

5. INDIA - INDUSTRIES

A country becomes rich by converting the natural resources into usable products. So the key to prosperity of any country lies in increasing manufacturing industries. India is rich in natural resources. These resources include forest products, agricultural products and Minerals. Some of the resources can be used directly but some of them need **processing**. For example cotton has to be processed before it is brought into use in the form of finished product. So cotton is the raw material of agricultural origin. Similarly products like petrol, diesel, kerosene and gasoline are derived at different degrees of refinement of petroleum. Thus Petroleum is of mineral origin.

Though agriculture is the major occupation of the people in India, there has been a tremendous growth in Industries under five year plans and it has provided job opportunities for many people. This in turn has improved their **status of living**.

Factors Influencing Location of Industries

The location of an industry is determined by raw material, power, transport, man power, water, market and government policies.

Raw Material

Industries are located with respect to the availability of raw materials. For example, Sugar industry is located near the raw material region (sugarcane field) because sugarcane is a weight losing material and when it is processed, the weight of sugar becomes 10 per cent of the weight of sugarcane.

Power

Most of the industries tend to be located near the source of power. The power is needed to process raw materials. For example Iron and steel industries are generally located near the coal fields because it requires about 5 tons of coking coal to melt 1 ton of iron ore.



Damodar Valley Project

Transport



Cochin Oil refinery

Transport is an important factor for carrying raw materials to manufacturing units and finished products to the market. For example Iron and steel industries and oil refineries are located near railway stations or near the port as these industries involve a high cost of transportation.

Man Power

Availability of skilled and unskilled or technically qualified manpower is an important factor for the location of industries. Adequate supply of unskilled labour in urban locations is due to rural-urban migration. For example Mumbai gets manpower from all over the country.

Water

Water is very essential for industries like iron and steel, textiles, rayon, paper etc. For example 1 ton of steel needs 300 tons of water for cooling and 1 ton of rayon needs 100 tons of water for bleaching. Hence the above industries are located near the rivers, canals or lakes.

Market

High demand and purchasing power determine the market. So most of the industries are located close to the centers of consumption because it reduces the cost of transportation and enables the consumers to get things at comparatively cheaper rates.

Government Policy

In almost every country, the government policies play an important role in determining the location of industries. In order to avoid regional disparities, the State government has marked out certain areas as **industrial zones**. These industrial zones and government concessions have helped in the growth of industries in the backward areas.

Nowadays due to scientific and technological development, geographical factors, man power and energy are considered as negligible factors. Therefore new factors have come to play major roles which include **skilled managerial services**,

availability of capital and export potential of products.

Classification of Industries

On the basis of the source of raw materials, industries are classified into **Agro based** industries, **Forest based** industries and **Mineral based** industries.

Agro based industries

These industries use agricultural products as their basic raw material. For example. Cotton textile industry, jute industry, sugar industry etc.

Cotton Textile Industry

Cotton textile industry is based on indigenous raw materials, cotton. It contributes about 14% industrial production, provides employment to 35 million persons and 4% towards GDP.

Mumbai in Maharashtra is the leading cotton textile centre and it is called as the "**Manchester of India**". The following factors favour the cotton textile industries in Mumbai;



Cotton Textile Industry

- Location of **port facilities** for the export of finished goods.
- Well connected through **rail and road links** with cotton growing areas.

- Humid **coastal climate** favours yarning.
- Availability of **Capital goods** and finance.
- Availability of **man power**.

The Major Cotton textile producing states of India are Maharashtra, Gujarat, West Bengal, Uttar Pradesh, and Tamil Nadu.

In Tamil Nadu, Coimbatore, Chennai, Tirunelveli, Madurai, Tuticorin. Salem, Virudhunagar and Pollachi are the major cotton textile centers.

India's cotton textile industry holds third place among cloth producing countries in the world. India ranks second in the world in Cotton textile Trade and stands first amongst the industries in our country.

Jute Industry

The Jute sector has been playing an important role in the economy of the country. It provides sizeable employment in the agricultural and industrial sectors. About 4 million farmers are engaged in the cultivation of jute. India tops in the production of raw jute and jute goods and second in the export of jute goods next to Bangladesh.



Jute Industry

Jute products include gunny bags, canvas, pack sheets, jute webs, Hessians, carpets, cordage and

twines. Now jute is also being used in plastic furniture insulation, bleached fibers to blend with wool. It is also mixed with cotton to make carpets and blankets.

Nearly 90% jute industries are located in **West Bengal** mainly along the **Hooghly River**. Recently there has been dispersal of jute industries in Uttar Pradesh, Bihar, Orissa and Andhra Pradesh.

Sugar Industry

* Indian Sugar Industry is the second largest agro based industry in India. Sugar factories are located near the areas of cultivation due to the following factors:

Sugar Industry

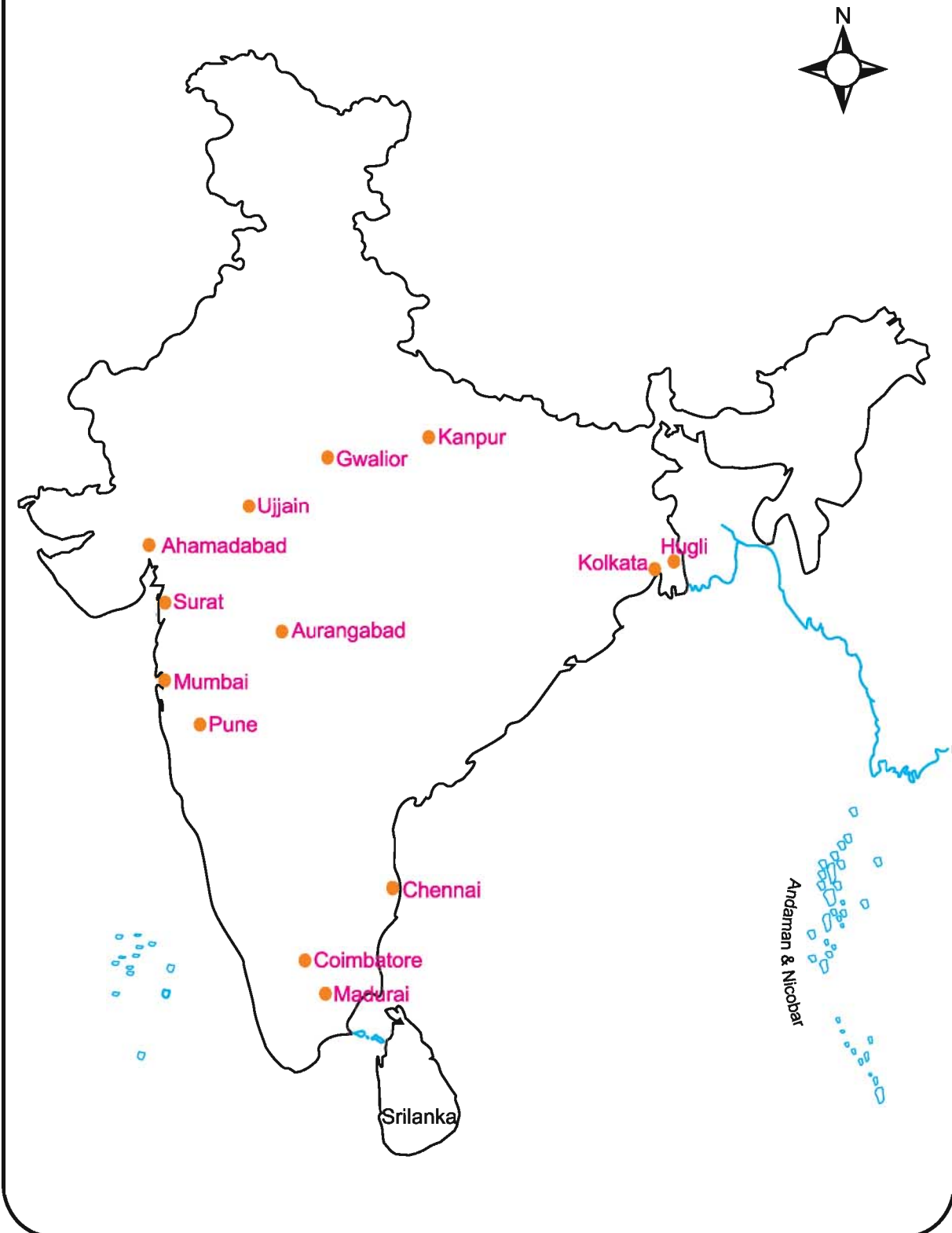


- * Sugarcane is a weight losing material
- * It cannot be stored for long time, as it loses sucrose content.
- * It cannot be transported for long distances.

Since the sugarcane harvesting is done in a particular season and the crushing continued to a limited period and the sugar factories do not function throughout the year.

Uttar Pradesh and Bihar alone account for 70% of the sugar production. So this belt is known as '**sugar bowl of India**'. Punjab, Haryana, Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu are the other sugar producing states of India.

Major Cotton Textile Industries in India



Nellikupam, Pugalur, Coimbatore and Pandyarajapuram are the famous centres for sugar production in Tamil Nadu.

The Government of India has developed a dual price system for internal sugar trade. Every sugar mill has to sell 40% of its production to the government at a fixed price. The government sells this sugar through public Distribution System. Rest of the 60% is sold in the open market at a higher price.

India is the fourth major sugar producing country in the world. Top three countries are Cuba, Brazil and Russia. India exports some of its surplus sugar to USA, UK, Indonesia, Malaysia, Iran and Sri Lanka.

Forest Based Industries

India has a rich diversity of forest resources which are capable of supporting a wide variety of industries. The most important is the paper industry.

Paper Industry



Paper Industry

Paper industry is a vital and core industry for any country. The Raw materials for paper industry include woodpulp, bamboo, salai and sabai grasses, waste paper and bagasse. Location of the industry is greatly

influenced by **bulky raw materials** and to a lesser extent by **market**.

The Indian paper industry is ranked one among the fifteen top global paper industries in the world. The leading states in paper production in our country are West Bengal, Maharashtra, Madhya Pradesh, Karnataka and Andhra Pradesh.

Mineral Based Industries

Mineral based industries use both metallic and non-metallic minerals as raw materials. The Major mineral based industry of our country is the **iron and steel industry**.

Location of Iron and Steel Industries in India

India's major iron and steel industries are located either near the **coal fields** or **iron ore** mines or midway between the coal and iron ore fields. Most of our country's major iron and steel industries are located in the **Chota Nagpur Plateau** region due to the following reasons:

* High grade haematite and magnetite iron ore are available from the mines of Jharkhand, Bihar, Orissa, Madhya Pradesh and Chattisgarh.



Iron Industry

* Jharia and Singbhum in Jharkhand, Raniganj in west

Bengal have abundant coking coal suited for the manufacture of high grade steel.

* West Bengal and Jharkhand states are rich in flux materials needed for purifying.

