvestment of public enterprises.
30. Explain the integrated strategies devised by the Eighth Plan for public sector restructuring.

PART D

31. Explain various large scale industries and their performance.
32. Examine the needs of industrial sector.
33. Explain the role and importance of small scale industries.
34. Discuss elaborately the various aspects of new industrial policy of 1991.
35. Explain environmental hazards and its causes and the measures taken by the Government to overcome them.

Chapter 8

Banking

History of Banking

The name 'bank' is usually used in the sense of commercial bank. The word 'bank' seems to have originated from the Germanic word 'banck' which means a joint stock fund or heap. It is possible that the word has also been derived from the French word 'banque' and the Italian word 'banco'. The Italian word 'banco' refers to a bench at which the money changers or mediaeval bankers used to change one kind of money into another and transact their banking business. Thus, the early banking was associated with the business of money changing.

The first public banking institution was The Bank of Venice, founded in 1157. The Bank of Barcelona and the bank of Genoa were established in 1401 and 1407 respectively. These are the recognized forerunners of modern commercial banks. Exchange banking was developed after the installation of the Bank of Amsterdam in 1609 and Bank of Hamburg in 1690.

The credit for laying the foundation of modern banking in England goes to the Lombards of Italy who had migrated to other European countries and England. The bankers of Lombardy developed the money lending business in England. The Bank of England was established in 1694. The development of joint stock commercial banking started functioning in 1833. The modern banking system actually developed only in the nineteenth century. In India, the first modern bank 'Bank of Bengal' was established in 1806 in the Bengal presidency.

Development of banking habits

Before the Industrial Revolution, the size of business units was very small. After some years, there was a great increase in the size of the business units. Therefore, joint stock forms of business organisations were established. Such form of business organisation widened the circle of investors, by enabling people with small means to become share holders of big industrial enterprises. Still, some people did not want to undertake any kind of risk by investing their money. Hence, an institution was created to mobilize funds on terms acceptable by the people. Such an institution is called 'Bank', whose business is to mobilize capital. And hence, banks are connecting link between the people, who have surplus money and the people who are in need of money. In addition to this, banks undertake the risk arising out of the possible default of the ultimate borrower.

The early stages of banks included three types of institutions

- i) The merchant banker, who was primarily a trader. He accepted customer's money and kept it under safe custody.

- ii) The money lender, who lent his surplus money to the needy persons on deriving some interest payment.
- iii) The gold smith, who accepted the valuables like gold and diamond of the customers and kept it under his safe custody. It will be returned to the customer on demand and interest will be collected for that.

Modern banks retain all the characteristics of above three types of institutions. The advancement of society and economic thinking, specialization and extended market resulting from Industrial revolution paved the way for developing modern commercial banking system. The role of banks extended from merely being institutions of 'deposits and discounts' to custodians of national finance and trustees of the surplus balances of the public. The modern banks have now become the lifeblood of our commercial and industrial activities.

Definition of Banking

On account of multifarious activities of modern banks, the 'Bank' or 'Banking' has been defined by several economists as follows:

Dr.L. Herber and L. Hart define the banker, "as one who in the ordinary course of business honours cheques drawn upon him by persons from and for whom he receives money on current accounts".

Chamber's Twentieth century Dictionary defines a bank as an, "institution for the keeping, lending and exchanging etc. of money".

According to Crowther, "The banker's business is to take the debts of other people to offer his own in exchange, and thereby create money".

Prof. Kent defines a bank as, "an organisation whose principal operations are concerned with the accumulation of the temporarily idle money of the general public for the purpose of advancing to others for expenditure".

It is evident from the above definitions that a bank is an institution which accepts deposits from the public and in turn advances loans by creating credit.

Role of Banks in economic development

Banks play a very useful and crucial role in the economic life of every nation. They have control over a large part of the supply of money in circulation, and they can influence the nature and character of production in any country. In order to study the economic significance of banks, we have to review the general and important functions of banks.

1. Removing the deficiency of capital formation

In any economy, economic development is not possible unless there is an adequate degree of capital accumulation (or) formation. Deficiency of capital formation

is the result of low saving made by the community. The serious capital deficiency in developing economies is reflected in small amount of capital equipment per worker and the limited knowledge, training and scientific advance. At this juncture, banks play a useful role. Banks stimulate saving and investment to remove this deficiency. A sound banking system mobilizes small savings of the community and makes them available for investment in productive enterprises. The important implications of this activity include

- i) Banks mobilise deposits by offering attractive rates of interest and thus convert savings into active capital. Otherwise that amount would have remained idle.
- ii) Banks distribute these savings through loans among productive enterprises which are helpful in nation building.
- iii) It facilitates the optimum utilization of the financial resources of the community.

2) Provision of finance and credit

Banks are very important sources of finance and credit for industry and trade. It is observed that credit is the lubricant of all commerce and trade. Hence, banks become nerve centers of all trade activities and therefore commerce and trade could function in the presence of sound banking system.

The banks cover foreign trade transactions also. Big banks also undertake foreign exchange business. They help in concluding deferred payments, arrangements between the domestic industrial undertakings and foreign firms to enable the former import machinery and other essential equipment.

3) Extension of the size of the market

Commercial bankers help commerce and industry in yet another way. With the sound banking system, it is possible for commerce and industry for extending their field of operation. Commercial banks act as an intermediary between buyers and the sellers. Goods are supplied on bank guarantees, making it viable for industry and commerce to cultivate and locate markets for their products. The risks are undertaken by the bank. When the risks have been set free by the banks, the industry can look forward to derive economies of the large size of the market.

4) Act as an engine of balanced regional development

Commercial banks help in proper allocation of funds among different regions of the economy. The banks operate primarily for profits. When the banks lend their funds for more productive uses, their profits will be maximized. Introduction of branch banking makes it possible to choose between different regions. A region with growth potential attracts more bank funds. But in recent years, the approach of banks towards regional growth has been undergoing a change. Banks help create infrastructure essential for economic development. Thus banks are engines of balanced regional development in the country.

5) Financing agriculture and allied activities

The commercial bank helps the farmers in extending credit for agricultural development. Farmers require credit for various purposes like making their produce, for the modernization and mechanization of their agriculture, for providing irrigation facilities and for developing land.

The banks also extend their financial assistance in the areas of animal husbanding, dairy farming, sheep breeding, poultry farming and horticulture.

6) For improving the standard of living of the people

The standard of living of the people is estimated on the basis of the consumption pattern. The banks advance loans to consumers for the purchase of consumer durables and other immovable property, which will raise the standard of living of the people.

Stimulating human capital formation, facilitating monetary policy formulation and developing entrepreneurs are some of the other roles played by commercial banks in the economic life of every nation.

Commercial Banks

A commercial bank is an institution that operates for profit. The traditional functions of a commercial bank relate to the acceptance of deposits from the public and provision of credit to different sectors of the economy. However, with the evolution of modern banking and growth of banking system as an integral part of the national economy, there has been a perceptible change in the attitude and outlook of the commercial banks. These banks have started providing a host of banking services to their customers. Nevertheless, the basic character of commercial banking remains unchanged. In the early days, commercial banks are organized as a joint stock company to earn profit. They cater to the needs of short-term, medium term credit and provide capital to businessmen and industrialists. In the recent days, the banks lend long term funds to businessmen and industrialists.

Functions of Commercial Banks

The various functions performed by commercial banks can be classified as follows:

1. Accepting or attracting deposits

Commercial banks accept deposits by mobilizing the savings of the people. These deposits can be of three forms.

a) Savings deposits: It is a kind of safety vault for the people with idle cash. These deposits are kept under savings account. Deposits in this account earn interest at nominal rates and the banks are entitled to release deposits on demand by the deposit holder. In practice, the bank imposes a limit on the number and amount of withdrawals during a period. Cheque facilities are also given to the deposit holder.

b) Demand deposits: Demand deposits are kept under current account. The depositor can withdraw the money on demand. But, the account holder should specify the amount and the number of withdrawals. Banks do not pay any interest on these accounts. On the contrary, bank imposes service charges on maintaining these accounts.

c) Fixed deposits: These are also known as time deposits. The amount deposited cannot be withdrawn before the maturity period for which they have contracted. These deposits carry interest at higher rates varying with the length of the contract.

2) Advancing of loans

Banks adopt several ways for granting loans and advances. These operations take different forms.

a) Cash credit: The bank sanctions loans to individuals or firms against some collateral security. The loan money is credited in the account of the borrower and he can withdraw the amount as and when it is required. The ceiling of the loan amount is determined by the bank on the basis of the stock value of the borrower which in turn becomes Banker's possession. The borrower can withdraw the cash within or upto the credit limit. The bank charges interest for the amount withdrawn only.

b) Provision of overdraft facilities

The respectable and reliable customers enjoy these facilities. The customer can issue cheques and overdraw the money in times of need, even if there is no adequate balance in his account. The customer will pay the interest to the bank for the amount overdrawn.

c) Discounting bills of exchange

This operation is done through discounting of commercial papers, promissory notes and bills of exchange, usually for three months. The banks after deducting interest charges and collection charges from the face value of the bills, give the balance amount to the customer. When the exchange bill matures, the banks collect the payment from the party.

3) Creation of money or credit

Every loan sanctioned by the banker creates a deposit. Because, when a bank sanctions loan to a customer, an account is opened in his name and the loan amount is credited into his account. The borrower withdraws money whenever the amount is required. The creation of such deposits leads to increase in the money stock of the economy and through its circulation creates new money.

4) Other functions

Some of the other important functions performed by these banks are as follows:

a) Transfer of funds

In the complexity of trade and commerce in the modern days, the transfer of funds from one place to another becomes difficult. Banks help in eliminating this difficulty through the use of various credit instruments like cheques, bank drafts and pay orders, traveller cheques, etc. This process is called 'clearing' and it is efficiently done by bank operations.

b) Agency functions

Commercial banks are increasingly acting as financial agents for their clients. They make all sorts of payments on behalf of their clients like insurance premium, pension claims, dividend claims or capital demands etc. Likewise, they buy and sell gold, silver and securities on behalf of their clients.

c) General utility services

A commercial bank performs general utility services such as

- i) providing safety lockers for the safer custody of valuables of the customers.
- ii) Issuing of letter of credit to the customers.
- iii) Under-writing loans to be raised by public bodies and corporations.
- iv) Compiling statistics and information relating to trade, commerce and industry.

Thus, commercial banks render valuable services to the community. Developed banking system ensures industrial and economic progress. It constitutes the lifeblood of an advanced economic society. In developing countries like India, commercial banking may be described as 'development banking'. It plays a critical developmental role in making their funds available to the priority sectors, weaker sections and employment-oriented schemes.

Central Banks

The banking system of a country can work systematically in coordinated manner, only if there is an apex institution to direct the activities of the banks. Such apex institution is popularly known as 'central bank'. The central bank of the country is an autonomous institution, entrusted with powers of control and supervision. It controls the monetary and banking system of the country. After World War II, the International Monetary conference held at Brussels in 1929 recommended the setting up of a central bank in every country. The central bank of our country, known as Reserve Bank of India was set up in 1935. The central bank of England called Bank of England was established in 1694. It is known as the 'mother of central banks', since it provides the fundamentals of the art of central banking.

The central bank of France called 'Bank of France' was founded in 1800. The USA established a central banking system in the form of Federal Reserve Banks in 1914.

Definition of a central bank

A central bank has been defined in terms of its functions. The following are some of the definitions given by economists.

According to Smith, “the primary definition of central banking is a banking system in which a single bank has either complete control or a residuary monopoly of note issue”.

H.A. Shaw defines a central bank, “as a bank which controls credit”.

In the words of Hawtrey “a central bank is that which is the lender of the last resort”.

According to Samuelson, “a central bank is a bank of bankers. Its duty is to control the monetary base and through control of high-powered money to control the community’s supply of money.

Distinction between central banks and commercial banks

The central bank is basically different from commercial banks in the following respects.

1. The central bank is the apex institution of the monetary and banking system of the country. A commercial bank is only a constituent unit of the banking system and a subordinate to the central bank.
2. While the central bank possesses the monopoly of note-issue, commercial banks do not have this right.
3. The central bank is not a profit making institution. Its aim is to promote the general economic policy of the government. But, the primary objective of commercial banks is to earn profit for their shareholders.
4. The central bank maintains the foreign exchange reserves of the country. The commercial banks only deal in foreign exchange under the directions of the central bank.
5. The central bank is an organ of the government and acts as its banker and the financial advisor, whereas commercial banks act as advisors and bankers to the general public only.

Functions of Central bank

The main functions of a central bank are common all over the world. But the scope and content of policy objectives may vary from country to country and from period to period depending on the economic situations of the respective country. Generally all the central banks aim at achieving economic stability along with a high growth rate and a favourable external payment position through proper monetary management. The common functions of central banks are discussed below.

1. Regulator of currency

The issue of paper money is the most important function of a central bank. The central bank is the authority to issue currency for circulation, which is a legal tender money. The issue department of the central bank has the responsibility to issue notes and coins to the commercial banks. The central bank regulates the credit and currency according to the economic situation of the country. In the methods of note issue, the central bank is required to keep a certain amount or a fixed proportion of gold and foreign securities against the total notes issued. The Reserve Bank of India is required to keep Rs.115 crore in gold and Rs.85 crore in foreign securities, but there is no limit to the issue of notes.

Having the monopoly of note issue, central bank gains advantages as

- i) Ensuring uniformity of the notes issued and a proper control over the supply of money can be exercised.
- ii) Bring stability in the monetary system and creates confidence among the public.
- iii) Government is able to earn profits from printing currencies.

2. Banker, Agent and Adviser to the Government

The central bank of the country acts as the banker, fiscal agent and advisor to the government. As a banker, it keeps the deposits of the central and state governments and makes payments on behalf of governments. It buys and sells foreign currencies on behalf of the government. It keeps the stock of gold of the country. As a fiscal agent, the bank makes short-term loans to the government for a period not exceeding 90 days. It floats loans and advances to the State governments and local bodies. It manages the entire public debt on behalf of the government. As an adviser, the bank gives useful advice to the governments on important monetary and economic problems like devaluation, foreign exchange policy and budgetary policy.

3. Custodian of cash Reserves of commercial banks

Commercial banks are required to keep a certain percentage of cash reserves with the central bank. On the basis of these reserves, the central bank transfers funds from one bank to another to facilitate the clearing of cheques.

4. Custodian and Management of Foreign Exchange reserves

The central bank keeps and manages the foreign exchange reserves of the country. It fixes the exchange rate of the domestic currency in terms of foreign currencies. If there are any fluctuations in the foreign exchange rates, it may have to buy and sell foreign currencies in order to minimize the instability of exchange rates.

5. Lender of the last resort

By giving accommodation in the form of re-discounts and collateral advances to commercial banks, bill brokers and their financial institutions, the central bank acts as the lender of the last resort. The central bank lends to such institutions in order to help them when they are faced with difficult situations so as to save the financial structure of the country from collapse.

6. Clearing Function

The central bank acts as a 'clearing house' for other banks and mutual obligations are settled through the clearing system. Since it holds cash reserves of commercial banks, it is easier for the central bank to act as a 'clearing house'.

7. Controller of credit

The most important function of the central bank is to control the credit creation power of commercial banks in order to control inflationary and deflationary pressures within the economy. For this purpose, the central bank adopts Quantitative methods and Qualitative (selective) methods. Quantitative methods aim at controlling the cost and quantity of credit by adopting i) bank rate policy ii) open market operations iii) variations in reserve ratios of commercial banks. Qualitative methods control the use and direction of credit. It involves i) regulation of margin requirements ii) regulation of consumer credit, iii) rationing of credit, iv) direct action by the central bank, and v) moral suasion

Besides the above functions, the central bank performs many additional functions. It has to study all problems relating to i) credit, ii) fluctuations in price level iii) fluctuations in foreign exchange value. It has to collect monetary and financial statistics, conduct research and provide information. It has to look after the matters relating to IMF and the World Bank. All together, the central bank is the financial and monetary guardian of the nation.

Methods of credit control employed by the central bank

Credit control is an important function of the central bank. Various methods are employed by the central bank to control the creation of credit by the commercial banks. The principal methods are classified under two heads viz. Quantitative methods and Qualitative methods. Quantitative credit control methods are used to expand or contract the total volume of credit in the banking system. For example, the central bank of India believes that the safe limit for bank credit is Rs.50, 000 crore. Suppose, at a particular time the actual bank credit is Rs.75, 000 crore. Reserve Bank of India may now use bank rate as a weapon to reduce the volume of credit by Rs.25,000 crore. As such the volume of bank credit is reduced in the country. On the other hand, Qualitative credit control methods are used to control and regulate the flow of credit into particular industries or businesses depending on the economic priorities set by the government.

Suppose RBI estimates that the inflationary pressure in India is due to commercial banks' loan to speculators and hoarders who have managed to control the supply of inflation-sensitive goods and thus have pushed up the price level. Now RBI may direct commercial banks not to lend to speculators and hoarders. It is concluded from the above analysis that Quantitative controls are indirect, while Qualitative controls are direct.

Quantitative or General Credit control methods

The important general methods of credit control are as follows:

1) Bank Rate (or) Discount Rate Policy

The rate of interest of every central bank is known as 'Bank Rate'. It is otherwise known as 'discount rate'. At this rate the central bank rediscounts bills of exchange and government securities held by the commercial banks. When the cash reserves of the commercial banks tend to fall below the legal minimum, the banks may obtain additional cash from the central bank either by rediscounting bills with the central bank or by borrowing from the central bank against eligible securities. The central bank charges interest rate for this service. The central bank controls credit by making variations in the bank rate. A rise in the bank rate makes borrowing costly from the central bank. So commercial banks borrow less and in turn they raise their lending rates to customers. This discourages business activity. Thereby there is contraction of demand for goods and services and ultimately fall in the price level. Therefore bank rate is raised to control inflation. In the opposite case, lowering the bank rate offsets deflationary tendencies.