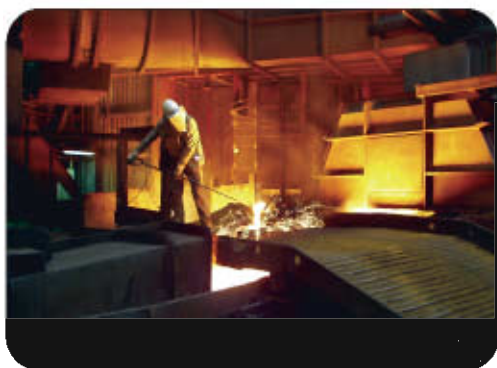
* Limestone from Ranchi, Silica from Jabalpur and Dhanbad, Dolomite from Madhya Pradesh, Quartz from Bihar are available in close proximity.

Distribution of Iron and Steel Industries

India has 11 integrated steel plants and 150 mini steel plants and a large number of rolling and re rolling mills.

1. Tata Iron and Steel Company (TISCO)

In 1907 Tata Iron and Steel Company was setup at Jamshedpur now it is called Tata Steel limited. It is the oldest and the largest integrated iron and steel plant in India. It is the 10th largest producer of Iron and Steel in the World. The company produces pig iron and steel.



Iron and Steel Industry

2. Indian Iron and Steel Company (IISCO)

The steel plants at Kulti, Burnpur and Hirapur were integrated and the Indian iron and steel company was setup at Burnpur in 1919.

The control and management of IISCO were taken over by SAIL(Steel Authority of India) in 1972. The company produces pig iron and crude steel.

3. Visveshwaraya Iron and Steel Limited (VISL)

Visveshwaraya Iron and Steel Limited were set up in 1923 at Bhadravati in Karnataka. Its major products are alloy and special steel.

4.a. Hindustan Steel Limited (HSL)-Bhilai

The HSL- Bhilai is located in the Durg district of Chattisgarh, started its production in 1965 Bhilai's rail and structural mill are one of the most modern and largest in the world. It has also started making plates for ship building industry.

4.b. Hindustan Steel Limited (HSL)-Rourkela

The Rourkela plant was started in 1959 in the Sundargarh district of Orissa. Its major products include hot and cold rolled sheets, galvanized sheets and electrical steel plates.

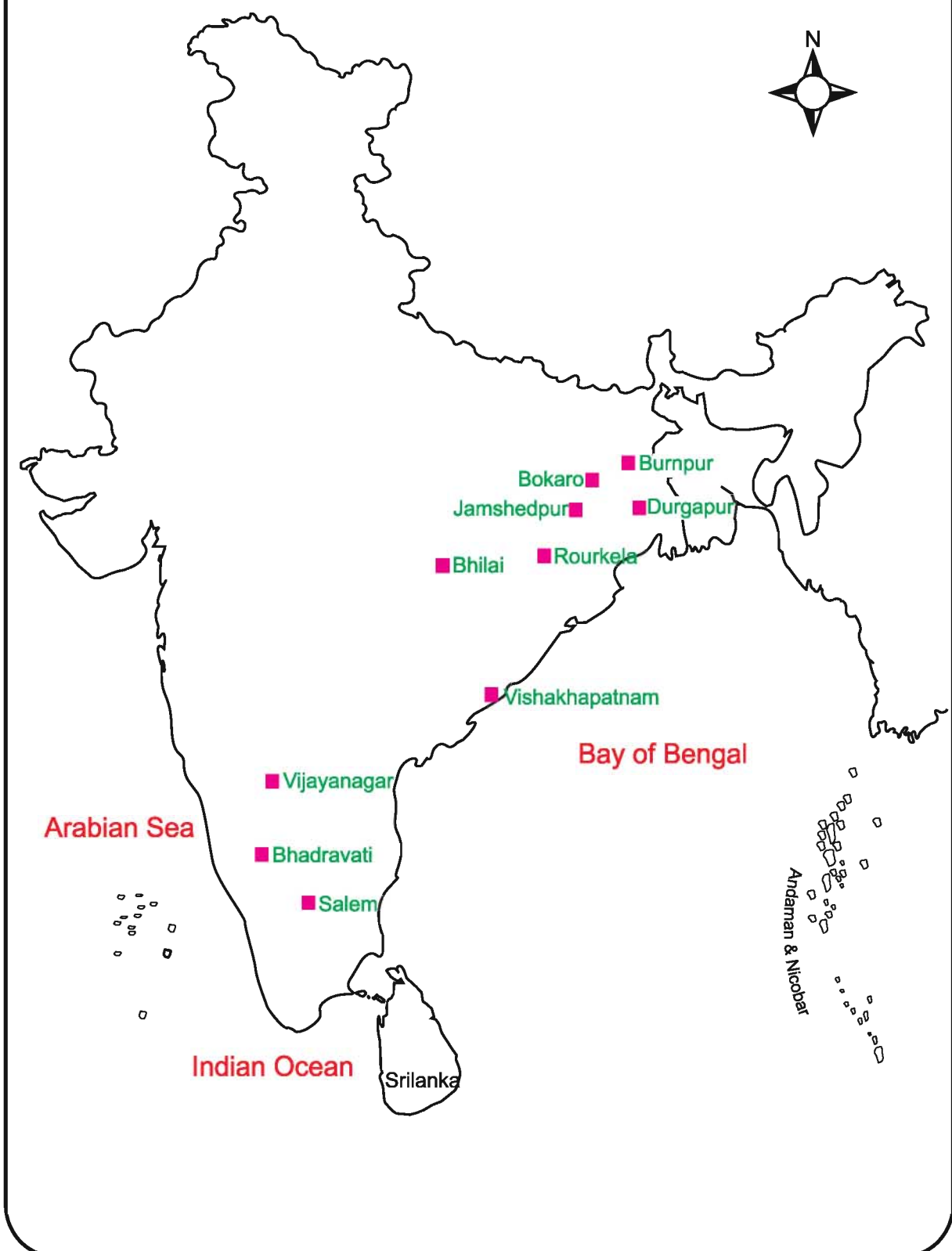
4.c. Hindustan Steel Limited(HSL)-Durgapur

The Durgapur steel plant is located at Bardhaman district of West Bengal. It was setup in 1965. This plant specializes in the manufacture of alloy steel, construction material and railway items like wheel axles and sleepers.

4.d. Hindustan Steel Limited(HSL)-Bokaro

The Bokaro steel plant is situated in the Hazaribagh district of Jharkhand. It started its operation in 1972. The sludge and slog of the plant are used in making fertilizer at Sindri.

Iron and Steel Industries



5. The Salem Steel plant

The Salem steel plant is located at Salem in Tamilnadu and started its production in 1982. This plant is the major producer of the world class stainless steel which is exported to many advanced countries in the world.

6. The Vijayanagar Steel Plant

The Vijayanagar steel plant has been setup at Tornagal in Karnataka.

7. The Vishakhapatnam Steel Plant

The Vishakhapatnam steel plant came into operation in 1992. This is the first plant in the shore region. This is the most sophisticated and modern integrated steel plant in the country. It is a major export oriented steel plant.

Mini Steel Plants

Mini steel plants are decentralized secondary units with capacity ranging from 10,000 tonnes to 5 lakh tonnes per year. It operates through electric furnaces and generally use ferrous scrap, pig iron or sponge iron as raw materials. They help in recycling of iron and make the scrap useful and profitable. They produce mild steel, alloy steel and stainless steel.

There are more than 150 Mini Steel plants with an installed capacity of about 120 lakhs tonnes of crude steel per annum. Most of the mini steel plants are located in areas far away from the major steel plants, so that they can meet the local demands.

They suit the Indian economy because they require less investment. As these units are smaller in size they can be conveniently located in the industrial towns.

Automobile Industry

The growth of automobile industry in India is only after the independence, The first automobile industry was started at Kurla (Mumbai) in 1947 under the name of **Premier Automobile limited**. In 1948 Hindustan motors limited setup the automobile industry at Uttarpara, (Kolkata). In the last 30 years, India has made a tremendous progress in this industry by manufacturing commercial vehicles, passenger cars, jeeps, scooters, motorcycles, mopeds and three wheelers.



Automobile Industry

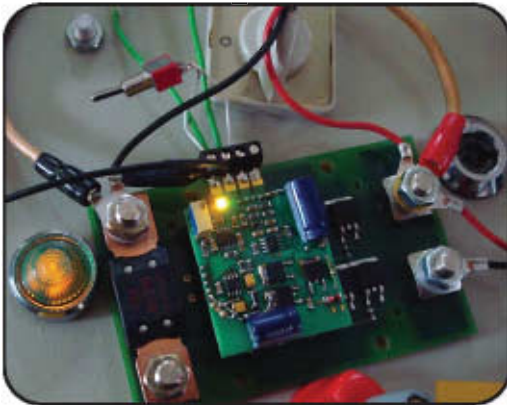
The major centres are Mumbai, Chennai, Kolkata, New Delhi, Pune, Ahmedabad, Lucknow, Satara and Mysore.

With Liberalization of the economy there are several foreign collaborations in the automobile sector and well known world leaders have entered the market – Suzuki, General motors, Ford, Mitsubishi, Honda, Mercedes, Nissan, Mahindra & Mahindra and Millennium Motors.

Electronic Industries

The electronic industry in India started with radio manufacturing in the 1850s. The setting up of **Indian Telephone Industry** in 1950 at Bangalore gave a boost to this industry. The industry now meets the

needs of posts and telegraph, defence, railways, electricity boards, meteorological department etc. **Bangalore** is the leading producer of electronic goods and it is referred as **Electronic Capital of India**. The other important centres are Hyderabad, Delhi, Mumbai, Chennai, Kolkata, Kanpur, Pune, Lucknow, Jaipur and Coimbatore.



Electronic Equipment

The Revolution in electronic industry has changed the lifestyle of the people to a greater extent. The

most popular products of the industry are Television, Transistor, Telephone, Cellular Phones, Computers, CD players, ipod, Pendrive etc.

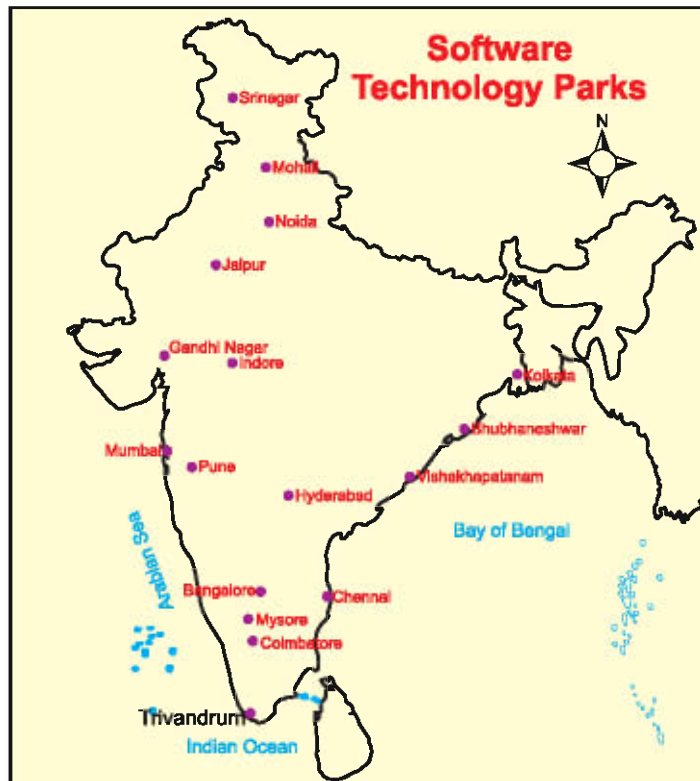
Software Industry



Software Industry

The Software Industry has emerged as a major industry in the Indian economy.

The main reason for its rapid growth is due to the availability of cheap and skilled young software professionals in our country.



II) Match the Following.

- | | |
|---------------------------------|-------------------------|
| 1) Jute Industry | Jamshedpur |
| 2) Cotton Industry | Karnataka |
| 3) Software Industry | Mumbai |
| 4) Tata Iron and Steel Industry | West Bengal |
| 5) Sugar bowl of India | Chotta Nagpur region |
| | Bangalore |
| | Uttar Pradesh and Bihar |

III) Distinguish Between.

- 1) Mineral based and agrobased industries.
- 2) Iron and steel industry and software industry.

IV) Give short answers.

- 1) Define manufacturing.
- 2) Name the factors that determine location of an industry.
- 3) What are agrobased industries? Give examples.
- 4) Name any five software centres.
- 5) What are the byproducts of Jute Industry?

V) Give Paragraph answers.

- 1) Write an account of iron and steel industries of India.
- 2) Describe the factors encouraging cotton textile industry in Mumbai.
- 3) Give an account of software industry in India.

VI) Mark the following on the outline map of India.

- 1) Major iron and steel Plants.
- 2) Software technology parks
- 3) Cotton textile
- 4) Jute textile industries
- 5) Sugarmills of India

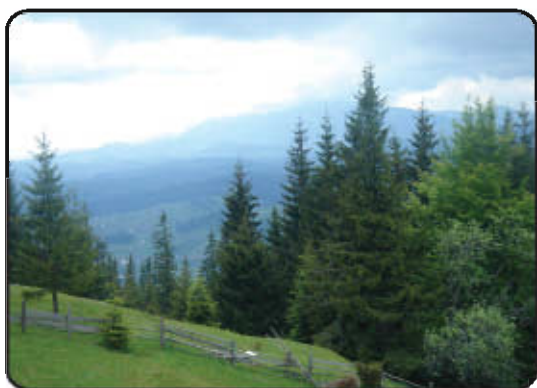
VII) Activities.

Select any agrobased industry and list the materials and factors required for establishing that industry.

6. ENVIRONMENTAL ISSUES

The word **environment** is most commonly used to describe **Natural Environment** which means the sum of all living and non-living things that surrounded us.

Whose Environment is it?



Natural Environment

It is everyone's. Nature has enough to satisfy everyone's need but has not enough to satisfy every man's greed. Our expanding greed has put us in a tough situation of various environmental problems. The problems are due to rapidly growing population from 300 million in 1947 to 1210 million at present and industrialisation. They have direct impact on environmental degradation, pollution and climatic changes. The whole world is now anxious to repair the damage. Let us discuss important environmental issues which are threatening environmental sustainability.

Environmental Pollution

Environmental pollution is the contamination of environment which causes discomfort, instability, disorder harmful impact on physical system and on living organism.

Pollution can take the form of chemical substance, or energy, such as noise, heat or light energy. This in turn affects the ecology of the environment. There are many types of pollution degrading the environment. They are given below.

- 1) Air Pollution
- 2) Water Pollution
- 3) Land Pollution
- 4) Noise pollution
- 5) Pollution due to biomedical wastes.
- 6) Pollution due to e-wastes
- 7) Pollution due to mining

1. Air Pollution

It is contamination of air by the discharge of harmful substances. Air pollution has been a problem throughout the history. This can have serious effect on the health of the human beings. We breath about 2200 times a day inhaling around 16 kg of air. Every time when we breathe in we inhale dangerous substances. These dangerous substances or pollutants can be either in the form of gases or particles.

The source of pollutants is both natural and man-made.

Volcanic eruptions, wind erosion, pollen disposal, evaporation of organic compounds and natural radio activity are the natural causes of air pollution. Natural air pollution does not occur in abundance and also possesses little threat to the health of the people and ecosystems.

"Gigantic Explosion of Mt. Helens

released only about what one coal power plant emits in a year”

The man-made reasons for air pollution are vehicular emission, thermal power plants, industries and refineries.

Vehicular emissions are responsible for 70 % of the country's air pollution. Vehicles which are eco- friendly are certified **BHARATH II and III.**

Bharat Stage I - IV emission norms are emissions standards that focus on regulating pollutants released by automobiles (motor cars) and other powered vehicles.

Most sulphur dioxide comes from power plants that use coal as their fuel. Automobiles produce about half of the nitrogen oxide.

Listed here are the major air pollutants: sulphur oxide, nitrogen oxide, **carbonmono oxide** and organic compounds that can evaporate and enter the atmosphere. **India emits the fifth most carbon of any country in the world.**

“The Bhopal gas tragedy is one of the world's worst industrial disasters that killed almost 8,000 people in December 1984.”



Air pollution

Air pollution can adversely affect human health not only by direct inhalation but indirectly by other routes through water, food and skin infections. Most common air pollution directly affects the cardio-vascular systems of humans and cause diseases like asthma, bronchitis, allergies, lung and heart diseases .

Consequences of Air Pollution

1. Ozone layer depletion

The atmosphere contains a thin layer of ozone about 24 to 40 km above earth's surface which protects life from the harmful **ultraviolet rays** of the sun. The release of chemicals such as CFC widely used in refrigerators has damaged the ozone layers.

Ozone monitoring stations in Antarctica have already detected average losses of 30% to 40 % of total ozone over the region. Each one percent loss of ozone is to cause an increase of about 2 % in UV Radiation. This will reduce the immunity of the body and cause eye cataracts and skin cancer.

2. Global Warming (green house effect)

Global warming is caused by the increases of green house gases such as carbon-di-oxide, methane, water vapour, CFCs which are responsible for the heat retention ability of the atmosphere. The rapid increase in average temperature of the earth will cause major changes in weather patterns all over the world.

Rise in global temperature, will also result in the melting of polar ice caps and glaciers. This in turn will raise the sea level. Land use changes will occur in coastal areas due to sea level rise. It will cause damage to coastal

structures, post facilities and water management systems.

Global temperature rises will also affect the agricultural patterns.



Global warming

3. Acid Rain

Acid rain was first discovered in 1852. This is one of the most important environmental problems, caused by indivisible gases given out by automobiles or coal burning by power plants.

The gases that cause the acid rain is **sulphur-di-oxide** and **nitrogen oxides**. Fire and bacterial decomposition are the natural causes which increases a nitrogen oxide in the air.

These pollutants combine with water vapour in the presence of sun light and oxygen and form dilute sulphuric and nitric acids. When these mixture precipitates from the atmosphere, it is called as **acid rain**.

Acid rain falls down to the earth in all forms of precipitation. Acidity in the rain can harm and even destroy both natural ecosystems and man-made products.

Acid rains, when falling on oceans, reach the coral reefs. This has killed more than 70% of corals in Lakshadweep and Andaman islands.

The acid rain affects the eco systems by the following ways:

- The most basic microscopic organisms such as plankton may not be able to survive. So the sea animals, depending on planktons will die and the food chain will be affected.

If ocean temperature increases, growth of coral reefs will be affected. The corals control the proportion of carbon dioxide by turning Co_2 in the water to limestone shell. Moreover, coral reefs grows in temperature just above 10° Celsius.

Other ecosystems such as forests and desert will also be harmed. Loss of bio-diversity and extinction of rare species will occur.

- They also change the acidity level of the soil by leaching crucial nutrients. Thus it affects forest vegetation.

“For the protection of the ozone layer, Montreal Protocol and Vienna meet of 30 nations world wide agreed to reduce the usage of CFC's”

Steps to be taken to control Acid rain

Environmentalists advocate the installation of sulphur cleaning scrubbers in factories, finding new methods of burning coal and shifting to non - polluting renewable forms of energy production.

Smog

The word smog is a combination of the words smoke and fog. Smog causes a smoky dark atmosphere, especially over cities. It decreases visibility, and creates haze throughout the area.

What can you do to reduce air pollution

Encourage your family to use neighbourhood market

Whenever possible take your bicycle.

As far as possible use public forms of transport.

Don't let your father drop you to school, take the school bus.

Encourage your family to form a car pool to office and back.

Reduce the use of aerosols in the household.

Look after the trees in your neighbourhood.

Switch-off all the lights and fans when not required.

If possible share your room with others when the air conditioner, cooler or fan is on.

Do not burn leaves in your garden, put them in a compost pit.

Make sure that the pollution check for your family car is done at regular intervals

Cars should, as far as possible, be fitted with catalytic converters.

Use only unleaded petrol.



Smog

Smog is caused by many factors, Major producers of smog include automobiles, fires, waste treatment, oil production, industrial solutions, paints and coatings. The articulates present in smog include carbon monoxide, dirt, dust and ozone. The smog effect is

created when sunlight, hydrocarbons and nitrogen oxide are mixed together Smog creates harmful health hazards like lung failure and pneumonia.

Smog is not only a city problem. As smog level increases, wind carry smog away from urban areas and harm other areas too. Agriculture is also affected by smog.

2. Water Pollution

Water pollution is any chemical, physical or biological change in the quality of water that has a harmful effect on any living thing that drinks or uses or lives in it.

Major water pollutants

There are several causes of water pollution. The first are **disease-causing agents**. These are bacteria, viruses, protozoa and parasitic worms that enter sewage-systems and untreated waste.



Waste Material

Second pollutant is **oxygen demanding bacteria**; that is, wastes that can be decomposed by oxygen requiring bacteria. Large proportion of such bacteria in water can deplete oxygen levels in it. This causes other organisms in the water such as fish to die.

The third class of water pollutants is **water soluble inorganic pollutants**

such as acids, salts and toxic metals.

Water can also be polluted by a number of **organic compounds** such as oil, plastics and pesticides in the water which are harmful to humans and animals.

Water is able to transport pollution from one location to another easily. Every year 6,356,000 tonnes of sewage, sludge and garbage are dumped into the world oceans. "400 million people live along the Ganges river. Further, 2,000,000 persons ritually take bath daily in the river. It is filled with chemical wastes, sewage and even the remains of human and animals.

The National Ganga River Basin Authority is allocated Rs 5,000 million by National Clean Energy Fund (NCEF) for its innovative project, of cleaning of river Ganga."