2) Open Market Operations

Direct buying and selling of securities, bills, bonds of government as well as private financial institutions by the central bank, on its own initiative, is called open market operations. In periods of inflationary situation, the central bank will sell in the money market first class bills. Buyers of this bill say commercial banks make payments to the central bank. It reduces the size of the cash reserves held by the commercial bank with the central bank. Some banks are forced to curtail lending. Thus, business activity based on bank loans and which is responsible for boom conditions are curtailed. In times of depression, the central bank will buy bills and securities from the commercial banks. The central bank will pay cash to the commercial banks for such purchases. Hence, the cash reserves of the commercial banks are increased. Thereby banks expand their loans resulting in the expansion of investment, employment, production and prices. Thus central bank through its open market operations influences business activity and economic conditions of the country.

3. Variable Reserve Ratio

Every commercial bank is required by law to maintain a minimum percentage of its time and demand deposits with the central Bank. The excess money remains with the commercial bank over and above these minimum reserves is known as the excess reserves. Commercial banks create credit only based on these excess reserves. Central bank may bring changes in reserve requirements. Consequently, it will affect the amount of reserves that commercial bank must maintain as deposits with the central bank as well as the amounts available for lending or investing. For instance, when the central bank fixes the reserve requirement as 10 percent, a commercial bank will have to maintain a cash reserve of Rs.100 for every deposit of Rs.1000 and hence it can lend only upto Rs.900. To check inflation the central bank may raise the cash reserve ratio from 10 percent to 15 percent. This will force the commercial banks to deposit additional 5 percent by reducing their amount available for lending. On the other hand, to check a deflation the central bank may reduce the reserve ratio from 10 percent to 7 percent. This will raise the excess cash with the commercial banks; consequently credit will be expanded.

Qualitative or selective credit control

Qualitative methods of credit control mean the regulation and control of the supply of credit among its possible users. The aim of such methods is to channelise the flow of bank credit from speculative and other undesirable purposes to socially desirable and economically useful uses. Important selective credit controls are given below.

a) Margin Requirements

The aim of this method is to prevent excessive use of credit to purchase securities by speculators. The central bank fixes minimum margin requirements on loans for purchasing securities. Suppose the central bank fixes a 30 percent as margin requirements, then for Rs.1000 worth of security, commercial bank may keep Rs.300 as margin and the remaining Rs.700 may be used for lending. If the central bank wants to curb speculative activities, it will raise the margin requirements. On the other hand, if it wants to expand credit, it reduces the margin requirements.

b) Regulation of consumer credit

Under this instrument, the central bank regulates the use of bank credit by consumers in order to buy durable consumer goods in instalments. To achieve this, it adopts two devices i) Minimum down payment ii) Maximum periods of repayment.

c) Rationing of Credit

Credit rationing is employed to control and regulate the purpose for which credit is granted by the commercial banks. Credit rationing takes two forms i) variable portfolio ceilings, wherein central bank fixes ceiling on the aggregate portfolios of the

commercial bank. They cannot advance loans beyond this ceiling. ii) Variable capital assets ratio wherein the central bank fixes in relation to the capital of a commercial bank to its total assets.

d) Direct Action

Direct action refers to 'directives' of the central bank to enforce the commercial banks to follow a particular policy. The central bank gives direction to commercial banks in respect of i) lending policies ii) the purpose for which advances may be made iii) the margins to be maintained in respect of secured loans.

e) Moral suasion

Moral suasion implies persuasion and request made by the central bank to the commercial banks to follow the general monetary policy in the context of the current economic situation.

f) Publicity

The central bank publishes weekly or monthly or quarterly statements of the assets and liabilities of the commercial banks for the information of the public. It also publishes statistical data relating to money supply, prices, production, employment and of capital and money market etc.

Nationalisation of Banks

The Indian banking system passed through a series of crises and hence its growth was very slow during the first half of the 20th century. But after Independence, the Indian banking system recorded rapid progress. This was due to planned economic growth, increase in money supply, growth of banking habit, setting up of the State Bank of India and its associate banks in the 1950s, the control and guidance by the Reserve Bank of India and above all nationalization of the 14 commercial banks in July 1969, and 6 more banks in 1980 by the Government.

Prior to nationalization, it was believed by some economists that Indian commercial banking system did not play its role in the planned development of the nation. The banking system was controlled by the leading industrialists and business magnates. They used public funds to build up private industrial empires. Small industrial and business units were consistently ignored. Agricultural credit was never seriously considered. Therefore Government of India took over 14 commercial banks in July 1969 and 6 other banks in April 1980.

The commercial banking sector in India has within its fold the following banks.

- a) The State Bank of India
- b) The seven associated banks of State Bank of India.
- c) Twenty nationalized Banks.

- d) Indian joint stock commercial banks
- e) Foreign banks functioning in India
- f) Regional Rural Banks.

Performance of Nationalized Banks

The most important benefit of nationalization of commercial banks was the achievement of homogeneity and strength as well as cohesion in the banking structure of India, affording a better environment for effectively implementing banking and monetary policies of the government.

The working of the commercial banks after nationalization show that they have made a complete departure from the old conservative banking practices and moving towards the objectives set forth in various fields of their operations. They have made significant achievements in the sphere of 'branch expansion', deposit mobilization, production-oriented financing, extension of credit to neglected sectors and creating new vistas in banking.

Chapter 8

Exercise

PART A

I Choose the correct answer

1. The first bank in India was established in
 - a. 1770
 - b. 1806
 - c. 1801
 - d. 1782
2. Minimum reserve system relates
 - a. Method of note issue
 - b. Commercial banks keep certain portion of their deposits with the RBI.
 - c. Commercial banks should keep certain portions of their deposits in cash
 - d. Customers are compelled to keep certain minimum balance with their deposits
3. Separate the bank whose motive is not profit-making
 - a. Andhra bank
 - b. Canara bank
 - c. IOB
 - d. RBI

4. The 14 commercial banks were nationalized in the year
- a. 1969
 - b. 1951
 - c. 1949
 - d. 1980

5. The primary functions of the commercial bank is
- a. making loans and advances
 - b. discounting bills of exchange
 - c. accepting deposits
 - d. participating in the inter-bank borrowing

II Fill in the blanks

6. EXIM Bank provides credit for _____ trade.
7. RBI controls credit supply by changing bank rate or _____
8. NABARD provides _____ finance to medium and long term basis.
9. The RBI was set up in April _____
10. The amount of cash kept by commercial banks to meet the day to day transactions is known as _____

III Match the followings

- | | | |
|----------------------------|---|---------------------------------|
| 11. Monopoly of note issue | - | commercial banks |
| 12. C R R | - | Official minimum rate |
| 13. Bank rate | - | Facility offered to businessmen |
| 14. Overdraft | - | 3-15 percent of total deposits |
| 15. Nationalisation | - | Reserve bank of India |

IV Answer the following in one or two

16. Name the first bank that was nationalized in India.
17. Who operates the current account deposits?
18. Which organization established EXIM bank?
19. Which organization is called the lender of last resort?
20. Can the commercial bank print and circulate currency notes?

PART B

Answer the following in four or five lines

21. What do you mean by a bank?
22. Write a note on commercial banks.
23. What is Central Bank? Give example?
24. What is Open market operations?
25. What is moral suasion?

PART C

Answer the following question in about a page

26. Explain the role of banks in economic development.
27. Distinguish between central bank and commercial bank.
28. Give definitions of central bank by various monetary theorists.
29. Explain various quantitative credit control methods of RBI.
30. Explain the different types of loans and advances made by the commercial banks.

PART -D

31. Describe the functions of commercial banks.
32. Examine the functions of central bank.

Chapter 9

Foreign Trade

Globalization

The term “Globalization” means the integration of the economy of each country with the world economy. The essence of globalization is the increasing degree of openness in respect of international trade, international investment and international finance. In other words, globalization is the process of transformation of the world into a single integrated economic unit. In a global economy, all the barriers on the flow of trade in goods and services and investment across the national frontiers are removed.

According to Guy Brainbant, the process of globalisation not only includes opening up of world trade, development of advanced means of communication, internationalisation of financial markets, growing importance of MNC's, population migrations and more generally increased mobility of persons, goods, capital, data and ideas but also infections, diseases and pollution.

The process of globalization underlie following trends.

- 1) Spread of international trade.
- 2) Increasing migration of people.
- 3) Increasing flow of money or means of payments.
- 4) More capital flows.
- 5) Increased flow of finance capital.
- 6) Emergence of more and more transnational companies and multi national companies.
- 7) Increasing trade of technology between different countries.
- 8) Rapid spread of print, electronic and communication media.
- 9) Growth in trade and production of services of all kinds – including education.

Liberalization

India opened up the economy during early 1991 following a major crisis that led by a foreign exchange crunch with reserves which could hardly finance inputs for two weeks in India. The crisis has dragged the economy close to defaulting on loans. The credit rating of India had gone down and non-resident Indians (NRIs) had started withdrawing their deposits in foreign currency and the country was on the verge of default with regard to the payments of short -term credits incurred from foreign financial institutions.

Hence, drastic policy measures were introduced on the domestic and external sectors to address all these issues. All these policy measures were partly prompted by the immediate needs and partly by the demand of the multilateral organisations like World Bank and International Monetary Fund (IMF). The liberalised policy regime rapidly pushed forward in favour of a more open and market oriented economy.

Policy Measures of Liberalisation

Major policy measures have been launched as a part of the liberalisation, privatisation and globalisation (LPG) programmes. The government announced the devaluation of rupee by about 20% in July 1991, new industrial policy, new trade policy in 1991, and a new export and import policy were also announced. Other measures followed are scrapping of the industrial licensing regime, reduction in the number of areas reserved for the public sector, amendment of the Monopolies and the Restrictive Trade Practices Act, withdrawal of many governmental controls, start of the privatisation programme, sharp reduction in tariff rates, change over to market determined exchange rates, many fiscal and financial sector reforms. All these measures have been grouped together under 'New Economic Policy' (NEP).

Over the years there has been a steady liberalisation of the current account transactions, more and more sectors opened up for foreign direct investments and portfolio investments facilitating entry of foreign investors in telecom, roads, ports, airports, insurance and other major sectors.

Liberalisation, privatisation and globalisation in the form of increased integration of India with the global economy through trade and investment since early nineties are some of the major reasons for the high level of economic growth in recent years. Despite this progress, unemployment, poverty, inequality and low level of human development still remains to be the most serious development challenges to be reckoned with.

Foreign Investment

Foreign investment plays a very important role in the new economic policy (NEP) launched in India to encounter the economic crisis of ninety. The main objective of NEP has been to achieve a higher level of economic growth. The strategies that were adopted as the measures for the development of the economy were devaluation, restrictive monetary target, minimization of the physical deficit, trade liberalization, privatization of industrial sectors and opening of the economy for foreign investment and competition. Among them foreign investment plays a most vital role. The inflow of foreign investment was encouraged to bridge the investment gap particularly in the industrial sector.

Foreign investment was supposed to bring technology, marketing enterprise, managerial techniques and new possibilities of import promotion. For promoting foreign investment in high priority industries and advanced technology, it was decided to provide approval for direct foreign investment upto 51% of foreign equity (earlier 40% in such industries). This change was expected to make Indian policy on foreign investment

more transparent. Such a framework would make it easy for foreign companies to invest in India.

The NEP 1991 can be regarded as minor revolution as far as decisions concerning foreign investment and foreign technology agreements are concerned. The various changes in the foreign investment policy can be broadly classified into four categories.

- 1) *Choice of Product*: The number of products in which foreign investment is freely permitted has been significantly increased.
- 2) *Choice of Market*: The foreign investors are free now to compete with the domestic producers in the Indian market.
- 3) *Choice of Ownership Structure*: In most cases, the foreign investor is free to own a majority share in equity.
- 4) *Simplification of Procedures*: Foreign direct investment (FDI) flows through three different routes.

The first is with automatic approval by the Reserve Bank of India.

The second route for foreign direct investment is from multinational companies on their Indian partners who want to invest in an industry outside these 35 sub-sectors or when an FDI holding or more than 51% is sought, permission has to be taken from the Secretariat of Industrial approvals (SIA) or the Foreign Investment Promotion Board. (FIPB).

The third route is investment by non-resident Indians.

Transfer of Technology

Technology is an important ingredient of the development mix. Developing countries are generally characterized by technological backwardness and a slow pace of technological progress. Transfer of technology from the developed to the developing countries is a necessary measure to speed up the pace of the economic development and modernization process. The new economic policy has sown a seed for the free flow of technology transfer through liberalization and globalization.

Technology transfer has been taking place on a large scale through licensing agreements and joint ventures. The methods of technology transfer are as follows.

1. Training or Employment of Technical Export
2. Contracts for supply of machinery and equipment and
3. Licensing agreements.

The appropriateness of the foreign technology to the physical, economic and social conditions of the developing countries is an important aspect to be considered in technology transfer.

Trade and Economic Development

Evolution of Trade from barter system to money economy

Trade is one of the key determinants of economic development. Development of trade can improve a country's development. Trade is simply the exchange of commodities which takes place at different levels. The earliest form of trade was probably barter in which one type of good was exchanged for another good. In the beginning of human existence, needs were simple and every individual produced what he wanted. In course of time, people settled down in different occupations. When specialization emerged, trade came into existence. Initially direct exchange of goods for goods known as barter system of trade prevailed. For instance, in a barter economy a person who had plenty of food but no clothes exchanged a part of his food with the person who had plenty of clothes but no food. In this method of direct exchange or barter, there were many difficulties and inconveniences.

The main inconvenience of barter was the necessity for double coincidence of wants. For example, a person has a cow and he wants to exchange cow for rice. Another person who has rice does not want a cow but he wants a horse. In this case, the transaction cannot take place, because there is no double coincidence of wants. The simple process of barter might have worked well when transactions were few and simple. As the system of exchange progressed, and with the advent of industrialization, the domestic system of production gave place to factory system. At this juncture, absence of double coincidence of wants posed a major problem in the transaction of goods. Further there were other difficulties of barter system, which hinder the trade practices. These are problems of store of value, standard of value and measure of value. Because of the inconvenient system of exchange under barter system, man had to give up barter and had to invent an intermediate commodity which makes the buying and selling of goods very easy. This intermediate commodity would have to be familiar, easily recognizable and generally acceptable to all people, since it had to serve as the medium of exchange. This medium of exchange was known as money.

'Money is one of the most fundamental of all man's inventions. In the whole of man's social existence, money is the essential invention. Money acts a medium of exchange, a measure of value, a store of value and a standard of deferred payments. Thus barter economy has given place to money economy.

With the introduction of money, the process of direct exchange of goods for goods was given up. A new system of exchange was introduced. Under the new system, a person who has an article to exchange, sells it for money and with the money he can purchase the commodities he wants. The problem of expressing the value of each article in terms of all other is solved and the value was expressed in terms of a single commodity, money. The problem arising from the absence of double coincidence of wants is also solved. It is enough if a person is able to find a purchaser for his goods. It is not necessary that person should possess what he requires. Money

can be conveniently stored and a person can save a part of his income for future use. Thus money overcomes all the disadvantages of barter system of exchange.

Before the introduction of paper money, any commodity that was generally demanded was chosen by common consent as a medium of exchange. For example, people living by sea-shore chose shells as medium of exchange, in cold countries people used skins of animals and fur; in tropical countries, elephant tusks, plumage of birds and tiger teeth were used as medium of exchange. With the progress of civilization and economic development, metals like gold, silver, and copper came to be used as money. It was found inconvenient as well as dangerous to carry gold and silver coins from place to place. In the 15th and 16th centuries, European merchants adopted the practice of carrying proper receipts showing their title to metallic money, which they had kept with well-known goldsmiths for safe custody.

In this way, paper money was introduced as a substitute for metallic money. Then the system of monopoly of note issue by the central bank of the respective country was introduced. At present legal tender money consists mainly of currency notes or paper money issued by the central bank. Therefore, banking practices facilitate trade and development within the country as well as among countries through employment of monetary weapons like exchange rate.

It would be right to say that the present day trade dimensions would not have been possible without money.

Need for International Trade

The type of trade with which most people are familiar is retail trade, in which shopkeepers sell goods to individual consumers for money. If it is done on a large scale it is called wholesale trade, in which factories or producers sell the goods to wholesalers, who in turn sell them to shopkeepers or retailers. The exchange of goods and services between different regions within a country is referred to as internal trade. Thus, international trade refers to the trade or exchange of goods and services between two or more countries.

No country can be completely self sufficient, and trade between countries is therefore essential to ensure a supply of a country's needs. Moreover, it enables the people to enjoy those goods and services which they cannot produce themselves or which they can produce at a relatively high cost.

There is unequal distribution of productive resources by the nature on the surface of the earth. Countries differ in respect of climatic conditions, availability of cultivable land, forests, mines, mineral products, labour, capital technology and entrepreneurial skills etc. Given their diversities, no country has the potential to produce all the commodities at the least cost.

Just as there is division of labour in the case of individuals, the countries also adopt this principle at the international level. Each one of them specializes in the production of only such commodities, which they can produce at comparatively lower cost than the others. They export such products to others and in return import those products in the production, of which they have comparative cost disadvantage. The existence of cost differences create price differential among the various countries.

Theory of Comparative Advantage

The theory of comparative advantage just explains such advantages of free trade. David Ricardo (The Principles of Political Economy and Taxation 1817) shown that trade without barriers can be beneficial for two countries if one is more efficient at producing goods or services needed by the other. What matters is not the absolute cost of production, but rather the ratio between how easily the two countries can produce different goods. Thus, according to the theory of comparative advantage, *if countries specialize in producing what they are most efficient, then they can trade these goods for those produced most efficiently by other country.*

The concept of comparative advantage can be illustrated with at least two goods and two countries where each good could be produced with scarce resources in each country. Suppose the two goods are food and clothing, and that the price of food within country 'A' is 0.50 units of clothing and the price of clothing is 2 units of food. The price of food in country 'B' is 1.67 units of clothing and the price of clothing is 0.60 units of food. Then we can say that country 'A' has a comparative advantage in producing food and country 'B' has a comparative advantage in producing clothing. It follows that in a trading relationship the country 'A' should allocate at least some of its scarce resources to producing food and country 'B' should allocate at least some of its scarce resources to producing clothing, because this is the most efficient allocation of the scarce resources and allows the price of food and clothing to be as low as possible.