Water pollution mainly affects the water based ecosystems. It also disrupts the natural food chain. Pollutants such as lead and cadmium are eaten by tiny animals. These animals are later consumed by fish and shellfish. So, the food chain continues to be disrupted at all higher levels. People can get diseases such as hepatitis by eating sea foods.

Toxic substances entering into lakes, streams, oceans, dissolve in water and get deposited on the bed. This affects aquatic ecosystems. This can also seep down and affects the ground water.

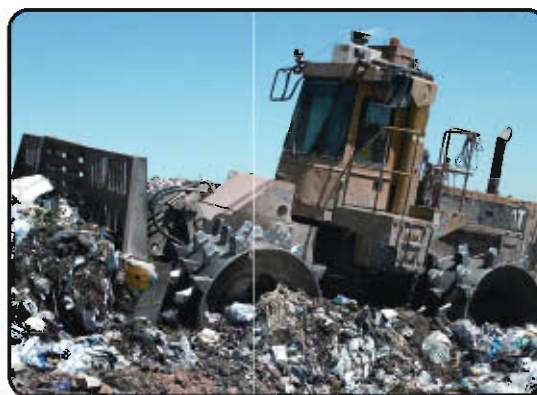
Eutrophication

Eutrophication means natural nutrient enrichment of streams and lakes. The enrichment is often increased by human activities such as agriculture which will make lakes

eutrophic due to increase in nutrients. Due to this, algae will grow extensively. As a result, water will allow less light and bacteria will become more active. This will deplete oxygen levels in the water. This will destroy aquatic life and also its reproductive ability.

3. Land Pollution

Land pollution is contaminating the land surface of the earth through dumping of urban waste matter and it arises from the breakage of underground storage tanks, application of pesticides and percolation of contaminated surface water, oil and fuel dumping, leaching of wastes from landfills or direct discharge of industrial wastes to the soil.



Land pollution

How can land pollution be prevented

Things used for domestic purpose can be reused and recycled.

Organic waste matter should be disposed off far away from the residential places.

Inorganic wastes can be separated, reclaimed and recycled.

4. Noise Pollution

Human or machine created sound that disrupts the activity or balance of

human or animal life is known as noise pollution

The unwanted sound can damage physiological and psychological health.

Noise pollution can cause hypertension, high stress levels, hearing loss, sleep disturbances and other harmful effects.

Control measures of noise pollution

Development of a green belt vegetation to reduce noise .

Installation of decibel meters along highways and in places of public gatherings.

Development of plantations - A strip of wide plantation inside the compound wall effectively protects houses, school and hospitals .

5. Pollution due to biomedical waste

Pollution due to biomedical waste is likely to spread diseases dangerous to life. In early April 2010, a machine from Delhi University containing cobalt-60-a radio active metal used for radiotherapy in hospitals, sent to a scrap yard in the city. The death from radiation of a scrap yard worker revealed the reasons. as the biomedical wastes.

6. Pollution due to e-Waste



E waste

India produces about 380,000

tonnes of e-waste generated out of television sets, mobile phones, computers, refrigerators and printers. This is one of major threats of environmental degradation and worst radiation incident worldwide.

7. Pollution due to Mining

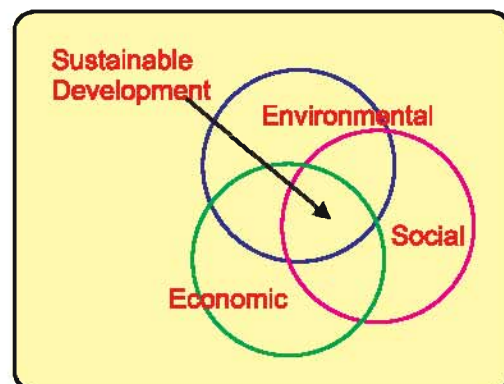
Mining is one of the important factors for the pollution of the environment.

The mines of the Mahanadi coal fields and NTPC draws about 250 million litres of water per day from river Brahmani and, in return, they release thousands of gallons of waste water which contains harmful substances like ash, oil, heavy metals, grease, fluorides, phosphorous, ammonia, urea and sulphuric acid into the river Nadir.

Due to large scale mining in the Aravalli hills in Rajasthan and Haryana, the forest cover has been depleted 90 per cent and drying up wells and affecting agriculture.

Biodiversity

Acquired land for mining affects biodiversity. Biodiversity is the degree of variation of life forms within a given ecosystem. On the entire planet, rapid



environmental changes due to mining and dam constructions cause extinctions.

Many of India's environmental problems are a result of the high density of population. So, it is everyone's responsibility to preserve our environment and also keep it healthy and sustainable.

☞ It is possible by using efficient and eco-friendly technology.

☞ Adoption of Indigenous agricultural practices, soil and water conservation practices.

☞ community participation for ecological sustenance is indispensable for conservation of environment.

EXERCISE

I) Choose the correct answer.

- 1) Natural nutrient enrichment of streams and lakes is
 - a) water pollution
 - b) eutrophication
 - c) air pollution
- 2) The main cause for natural air pollution
 - a) vehicular emission
 - b) Volcanic eruption
 - c) thermal power plants
- 3) Contamination of air is called
 - a) noise pollution
 - b) air pollution
 - c) land pollution

II) Answer the following questions.

- 1) What is water pollution?
- 2) List out the major Air pollutants
- 3) What is Noise pollution?
- 4) What are the major causes of water pollution?
- 5) What is bio diversity?
- 6) How pollution is caused due to bio medical waste?
- 7) What is meant by pollution due to e-waste?

III) Answer the following in paragraph.

- 1) What are the effects of acid rain?
- 2) What is smog? What are the effects of smog?
- 3) Give a brief note on Acid rain.

7. INDIA - TRADE, TRANSPORT AND COMMUNICATION

India is a vast land with beautiful landscape and rich abundant resources. But, the resources are not uniformly spread, and so, there are regions of surplus resources and regions of deficit. This leads to movement of goods from the surplus region to the deficit region through trade. Hence, **trade is an act or process of buying, selling or exchanging goods and services**. Growth of trade leads to economic prosperity of a nation. But, trade growth depends on well developed market, advanced transport and communication system. Thus trade, transport and communication stand complementary to each other and their overall development is essential for the country's economic growth.

Trade in general is of two types. They are **Internal trade** and **International trade**. Internal trade, also known as local trade, is carried within the domestic territory of a country. Land transport plays a major role in the movement of goods and this trade is mostly based on the nation's currency. It helps to promote a balanced regional growth in the country. For example tea from Assam, coffee from Karnataka, spices from Kerala, minerals from Jharkhand, West Bengal, Orissa belt are supplied to different parts of our country.

International trade also known as external trade, is a trade carried on between two or more countries. Ocean transport plays a major role in the movement of goods and the trade is carried on foreign currency. It leads to rapid economic progress of a country.

For example, India supplies iron ore to Japan. International trade is sub divided into two types such as **1. Bilateral trade** **2. Multilateral trade**.

1) Bilateral trade is a trade carried out between two countries based on the agreement deal of not using currency for payment. In this trade a country sells its surplus goods to a needy country and in return buys an equally valuable required goods from the same country.

2) Multilateral trade is a trade carried out between many countries. In this trade a country sells its surplus goods to the needy country by getting revenue and buys the required goods from another country by using the same revenue. This trade is very complicate to negotiate, but stands very powerful when all the countries sign the agreement. All member countries are treated equally in the multilateral trade. The Trade Blocs like **APEC (Asian Pacific Economic Community)**, **ASEAN (Association of South East Asian Nations)** and **SAPTA (South Asian Preferential Trade Aggrement)** are created to make the trade easier.

Components of Trade

"Export" and **"Import"** are two components of trade. **'Export'** means goods and services sold for foreign currency. India exports nearly 7,500 goods to nearly 190 countries of the world. **Import** refers to goods and services bought from overseas producers. India imports nearly 6,000 goods from 140 countries.

The difference between the values of export and import is called **Balance of trade**.

If the value of export in a country is higher than the value of import, then the trade in that country will be called as **favourable balance of trade**. For example Japan.

If the value of import in a country is higher than the value of export then the trade in that country will be called as **unfavourable balance of trade** in that country. For example India

The value of currency of a country depends upon the balance of trade of that country.

Major Exports from India

i) Agriculture Products

Cereals, pulses, tea, coffee, spices, nuts and seeds, sugar and molasses, processed food, meat and meat products .

ii) Ores and minerals

Iron ore, Coal, Manganese, Mica, Bauxite .

iii) Leather products

Wallets, purses, pouches, handbags, belts, footwear, gloves.

iv) Gems and jewellery

Precious stones, gold jewellery, decorations and antiques.

v) Chemicals and related products

Pharmaceuticals, cosmetics, rubber and glass .

vi) Engineering goods

Machinery, iron and steel, electronic goods, computer software.

vii) Textiles and handicrafts

Ready made garments, cotton, yarn and zari goods .

Major imports of India

Machineries like transport equipment, machine tools, non-electrical machineries, electrical machineries. Wheat, medicinal and pharmaceutical products, Petroleum, fertilizers and newsprint .

India's value of exports in 1950-51 was only Rs.6,070 millions, whereas the value of export during 2008-09 was 7,66,9350 millions. India's value of imports in 1950-51 was Rs.5810 millions, whereas the value of imports during 2008-09 was Rs.13,05,5030 millions.

This clearly indicates the significant growth of both exports and imports in India.

India's International trade reflects the growing prominence of Indian economy in the global market. Since 2004, a liberal trade policy has been followed by the Government of India to promote International trade.

Highlights of India's International Trade Policy

Merchandise trade has been doubled

Thrust is given for employment generation, especially in semi-urban and rural areas.

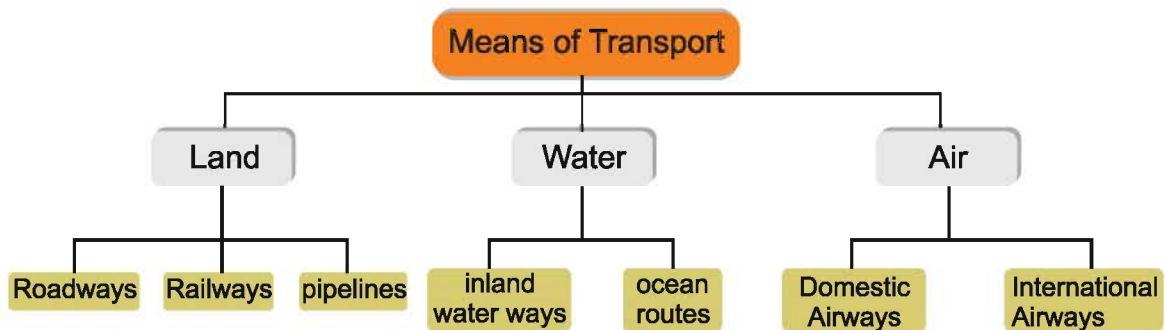
Trade procedure is simplified and transaction cost is reduced.

Special focus is given to make India a global hub.

A new scheme called Vishesh Krishi Upaj Yojna has been introduced to boost exports of fruits, vegetables, flowers and minor forest products.

Transport System Of India

Development of a country not only depends upon the production of goods



and services but also on an efficient means of transport. It helps to move the materials to the point of production and goods to the point of consumption (market). A dense and efficient network of transport is essential to promote **social cohesion** and to **accelerate economic prosperity**. It also ensures security and territorial integrity. India is closely connected with the world countries by means of fast moving transport and an equally developed communication system.

Roadways

The Indian Roads are cost efficient and the most popular dominant mode of transport linking different parts of our country. Roads stretch across the length and breadth of our country. It is used by all sections of people in the society. Road network in India is the **second longest** in the world accounting for 3.314 million km. The roads are classified into Village roads, District roads, State Highway, National Highway, Golden Quadrilateral Super Highways, Expressways, Border Roads and International Highways.

Village Roads link different villages with towns. They are maintained by village panchayats. In India villages roads run to a length of 26,50,000.Kms.

District Roads links the towns with the district headquarters. They are

maintained by the Corporations and Municipalities. in India run to a total length of 4,67,763 kms of district roads.

State Highways links the state capitals with the different district headquarters. The roads are constructed and maintained by the State Public Works Department (SPWD). The State Highways runs to a length of 1,31,899 kms. Cuddalore–Chittor Road is an example for State Highways.

National Highways links the state capitals with national capital. They are the primary road system of our country and are maintained by the Central Public Works Department. (CPWD) It runs to a length of 70,548 kms.

For example, NH 47 is a National Highway which connects Tamilnadu and Kerala. The total length of the road is 650 km out of which 224 km runs in the state of Tamil Nadu.

Do you know?

The shortest National Highway is NH 47A. It runs from Ernakulam to Kochi port covering a distance of 5.9km.

The longest National Highway Nh7, it runs from Varanasi in Uttar Pradesh to Kanyakumari in Tamil Nadu covering the distance of 2369 km. It passes through some of the important

metros like Jabalpur, Nagpur, Hyderabad and Bangalore.



National Highway -7

"Golden Quadrilateral Super Highways" is a major road development project launched by the Government of India. It runs to a length of 14,846 km connecting the major cities of India. It includes:



Chennai – Bangalore Golden Quadrilateral

- Six lanes super highways running to a length of 5,846 km connecting the four metropolitan cities - Chennai, Mumbai, Delhi and Kolkata.

- North-South corridor linking Srinagar-Kanyakumari, East-West corridor connecting Silchar-Porbandar, run to a total length of 7,300 Km.

- The roads that connect the major ports with Golden Quadrilateral

and the corridors run to a length of 363km.

The main objective of the Golden Quadrilateral Super Highways is providing 'Connectivity' 'speed' and 'safety'. They are meant to reduce the travel time and link the metropolitans closer. These projects are implemented by the NHAI (National Highway Authority of India).

As this Project involves huge investment, the government has entrusted private sector companies to invest, develop and maintain these highways. The agreement for the construction of roads is based on the concept of **Build, Operate and Transfer (BOT)**. After the private companies realize their cost and profits over an agreed period, the responsibilities will be transferred to the government.

Expressways are the technologically improved high class roads in the Indian Road Network. They are six lane roads. They run to a length of more than 200 kms. New Mumbai-Pune Road is an example for Expressway.

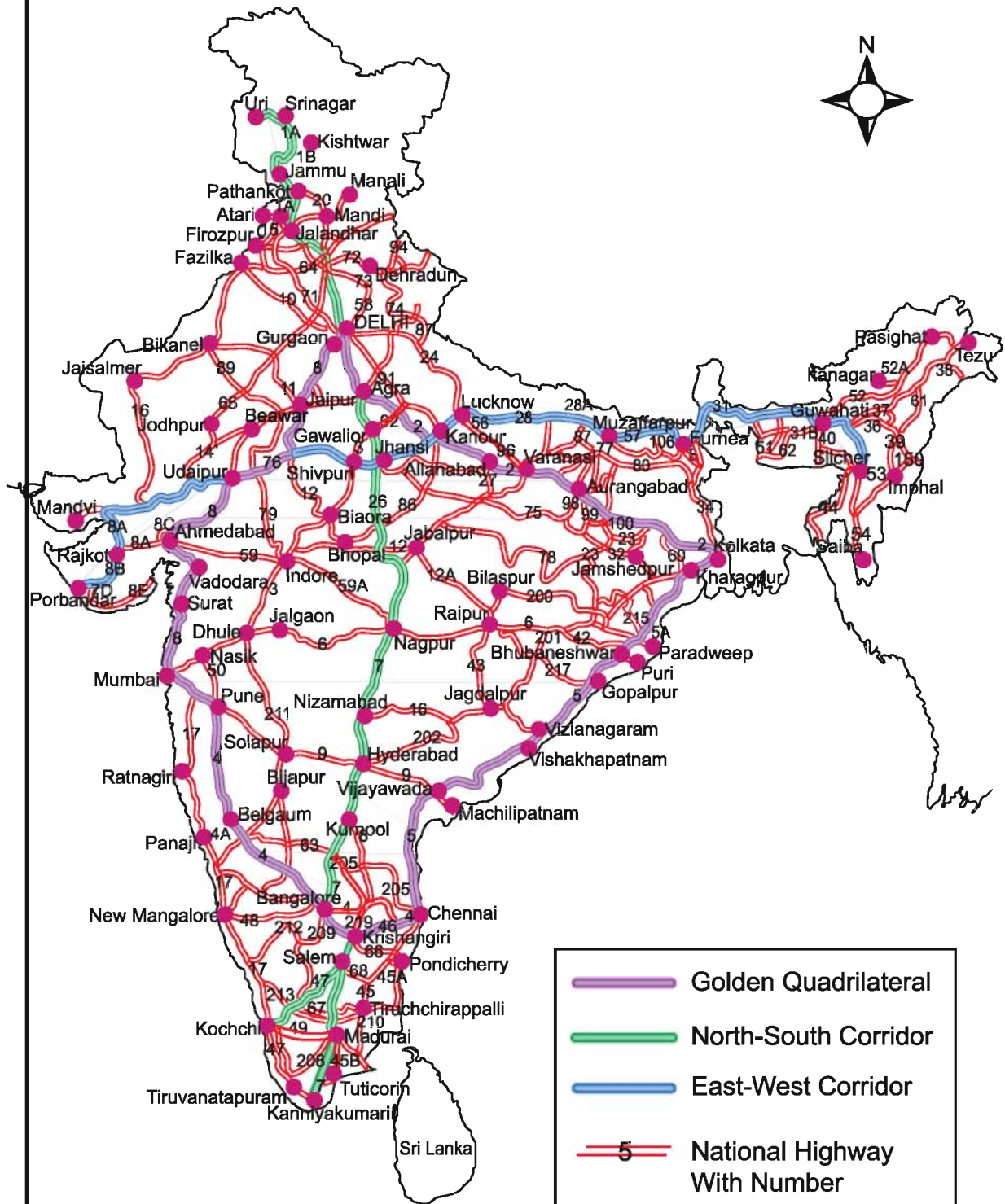


Mumbai – Pune Expressway

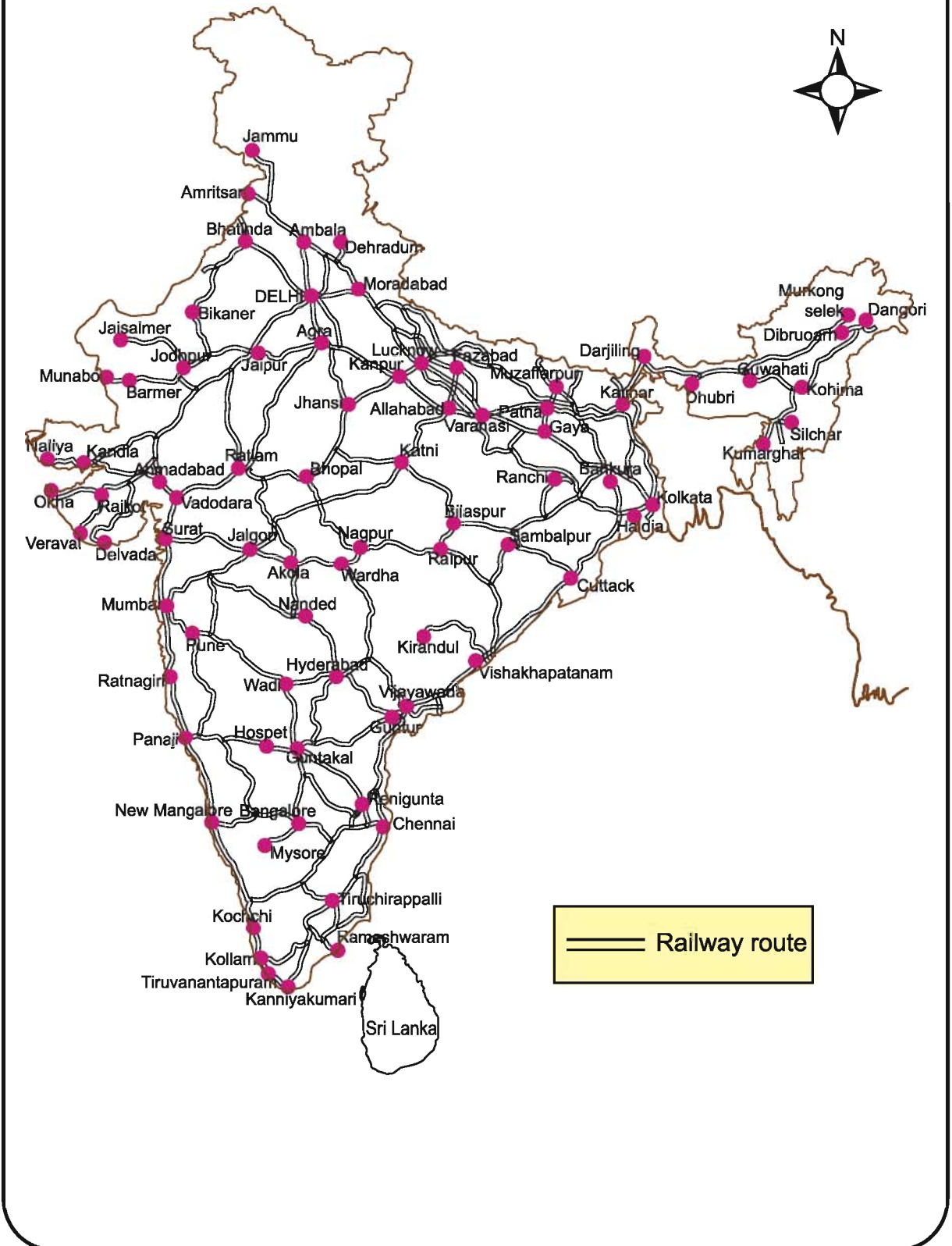
Border Roads

Border Roads are the roads constructed along the northern and north eastern borders of our country.