Hence, the theory argued that free trade will benefit all due to comparative advantage.

Contribution of foreign trade to economic development

Foreign trade has worked as an 'engine of growth' in the past. Recently the "outward-oriented growth strategy" adopted by the Newly Industrializing Economies of Asia, has enabled many countries to overcome the constraints of small resource-poor under-developed economies. Foreign trade contributes to economic development in a number of ways as follows.

- i) It explores means of procuring imports of capital goods, which initiates the development process.
- ii) It provides for flow of technology, it allows an increase in factor productivity.
- iii) It generates pressure for dynamic change through (i) competitive pressure from imports, (ii) pressure of competition for export markets, and

- (iii) a better allocation of resources.
- iv) Exports allow fuller utilization of capacity, increased exploitation of economies of scale, separation of production patterns from domestic demand, and increasing familiarity with absorption of new technologies. These, in turn, help increase the profitability of the domestic business without any corresponding increases in price.
- v) Foreign trade increases worker's welfare. It does so at least in four ways:
 - (i) larger exports translate into higher wages;
 - (ii) because workers are also consumers, trade brings them immediate gains through cheaper imports;
 - (iii) It enables most workers to become more productive as the goods they produce increase in value;
 - (iv) trade increases technology transfers from industrial nations to UDCs and the transferred technology is biased in favour of skilled labour;
- vi) Increased openness to trade has been strongly associated with the reduction of poverty in most developing countries.

In the twenty-first century, we can easily identify the conditions that are favourable for developing economies to the conditions to employ foreign trade as a factor in economic growth. They are as follows:

- i) Increasing spread to globalization translates into larger movement of goods and services across the nations.
- ii) Continuing reallocation of manufacturing activities from industrial economies to developing economies offers ample opportunities to expand trade not only in goods, but also in services, which are becoming increasingly tradable.
- iii) Trade is intertwined with another element of globalization: the spread of international production networks.
- iv) Growth of trade is firmly buttressed by international institutions of long standing. The WTO, built on the legacy of the GATT, aims to create a commercial environment more conducive to the multilateral exchange of goods and services.
- v) In recent years there have been substantial reductions in trade policy and other barriers inhibiting developing country participation in world trade. Lower barriers have contributed to a dramatic shift in the pattern of developing country trade-away from dependence on commodity exports to much greater reliance on manufactures and services. In addition, exports to other developing countries have become much more important.

International Monetary Fund (IMF)

A landmark in the history of world economic co-operation is the creation of the International Monetary Fund (IMF). The decision to start IMF was taken at Bretton woods conference and it commenced its operation in March 1947. According to the Articles of Agreement of IMF, the objectives of IMF are:

- 1) To promote international monetary cooperation
- 2) To promote stability in foreign exchange rates;
- 3) To eliminate exchange control
- 4) To establish a system of multilateral trade and payments
- 5) To set right the disequilibria in the balance of payments.

The following are the major functions of the IMF

- 1) Functions as a short term credit institution.
- 2) Provides machinery for the orderly adjustments of exchange rates.
- 3) Acts as a reservoir of the currencies of all the member countries from which a borrower nation can borrow the currency of other nations.
- 4) Functions as a sort of lending institution in foreign exchange. It grants loans for financing current transactions only and not capital transactions.
- 5) It also provides machinery for altering sometimes the par value of the currency of a member country.
- 6) It also provides machinery for international consultations.
- 7) Provides technical experts to member countries having BOP difficulties and other problems.
- 8) Conducts research studies and publishes them in IMF Staff papers, Finance and development etc.

The structure of IMF

The highest authority of the fund is the Board of Governors. It consists of Executive Board, a Managing Director, a council and staff with its headquarters in Washington, U.S.A. There are ad hoc and standing committees appointed by the Board of Governors and Executive Board. The Board of Governors and the Executive Board are decision-making organs of the fund. The decisions are binding on the fund and its members.

Working of the Fund

The capital of the Fund included quotas of member countries, amount received from the sale of gold and loans from member countries. When a country joins the fund it is assigned a quota that governs the size of its subscription, its voting power and its drawing rights. At the time of formation of the fund each member has to pay 25% of its quota in gold. The remaining 75% was to be furnished in the country's own currency.

Fund borrowing

The bulk of its financial resources comes from quota subscriptions, besides, selling gold, borrowing from central banks or private institutions of industrialized countries.

Fund lending

The fund gives loans to members to rectify the temporary disequilibria in BOP on current account. If a member has less currency with the Fund than its quota the difference is called reserve trench. It can draw up to 25% on its reserve trench interest free but payable within a period of 3 to 5 years. A member can further draw annually from the balance quota in 4 instalments up to 100% of its quota from credit trenches

Other credit facilities

- 1) Buffer stock Financing Facility (BSFF)
- 2) Extended Fund Facility (EFF)
- 3) Supplementary Financing Facility (SFF)
- 4) Structural Adjustment Facility (SAF)
- 5) Enhanced Structural Adjustment Facility (ESAF)
- 6) Compensatory and contingency Financing Facility (CCFF)
- 7) Systematic Transformation Facility (STF)
- 8) Emergency structural Adjustment Loans (ESAL)
- 9) Contingency credit Line (CCL)

IMF has shown sufficient flexibility to mould itself in keeping with the changing international economic conditions. The usefulness and success of the fund lies in its membership, which has increased from 44 in 1947 to 182 in 2000.

Trends in Foreign Trade

Foreign trade of a country is gaining importance with the goal of achieving economic development and survival of the fittest with the globalization of the market. Foreign trade becomes more and more important for developing countries. Trends in

foreign trade will indicate a country's development ratio. A proper analysis of a country's foreign trade can be studied through the following components: 1. Volume of trade 2. Composition of trade and 3. Direction of trade.

Volume of trade

It refers to size of international transactions. Large numbers of commodities are involved in international transactions. Volume of trade can be measured by adding the money value of all commodities and hence it is also called value of trade. The trends in the value of trade will identify the basic forces at operation in the economy. However, it is necessary to find the changes in the value of trade in relation to i) share of exports and imports in Gross Domestic Product ii) Share of exports and imports in world trade. The share of exports and imports in GDP reflects the nature of trade strategies adopted in the country. The ratio of exports to GDP means supply capability of the economy in regard to exports. It can be called an average propensity to export. The ratio of imports to GDP gives the average propensity of imports.

The share of exports in the world trade indicates the importance of the country as a nation in the world economy. It reflects the market thrust areas to be realized in the midst of competitors in the world market. The changes in the value of exports may be compared to the changes in the value of imports. The relationship between the two variables is known as the terms of trade (TT) i.e. the terms at which exports exchange for imports. If the export value in terms of imports value shows an increase, the TT is said to be favourable. It implies that for a given value of exports, the country can import more. The unfavourable TT implies for a given value of imports, the country has to export more.

Volume of India's foreign trade

The volume of India's trade has been multiplied. The trade to GDP ratio has gone up from 13 percent in 1980 to 20 percent at present. The increase has been shared both by exports and imports.

The trends of exports

India's total exports have increased by more than 300 times during the last five decades, from Rs.606 crores in 1950-51 to over Rs.2, 91,582 crores in 2003-04. However the increase has not been uniform over the years. Before 1965-66, India's exports were slow. The total exports was percent 6.8 of the NNP in 1950-51, fell to 3.9 percent in 1965-66 indicating that growth in the exports sector lagged behind the growth in other sector of the economy. India's share in the total world exports was 2.2 per cent in 1950-51, touched the low share to 1.1 percent in 1965. After 1965-66, in order to bring domestic prices into alignment with external prices, the Indian rupee was devalued. After devaluation, exports slowly picked up. In 1972- 73 a breakthrough change in exports occurred mainly due to substantial growth in the exports of sugar, iron and steel, fruits and vegetables and food products.

A welcoming trend appeared in 1986-87 due to liberal import policy. Due to this, exports increased at an annual average rate of more than 25% in rupee terms. The rising trend in exports turned down in 1996-97. Exports witnessed a sharp upward trend in 1999-2000. In the year 2000-2001, there was a 21% growth in exports. But a marked decline in world output, and trade and slackening of global demand, pushed the growth rate of exports downwards. Again exports recorded 20.34% during 2002-03 mainly due to rise in international commodity prices, recovery of the domestic manufacturing sector, depreciation of the rupee and the introduction of various export promotion measures. The upward trend maintained itself in 2003 - 04.

In short, India's exports during the last three and a half decades have shown a mixed trend whereas the rate of growth as measured in terms of past performance or in terms of its share of national income shows an appreciable rise. But it presents a picture of poor performance when measured in terms of the share in world exports.

Composition of Trade and Direction of Trade

Composition of trade means a study of the goods and services of imports and exports of a country. In other words, it tells about the commodities of imports and the commodities of exports of a country. Therefore it indicates the structure and level of economic development of a country. Developing countries export raw materials, agricultural products and intermediate goods; developed countries export finished goods, machines, equipments and technique.

Direction of trade means a study of the countries to whom the exports are made and from whom the imports are made.

Composition of Imports of India

Imports of India may be divided into three parts namely capital goods, raw materials and consumer goods.

Imports of capital goods

Capital goods include metals, machines and equipments, appliances and transport equipments, and means of communications. These goods are essential for industrial development of the country. Imports of these goods amounted to Rs.356 crore in 1960-61 which increased to Rs.26, 532 crore in 1997-98.

Imports of raw materials and intermediate goods

It includes the imports of cotton, jute, fertilizer, chemicals, crude oil etc. A number of raw materials and intermediate goods have to be imported during the process of economic development. It amounted to Rs.527 crore in 1960-61 which increased to Rs.13, 966 crore in 1985-86. Petroleum products include crude oil, petrol and lubricating oil. Imports of these products have ever been increasing. In 1960-61, imports of these products amounted to Rs.69 crore which increased to Rs.30, 538

crore in 1997-98. Import of petroleum products constitutes about 23 percent of our total imports. Fertilizers are an important input for agriculture. Chemical products are an important input for industrial development. The import of these products is continuously increasing in India. In 1960-61 import of these items amounted to Rs.88 crore only which increased to Rs.3755 crore in 1997-98.

Imports of consumer goods

It includes the import of food grains, electrical goods, medicines, paper etc., India faced an acute shortage of food grains till the end of Third Five Year Plan. As a result, India had to import food grains in large quantities. Import of food grains in 1960-61 was 3748 thousand tonnes (Rs.181 crore). In 1997-98 it was 1399 thousand tones. Now India has achieved self-reliance in food production.

Direction or sources of imports of India

Sources of imports of India have undergone several important changes during the planning period. Some important facts are as follows:

At the beginning of economic planning, we were importing from selected countries only. Now the picture has changed. We import different goods and services from different countries of the world. At present we get our imports from almost all the countries of the world. For the purchase of machines and equipments, we depend mainly on OECD (Organization for Economic Cooperation and Development) countries and East European countries. For the supply of food grains and petroleum products, we depend on OPEC (Oil Producing and Exporting Countries) countries. The OECD countries supply largest part of our imports. In 1997-98 out of the total imports of Rs.1,51,553 crore, the imports of Rs.75,593 crore were made (49.9%) from these countries. Other important suppliers of our imports are USA, Belgium, Germany, Japan and Britain.

Composition of exports of India

Exports of India may be divided into two parts I) Exports of traditional items and ii) Exports of non-traditional items.

Exports of traditional items

It includes the exports of tea, coffee, jute, jute products, iron ore, species, animal skin, cotton, fish, fish products, mineral products etc. At the beginning of the planning era, their items contributed about 80 percent of our total exports. Gradually, the contribution of these items is declining and that of non-traditional items is increasing. At present the contribution of traditional items is about 18.8% in our total exports.

Non-traditional items

It includes the export of sugar, engineering goods, chemicals, iron and steel electrical goods, leather products, gems and jewellery. There is a significant change

in the pattern of exports of India during recent years. India has started to export a number of non-traditional items to a number of countries of the world. Contribution of these items is gradually increasing in total exports of India and shows a declining trend during some years also. Some facts to illustrate the changes are given below:

i) Agriculture and allied products which constituted 20.4 percent of total exports in 1996-97, decreased to 18.8 percent in 1999-2000. ii) Ores and minerals which constituted 3.5 percent of total exports in 1996-97, decreased to 3 percent in 1999-2000. iii) Manufactured good which contributed 73.4 percent of total exports in 1996-97, increased to 75.7 percent in 1999-2000. iv) Crude and petroleum products constituted 1.4 percent of total exports in 1996-97 but decreased to 1.0 percent in 1999- 2000. v) With regard to other items of exports which constituted 1.2 percent in 1996-97 increased to 1.3 percent in 1999-2000.

Direction of exports of India

During the planning era, several important changes have taken place in the destination of exports of India. At present, we deal with about 180 countries including many developed countries. Our major exports are directed towards the following countries:

1. OECD countries (Belgium, France Germany, U.K. North America, Canada, USA, Australia and Japan). Our exports which constituted 53.5 percent of the total exports in 1990-91 increased to 55.7 percent in 1999 - 2000.
2. OPEC countries (Iran, Iraq, Kuwait, Saudi Arabia etc.). Our exports which constituted 5.6 percent of the total exports in 1990-91 increased to 10.0 percent in 1999-2000.
3. Eastern Europe (GDR, Romania, Russia etc.). Our exports which constituted 17.9 percent in 1990-91 decreased to 3.1 percent in 1999-2000.
4. Other LDC's (Africa, Asia, Latin America). Our exports constitute 16.8 per cent in 1990-91, increased to 28.2 percent in 1999-2000.

To sum up, during the last five decades, significant changes have been observed in the volume, composition and direction of India's trade. Most of these changes have been in consonance with the development needs of the economy.

Balance of Trade and Balance of Payment

Meaning and definition of Balance of Payments

Balance of payments means a systematic record of all the economic transactions of a country with the rest of the world during a given period, say one year. It throws light on the international economic position of a country. The international economic performance of a country is reflected in its balance of payments. Each country enters into economic transactions with other countries of the world. As a result of

such transactions, it receives and makes payments to other countries. So balance of payments is a statement of accounts of these receipts and payments.

Benham defined Balance of payments as follows: “Balance of Payments of a country is a record of its monetary transactions over a period with the rest of the world”

In the words of **Kindleberger**, “the balance of payments of a country is a systematic record of all economic transactions between its residents and residents of foreign countries”.

Composition of Balance of Payments

Balance of payments is a statement or an account, which records all the foreign receipts and payments of a country. It records all the visible and invisible items. Visible items mean the imports and exports of commodities. Invisible items mean the imports and exports of services and other foreign transfers and transactions. BOPs is classified as balance of payments on current account and capital account. The BOPs on current account records the current position of the country in the transfer of goods, services and merchandise as well as invisible items such as donations, unilateral transfers etc.

Balance of payments on capital account shows the country's financial position in the international scenario, the extent of accumulated foreign exchange reserves, foreign assets and liabilities and the impact of current transactions on international financial positions.

Balance of Trade

Balance of trade confines to trade in visible items only. Visible items are those, which are physically exported and imported like merchandise, gold, silver and other commodities. The invisible items are the services mutually rendered by shipping, insurance and banking companies, payment of interest and dividend, tourist spending and so on. The balance of trade refers to the difference between physical imports and exports of visible items only for a given period, say, a year.

During a given period, exports and imports may be exactly equal. Then, the balance of trade is said to be balanced. If the value of exports is in excess of the value of imports, the balance of trade is said to be favourable. If the value of imports is greater than the value of exports, the balance of trade is said to be unfavourable.

Accommodating and Autonomous Capital

If a country has a deficit in its current account balance, there will be always offsetting transactions on the capital account to bring the balance of payments into equilibrium. This may be possible either through autonomous capital flows or through accommodating capital flows.

The Role of the General Agreement on Tariffs and Trade (GATT)

The General Agreement on Tariffs and Trade (GATT) was a multilateral trade treaty between countries to regulate international trade and tariffs in accordance with specific rules, norms or code of conduct. GATT was set up in 1948 in Geneva to follow the objectives of free trade in order to encourage growth and development of all member countries. There are 117 member nations in GATT. The principal purpose of GATT was to ensure competition in commodity trade through the removal of or reduction in trade barriers.

GATT served as an important international forum for carrying on negotiations on tariffs. Under GATT, member nations met at regular intervals to negotiate agreements to reduce quotas, tariffs and such other restrictions on international trade. GATT became a permanent international trade institution for the multilateral expansion of trade until it was replaced by World Trade Organisation (W.T.O) in 1995.

Objectives of GATT

- 1) Expansion of international trade;
- 2) Increase of world production by ensuring full employment in the participating nations.
- 3) Development and full utilization of world resources; and
- 4) Revising standard of living of the world community as a whole.

The rules adopted by GATT are based on the following fundamental principles:

- 1) Trade should be conducted in a non-discriminatory way;
- 2) The use of quantitative restrictions should be condemned; and
- 3) Disagreements should be resolved through consultations.

Methods of achieving the objectives

The GATT proposed to achieve the objectives through the following methods:

1) Most favoured Nation clause

The clause is also known as elimination of discrimination clause. This clause is to be adopted to avoid discrimination in international trade. The clause implies that each country shall be treated as the most favoured nation. Any particular trade concession offered by a member country to her trading partner should also be available to all the members of the GATT at the same time.

2) Quantitative restrictions on Imports

The GATT rules prohibited the use of import quota fixation. But three important exceptions were allowed to this rule:

- a) Countries, which are facing balance of payments difficulties, may use the device of input quota fixation.
- b) Developing countries may resort to quota fixation but only under procedure accepted by the GATT.
- c) Quotas may be applied to agricultural and fishery products if domestic production is subject to equally restrictive controls.

3) Tariff negotiations and Reduction of Tariff

The GATT recognised that tariffs are often an important obstacle to international trade. Hence, the GATT would encourage negotiations for tariff reduction to be conducted on a reciprocal and mutually advantageous basis taking into consideration the varying needs of individual contracting parties.

The Uruguay Round of talks 1993 was most ambitious and complex. Apart from the traditional tariff and non-tariff measures, new areas such as Trade related Intellectual property Rights (TRIPS), Trade Related Investment Measures (TRIMS) and Trade in services were taken up for discussion. There were differences among members countries in areas such as agriculture textiles, TRIPS and anti-dumping. The Uruguay Round has enlarged the scope of GATT to include services and agriculture. The Uruguay Agenda wanted to remove all trade barriers.

World Trade Organisation (WTO)

Seven rounds of negotiations occurred under the GATT and the eighth round known as "Uruguay Round" started in 1989 and concluded in 1994 with the establishment of the World Trade Organization (WTO) in 1995. The principles and agreements of GATT were adopted for the WTO, along with new ones. There are 161 member countries in WTO which was charged with administering and resolving trade disputes between the members. Unlike the GATT, the WTO has a substantial and effective organisational structure. Roberto Azevedo is the Director General of the WTO since 2013 for a term of four years.

The WTO aims for a trading system free of any discrimination and with more freedom, that is, toward fewer trade barriers (tariffs and non-tariff barriers). It also aims for a trading system with greater competition but with more accommodation for less developed countries, giving them more time to adjust, greater flexibility, and more privileges.

Major Functions of WTO

- 1. Administering WTO trade agreements.
- 2. Forum for trade negotiations.
- 3. Handling trade disputes.

4. Monitoring national trade policies.
5. Technical assistance and training for developing countries.
6. Cooperation with other international organizations.

All members of the WTO will meet once in two years in the Ministerial Conference which can make decisions on all matters of the multilateral trade agreements. The Fourth Ministerial Conference held at Doha, Fifth at Cancun (Mexico) and the Sixth at Hong Kong. The Seventh round to discuss the Doha Development Agenda negotiations were suspended due to persisting disagreements between developed and developing countries.

International Bank for Reconstruction and Development (IBRD)

The International Bank for Reconstruction and Development (IBRD) better known as World Bank was set up in 1944. Since IMF was designed to provide temporary assistance in correcting balance of payments difficulties, an institution was needed to assist long-term investment purposes. Thus IBRD was established for promoting long term investment loans on concessional terms.

Functions:

- 1) To assist in the reconstruction and development in the member countries by providing capital support.
- 2) To promote private foreign investment.
- 3) To promote growth of international trade in the long run and improve Balance of Payments of member countries.
- 4) To arrange for loans through for small and large projects.

Membership and Organization

All the members of the IMF are members of IBRD. It had 182 members in 2000. Like IMF, IBRD has a three-tier structure with a president, Executive Directors and Board of Governors. The Board of Governors is the supreme body. Every member country appoints one Governor and an alternate Governor for a period of 5 years. The voting power of each Governor is related to the financial contribution of its Government.

Capital Structure

It was started with an authorized capital of \$10 billion. In July 1992, it has risen to \$184.1 billion.

Funding strategy

The IBRD seeks to maintain unutilized access to funds in the markets in which it borrows. Its objective is to minimize the effective cost of those funds to its borrowers.

It is to provide an appropriate degree of maturity transformation between its borrowing and lending. Maturity transformation refers to the Bank's capacity to lend at longer maturities than it borrows.

Special Action Programme (SAP)

Special Action Programme (SAP) was started in 1983 to strengthen IBRD's ability to assist member countries in adjusting to the current economic environment.

Structural Adjustment Facility (SAF)

The Structural Adjustment Facility was introduced in 1985 in order to reduce the balance of payments deficits of its members while maintaining or regaining their economic growth.

Conditions for lending

1. An efficient regulating mechanism for ensuring transparent policies and depoliticised environment.
2. Adequate risk management.
3. Provision for long-term finance.
4. Increase in the share of the private sector in the country's GDP.

Bank borrowing

The IBRD is a corporate institution whose capital is subscribed by its members. It finances its lending operations primarily from its own medium and long term borrowing in the international capital markets and currency swap agreement (CSA). The Bank also borrows under the discount note programme. It has enabled two new borrowing instruments. Central Bank Facility (CBF) borrowing inflating rate notes is meant to help IBRD to meet some of the objectives of its funding strategy.

Lending activities

The Bank lends member countries in the following ways.

- 1) By marketing or participating in loans out of its own funds.
- 2) By making or participating in direct loans out of funds raised in the market of a member.
- 3) By guaranteeing loans made by private investors.
- 4) The Bank also provides facilities to member countries through SAF and SAP.

The Bank is laying greater emphasis on developing human resources such as education, population, health, nutrition and environment.

International Finance Corporation (IFC)

The IFC was set up in July 1956, as an affiliate of the World Bank. It was set up with the objective of assisting the private enterprises in developing countries by providing them risk capital. The IFC provides debt and equity finance to projects sponsored by the private sector developing countries.

Though IFC is affiliated to World Bank, it is a separate legal entity with a separate fund and functions. Members of IBRD are eligible for its membership.

Objectives

- 1) In association with private investors, to invest in productive private enterprises without government guarantee of repayment.
- 2) It serves as a clearing house, to bring together investment opportunities, private capital and experienced management.
- 3) To help in stimulating productive investment of private capital both at home and abroad.

Industrial, agricultural, financial, and commercial and other private enterprises are eligible for IFC financing. Their operations are productive and contribute to the development of the economy. It does not follow a policy of uniform interest rate for its investment. It is subject to negotiation.

International Development Association (IDA)

IDA was set up in September 1960, as a subsidiary of the World Bank. The establishment of IDA was another step in the direction of increasing international liquidity in the world. The IDA was set up particularly to provide finance to less developed countries on a soft loan basis ie. on terms imposing lower servicing charge on loans than the conventional bank charges.

Objectives

- 1) To promote economic development
- 2) To increase productivity
- 3) To raise standard of living in the member countries
- 4) Furthering the developmental objectives of the World Bank and supplement its activities.
- 5) To provide finance to the member countries to meet their important development requirements. IDA loans can be utilized to finance both foreign exchange and local currency costs.

The Multinational Investment Guarantee Agency (MIGA)

MIGA is the new affiliate of the World Bank family and was established in 1988. It has an authorized capital of \$ 1.08 billion.

Objectives

- 1) To encourage the flow of direct foreign investment into developing member countries.
- 2) It provides insurance cover to investors against political risks.
- 3) It insures only new investments.
- 4) Promotional and advising services are provided to increase the attractiveness of the investment climate.

MIGA's guarantee serves as a catalyst for multinational investments.

Chapter 9

Exercise

PART A

I Choose the correct answer

1. Globalization means
 - a. Integration of the economy with world economy
 - b. Increasing degree of openness in respect of international trade
 - c. Process of transformation of the world in to a single economic unit.
 - d. All the above.
2. Technology transfer has been taking place on a large scale through
 - a. licensing agreements and joint ventures
 - b. choice of ownership structure
 - c. simplification of procedures
 - d. none
3. The main inconvenience of barter system was
 - a. transactions were many and complex
 - b. lack of double coincidence of wants

- c. The intermediate commodity need not be familiar
- d. prevalence of domestic system
- 4. The decision to start IMF was taken at
 - a. Round-table conference b. Geneva conference
 - c. Bretton woods conference d. none
- 5. IBRD was set up in
 - a. 1983 b. 1844
 - c. 1948 d. 1944

II Fill in the blanks

- 6. The goal of global economy is.....
- 7. The SAPs find their origin in the growth of.....
- 8. is one of the most fundamental inventions of man..
- 9. has worked as an “engine of growth” in the past.
- 10. The highest authority of the IMF is the

III Match the following

- 11. OPEC Countries - a. Washington
- 12. IMF - b. Iran, Iraq, Kuwait
- 13. Uruguay Round - c. Geneva
- 14. 182 members of IBRD - d. 1993
- 15. GATT - e. Year 2000

IV Answer in one or two words

- 16. Name four exports of India.
- 17. Name the record of a country's monetary transactions.
- 18. When was SAP started?
- 19. Which is the catalyst for multinational investment?
- 20. What is SAF?

PART B

V Answer the following in four or five lines

21. What are the two classifications of NEP?
22. Name the three methods of technology transfer.
23. What are the functions of money?
24. What is balance of payments?
25. What are the components of foreign trade?

PART C

VI Answer the following questions in about a page

26. What are the parameters of Globalization?
27. Describe the evolution of money.
28. What are the functions of IMF?
29. Differentiate the balance of trade from balance of payments.
30. What are the objectives of GATT and what are its methods of achieving them?

PART D

31. Explain the role of Foreign Trade in the economic development.
32. Explain the components of India's Foreign Trade.
33. What is IMF? Explain its functions?
34. What is IBRD? Explain its functioning.

Chapter 10

Human Resource Development

Introduction

In this chapter, we shall study about the concept of *human resource development*. We shall also study about educational development in India since 1951, and the concept of human capital.

Human Resource Development

The term 'Human Resource Development' (HRD) is used with different meanings in different contexts. According to F.H. Harbison, human resources are "the energies, skills, talent and knowledge of people which are, or which potentially can or should be applied to the production of goods or the rendering of useful services".

In *Human Resource Management*, HRD is defined as "organized learning activities arranged within an organization in order to improve performance and / or personal growth for the purpose of improving the job, the individual and/or organization". According to this definition, HRD includes the areas of training and development, career development and organization development. But in this chapter, we are using HRD in a broad way to mean human capital development.

The most important indicators of HRD can be generally classified into (1) those which measure a country's *stock* of human capital, and (2) those which measure the additions to this stock. This is the rate of human capital formation over a specified period. The stock of human capital indicates the level of HRD in a country, whereas the rate of human capital formation indicates its rate of improvement.

When we speak of human capital, what we mean is that an individual by investing in the following categories can improve his capabilities. They are (1) health facilities and services (2) on – the – job training (including apprenticeship), (3) formal education, (4) study programmes for adults (e.g., Non-formal education) and extension programmes in agriculture and (5) migration of individuals and families in search of jobs.

In the past, economists believed that the rate of economic growth of nations could be increased only by increasing investment in physical capital. But since 1960s they have realized that investment in human capital is as important as investment in physical capital. Of all the factors that increase human capital, education is considered very important. We have now a separate branch known as economics of education. Its birth was announced by Schultz in 1960 in his survey on Human Capital Theory. Though economists like Adam Smith and Marshall expressed opinions on the value of education, it is only since the last five decades, economists have started applying the tools of economics to study the economic importance of education.

Sometimes, it is asked whether education is consumption or investment. We may note that it is no longer a major topic of controversy. It is generally agreed that education is both consumption and investment. Nowadays, economists treat it mostly as investment.

Harbison and Myers have given the following as human resource indicators. They are :

1. Number of teachers (first and second levels) per 10,000 population ;
2. Engineers and scientists per 10,000 population ;
3. Physicians and dentists per 10,000 population.
4. Pupils enrolled at first – level (primary) education as a percentage of the estimated population aged five to fourteen inclusive ;
5. The adjusted school enrolment ratios for first and second levels combined.
6. Pupils enrolled at second level (secondary) education, as a percentage of the estimated population aged fifteen to nineteen inclusive.... And
7. Enrolment in third – level (higher education) as a percentage of the age group twenty to twenty four.

The first three indicators are used for measuring the stock of human resources and the last four are measures of additions to the stock.

The following two indicators tell us about the orientation of higher education :

1. The percentage of students enrolled in scientific and technical faculties in a recent year ; and
2. The percentage of students enrolled in the faculties of humanities, fine arts and law in the same year.

Harbison and Myers constructed a simple composite index of HRD by taking the arithmetic total of (1) enrolment at second level of education as a percentage of the age group fifteen to nineteen, adjusted for length of schooling, and (2) enrolment at the third level of education as a percentage of the age group, multiplied by a weight of 5. (They have given more weightage to higher education than second – level education).

Based on the composite index of HRD, they classified countries into 1) under-developed, 2) partially developed, 3) semi- advanced and 4) advanced.

HRD and Economic Development

There is a close relationship between the indicators of HRD and indicators of economic development.

The level of economic development can be studied by making use of the following indicators.

1. Gross National Product (GNP) per capita in United States dollars ;
2. percentage of the active population engaged in agricultural occupation ;
3. public expenditures on education as a percentage of national income ; and
4. the percentage of the total population in the age group five to fourteen inclusive.

The findings of an important study by Harbison and Myers reveal

1. There is a very high positive correlation between the composite index of HRD and G.N.P. per capita in U.S. dollars; there is a high negative correlation between the composite index and the percentage of the active population engaged in agriculture
2. There are also high correlations between the adjusted second level enrolment ratio and GNP and percentage engaged in agriculture.
3. Correlations between the first level enrolment ratio and GNP and percentage in agriculture are lower than the correlations of either the composite index or the second level enrolment ratio with GNP and percentage in agriculture.

This shows that an index based on higher levels of education correlates more significantly with measures of economic development than one based on the lowest level of education.

While evolving strategies for HRD, the government has to make some basic choices.

1. It has to decide in formal education whether the emphasis should be on quantity or quality.
2. In secondary and higher education, it has to decide whether priority should be given to science and technology or law, arts and humanities ;
3. It has to decide in skill development whether the reliance should be placed on pre – employment formal training or in-service training ;
4. It has to decide whether incentives should be provided by manipulation of wages and salaries or should be left to market prices; and
5. It has to consider the needs and desires of the individual and needs of the State.
6. The choice between quantity and quality in educational development can take many forms. Some countries have to choose between education for all or high quality secondary and university education for a smaller number of potential leaders. There is also choice between educating fewer students with better qualified teachers and large numbers with unqualified teachers. In general, political and social pressures lead to emphasis on quantity whereas rapid economic growth requires high – level

manpower. And there should be proper balance in the development of education in science and technology and law, arts and humanities in secondary and higher education.

The theories of human resource development, in a general way, refer to educational planning. They can be divided into three categories (1) manpower approach (2) social demand approach and (3) rate of return approach.

1. Manpower Approach: The manpower approach to educational planning assumes that manpower with different levels and types of education is essential to attain a certain target growth rate of GNP. Then, the target is divided into different sectoral contributions to GNP. In a given year, the GNP is divided into different sectors and manpower structure in each of the sectors is analysed. Then the needed manpower with different levels and types of education is estimated. Death, retirement and migration are taken into account to estimate the necessary manpower. From the additional manpower requirements, enrolment figures are worked out. But the post – manpower forecasts proved that the estimates are far away from actual requirements. Moreover, this approach to educational planning does not say anything about the method of financing education.

2. Social Demand Approach: Social demand approach for education can be studied by making use of the social rate of return analysis.

3. Rate of Return Approach: If we assume education as investment, then we may look at it as individual investment and social investment. Under conditions of perfect competition, individual investment would be undertaken if the internal rate was greater than the market rate of interest. But today education and health are largely in the public sector. The social investment criterion is that resources are to be allocated to levels of education and years of schooling so as to equalize the marginal “social” rate of return on educational investment (Mark Blaug). It may be noted that only pecuniary (monetary) values are taken into account while calculating the social rate of return. But the economic case for state education is generally made on the ground that external or indirect benefits of education exceed the direct personal benefits to those who are educated. But non-pecuniary returns to education and externalities are usually left out in the estimates of social rate of return. This is a limitation of this approach.

Educational Development in India since 1951

Mass education was never a priority during the British period. The colonial rule transformed an intermediate literate society into a predominantly illiterate society.

Ever since Independence, an educational explosion has taken place in India. As J.B.G. Tilak put it “Today, the number of pupils in India outnumber the total population of England, France, Canada, and Norway taken together. Every sixth student in the world enrolled at the primary level, every seventh in the secondary level and every eighth in the tertiary level is an Indian”.

Before we launched our Five Year Plans, only about 1.2 percent of GNP was invested in education. But now the public investment increased to about 3.5 percent of GNP.

Though the educational expansion in India is remarkable (see Table 10.1 and 10.2 given at the end of the chapter), quantity, quality and equity have become an elusive triangle of the Indian education system.

The greatest failure of the Indian educational system relates to the goal of universalisation of elementary education. At the secondary level, vocationalization has not yielded the desired results. Courses introduced in the vocational stream at the higher secondary level are of nominal nature and they do not really help the students get jobs. And it is only the upper and the middle classes who get the benefits of the education system. Even after thirty years of independence, in 1978 it was found that “70 percent of the seats in secondary schools and 80 per cent of the seats in higher education are taken up by the top 30 percent of income groups”. There is no reason to believe that the position has changed for the better. There is mismatch between demand for and supply of manpower and growth in unemployment and fall in the quality of education.

The Indian education system is marked by inequalities. There are differences in the rates of literacy between rural and urban population, between men and women, between backward and non- backward castes, between states and between districts within a state.

One of the basic problems of educational sector is under – investment. The data relating to allocation of financial resources during the last fifty years confirms this point. Only during the First Five Year Plan, priority was given to mass education. Elementary education and adult education programmes received nearly three fifths of the resources allocated for education. There was decline in importance attached to them in subsequent plans.

We should have achieved the goal of universalization of primary education by 1960, that is, within ten years from the commencement of the Constitution. But, we are nowhere near the goal even today.

One of the secrets of the rapid economic development of Japan is the emphasis it laid on primary and vocational education and the allocation of huge financial resources to these sectors.

Child labour is one of the important reasons for not achieving the goal of universalization of primary education. And majority of the children drop out from schools because of this.

Educational progress in Tamil Nadu.

Tamil Nadu is an educationally progressive state in India. In literacy, it is one of the three top states and it is next only to Kerala and Maharashtra. The progress of education in Tamil Nadu in terms of literacy is given in Table 10.2. The literacy rates for both males and females are more than the national average. According to 2001 census, the overall literacy rate for Tamil Nadu was 73.47 as against the national average of 65.38 percent.