INDIA NATIONAL HIGHWAYS



INDIA RAILWAYS



These roads are constructed and maintained by **Border Roads Organisation (BRO)** which was set up in 1960 by the Government of India. BRO is regarded as a symbol of nation building, national integration and an inseparable component in maintaining the security of the country. The organisation has constructed 46,780 Km of roads in difficult terrain.

Do you know?

Border Road Organisation has constructed the world's highest road connecting Manali (H.P.) to Leh (Kashmir) at an altitude of 4270 mts.

International Highways are the roads that link India with neighbouring countries for promoting harmonious relationship with them.

Railways

The Railways in India provide the principal mode of transportation for freight and passengers. It brings people together from the farthest corner of the country and promotes trade, tourism, education and national integration.



Let us know

The First train steamed off from Mumbai to Thane in 1853, covering a distance of 34km.

Bhopal Shatabdi is the fastest train

in India. It runs at a speed of 150 km/hr. between Bhopal Junction and New Delhi.

Railway made a modest beginning in India in 1853. By 1947, they had grown to 42 rail systems managed by 37 companies. In 1951, the systems were nationalised as one unit-"The Indian Railways".

Indian Railways is the largest rail net work in Asia and the second largest in the world. It traverses across the length and breadth of the country for over 63,273 km connecting 7,025 stations.

Railways help in commuting 20-million passengers and more than 2 million tonnes of freight daily. **'Delhi'** is the headquarters of the Indian Railways and it is the main focal point from where the railway lines radiate in all directions connecting the seaports, airports and metropolitan cities of India. The network runs on the multigauge operation. They are:

1. Broad Gauge
2. Meter Gauge
3. Narrow Gauge

The Indian Railways is divided into 17 zones

ZONES	HEADQUARTERS
Central Railway	Mumbai
Eastern Railway	Kolkata
East Central Railway	Patna
East Coast Railway	Bhubaneswar
Konkan Railway	Navi Mumbai
Northern Railway	Delhi
North Central Railway	Allahabad
Northwestern Railway	Jaipur
Northeastern Railway	Gorakhpur
Northeast Frontier Railway	Maligaon (Guwahati)
Southern Railway	Chennai
South Central Railway	Secunderabad
Southeastern Railway	Kolkata
Southeast Central Railway	Bilaspur, CG
Southwestern Railway	Hubli
Western Railway	Mumbai
West Central Railway	Jabalpur

The Role of Physiography in Railway System

The physiography of India has played a major role in the distribution of Railway network.

- The **Himalayan region** has rugged terrain and so it is very difficult to lay railway tracks along the steep slopes. Hence, this region has only three railway lines.
- Further, the condition in west **Rajasthan**, frequent flood in Brahmaputra valley thick forest and rough terrain in Northeast India has led to a few railway lines in these region.
- The **northern plains** of India is a flat land with rich alluvial soil. It has highly developed agricultural and industrial sectors with high population. Hence, it has a dense network of railways.
- **Peninsular India** is a plateau region with an undulated terrain, hence it has a moderate railway network.

Sub Urban Railway

Cities in India such as **Mumbai, Chennai, Kolkata** and **Delhi** have separate tracks for the sub urban network, whereas Lucknow, Kanpur, Hyderabad and Pune do not have separate suburban tracks but share the track of long distance trains. The sub urban trains connect the **commuters** of sub urban areas to the urban centres. They are mostly Electric Multiple Units (EMU). These trains usually have nine coaches but to avoid overcrowd, during peak hours they attach extra coaches.

MRTS – Chennai

The **Mass Rapid Transit system (MRTS)** is an elevated line of the suburban railway in Chennai. This railway line currently runs from

Chennai beach to Velachery, covering 17 stations for a distance of 25 km. The MRTS is operated by the state owned Southern Railway.



Role of Railways in Indian Economy

- Railways help in **bulk Movement** of goods (iron and steel, mineral oil, building stone coal, metal ores etc) at large.
- Railways help in the **commercialization** of the agriculture sector by facilitating quick movement of perishable items like milk, vegetables, fruits etc.
- Railways help in developing a **unified national market**, equalisation of prices and also in the growth of internal and foreign trade.
- Railways help in **controlling famines** by quick movement of essential commodities.
- Railways play a greater role in **administration** and in national integration.

Pipe Lines

Pipelines were used for transporting water to cities in earlier days, but now they are also used for transporting crude oil and natural gas from oil and natural gas fields to oil refineries, fertilizer factories and big thermal power plants.

Advantages of Pipeline Transport

- Pipeline can be laid through **difficult terrain** as well as **under water**.
- Initial cost of laying pipeline is high but subsequent cost for maintenance and operation is **low**.
- It ensures **steady supply** and minimizes **transshipment losses** and delays.
- Pipeline operation involves very **low consumption of energy**.

There are three important pipeline network in our country.

1. From oil fields in **upper Assam** to Kanpur in Uttarpradesh via Guwahati, Barauni and Allahabad.
2. From **Salaya in Gujarat** to Jalandhar in Punjab Via. Viramgam, Mathura, Delhi and Sonipat.
3. Gas pipeline from **Hazira in Gujarat** connects Jagdishpur in Uttarpradesh Via. Vijaipur in Madhya Pradesh.

Apart from the above, pipelines are also laid connecting, Mumbai high and Mumbai; Mumbai and Pune.

Waterways

Waterways are the **cheapest** means of transport. They are most suitable for carrying heavy and bulky goods at low cost. It is a fuel efficient and environment friendly mode of transport. Waterways are classified into Inland waterways and Ocean routes.

Inland Waterways

India has an **extensive network** of inland waterways in the form of **rivers, canals** and **backwaters**. The total navigable length is 14,500km. Out of which 5,685 km of rivers and 400 km of canals are used by mechanized crafts. The "**Waterways Authority**" of India has

identified five National Waterways They are:

National waterway 1: Allahabad-Haldia stretch of Ganga.

National waterway 2: Saidiya-Dhubri stretch of the the Brahmaputra.

National waterway 3: Kollam-Kottapuram stretch of the west coast canal, Champakara canal and Udyogmandal canal.



National waterway 3

National water way 4: Bhadrachalam-Rajahmundry and Wazirabad Vijayawada stretch of the Krishna Godavari river system along with Kakinad Puducherry canal network.

National water way 5: Mangalgadi-Paradeep and Talcher- Dhamara Stretch of the Mahanadi, Brahmani river along with the east coast canal.

Ocean Routes

India has a **long coast** line of 7516km with 13 major and 187 medium and minor ports located along the coast. These ports handle 95 percent of the country's foreign trade. The major ports are managed and controlled by '**Port Trust**' under the Government of India.

The medium and minor ports are controlled by the State Governments. The major ports along the **west coast** are Kandla, Mumbai, Jawaharlal

Nehru, Marmagao, New Mangalore and Cochin. The major ports along the **east coast** are Tuticorin, Chennai, Ennore, Vishakapatnam, Paradip, Haldia and Kolkata.



Chennai Port

India is the second largest ship owning country in Asia and ranks sixteenth in the world. India has four major ship building yards. They are:

- 1) **Hindustan shipyard at Vishakapatnam.**
- 2) **Garden reach workshop at Kolkata.**
- 3) **Mazagaon Dock at Mumbai.**
- 4) **Kochi shipyard at Kochi.**

Government of India has issued guidelines for private investment in the port sectors. **Indian ports Act 1908 and major port Trust Act 1963** have been made flexible to allow private investment in ports.

Airways

Airways is the quickest, costliest, most modern and comfortable means of transport. They carry passengers, freight and mail. They link local, regional, national and international cities. Air transport has made accessibility easier by connecting difficult terrains like high mountains and sandy deserts .

The air transport in India made its beginning in 1911, but the real initiation

was made in 1932 by JRD. Tata, when he started the **Tata Airline**. In 1946 it was renamed as **Air India** and in 1953 air transport was nationalized. **Indian Airlines** was set up to cater the needs of domestic market while **Air India** was set up to take care of the international sector. Both enjoyed monopoly over Indian skies until 1986 later, due to **liberalisation policy**, many privately owned airlines joined the air transport system.



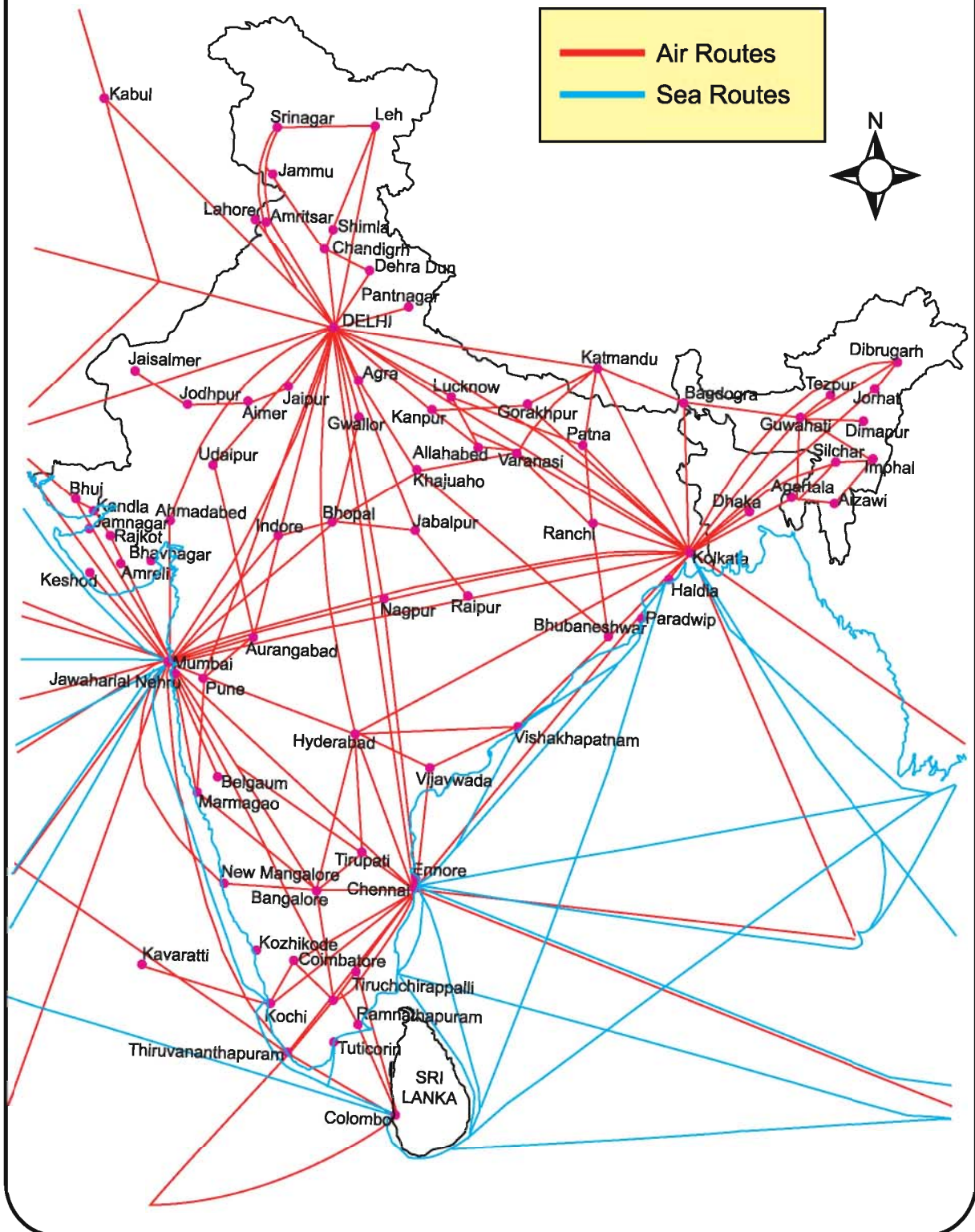
In 2007, the Government of India merged the Air India and Indian Airlines under **National Aviation Corporation of India Limited (NACIL)**. **NACIL(A)** provides international services, **NACIL(I)** provides domestic services and services to neighbouring countries in South East Asia and Middle East.