Between 1991 and 2001, the percentage of enrolment at the secondary level has increased from 13 percent to 59 percent.

There was a steady increase in educational expenditure in Tamil Nadu from 1962-63 to 2000 – 2001. During the period, the expenditure on education increased from Rs.26 crores to Rs.4949 crores. This is a remarkable increase.

The National Policy on Education (NPE) 1986 of the Government of India gave first priority to Universal Primary Education (UPE). The UPE goal aimed at achievement of Education for All (EPA) covering only classes I and V.

The main factors which influenced steady increase in enrolment of children in age group 6-11 years in Tamil Nadu are : (1) easy accessibility of schools ; (2) awareness among parents about the value of education ; 3) rising real per capita income ; (4) implementation of Chief Minister's Nutritious Noon Meal Scheme and 5) a number of inducements and concessions offered by the Government in the form of free supply of books, free bus passes and so on.

Access to schools, in terms of distance, is a major factor that has made Tamil Nadu one of the three top states in literacy level. There is a primary school within a distance of one kilometre from habitations (99 percent of habitations), upper primary school within a distance of 3 kms (81 percent of habitations), secondary school within a distance of 5 kms (78 percent of habitations) and higher secondary school within a distance of 8 kms (76 percent of habitations). This is a remarkable achievement when compared with the all – India situation.

In recent years, there has been a decline in dropout rate. This has been made possible by many factors such as Chief Minister's Nutritious Noon Meal scheme, free health check ups, free education and other concessions like free bus passes, slates, books and uniforms.

District Primary Education Programme (DPEP) : The DPEP has been introduced with the object of achieving the goal of universal primary education. It focuses on reducing gender disparities in education.

Non-Formal Education and Adult Literacy : The measures taken by the Government of Tamil Nadu under adult education programme include :

1. Total Literacy campaign (TLC),
2. Post – Literacy campaign and
3. Continuing Education

All these measures come under Arivoli Iyakkam (Light of Knowledge movement). In this movement, an adult is defined as one in the age group 15-35.

Non - Formal Education (NFE) and Adult Literacy

In view of the high dropouts in the 6-14 age group, the government has introduced non-formal education for the benefit of working children, girls and those children who cannot attend full time schools owing to many socio-economic conditions. Since 1979, the Government of India has been running the NFE scheme with the help of state governments and voluntary agencies.

Secondary and Higher secondary Education :

There has been quantitative expansion of schools, students and teachers at this level.

Permanent buildings, additional teachers, more of science equipment, better laboratories and workshops and strengthening of the vocational stream are some of the immediate needs of the second level education. Tamil Nadu is a leading state in the implementation of vocational courses. And the government has more or less succeeded in increasing the enrolment of students in 16-18 age group by offering higher secondary education in schools instead of pre- university course in the colleges.

Arts and science colleges : The number of arts and science colleges increased from 57 in 1960 – 61 to 444 in 2004-05.

Technical Education

So far as technical education is concerned, self – financing colleges dominate the scene. More than 87 percent of the students study in self-financing colleges. Though this goes against the equity principle, the self-financing colleges grow in number. Only the non – poor manage to find places in these colleges. These colleges do not promote the goal of equal opportunities for all. Of late, self-financing colleges are trying to make inroads into professional education (eg. Medical colleges) also.

According to Weiner, “the State has a very positive, very important role to play in the promotion of mass education, which cannot and should not be left to private sector alone”.

Early childhood care and education programme in India: It is an integrated approach to reduce malnutrition, and other related diseases among disadvantaged children, expectant and nursing mothers. The ICDS schemes focus on provision of services to improve nutrition and health requirement of children from the date of

conception till the age of six years. These services are rendered through child welfare centres known as anganwadis. They include supplementary nutrition, non-formal pre-school education, health check-up, immunization and health education.

Special Health Programme : The Government proposed to implement from 1999 a special school health programme called Vazhvoli Thittam (which literally means light of life Scheme, referring to good health). Under the scheme, a field officer from the health department will visit schools once in a week and examine the children. If necessary he will take them to a Primary Health Centre for treatment. To make this scheme effective, teachers are also trained in the symptoms of the disease so that they can report to the medical officers visiting the school. They can also teach subjects on health education.

Economics of Health

Economics of Health is similar to economics of education in many respects. Health expenditures are also investment in people as educational expenditures. Quite often, expenditures on education and health are joint expenditures made in the same person. Improved health lengthens life expectancy of a person and this in turn raises returns on investment in his education. Like education, health is consumption as well as investment. Health improves the quality as well as the quantity of labour. Health expenditures contribute to economic growth by reducing mortality and morbidity. There is a general consensus that health must be provided by the State according to need and not according to ability to pay. This is called “Communism in health”.

Human Development Index

Human development Index (HDI) is a holistic measure of living levels. The human development Report (1977) describes human development as follows : “ the process of widening people’s choices and the level of well – being they achieve are at the core of the notion of human development. But regardless of the level of development, the three essential choices for people are to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living”. Human development does not end here. People want to have political, economic and social freedom, opportunities for being creative and productive and enjoy self-respect and guaranteed human rights. It is true that income is very important for people. But it is only a means and human development is the end.

The first Human Development Report was published in 1990 by UNDP under the guidance of Muhabub–Ul–Haq, an eminent economist from Pakistan.

Economic growth will contribute most to poverty reduction when it expands the employment, increases productivity and wages of poor people. And public resources must be directed to promoting human development. Only when economic growth is labour-using and employment-generating and when human skills and health improve rapidly, economic growth will promote economic development.

The HDI ranks all countries on a scale of 0 (lowest human development) to 1 (highest human development) based on three goals of development : longevity as measured by life expectancy at birth, knowledge as measured by a weighted average of adult literacy (two – thirds) and mean years of schooling (one – third), and standard of living as measured by purchasing power Parity (PPP) of each country's currency to reflect cost of living. Using these three measures of development, HDI ranks all countries into three groups. Low human development (0.0 to 0.499), medium human development (0.50 – 0.799), and high human development (0.80 to 1.0). According to HDR 2004, (based on HDI for 2002), India found place in Medium Human Development group.

One major advantage of HDI is that it tells that even countries with a low level of income can achieve better human development than countries with substantial incomes.

The HDI points out that there are greater disparities in income than other indicators of development such as health and education measures. So by development, we mean broad human development, not just higher incomes. Some countries (oil-rich countries), it is said experienced growth without development.

Gender Related Development Index

GDI adjusts the HDI to reflect the inequalities between men and women. The three measures used related to (1) female life expectancy, (2) female adult literacy and gross enrolment ratio and (3) female per capita income.

Human poverty index (HPI)

The 1997 HDI introduced Human Poverty Index (HPI). It measures deprivation in longevity, knowledge and a decent living standard. If people are expected to die before the age of 40, if adult illiteracy rate is high, and if health services are poor, access to safe water is low and if the percentage of malnourished children under five is high, then human poverty index will be high and the country can be ranked as poor.

Based on the lines of HDI, HDI for various states of India was constructed. The Planning Commission of India brought out National Human Development Report in 2001. It provides statewise as well as All – India Human Development Indices. Some states like Tamil Nadu have also brought out Human Development Report.

Table 10.1

Growth of Recognized Educational Institutions

from 1950 – 51 to 2003 – 2004 (Numbers in thousands)

<i>Years</i>	<i>Primary</i>	<i>Upper Primary</i>	<i>High / Hr./ Sec. / Inter / Pre.Jr. / Colleges</i>	<i>College for General Education</i>	<i>Colleges for professional education (Engg. Tech. Arch. Medical)</i>	<i>Universities</i>
1950-51	209.7	13.6	7.4	0.4	0.2	0.03
1970-71	408.4	90.6	37.1	2.3	1.0	0.08
1990-91	560.9	151.5	79.8	4.9	0.9	0.18
2000-01*	638.7	206.3	126.1	7.9	2.2	0.25
2003-04*	712.2	262.3	146.0	9.4	2.8	0.30

***Provisional**

Table 10.2

Literacy Rate in All-India and Tamil Nadu, 1951 – 2001

(in percent)

Year	India			Tamil Nadu		
	Males	Females	Total	Males	Females	Total
1951	24.95	7.93	16.67	31.73	10.06	20.86
1971	39.52	18.70	29.48	51.78	26.56	39.46
1991	63.90	39.40	52.10	74.90	52.30	63.70
2001	75.85	54.16	65.38	82.33	64.55	73.47

Source : 1. Education Department, Statistical Wing, Government of Tamil Nadu

2. Centre for Monitoring Indian Economy, Basic Statistics relating to Indian Economy, Vol 2, States Sep. 1992.

3. Census of India 2001.

Chapter 10

Exercise

PART A

I. Choose the correct answer

1. Human capital can be increased by investing in
 - a) education
 - b) health
 - c) migration
 - d) all
2. The birth of economics of education was announced by
 - a) Marshall
 - b) Karl Marx
 - c) Schultz
 - d) Keynes
3. Education is
 - a) consumption good
 - b) investment good
 - c) none
 - d) both
4. The number of pupils in India outnumber the total population of
 - a) England,
 - b) France,
 - c) Canada and Norway,
 - d) all the countries put together
5. A large percentage of persons who enjoy higher education belong to the
 - a) higher income groups
 - b) middle income groups
 - c) lower income groups
 - d) all groups

II. Fill in the blanks

6. The stock of human capital indicates the _____ of HRD in a country.
7. Of all the factors that increase human capital, _____ is considered very important.
8. There is close relationship between HRD and _____ development
9. The greatest failure of the Indian education system relates to the goal of universalisation of _____ education
10. _____ labour is one of the important reasons for not achieving the goal of universalisation of primary education

III. Match the following

- | | |
|-----------------------------|--|
| 11. Kerala | a) reducing gender disparities |
| 12. Tamil Nadu | b) domination in technical education |
| 13. DPEP | c) Special school health programme |
| 14. Self-financing colleges | d) Educationally most progressive state. |
| 15. Vazhvoli Thittam | e) Access to schools |

IV. Answer each one of the questions in a word or two

16. When was the birth of Human capital theory announced ?
17. Is the correlation between the first level enrolment ratio and GNP higher or lower?
18. Do the theories of HRD refer in a general way to educational planning ?
19. Do you agree that an educational explosion has taken place in India ?
20. In which year the National Policy on Education (NPE) formulated ?

PART B

Answer for each question should be about four or five lines

21. Define Human Resource Development.
22. What do you mean by Human Capital ?
23. How is composite index of HRD constructed ?
24. What is Human Development ?
25. How is gender related development index constructed ?

PART C

Answer for each question should be about a page

26. What according to Harbison and Myers are human resource indicators ?
27. Write a note on early Child Health Care Programme and Arivoli Thittam.
28. Explain the concept of Human Poverty Index (HPI).
29. What are the basic choices to be made by Government while evolving HRD strategies ?

PART D

Answer for each question should be about three pages

30. Discuss the relationship between HRD and economic development.
31. Describe the different approaches of manpower planning.
32. Describe the educational development in India since 1951.
33. Discuss educational progress in Tamil Nadu.
34. Discuss the meaning and importance of Human Development Index.

Chapter 11

Statistical Analysis and Measures of Central Tendency

The word 'statistics' is derived from the Latin word 'status' meaning a political state. In those days, therefore, statistics was simply the collection of numerical data by the state or kings. Now, statistics is the scientific method of analysing quantitative information. It includes methods of collection, classification, description and interpretation of data. It simply refers to numerical description of the quantitative aspects of a phenomenon.

Definition of statistics

Prof Horace Secrist defines statistics as follows. "By statistics we mean aggregate of facts affected to a marked extent by multiplicity of causes numerically expressed, enumerated or estimated according to reasonable standards of accuracy, collected in a systematic manner for a predetermined purpose and placed in relation to each other".

According to Croxton and Cowden, "Statistics may be defined as a science of collection, presentation, analysis and interpretation of numerical data".

Nature of data

Statistics refers to data or facts. It means data relating to sex, religion, income, population, profit etc. The data may be broadly categorised into two as Qualitative and Quantitative data.

Qualitative data

Qualitative data are categorical data. They are non-numeric in nature and cannot be measured. Examples are sex, religion and place of birth.

Quantitative data

Quantitative data are numerical in nature and can be measured. Examples are age, members in the family, income and savings.

Raw Data

Raw data represent numbers and facts in the original format in which data have been collected.

Example for raw data:

The percentage marks of 50 plus two students are given below

52	61	59	55	63
83	90	81	77	74
50	45	42	46	39
29	31	29	31	30
48	52	76	36	48
70	59	77	81	83
65	33	76	92	77
29	38	52	64	86
30	29	48	54	55
64	59	72	65	64

Frequency Distribution

Frequency Distribution is a summarised table in which raw data are arranged into classes and frequencies. It is called grouped data. The grouped data can be classified into two. They are discrete data and continuous data.

Discrete data

Discrete data can take only certain specific values that are whole numbers. Example: Number of classrooms in a school, number of students in a class. Discrete numbers cannot take fractional values.

Continuous data

Continuous data can take any numerical value within a specific interval e.g. height in centimetres; weight in kilograms; income in rupees.

Sources of Data

There are two basic sources of collecting the data. They are (i) Primary source and (ii) Secondary source. If the data are collected from primary source, it is called primary data. The data collected from the secondary sources are called the secondary data.

Primary data

Data collected for the first time for a specific purpose is called primary data. They are original in character. They are collected by individuals or institutions or government for research purpose or policy decisions. Example: Data collected in a population census by the office of the census commissioner.

Secondary Data

These data are not originally collected. They are obtained from published or unpublished sources. Published sources are reports and official publications like annual reports of the bank, population census, Economic survey of India; unpublished sources are the Government records, studies made by research institutions. Example for the secondary data: Census data used by research scholars.

The census data are primary to the office of the census commissioner who collected it and for others it is a secondary data.

Classification of Data

Classification is the process of arranging the collected data into classes and to subclasses according to their common characteristics. Classification is the grouping of related facts into classes. E.g. sorting of letters in post office

Types of classification

There are four types of classification. They are

- (i) Geographical classification
- (ii) Chronological classification
- (iii) Qualitative classification
- (iv) Quantitative classification

(i) Geographical classification

When data are classified on the basis of location or areas, it is called geographical classification

Example: Classification of production of food grains in different states in India.

States	Production of food grains (in '000 tons)
Tamil Nadu	4500
Karnataka	4200
Andhra Pradesh	3600

(ii) Chronological classification

Chronological classification means classification on the basis of time, like months, years etc.

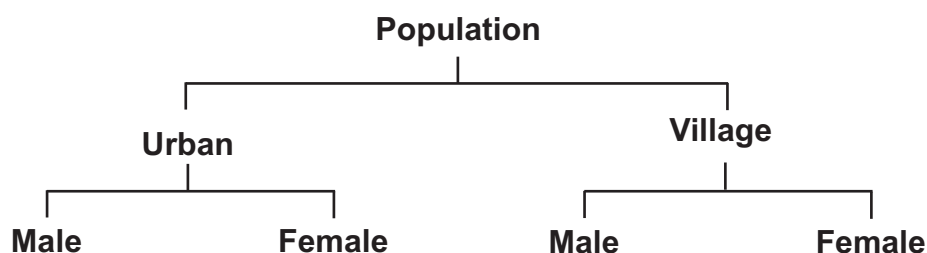
Year	Profits (in 000 Rupees)
2001	72
2002	85
2003	92
2004	96
2005	95

Example: Profits of a company from 2001 to 2005.

Profits of a company from 2001 to 2005

(iii) Qualitative classification

In Qualitative classification, data are classified on the basis of some attributes or quality such as sex, colour of hair, literacy and religion. In this type of classification, the attribute under study cannot be measured. It can only be found out whether it is present or absent in the units of study.



E.g. People under study can be classified as follows.

Quantitative classification

Quantitative classification refers to the classification of data according to some characteristics, which can be measured such as height, weight, income, profits etc.

Example: The students of a school may be classified according to the weight as follows

Weight (in kgs)	No of Studemts
40-50	50
50-60	200
60-70	300
70-80	100
80-90	30
90-100	20
Total	700

There are two types of quantitative classification of data. They are

- (i) Discrete frequency distribution
- (ii) Continuous frequency distribution

In this type of classification there are two elements (i) variable (ii) frequency

Variable

Variable refers to the characteristic that varies in magnitude or quantity. E.g. weight of the students. A variable may be discrete or continuous.

Discrete variable

A discrete variable can take only certain specific values that are whole numbers (integers). E.g. Number of children in a family or Number of class rooms in a school.

Continuous variable

A Continuous variable can take any numerical value within a specific interval.

Example: the average weight of a particular class student is between 60 and 80 kgs.

Frequency

Frequency refers to the number of times each variable gets repeated.

For example there are 50 students having weight of 60 kgs. Here 50 students is the frequency.

Frequency distribution

Frequency distribution refers to data classified on the basis of some variable that can be measured such as prices, weight, height, wages etc.

The following are the two examples of discrete and continuous frequency distribution

Discrete frequency distribution		Continuous frequency distribution	
Number of children	Number of families	Weight (kgs)	Number of students
0	10	40-50	50
1	20	50-60	200
2	30	60-70	300
3	20	70-80	100
4	12	80-90	30
5	8	90-100	20
	100		700

The following technical terms are important when a continuous frequency distribution is formed

(i) Class limits: Class limits are the lowest and highest values that can be included in a class. For example take the class 40-50. The lowest value of the class is 40 and the highest value is 50. In this class there can be no value lesser than 40 or more than 50. 40 is the lower class limit and 50 is the upper class limit.

(ii) Class interval: The difference between the upper and lower limit of a class is known as class interval of that class. Example in the class 40-50 the class interval is 10 (i.e. 50 minus 40).

(iii) Class frequency: The number of observations corresponding to a particular class is known as the frequency of that class

Example:

Income (Rs)	No. of persons
1000 – 2000	50

In the above example, 50 is the class frequency. This means that 50 persons earn an income between Rs.1, 000 and Rs.2, 000.

(iv) Class mid-point: Mid point of a class is formed out as follows.

$$\text{Mid - point of a class} = \frac{\text{Upper limit of the class} + \text{lower limit of the class}}{2}$$

For example mid point of the class 1000-2000,

$$\text{The mid - point} = \frac{1000 + 2000}{2} = 1500$$

Tabulation of Data

A table is a systematic arrangement of statistical data in columns and rows. Rows are horizontal arrangements whereas the columns are vertical ones.

Difference between classification and Tabulation

- (i) Classification is the process of grouping the data on the basis of some common characteristics. Tabulation is the process of placing the classified data in columns and rows.
- (ii) Classification is the first step in tabulation. Tabulation process starts only after the classification is completed.

- (iii) Classification is done for the purpose of tabulation whereas tabulation is done for the purpose of analysis of data.

Rules for tabulation

The important rules for tabulation are given below:

- (i) **Number:** Table must be arranged with number in order to identify the table
- (ii) **Title:** Table must have a title. The title should be clear, brief and self-explanatory. It should convey the content and purpose of the table.
- (iii) **Stubs and Captions:** Stubs are the row headings and Captions are column headings. Stubs and Captions should also be clear and brief.
- (iv) **Body of the table:** The body of the table contains the numerical information. This is the most important part of the table and should contain only relevant information. Table should not be overloaded with details.
- (v) **Spacing:** Proper space should be provided in between various data presented in the table. It helps for easy identification of data. Proper spacing gives good appearance for the table.
- (vi) **Total:** Total must be given for each column and row.
- (vii) **Head note:** It is a brief explanation of the information given in the table. It is placed below the title in brackets
- (viii) **Footnotes:** If any item presented in the table needs further explanation, it should be given at the end of the table.
- (ix) **Source:** Source is an important requirement for the table. Source indicates the place or person from whom the information is collected. It gives more authenticity for the table.

The following is a specimen of table

Format of a table

Table No.

Title:

(Head note)

<i>Stub</i>	<i>Caption</i>
<i>Row Entries</i>	<i>Body</i>

Foot note:

Source:

Diagrams and Graphs

One of the most attractive ways in which statistical results may be presented is through diagrams and graphs.

Significance of Diagrams and Graphs

Diagrams and graphs are extremely useful because of the following reasons:

1. They give a bird's eye view of the entire data. Therefore the information presented is easily understood.
2. They are attractive to the eye
3. They have a great memorising effect.
4. They facilitate comparison of data.

Difference between Diagrams and Graphs

1. Diagrams are prepared in a plain paper whereas graphs should be prepared in graph paper.
2. A Graph represents mathematical relations between two variables. But diagrams do not represent mathematical relationship. They help for comparisons.
3. Diagrams are more attractive to the eye. Therefore they are suitable for publicity and propaganda. They are not so useful for research analysis whereas Graphs are very much useful for research analysis.

Types of Diagrams

The followings are the important types of diagrams

- (i) Bar diagrams
- (ii) Pie chart or circular diagram
- (iii) Pictograms and cartograms

Bar diagrams

Bar diagrams are one-dimensional diagrams where the length is considered and width is not considered. There are different types of bar diagrams.

They are

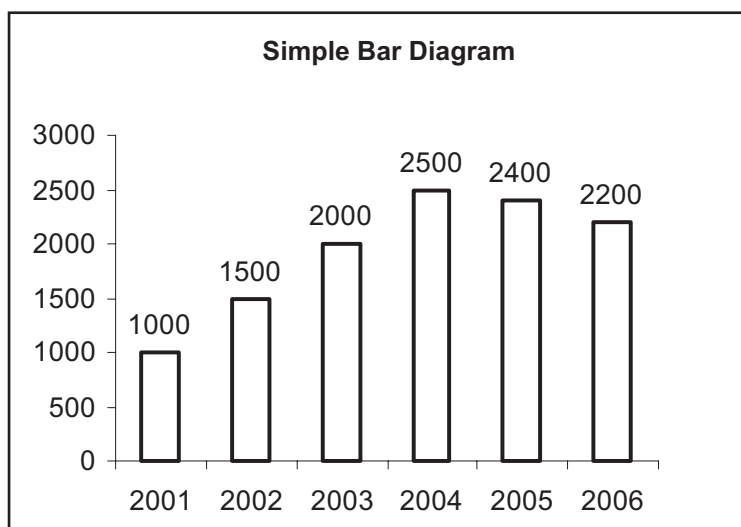
- (i) Simple Bar diagram
- (ii) Sub-divided bar diagram
- (iii) Multiple bar diagram

(a) Simple Bar Diagram

A simple bar diagram is used to represent only one variable. For example, the figures of sales, height, weight of students, production and population. In simple bar, the height of the bar represents the magnitude of the variable.

Illustration 1: Simple Bar diagram

Year	2001	2002	2003	2004	2005	2006
No of students in college	1000	1500	2000	2500	2400	2200

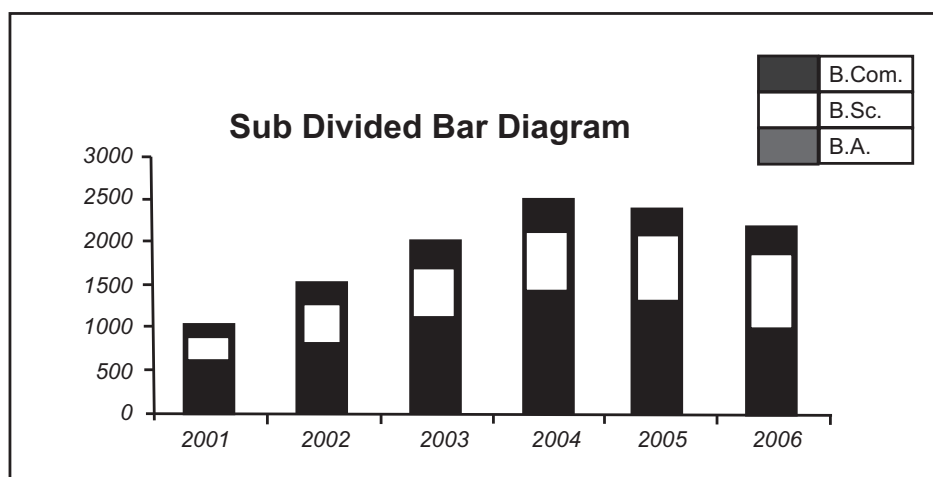


(b) Sub-divided Bar diagram

In a sub-divided bar diagram, each bar explaining a phenomenon is further sub-divided into various components. For example, the number of students in various courses for B.A., B.Sc, and B.Com in various colleges may be represented by a sub-divided bar diagram. Here courses are the components. To distinguish between the different components, different shades or colours can be used. Index or key must be given explaining these differences.

Illustration 2: Sub-divided Bar diagram

Year	Number of students			Total
	B.A.	B.Sc.	B.Com.	
2001	600	300	100	1000
2002	800	500	200	1500
2003	1100	600	300	2000
2004	1400	750	350	2500
2005	1300	800	300	2400
2006	1000	900	300	2200



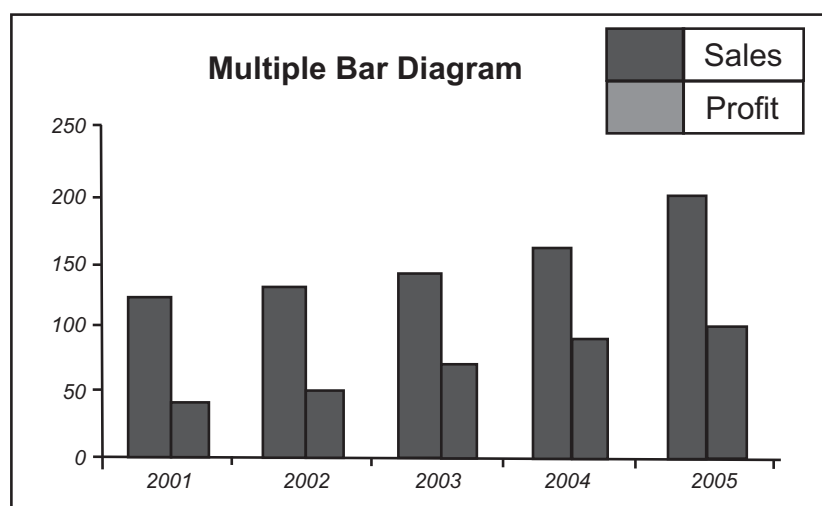
(c) Multiple bar diagram

Two or more inter-related data (phenomena) are represented in a multiple bar diagram. Each phenomenon is represented by a bar diagram. Since more than one phenomenon is represented, different shades or colours are used to represent each phenomenon. An index is given to explain these differences.

Illustration 3: Multiple Bar diagram

Sales and profits of a company can be represented by a multiple bar diagram.

Year	Sales('000 Rs)	Profit('000Rs)
2001	120	40
2002	130	50
2003	140	70
2004	160	90
2005	200	100



Pie Diagrams

Pie diagram is used to represent the components of a variable. For example Pie chart can show the household expenditure, which is divided under different heads like food, clothing, electricity, education and recreation. The pie chart is called so, because the entire graph looks like pie and the components resemble slice cut from pie.

Steps to draw a pie chart

1. The different components of the variables are converted into percentage form to draw a pie diagram. These percentages are converted into corresponding degrees on the circle.
2. Draw a circle of appropriate size with a compass. The size of the radius depends upon the available space and other factors of presentation.
3. Measure the points on the circle representing the size of each sector with the help of protractor.
4. Arrange the sectors according to the size
5. Different shades and proper labels must be given to different sectors.

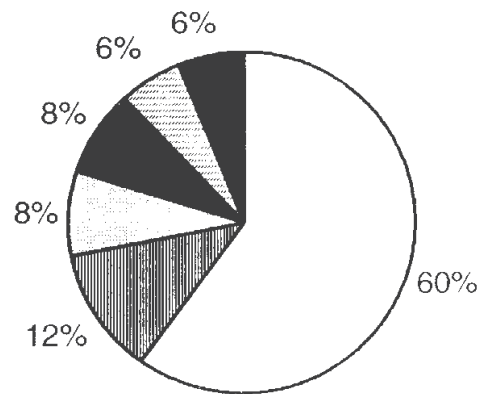
Illustration 4

Pie Chart

Items of Expenditure	Amount in percentage
<i>Food</i>	<i>60%</i>
<i>Rent</i>	<i>12%</i>
<i>Clothing</i>	<i>8%</i>
<i>Fuel</i>	<i>8%</i>
<i>Education</i>	<i>6%</i>
<i>Miscellaneous</i>	<i>6%</i>
Total	100%

Pie Chart

	Food
	Rent
	Clothing
	Fuel
	Education
	Miscellaneous



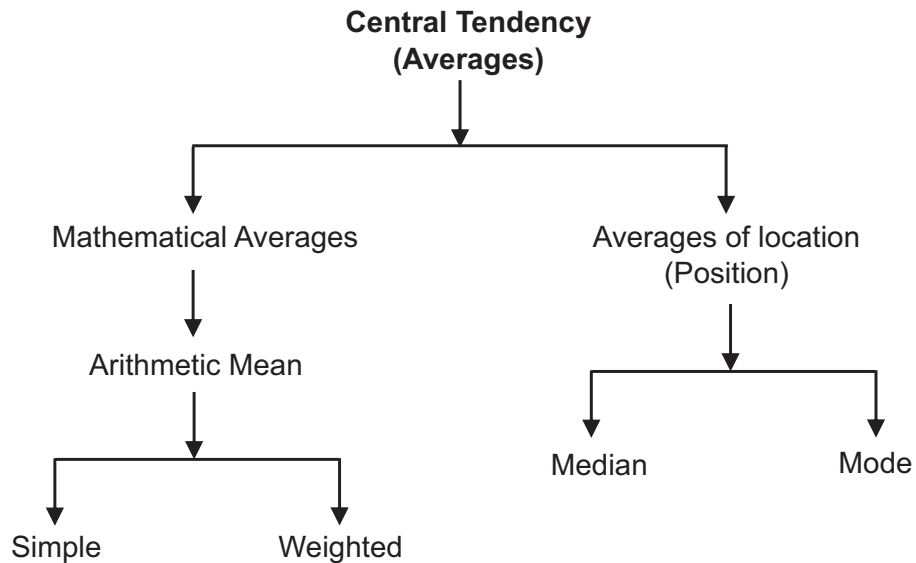
Measures of Central Tendency

One of the important objectives of statistical analysis is to get one single value that describes the characteristics of the entire data. Such a value is called central value or an average.

Thus a central value or an average is a single value that represents a group of values. That single value (the average) explains the characteristics of the entire group. As the average lies in-between the largest and the smallest value of the series, it is called central value.

Characteristics of a good average

1. It should be rigidly defined so that there is no confusion regarding its meaning.
2. It should be easy to understand
3. It should be simple to compute
4. Its definition must be in the form of a mathematical formula.
5. It should be based on all the items of a series
6. It should not be influenced by a single item or a group of items
7. It should be capable of further algebraic treatment
8. It should have sampling stability



Simple Arithmetic Mean or Arithmetic Mean

It is the most common type and widely used measure of central tendency. Arithmetic mean of a series is equal to the total value of the various items in a series divided by the number of items. Arithmetic mean is denoted by \bar{X} (X bar)

$$\text{A.M.} = \bar{X} = \frac{X_1 + X_2 + X_3 + \dots + X_n}{n}$$

$$= \frac{\sum X}{n}$$

$$\bar{X} = \text{Mean}$$

$\sum X$ = Sum of the variables (observations)

n = number of observations

Calculations

I. Raw Data or individual observations

Illustration: 1

The marks of 10 students in a class are given below. Calculate Arithmetic mean.

Marks: 40 45 60 65 60 50 45 30 50 55

Solution

$$\bar{X} = \frac{\sum X}{n}$$

$$= 500/10 = 50 \text{ marks}$$

Discrete Series

Steps involved in the calculation of mean are as follows

Steps

1. Multiply each size of the item (x) by its frequency (f) – (fx)
2. Add all the $fx = \Sigma fx$
3. Divide Σfx by the total frequency Σf . This will give

The formula is

where

= Arithmetic mean

= the sum of products(f & x)

= Total frequency.

Illustration: 2

Calculate mean for the following data

X	1	2	3	4	5	6	7	8	9	10
F	10	18	20	31	30	25	20	15	10	6

x	f	fx
1	10	10
2	18	36
3	20	60
4	31	124
5	30	150
6	25	150
7	20	140
8	15	120
9	10	90
10	6	60
	$\Sigma f=185$	$\Sigma fx=940$

Solution:

Calculation of mean

$$\bar{X} = \frac{\Sigma fX}{\Sigma f}$$

$$= 940 / 180$$

$$\bar{X} = 5.22$$

Continuous Series

The following procedure is to be adopted for calculating arithmetic mean in a continuous series

1. Find out the mid point of each group or class. The mid point is calculated as follows.

$$\text{Mid point of a class} = \frac{\text{lower limit} + \text{upper limit}}{2}$$

Mid point is denoted by 'm'

2. Multiply the mid point of each class (m) by the frequency (f) of that class – mf
3. Add up all the products – ()
4. is divided by the total frequency

Thus

$$\bar{X} = \frac{\sum fm}{\sum f}$$

Illustration: 3

The daily earnings (in rupees) of employees working on a daily basis in a firm are

Daily Earnings (Rs)	90-110	110-130	130-150	150-170	170-190	190-210	210-230
Number of employees	3	6	10	15	24	42	75

Calculate the average daily earnings for all employees.

Solution

The calculation of average daily earnings () for employees

Daily earnings x	Number of employees f	m	fm
90-110	3	100	300
110-130	6	120	720
130-150	10	140	1400
150-170	15	160	2400
170-190	24	180	4320
190-210	42	200	8400
210-230	50	220	1100
	$\Sigma f = 150$		$\Sigma fm = 28540$

$$\bar{X} = \Sigma fm / \Sigma f = 28540/150 = 190.27$$

$$= 28540 / 150$$

$$= 190.27$$

Weighted Arithmetic Mean

One of the limitations of simple arithmetic mean is that it gives equal importance to all the items of the distribution. In certain cases, the relative importance of the items in the distributions is not the same. In such cases, it is essential to allocate weights to the items. Weightage is a number standing for relative importance of the items.

Weighted arithmetic mean is calculated as follows:

1. Each item (x) in the distribution is multiplied by the weights (w) given.
2. The sum of the products is found out – (wx)
3. The sum (wx) is divided by the total of weights (Σw).

The formula to calculate weighted arithmetic mean is

$$\bar{X}_w = \frac{\Sigma wx}{\Sigma w}$$

Where \bar{X}_w = weighted arithmetic mean

wx = the product of items multiplied by its corresponding weight

Σw = sum of the weights.

Illustrations: 4

Calculate weighted arithmetic mean price per ton of the coal purchased

Price per ton	Tonnes purchased
4000	20
5000	30
6000	40
7000	35
8000	25

Solution

Price per ton (x)	Tonnes purchased (w)	Total (wx)
4000	20	80,000
5000	30	1,50,000

6000	40	2,40,000
7000	35	2,45,000
8000	25	2,00,000
	$\sum w = 150$	$\sum wx = 9,15,000$

$$\bar{X} = 9,15,00 / 150 = \text{Rs } 6100$$

The weighted arithmetic mean should be used when the importance of all the items in the given data set is not equal.

Illustration: 5

Comment on the performance of the students of the two universities given below using simple and weighted arithmetic average.