Chennai Airport

NACIL operates 159 Airbuses and Boeing aircrafts. It plays a major role in connecting Indian cities with the major cities of the world. Apart from NACIL there are **private operators** namely, **Jet**

Major Sea and Air Routes



Airways, Kingfisher Airlines, Spice jet, Inter Globe Aviation (INDIGO) to provide domestic services.

Airport Authority of India (AAI) was constituted in 1995 and it has instituted international standards of safety to Indian Airports. At present, AAI maintains and operates 129 airports out of which 17 are International Airports.

Pawan-Hans Helicopter Ltd. is a public sector company. It is engaged in providing helicopter services to ONGC for its offshore operations. It also provides services to various state Governments, especially in the North East to link the inaccessible areas.

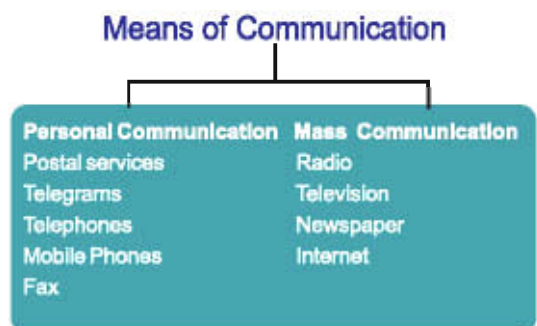


Pawan-Hans

Communication

Communication system contributes to the development of economy and social relationships. It helps in promoting cultural unity.

Communication is a process that involves exchange of information,



thoughts and ideas. There are various ways of sharing information with each other and it is termed as the 'Means of Communication'.

1) **Personal Communication** refers to exchanging of information between two persons'.

Indian Postal Service made its beginning in 1857 and it is the largest network in the world. It enables people to send parcels and mails to foreign lands and to the remotest villages. The mails are classified into **first class mail and second class mail**. First class mail includes postcards, inland letters and envelopes. They are airlifted without any surcharge between stations. The second class mail includes book packets, registered newspaper and periodicals. They are carried by land transport. They also provide **Value Payable by Post** service, Electronic Money Order service, Instant Money Order service, e-Post and e-Bill Post service, Express parcel post and Speed post services.

Do you know?
India has the largest postal network in the world with 1,55,618 post offices.

Telegram is a form of **written communication** by which messages can be sent quickly to distant places.

Telephone is a form of **oral communication**. It is considered very essential for the growth of commerce. People at distant places within a country can communicate using STD (Subscriber's Trunk Dialing), while international communication can be made through ISD (International Subscriber Dialing). A sophisticated telephone not only enables voice messages but also written messages,

drawings, photographs and video images. Telephone is the most preferred form because it provides instant communication.

Mobile Phones are very popular in today's world as it provides an access to the user and receiver at anytime, at anywhere. A mobile phone allows its user to make and receive telephone calls to and from the public telephone network across the world. A key feature of the cellular phones is that it enables seamless telephone calls even when the user is moving around wide area.

Short Message Services(SMS) is a method by which message can be sent to a mobile phone via another mobile phone. SMS may be sent from one cell phone to another, or may be sent to all cell phones within a specific geographical region.

Fax is an electronic device that enables instant transmission of any matter, which may be handwritten or printed like letters, diagrams, graphs and sketches by using telephone lines. A fax machine, sends the exact copy of the document to another fax machine at the receiving end. **Internet fax** is a form for sending documents using internet with the help of a fax machine.

II) Mass communication enables millions of people to get the information at the same time. It helps in creating awareness among the people regarding various national policies and programme.

Radio broadcast in India was started in 1927. In 1936 it was named as **All India Radio (AIR)** and from 1957, it came to be called as **Akashvani**. It serves as an effective medium to educate people on health, environment protection, family planning, science and technology .

Television in India is known as **Doordarshan** and it is one of the largest terrestrial networks in the world. It offers three-tier program services (national, regional, local) for various categories of people. It brings its viewers all the major programmes of national and international importance through live telecast. It broadcasts a variety of programmes from entertainment, education, sports, and health hazards for people of different age groups and regions.

Newspapers are a most common but powerful means of communication which provides information about national and international events to the people. In a democratic country like India, they serve as a very **effective tool** for knowing public views and opinions.

Internet is a vast network of computers. It connects many of the world's business institutions and individuals. Internet means inter connected network of net works, which links thousands of smaller computer networks. It enables computer users throughout the world to send and receive messages and information in a variety of form. It was first started as a purely text based system to send and receive message (e-mail). But now, it is fully a **multi media based system** with capacity to deliver picture images, video and audio . The basic services of internet are e- mail, The World Wide Web (www) and Internet Phone.

Advantages of Communication Network

- Communication network has enhanced the efficiency of communication. Because it enables quick exchange of information with people anywhere in the world.

● Leads to enormous growth of trade.

● Helps the government to tackle various socio - economic problems in the society.

● Improves the quality of human life.

● Opens the door to the information age.

● Promotes Edusat programs.

In recent decades, the world has taken giant strides into the information age. The diversity and the capabilities of various media-(print and electronics) have increased enormously and they play a significant role in the economic and social growth of our country.

EXERCISE

I) Choose the correct word.

- Trade carried on within the domestic territory of a country is known as _____ trade.
a) External b) Foreign c) Internal d) International
- Trade blocs are created to make the _____ trade easier.
a) Multi Lateral b) Bilateral c) Unilateral d) Local
- Cost efficient and most popular mode of transport in our country is _____.
a) Airways b) Roadways c) Waterways d) Railways
- The headquarters of Indian Railways is _____.
a) Mumbai b) Delhi c) Nagpur d) Chennai
- The costliest and most modern means of transport is _____.
a) Air Transport b) Road Transport
c) Water Transport d) Rail Transport

II) Match the following.

- | | |
|----------------------|---------------------|
| 1. Village Roads | Delhi |
| 2. District Roads | Mumbai |
| 3. Central Railways | Chennai |
| 4. Southern Railways | (Village) Panchayat |
| 5. Northern Railways | Municipalities |
| | Corporations |
| | Hyderabad |

III) Distinguish between.

- National highways and state highways.
- Exports and imports.

3. Internal trade and International trade.
4. Roadways and railways.
5. Airways and waterways.

III) Short Answers.

1. What is trade? What are the types of trade?
2. State the highlights of India's foreign trade policy since 2004.
3. Trade, Transport and communication stand complementary to each other. How?
4. What is the significance of border roads?
5. Brief how physiography play a role in the distribution of Railway networks in India?
6. Write a note on sub urban railway.
7. State the merits of pipeline transport.
8. Mention the important pipeline networks in our country
9. What are the advantages of communication network

IV) Answer in Paragraph.

1. Explain India's trade with reference to her major exports and imports
2. Classify the Indian roads and Explain.
3. Explain the means of Personal Communication in India.

V) Map work.

Mark the following in the out line map of India.

1. Northern Terminal of North south corridor.
2. Major Ports in Kerala and Orissa.
3. Mark the road route linking Mumbai and Delhi.
4. Mark the longest National Highways with two Inter mediates.
5. Mark the headquarters of konkan railways.
6. Mark the International Airports in the four metropolitan cities.
7. Link Chennai and Delhi by rail route.
8. Link Mumbai and Kolkata by rail route.

VI) Activity.

Use Atlas and locate

- 1) The Headquarters of the "Indian railways".
- 2) Major sea ports of India.
- 3) International airports of India.

8. REMOTE SENSING

Geography is the study of the Earth focusing on its surface, the atmosphere, oceans, plants, animals, and people. Most people think that geography is a study of maps. This thinking is only partially correct because Geography is also the study of man's natural environment and its influence on cultural environment. To learn and know about our environment, we use our senses of seeing, touching, smelling and hearing. These senses help us to learn about an object from close proximity. But in geography the subject matter encompasses spatial distribution and so it takes many months, to study about resources of a region by means of ground survey. Ground survey of resources is hindered by dense forests, rugged terrain, sandy deserts and unpredictable weather. In spite of this, continuous monitoring of the earth surface has become very essential due to recent increase in natural disasters, large scale climatic changes, desertification and reduction in biodiversity. Hence, the most effective technology to gather information on any part of the earth within a short span of time without footing the region is the Remote Sensing Technology.

What is Remote Sensing?

Remote = far away

Sensing= getting information

Remote sensing can be defined as the collection of data about an object from a distance. Humans and many other animals accomplish this task with their eyes or by their sense of smell or hearing. Geographers use the remote

sensing as a tool to monitor or measure phenomena on the Earth's lithosphere, hydrosphere, atmosphere and biosphere. Remote sensing of the environment by geographers is usually done with the help of mechanical devices known as sensors. These



sensors have a greatly improved ability to receive and record information about an Earth object without any physical contact. Often, these sensors are positioned in helicopters, planes, and satellites. The sensors record information about an object by measuring the electromagnetic energy that is reflected back and radiated from the object on the earth surface.

History of Remote Sensing

Aerial photographs were the first results of remote sensing utilized by cartographers, or map-makers. In 1858, French map-makers used a hot air balloon and primitive cameras to take oblique (inclined) aerial photographs of the landscape. Later during World War I, air planes were used to take systematic aerial images of much of the terrain in the war zone. These photographs helped in gathering information about the

position and movement of enemy troops. After the war, systematic vertical images were taken for civilian use. By comparing photographs taken at different angles; cartographers were able to create accurate and detailed maps of different territories.



Air Balloon

The process of comparing different aerial photographs and computing accurate measurements is called photogrammetry. Maps created using aerial photographs are called orthophoto maps.



TIROS-1 satellite

In the 1960s, a revolution in remote sensing technology began with the deployment of space satellites. From their high vantage-point, satellites have a greatly extended view of the Earth's surface. The first meteorological satellite, TIROS-1 (Television and Infrared Observation Satellite) was launched by the United States.