University	Chennai		Madurai	
Course of study	Percentage of pass	Number of students ('00)	Percentage of pass	Number of students ('00)
MA	71	3	82	2
M.Com.	83	4	76	3
M.Sc.	66	3	60	7
B.A.	73	5	73	6
B.Sc.	65	3	65	3
B.Com.	74	2	76	7

Solution

Calculation of simple and weighted average

Univetsity Courses	Chennai			Madurai		
	x	w	wx	x	w	wx
M.A.	71	3	213	82	2	164
M.Com.	83	4	332	76	3	228
M.Sc.	66	3	198	60	7	420
B.A.	73	5	365	73	6	438
B.Sc.	65	3	195	65	3	195
B.Com.	74	2	148	76	7	532
	$\sum x = 432$	$\sum w = 20$	$\sum wx = 1451$	$\sum x = 432$	$\sum w = 28$	$\sum wx = 1977$

a) Simple Arithmetic Mean.

$$\bar{X} = \frac{\sum X}{n}$$

Chennai: $432 / 6 = 72$; Madurai = $432 / 6 = 72$

Arithmetic mean is the same for both the universities.

b) Weighted Arithmetic Mean:

$$xw = \sum wx / \sum w$$

Chennai: $1451 / 20 = 72.55$

Madurai: $1977 / 28 = 70.60$

Chennai University is better than Madurai University because the weighted mean for Chennai (72.55) is greater than the weighted mean for Madurai (70.60)

Median

Median is the value of the middle item, which divides the series into two equal parts when the series is arranged in ascending or descending order. The values of the items on one side of the median will be equal to or less than median and the values of the items on the other side will be equal to or greater than median.

Eg: 2,3,5,5,5,10,15.

In the above series, 5 is the median which divides the series into two equal halves. The values left of median are less than or equal to 5 whereas the values on the right of median are greater than or equal to 5 as the values are arranged in an ascending order. Median is denoted by M.

Calculation of Median (M)

Individual series

Steps

1. Arrange the data in ascending or descending order
2. Apply the formula

$$M = \text{size of } \left(\frac{N + 1}{2} \right)^{th} \text{ item}$$

Where N refers to the number of items in a series.

Illustration: 6

The following are the marks scored by 7 students; find out the median marks

Roll No.	1	2	3	4	5	6	7
Marks	40	30	18	55	60	25	45

Solution

Arrange the data in ascending order

Marks:	18	25	30	40	45	55	60
---------------	----	----	----	----	----	----	----

Median = size of item

Size of = 4th item

Size of 4th item = 40

Therefore, Median marks = 40

Even Numbers

To find out the median from even numbered items, median is calculated by the average of the two middle values.

Illustration: 7

Find out the median from the following data

60	55	62	40	35	65	70	68
----	----	----	----	----	----	----	----

Solution:

Arranging the data in ascending order, the series will be

35, 40, 55, 60, 62, 65, 68, 70

Median = size of item

Median = size of $\left(\frac{N+1}{2}\right)^{th}$ item

size of $\left(\frac{8+1}{2}\right) = 4.5^{th}$ item

Size of 4.5th item = 4th item + 5th item / 2

$$\frac{60 + 62}{2} = 61$$

Therefore Median marks = 61

Discrete series

Steps

1. Arrange the data in ascending or descending order
2. Find the cumulative frequencies
3. Apply the formula

Median = size of item

Where N = - Total frequency

Illustration: 8

Locate the median from the following

Size of shoes	Frequency	Cumulative frequency
5	10	10
5.5	18	28
6	22	40
6.5	25	65
7	20	85
7.5	15	100
8	10	110

$$\text{Median} = \text{size of } \left(\frac{N + 1}{2} \right)^{\text{th}} \text{ item}$$

$$\text{size of } \left(\frac{110}{2} \right) = 55^{\text{th}} \text{ item}$$

$$\text{Size of } 55^{\text{th}} \text{ item} = 6.5$$

$$\text{Therefore Median size of shoe} = 6.5$$

Continuous series

Steps:

1. Find out the median by using $N/2$ where

$$\text{Where } N = \sum f - \text{Total frequency}$$

2. Find out the class in which median lies (median class)
3. Apply the formula

$$\text{Median} = L + \frac{\frac{N}{2} - cf}{f} \times C$$

Where

L = Lower limit of the median class

F = frequency of Median class

Cf = Cumulative frequency of the class preceding median class

C = Class interval of median class.

Illustration: 9

Calculate Median from the following table:

Marks	0-20	20-40	40-60	60-80	80-100
Frequency	10	24	36	20	10

Solution

Marks (x)	Frequency (f)	Cumulative frequency (cf)
0-20	10	10
20-40	34	44
40-60	36	80
60-80	20	100
80-100	10	110

$$\text{Median} = (N/2) = (110/2) = 55$$

$$M = L + \frac{N/2 - cf}{f} \times C = 55, L = 55, Cf=44, f = 36, C = 20$$

$$M = 40 + (55 - 44)/36 \times 20$$

$$= 40 + (11/36 \times 20)$$

$$= 40 + 220/36$$

$$= 40 + 6.1$$

Median = 46.1

Mode

Mode is the common item of a series. Mode is the most fashionable or typical value of a distribution because it is repeated the highest number of times in the series. Mode is defined as the value of the variable, which occurs most frequently in

a distribution. Thus mode is the size of that item which has the maximum frequency. A distribution may be unimodal or bimodal or multimodal.

Unimodal	:	The distribution has only one mode
Bimodal	:	The distribution has two modes
Multimodal	:	The distribution has more than two modes

Calculation of Mode:

Mode can be often found out by mere inspection in the case of individual observations.

Illustration: 10

10 persons have the following income.

Rs 1000, 850, 650, 780, 1000, 980, 1000, 850, 700, 900

Calculate Mode.

Solution:

Arrange the data

650, 700, 780, 850, 850, 900, 980, 1000, 1000, 1000

1000 repeats three times. Therefore the mode salary is Rs 1000/-

Illustration: 11

Calculate Mode.

450, 400, 380, 370, 400, 420, 450, 340

Solution:

Arrange the data

340, 370, 380, 400, 400, 420, 450, 450

400 and 450 repeat two times.

Hence modes are 400 and 450. The distribution is Bimodal.

Mode for Grouped Data

For the grouped data, mode can be calculated by using the empirical relationship between Mean, Median and Mode.

The formula is $\text{Mode} = 3 \text{ Median} - 2 \text{ Mean}$.

Illustration: 12

For a distribution, arithmetic mean is 180 and median is 170. Calculate Mode

Solution:

$$\begin{aligned}\text{Mode} &= 3 \text{ Median} - 2 \text{ Mean} \\ &= (3 \times 170) - (2 \times 180) \\ &= 510 - 360 \\ &= 150\end{aligned}$$

$$\text{Mode} = 150.$$

Chapter 11**Exercise****PART A****I Choose the correct answer**

1. Statistics is a branch of
 - a. Commerce
 - b. Economics
 - c. Mathematics
 - d. Accountancy
2. The Latin word status represents
 - a. Logic
 - b. Science
 - c. Economics
 - d. Statistics
3. The data obtained from published or unpublished by some agency are called
 - a. Primary data
 - b. Secondary data
 - c. Statistics
 - d. Information
4. The process of arranging the data into classes and subclasses according to the common characteristics
 - a. Tabulation
 - b. Classification
 - c. Distribution
 - d. Arrangement
5. The most preferred diagram to represent the components of a variable
 - a. Line diagram
 - b. Bar diagram
 - c. Pie diagram
 - d. Pictogram

II Fill in the blanks

6. The data collected for the first time is called_____
7. _____ refers to the number of times each variable gets repeated.
8. The difference between the upper and lower limit of a class is known as_____
9. _____ is a systematic arrangement of statistical data in columns and rows.
10. _____ is the common item of a series.

III Match the following

- | | | |
|------------------------------|---|-------------------------------------|
| 11. Median | - | $XW = \frac{\Sigma WX}{\Sigma W}$ |
| 12. Mode | - | Central Value |
| 13. Primary | - | 3 Median - 2 Mean |
| 14. Average | - | Observation |
| 15. Weighted Arithmetic Mean | - | Size of $\frac{(N+1)^{th}}{2}$ item |

IV Answer the following in a word or two

16. Which is an important requirement for a table?
17. Give the formula for Mean X.
18. What is the formula for Median?
19. What is the first step in tabulation?
20. Which is the diagram that describes only one variable?

PART B

Answer the following in four or five lines

21. Define statistics.
22. What are the types of data?
23. Write a note on graphs and diagrams.
24. What are the types of classification?
25. Write a note on pie diagram.

PART C

Answer the following question in about a page

26. Distinguish between classification and tabulation.
27. Explain rules of tabulation.
28. Distinguish between graphs and diagrams.
29. Examine the characteristics of a good average.
30. Calculate the mean for the following data.

X	1	2	3	4	5	6	7	8	9	10
F	10	18	20	31	30	25	20	15	10	5

PART D

31. Represent the following data through a simple bar diagram.

Year	2001	2002	2003	2004	2005	2006
No. of students in a college	1000	1500	2000	2500	2400	2200

32. Construct a Pie diagram with the given data below:

Items of Expenditure	Food	Rent	Clothing	Fuel	Education	Misc.
Percentage	60%	12%	8%	8%	6%	6%

33. Calculate the average daily earnings (Rs) for all employees.

Daily earning	90-110	110-130	130-150	150-170	170-190	190-210	210-230
No. of Employees	3	6	10	14	24	42	75

34. Calculate Mean, Median and Mode for the following

Marks	0-20	20-40	40-60	60-80	80-100
Frequency	10	24	36	20	10

35. Describe the nature of data and give an example for each.

Chapter 12

Measures of Variability

Measures of central tendency, discussed in the earlier chapter, measure only one aspect of a distribution namely the average. Being a single and crude indicator, the average may not reveal the complete picture.

Example 1: The average marks of two students (Anbu and Arivu) in five subjects may be identical. But they may differ in many ways. Anbu has passed in all subjects with an average of 60 marks, whereas Arivu too got an average of 60 marks but failed in one subject and got centum in another.

Subjects	Tamil	English	Maths	Science	History & Geography	Average / Mean
Marks scored by Anbu	68	65	55	60	52	$\frac{300}{5} = 60$
Marks scored by Arivu	60	30	100	59	51	$\frac{300}{5} = 60$

Thus, it is clear from the above illustration that average is reliable only when the set of data is homogeneous. Otherwise, the actual value will deviate much from the average value. The extent of such deviation is measured by dispersion or measures of variability.

Thus, dispersion means the tendency of data values to deviate from the mean values. It is an important measure in statistical analysis. It reflects the reliability of the average. Knowledge of dispersion is useful to contain the dispersion and to improve the data values in the future.

Methods of Measuring Variability

Variability can be measured by different methods. The following are some of the methods.

1. Range
2. Inter-quartile Range or Quartile Deviation
3. Mean Deviation
4. Variance and Standard Deviation

Range

The simplest measure of variability is the range of the data. Range is the numerical difference between the largest and the smallest value. Thus, in the percentage of marks scored by Arivu (in Example 1), the highest mark is 100 percent and the lowest is 30 percent. For this data

$$\text{Range} = L - S$$

Where L – largest value;

S- smallest value.

$$= 100 - 30$$

$$\text{Range} = 70$$

Example 2 : Find out the range for the marks scored by Anbu in five subjects.

Anbu's Marks : 68 65 55 60 52

$$\text{Range} = L - S$$

$$L - S = 68 - 52$$

$$\text{Range} = 16$$

Mean Deviation (M.D)

The mean deviation is defined as the average distance between the mean and each point in the distribution. It is the arithmetic mean of the deviations of each point to the mean. Points smaller than the mean will have negative signs and those which are larger than the mean will have positive signs.

To measure the variation about the sample mean \bar{X} (X bar), the distance from each data value (i.e. \bar{X}) has been computed and then divided by the total number of points (n). Thus,

$$\text{Mean Deviation (M.D)} = \frac{\sum |x - \bar{x}|}{n}$$

Where,

x = Actual Data

\bar{X} = Mean

$|x - \bar{X}|$ = Deviations without plus sign

Σ = Sign of Summation (of the observations)

n = number of points (observations)

Example 3: Calculate mean deviation for the data given in the table.

x 4 6 8 10 22

Data of points x	$X - \bar{X}$	$ X - \bar{X} $
4	-6	6
6	-4	4
8	-2	2
10	0	0
22	12	12
	$\Sigma (X - \bar{X}) = 0$	$\Sigma X - \bar{X} = 24$

To get the average, divide $\Sigma |X - \bar{X}|$ by the total number of points which is 5 for the above example. Hence,

$$\begin{aligned} \text{Mean Deviation (M.D)} &= \frac{\Sigma |x - \bar{x}|}{n} \\ &= \frac{24}{5} \\ &= 4.8 \end{aligned}$$

Standard Deviation (S.D)

The variance and standard deviation are the most widely used measures of variation. Variance is the most stable measure of variability and its derivative is standard deviation. Variance also resembles mean deviation where the negative signs are removed by taking mod values. Another way of removing negative sign is to square each of the deviations. For example we can use Example 3 to calculate variance and standard deviation.

Data Points x	$x - \bar{x}$	$(x - \bar{x})^2$
4	-6	36
6	-4	16
8	-2	4
10	0	0
22	12	144

$$\Sigma(X - \bar{X}) = 0 \quad \Sigma(X - \bar{X})^2 = 200$$

Now to find the average, divide $\Sigma(x-\bar{X})^2$ by total number of points.

Thus,

$$\text{Variance } (\sigma^2) = \frac{\Sigma (X - \bar{X})^2}{n}$$

Where

X = Actual data

\bar{X} = Mean

$\Sigma (X - \bar{X})^2$ = Squared Deviations

Σ = Sign of Summation (of the observations)

n = number of points (observations)

$$\begin{aligned}\text{Variance } (\sigma^2) &= \frac{200}{5} \\ &= \mathbf{40}\end{aligned}$$

Standard deviation can be derived from variance simply by taking its square root.

$$\begin{aligned}\sigma^2 &= \frac{\Sigma (X - \bar{X})^2}{n} \\ \sigma &= \frac{\sqrt{\Sigma (X - \bar{X})^2}}{n} \\ \sigma &= \frac{\sqrt{200}}{5} \\ \sigma &= \sqrt{40} \\ &= \mathbf{6.32}\end{aligned}$$

Percentile and Quartile Deviation (Q.D.)

Suppose that you think that you have performed better in comparison with 40 students in a quiz contest. One way to measure your performance is to obtain the scores and demonstrate your 'relative position' among all the 40 contestants. To measure your position in relation with all the other students, some measures of position can be used. Percentile is the widely used measure that locates relative positions.

Quartile deviation is the most commonly used measure of position. It is also known as semi-inter-quartile range. As the name indicates, it is the mid-point of the difference between the third quartile (Q_3) and the first quartile (Q_1). Median discussed

in the earlier chapter is second quartile (or P_{50}) that divides the distribution into two equal halves. Quartile divides the distribution into four quarters. Hence, the procedure to calculate the quartile deviation is same as that of median.

Q_1 = First Quartile = 25th percentile (P_{25})

Q_2 = Second Quartile = 50th percentile (P_{50}) = Median

Q_3 = Third Quartile = 75th percentile (P_{75})

$$\text{Quartile Deviation (Q.D.)} = \frac{Q_3 - Q_1}{2}$$

$$\text{or} = \frac{P_{75} - P_{25}}{2}$$

Q_3 = Third quartile

Q_1 = First quartile

P_{75} = 75th Percentile

P_{25} = 25th Percentile

Example 4 : The following table provides the quiz scores of forty students scored against the maximum total of 20 marks. Calculate the 10th percentile (P_{10}), 25th percentile (P_{25}) and 50th percentile (P_{50}) quartile deviation, Q_2 .

16	11	9	10	10	14	18	11
7	15	19	13	7	13	14	9
18	12	17	15	16	16	10	12
9	13	12	11	17	10	15	16
19	13	11	14	8	12	16	14

The value of 10th percentile (P_{10}) is naturally the value that exceeds 10 percent of all the data values. To compute these measures, we can arrange the data in ascending (increasing) order.

Students	Ordered Score
1	7
2	7
3	8
4	9
5	9

Students	Ordered Score
21	13
22	13
23	14
24	14
25	14

6	9	26	14
7	10	27	15
8	10	28	15
9	10	29	15
10	10	30	16
11	11	31	16
12	11	32	16
13	11	33	16
14	11	34	16
15	12	35	17
16	12	36	17
17	12	37	18
18	12	38	18
19	13	39	19
20	13	40	19

To determine the position of the tenth percentile we use the following formula.

$$n \times \frac{P}{100}$$

where the required percentile is $P = 10$ and the total number of data points is $n = 40$.

That is for the tenth percentile, the position is defined as 4 as detailed below.

$$n \times \frac{P}{100}$$

$$(\text{or}) \quad 40 \times \frac{10}{100} = 4$$

Suppose the result is not a counting number, it should be rounded up to the next counting number. Then the percentile is the average of the number in this position and the next highest value in the ordered set. Thus, 10th percentile (P_{10}) is arrived as follows.

$$\begin{aligned}
 \text{10th percentile } (P_{10}) &= \frac{(4^{\text{th}} \text{ value}) + (5^{\text{th}} \text{ value})}{2} \\
 &= \frac{8 + 9}{2} \\
 &= 8.5
 \end{aligned}$$

Thus, the 10th percentile (P_{10}) is an average of two data points. 25th percentile (P_{25}) and 50th percentile (P_{50}) can also be calculated in similar manner.

25th percentile (P_{25})

$$n \times \frac{P}{100}$$

$$\text{(or)} \quad 40 \times \frac{25}{100} = 10$$

50th percentile (P_{50})

$$n \times \frac{P}{100}$$

$$\text{(or)} \quad 40 \times \frac{50}{100} = 20$$

$$\begin{aligned} 50^{\text{th}} \text{ percentile } (P_{50}) &= \frac{(20^{\text{th}} \text{ value}) + (21^{\text{th}} \text{ value})}{2} \\ &= \frac{13 + 13}{2} \\ &= 13 \end{aligned}$$

If you compute the median value it will be the same. Thus

$$50^{\text{th}} \text{ Percentile} = \text{Median} = Q_2$$

Quartile Deviation

Quartile deviation or inter quartile range can be estimated just like by range.

$\text{Quartile Deviation} = \frac{Q_3 - Q_1}{2}$

To determine the position of the third quartile (Q_3) the same formula, as in the case of percentile, can be used with minor changes.

$$n \times \frac{Q}{4}$$

where the required quartile is $Q = 3$ and the total number of data points is $n = 40$.

$$40 \times \frac{3}{4} = 30$$

That is for third quartile (Q_3) the position is defined as 30 as detailed below.

$$\begin{aligned}\text{Third Quartile } (Q_3) &= \frac{(30^{\text{th}} \text{ value}) + (31^{\text{th}} \text{ value})}{2} \\ &= \frac{16 + 16}{2} \\ &= \mathbf{16}\end{aligned}$$

To determine the third quartile (Q_3) the position is defined as detailed below.

$$40 \times \frac{1}{4} = 10$$

$$\begin{aligned}\text{First Quartile } (Q_1) &= \frac{(10^{\text{th}} \text{ value}) + (11^{\text{th}} \text{ value})}{2} \\ &= \frac{10 + 11}{2} \\ &= \mathbf{10.5}\end{aligned}$$

Note that the value of P_{10} Y and Q_1 are same. You can also calculate the value of Q_2 and compare it with the value of P_{50} .

Index Numbers

Meaning

An index number is a statistical tool used to measure changes over time and to interpret economic figures. Index numbers are values expressed as a percentage of single base figures. Index number summarises changes in a group of related variables. The consumer price index (or cost of living index) is one of the popular indexes. It measures the relative changes in retail prices paid by consumers over time.

Economists for long have constructed price and quantity index numbers. Index numbers have no distracting units. They are straightforward and the computation is simple. For instance, cement production in the second year is referred to as just 125, not 125 million metric tonnes.

Types of Index Numbers

Measuring changes in economic variable and their interpretations need to differentiate the effects of inflation from the real level of economic activity. Index numbers are classified on the basis of the specific indicator whose change they measure. The measurement may be about any one of the following three:

Price	-	such as the market price of 1 metric ton of cement or 1 square metre of fabrics;
Quantity	-	Such as million metric tonnes of cement or million square metres of fabrics;
Value	-	such as the market value of 1 metric ton of cement or 1 square metre of fabrics;

Accordingly, index numbers are classified into there major three types.

1. Price Index Numbers
2. Quantity Index Numbers
3. Value Index Numbers

All the above three (Price, Quantity and Value) are interrelated and the relationship between them is simple. *Quantity* times *price* equals *value*. That is

$$\text{Price} \times \text{Quantity} = \text{Value}$$

Uses of Index Numbers

Index number, being a specialized indicator, has many practical utilities. The following are some their uses.

1. Index numbers are useful to study the trend of business and economic variable.
2. Economic and business policy formulations will be easier with the help of index numbers.
3. It can be used to measure the purchasing power of money or to know the real value of money.
4. Measurement of inflation and cost of living are useful to know the changes in the standard of living of people.
5. As they measure the trend of price, output, inflation, trade and many more variables they are considered as barometers of an economy.

Methods of Constructing Index Numbers

All the methods of constructing index numbers can be classified under two main categories.

1. Un weighted Index Numbers
2. Weighted Index Numbers

Unweighted Index Numbers

This is the simplest method of constructing index numbers. Under this method, the index number is expressed as a percent of aggregate price of the current year (ΣP_t) to the aggregate price of the base year (ΣP_0). Base year is usually the first year and the current year is the year for which you would like to construct the index. The index number is calculated simply by dividing the current year p_t by the base year price p_0 .

$$P_{01} = \frac{\Sigma P_t}{\Sigma P_0} \times 100$$

Where

Σp_t - aggregate price of the current year

Σp_0 - aggregate price of the base year

The computation is simple as shown in table below.

Commodities	Price (in rupees)	
	2000	2005
<i>Rice</i>	15	20
<i>Onion</i>	10	16

To construct index number for the year 2005 on the basis of the base year 2000 from the data given above, get the aggregate prices.

Commodities	Price (in rupees)	
	2000 Base year (p_0)	2005 Current year (p_t)
<i>Rice</i>	15	20
<i>Onion</i>	10	16
	$\Sigma p_0 = 25$	$\Sigma p_t = 36$

$$\begin{aligned}
 P_{01} &= \frac{\Sigma P_t}{\Sigma P_0} \times 100 \\
 &= \frac{36}{25} \times 100 \\
 &= \mathbf{144}
 \end{aligned}$$

Weighted Index Numbers

The quantity of rice consumed by people will certainly be more than that of carrot. Index numbers constructed above does not account for such relative variation in quantities. When we construct index numbers for large number of commodities, the relative variation in their quantity needs to be accommodated by assigning suitable 'weights' in such way that the weights assigned should reflect the relative significance of various items.

There are three main methods to calculate weighted index numbers. They are named after the economists who have constructed them viz. Hermann Paasche, Etienne Laspeyres and Irving Fisher.

1. Paasche index
2. Laspeyre's index
3. Fisher's Index

The Paasche index is computed as

$$P_p = \frac{\sum p_t q_t}{\sum p_0 q_t}$$

while the Laspeyre's index is computed as

$$P_L = \frac{\sum p_t q_0}{\sum p_0 q_0}$$

and the Fisher's index is computed as

$$P_F = \sqrt{P_p P_L}$$

P is the change in price level or index number.

- | | | |
|-------|---|--|
| p_0 | - | the prices in the base year |
| q_0 | - | quantities in the base year |
| p_t | - | the prices in the current year 't' |
| q_t | - | the quantities in the current year 't' |

In the Paasche index, the current year quantities are used as weights. In the Laspeyre's index, base year quantities are used as weights. The third index by Fisher, being calculated as the geometric mean of P_p and P_L uses the average of both the current and base years as weight.

Example 1 : Calculate the three weighted price indices viz. Paasche' index, Laspeyre's index and Fisher's index from the following data.

Items	Price		Quantity Consumed	
	2000	2005	2000	2005
<i>Rice</i>	15	20	10	12
<i>Onion</i>	10	16	2	3

The table gives the same illustration as above. The only difference is that the quantities of rice and carrot consumed are added for the respective periods.

The three formulae for the construction of weighted index numbers are as follows.

Paasche index

$$P_p = \frac{\sum p_t q_t}{\sum p_0 q_t}$$

Laspeyre's index

$$P_L = \frac{\sum p_t q_0}{\sum p_0 q_0}$$

Fisher's index

$$P_F = \sqrt{P_p P_L}$$

To express in terms of percentage, all final numbers should be multiplied by hundred.

Items	Price (P)		Quantity (Q)		$P_t q_t$	$P_0 q_t$	$P_t q_0$	$P_0 q_0$
	2000 P_o	2005 P_t	2000 q_o	2000 q_t				
<i>Rice</i>	15	20	10	12	240	180	300	150
<i>Onion 10</i>	16	2	3	48	30	32	20	
					$\sum p_t q_t$ 288	$\sum p_0 q_t$ 210	$\sum p_t q_0$ 332	$\sum p_0 q_0$ 170

Paasche index

$$P_p = \frac{\sum p_t q_t}{\sum p_0 q_t} \times 100$$

$$P_{01} = \frac{288}{210} \times 100$$
$$= 137.14$$

Laspeyre's index

$$P_{01} = \frac{\sum p_t q_0}{\sum p_0 q_0} \times 100$$

$$P_{01} = \frac{332}{170} \times 100$$
$$= 195.29$$

Fisher's index

$$P_F = \sqrt{P_p P_L}$$

$$P_F = \sqrt{\frac{\sum p_t q_t}{\sum p_t q_t} \times \frac{\sum p_t q_0}{\sum p_0 q_0} \times 100}$$

$$P_F = \sqrt{\frac{288}{210} \times \frac{332}{170} \times 100}$$

$$= \sqrt{1.3714 \times 1.9529 \times 100}$$

$$= \sqrt{2.6782 \times 100}$$

$$= 163.65 \times 100$$

$$= 163.65$$

Fisher's index is just the geometric mean of the first two methods. Hence, simply multiply the results of the first two methods (Paasche index and Laspeyre's index) and take the square root to get Fisher's index.

$$= \sqrt{137.14 \times 195.29}$$

$$= 163.65$$

Time Series

Meaning

A time series is a sequence of numerical data points at successive time. It is simply *a sequence of numbers collected at regular intervals over a period of time*. Annual GDP, monthly whole sale price level, weekly share prices and daily temperature are some of the examples of time series data.

Uses

Time series analysis are useful to examine how a given economic variable changes over time or how it changes in relation to other variables over a given time period. It is also used to predict future events based on known past movement of a variable. Thus the two main uses of time series analysis: (1) identifying the nature of the (economic) variable represented by the sequence of observations, and (2) predicting (or forecasting) future values of the time series variable on the basis of the past.

Time series analysis identifies the nature and describes the pattern of a series of given data or variable. Once the nature and pattern is examined, it can be interpreted. The identified pattern can also be extrapolated to predict future events.

Components of Time Series

The time series patterns can be described in terms of four basic components.

1. Trend component
2. Cyclical component
3. Seasonal component
4. Irregular component

Trend component is a long term movement in a time series. It represents a general systematic linear or nonlinear pattern that changes over time and does not repeat.

Cyclical component may also have a similar nature (like that of trend) but it repeats itself in systematic intervals over time.

Seasonal component is that part of the movement which is assigned to the effect of the seasons on the year.

Irregular component is such variation that cannot be predicted by any method. They are caused by irregular changes or erratic fluctuations in a given variable.

Chapter 12

Exercise

PART A

I Choose the correct answer

1. The average is reliable only when the set of data is
 - a. Discrete data
 - b. homogeneous
 - c. heterogeneous
 - d. raw data
2. Range is the numerical difference between the
 - a. First and the Last value
 - b. Medium value
 - c. Largest and the Smallest value
 - d. Small value
3. The most stable measure of variability is
 - a. Variance
 - b. Mean
 - c. Median
 - d. Mode
4. The most commonly used measure of position is
 - a. Percentiles
 - b. Deciles
 - c. Standard deviation
 - d. Quartile deviation
5. The statistical tool to measure changes over time is
 - a. Averages
 - b. Index number
 - c. Deviation
 - d. Variance

II Fill in the blanks

6. _____ means the tendency of the data values to deviate from the mean values.
7. The simplest measure of variability is the _____ of the data.
8. Formula for Mean Deviation _____
9. Standard Deviation can be derived from _____
10. Quartile deviation is also known as _____

III Match the following

- | | | |
|-------------------------------|---|---|
| 11. Variance | - | Standard Deviation |
| 12. $\frac{\Sigma(x-x)^2}{n}$ | - | $P_p = \frac{\Sigma p_t + q_t}{\Sigma p_0 + q_0}$ |
| 13. Quartile Deviation | - | $P_F = \sqrt{p_P q_L}$ |
| 14. Fisher's Index | - | $\frac{Q3 - Q1}{2}$ |
| 15. Paasche Index | - | $\frac{\Sigma(x-\bar{x})^2}{n}$ |

IV Answer the following in a word or two

16. What is the difference between Large and Small Value?
17. What can be derived from variance?
18. Name the Popular Index.
19. Which is the Specialized Indicator?
20. Give the equation that interrelates the three types of Index Numbers.

PART B

Answer the following in four or five lines

21. What are the methods of measuring variability?
22. What is mean deviation?
23. What is variance?
24. Name the three major types of Index Numbers.
25. What are the three main methods to calculate weighted index number?

PART C

Answer the following questions in about a page

26. Explain the Mean Deviation.
27. What is meant by Standard Deviation? Explain.
28. What is Quartile Deviation? Explain.
29. What is Index Number? Explain the types.
30. What are the uses of Index Number?
31. Explain the methods of constructing Unweighted Index Number.

PART D

32. Explain the methods of measuring variability.

33. Find out P10, P25, Q2, Q3 for the following data.

16 11 9 10 10 14 18 11

7 15 19 13 7 13 14 9

18 12 17 15 16 16 10 12

9 13 12 11 17 10 15 16

19 13 11 14 8 12 16 14

34. What is an index Number? Explain its kinds and uses.

35. Explain the methods of constructing Index Number.

36. Construct the weighted Index Numbers in three methods, for the following data.

Items	Price		Quantity Consumed	
	2000	2005	2000	2005
<i>Rice</i>	15	20	10	12
<i>Onion</i>	10	16	2	3

Answers to Exercises

Chapter 1

I

- 1. a
- 2. b
- 3. c
- 4. b
- 5. d

II

- 6. Porutpal
- 7. exports
- 8. France
- 9. Free Trade
- 10. W.W. Rostow

III

- 11. Germany
- 12. Karl Marx
- 13. U.S.A
- 14. Underdeveloped country
- 15. Value Theory

IV

- 16. Greek thought
- 17. Exports
- 18. Quesnay
- 19. Distribution
- 20. 20-25%

Chapter 2

I

1. a
2. d
3. b
4. d
5. c

II

6. 273
7. Fertility
8. T.R.Malthus
9. Level of literacy
10. Second

III

11. 1871
12. famine
13. No.of deaths per 1000
14. 2000
15. Limit the size of the family

IV

16. Optimum theory
17. Positive
18. Malthusian theory of population
19. Late Marriage
20. Rapid rise in population

Chapter 3

I

- 1. a
- 2. a
- 3. c
- 4. c
- 5. c

II

- 6. Two
- 7. Structural
- 8. employment oriented
- 9. Sub-employment
- 10. disguised unemployment

III

- 11. 1993
- 12. low productivity employment
- 13. April 1999
- 14. Engineering
- 15. Rural works programme

IV

- 16. Reducing poverty
- 17. Rs.49.1% per capita
- 18. Population Pressure
- 19. Quality education
- 20. More than 2 crores

Chapter 4

I

- 1. b
- 2. b
- 3. a
- 4. d
- 5. b

II

- 6. Product method
- 7. deducted from
- 8. 1993-94
- 9. Occupational
- 10. Double counting

III

- 11. Foreign trade excluded
- 12. $X - M$
- 13. NNP
- 14. 1993-1994
- 15. Personal taxes - Personal income

IV

- 16. Per Capita Income
- 17. Income method
- 18. Three
- 19. Foreign trade
- 20. GDP / Total population

Chapter 5

I

- 1. c
- 2. b
- 3. c
- 4. b
- 5. a

II

- 6. Central
- 7. Trade or Business
- 8. Mahalanobis
- 9. 1928
- 10. Socialism

III

- 11. Laissez Faire Policy
- 12. Indian Five Year Plans
- 13. Rapid Industrialization
- 14. Garibi Hatao
- 15. Equity and social Justice

IV

- 16. Jawaharlal Nehru
- 17. Laissez Faire Policy
- 18. The Planning Commission
- 19. 2002-2007
- 20. Rajkrishna

Chapter 6

I

1. a
2. c
3. d
4. a
5. b

II

6. Agriculture
7. Raw materials
8. Cropping Pattern
9. Agricultural holding
10. Agricultural Marketing

III

11. Decline of Joint family system
12. Green Revolution
13. British Period
14. Agriculture
15. New agricultural price policy

IV

16. Land Productivity
17. Labour Productivity
18. Yes
19. Climate
20. Yes

Chapter 7

I

1. d
2. d
3. c
4. c
5. c

II

6. Textile Industry
7. II Plan
8. Liberalism
9. Privatisation
10. Industrialisation

III

11. Privatisation
12. Traditional Industries
13. Industrial policy of 1991
14. Labour intensive
15. Intermediate good

IV

16. India
17. Steel industry
18. Yes
19. Liberalisation, Privatization, Globalization
20. Industrialization

Chapter 8

I

- 1. a
- 2. a
- 3. d
- 4. a
- 5. c

II

- 6. Exports and Imports
- 7. C R R
- 8. Agriculture
- 9. 1935
- 10. Liquid Cash

III

- 11. RBI
- 12. 3 to 15% of total deposits
- 13. Official minimum rate
- 14. Facility offered to businessmen
- 15. Commercial banks

IV

- 16. Imperial bank
- 17. Business Community
- 18. RBI
- 19. RBI
- 20. No

Chapter 9

I

1. d
2. a
3. b
4. c
5. d

II

6. Market Maximization
7. neo-liberalism
8. Money
9. Foreign trade
10. Board of Governors

III

11. Iran, Iraq, Kuwait
12. Washington
13. 1993
14. Year 2000
15. Geneva

IV

16. Coffee, Tea, Jute, Iron, Ore, Spices, Cotton, fish etc.
17. Balance of payments
18. 1983
19. MIGA
20. Structural Adjustment facility

Chapter 10

I

1. d
2. c
3. d
4. d
5. a

II

6. level
7. education
8. Economic
9. primary
10. child

III

11. Educationally most progressive state
12. access to schools
13. reducing gender disparities
14. domination in technical education
15. special school health programme

IV

16. 1960
17. lower
18. Yes
19. Yes
20. 1986

Chapter 11

I

1. c
2. d
3. b
4. b
5. c

II

6. Primary data
7. frequency
8. class interval
9. Table
10. mode

III

11. $\frac{\sum WX}{\sum W}$
12. Central value
13. 3 Median – 2 Mean
14. Observation
15. size of $\frac{N+1}{2}$ th item

IV

16. Source
17. $\frac{\sum fx}{n}$ or $\frac{\sum X}{n}$
18. Median = $L + \frac{N-cf}{2} \times c$
19. Classification
20. Simple bar diagram

Chapter 12

I

1. b
2. c
3. a
4. d
5. b

II

6. Dispersion
7. Range
8. $\frac{\sum X - X}{N}$
9. Variance
10. Semi-inter quartile range

III

11. $\frac{\sum (x - \bar{x})^2}{n}$
12. Standard Deviation
13. $\frac{Q3 - Q1}{2}$
14. $P_F = \sqrt{P_P P_L}$
15. $P_p = \frac{\sum p_t q_t}{\sum p_0 q_0}$

IV

16. Range
17. Standard deviation
18. Cost of Living Index / Consumer Price Index
19. Index Number
20. Price x Quantity = Value