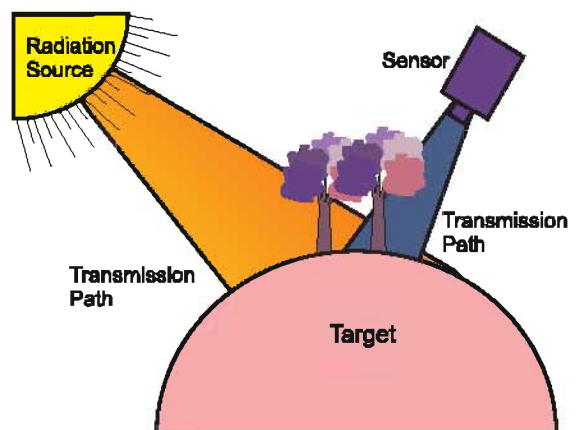
In the 1970s, the second revolution in remote sensing technology began with the launch of Earth Resource Technology Satellite (ERTS). This series was renamed **LANDSAT** in 1975. The usefulness of satellites for remote sensing has resulted in several other organizations launching their own devices. In 1986, the **SPOT (Satellite Pour l'Observation de la Terre)** program of France began. They launched five satellites and have produced more than 10 million images.



TIROS-1 Satellite

Components of Remote Sensing

The four basic components of a remote sensing system are **target**,



energy source, transmission path, and a sensor. The **target** is an object or material that is being imaged. The components in the system work together to measure and record

information about the target without actually coming into physical contact with it. The **energy source** provides electromagnetic energy to the target. Normally, the energy source can be classified into two. 1. **Passive System** (that is sun, irradiance from earth's materials) 2. **Active System** (that is irradiance from artificially generated energy sources such as radar). Remote sensing technology makes use of a wide range electromagnetic spectrum from a very short wave Gamma ray to a very long radio wave. The electromagnetic radiation interacts with the target, depending on the properties of the target and the radiation; **transmit** information from the target to sensor. **Sensor** is a device to detect the **Electro Magnetic Radiation (EMR)**. Sensors can be classified on the basis of energy received into **Passive sensors** and **Active Sensors**. **Passive sensors** detect natural radiation that is emitted or reflected by the object or surrounding area being observed. For example Cameras used for taking favourite pictures during

daylight. **Active sensors** transmit their own signal and measure the energy that is reflected (or scattered back) from the target for example Radar.

Processes Involved In Remote Sensing

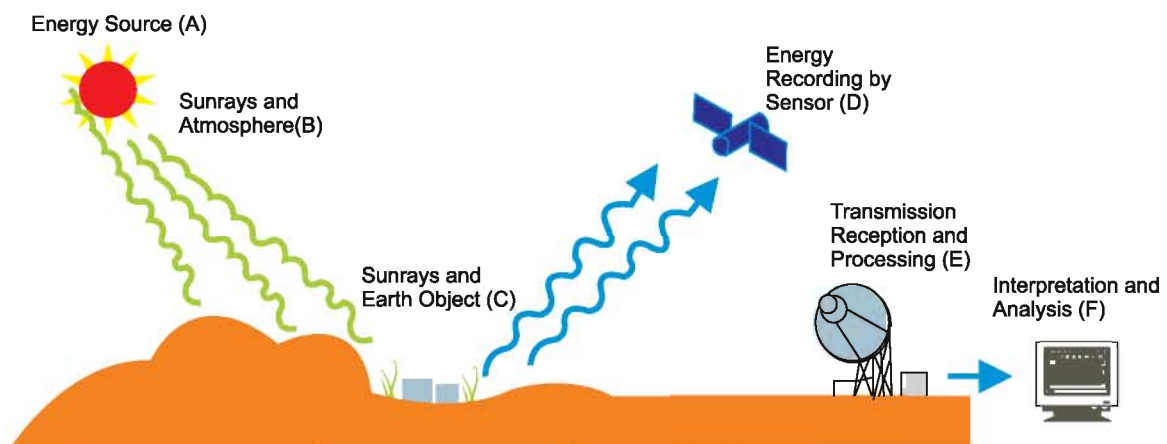
1. Sun is a Energy Source (A) - the first requirement for remote sensing is energy source which illuminates or provides electromagnetic energy to the target of things.

2. Sunrays and Atmosphere (B) - as the energy travels from its source to the target, it will come into contact with, and also interact with, the atmosphere it passes through. This interaction may take place a second time as the energy travels from the target to the sensor.

3. Sunrays and Objects on Earth (C) - once energy makes its way to the target through atmosphere, it interacts with the target, depending on the properties such as tone, texture, size, shape and patterns of both the target and the radiation.

4. Recording of Energy by the Sensor (D) - after energy has been scattered or emitted from the target,

Processes Involved in Remote Sensing



the sensor (remote - not in contact with the target) collects and records the electromagnetic radiation.

5. Transmission, Reception and Processing (E) - the energy recorded by the sensor has to be transmitted, often in electronic form, to a receiving and processing station where the data are processed into an image (hardcopy and/or digital).

6. Interpretation and Analysis (F) - the processed image is interpreted, visually or digitally or electronically, to extract information about the target which was illuminated.

7. Application (G) - the final element of the remote sensing process is achieved by applying the extracted information for better understanding and to reveal some new information, or assist in solving a particular problem.

Advantages of Remote Sensing

1. This system has the ability to provide a synoptic view of a wide area in a single frame.

2. Remote sensing systems detect features of inaccessible areas that cannot be reached by human vision: For example Equatorial forest in



the congo basin, Africa.

3. Cheaper and rapid method of acquiring up to-date and continuous information over a geographical area For example . It helps agriculturists to

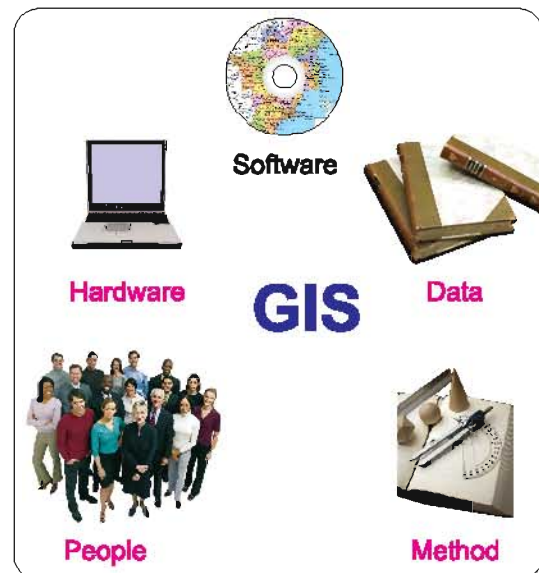
identify the areas affected by pests, crop related diseases etc.

4. Helps the planners for formulating policies and programs to achieve the holistic functioning of the environment.

For example. Spots the areas of natural disasters such as tsunami, drought prone, flood affected and cyclone hit areas and helps in providing relief and rehabilitation program in the affected areas.

5. Enable the cartographers to prepare thematic maps like geological maps, soil maps, population maps etc. with great speed and accuracy.

Geographical Information System (GIS) is a systematic integration of Computer Hardware, Software and Spatial Data, for capturing, storing, displaying, updating, manipulating and analysing all forms of geographically referenced data.



Components of GIS

A Geographic Information System combines computer drawn maps with a database management system. This

diagram suggests that GIS consists of three subsystems:

(1) an input system that allows for the collected data to be used and analyzed for some purpose; (2) computer hardware and software systems that store the data, allow for data management and analysis, and can be used to display products of data manipulation on a computer monitor; and (3) an output system that generates hard copy of maps, images, and other types of output.

Application of GIS

GIS is used by people of various fields.

○ **Exploration and mining** companies use GIS to find prospective areas for exploration and mining.

○ **Power companies** use GIS to monitor and analyse the electricity load on the grid network for a particular area.

○ **Transport companies** use GIS to locate shortest routes for delivering goods and to save time.

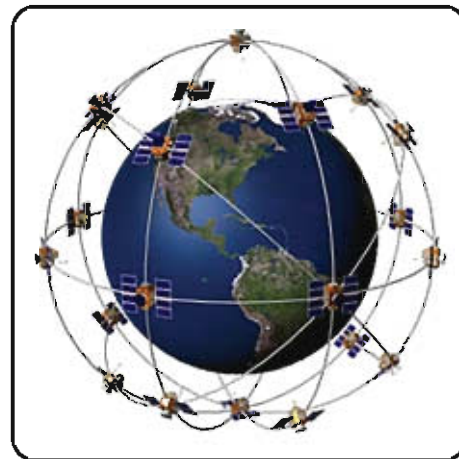
○ **Law enforcement** agencies use GIS to map, visualize, and analyse crime incident patterns.

○ **Ecologists** use GIS to understand relationships between species distribution and habitats.

Global Positioning Systems (GPS)

GPS is a space-based **global navigation satellite system** that provides reliable **location** and time information in all weather and at all times. GPS was created and realized by the U.S. **Department of Defence** (DOD) and was originally run with 24 satellites. It was established in 1973 to overcome the limitations of previous navigation systems. GPS consists of

three parts: the space segment, the control segment, and the user segment. The space segment is composed of 24 to 32 satellites in **medium Earth orbit** and also includes the boosters required to launch them into orbit. The control segment is composed of a master control station, an alternate master control station, and a host of dedicated and shared ground antennas and monitor stations. The user segment is composed of hundreds of thousands of U.S. and allied military users of the secure GPS Precise Positioning Service, and tens of millions of civil, commercial, and scientific users of the Standard Positioning Service.



GPS Satellite system

Basic concept of GPS

A GPS receiver calculates its position by precisely timing the signals sent by GPS **satellites** high above the Earth. Each satellite continually transmits messages that include, the time the message was transmitted and precise orbital information

Three satellites might seem enough to solve for position, since space has three dimensions and a

position near the Earth's surface can be assumed. However, even a very small clock error multiplied by the very large **speed of light**, the speed at which satellite signals propagate, results in a large positional error. Therefore, receivers use four or more satellites to solve their location and time.

Application of GPS

GPS is considered a *dual-use* technology, meaning it has significant military and civilian applications.

○ Surveying, Map-making, Navigation, Cellular Telephony, and Geofencing are the main civilian use of GPS.

○ Navigation, Target tracking, Missile and projectile guidance, Search and Rescue, and Reconnaissance are the main military use of GPS.

○ GPS has become a widely used and a useful tool for **commerce**,

scientific uses, tracking and surveillance. GPS' accurate timing facilitates everyday activities such as banking, mobile phone operations, and even the control of power grids.



Farmers, surveyors, geologists and countless others perform their work more efficiently, safely, economically, and accurately, because GPS helps them with information.

EXERCISE

1) Choose the correct word.

1. Maps created by using aerial photographs are called _____ Maps
a) Ortho photo b) Aerial Photo c) Physical d) Political
2. The Object under study is known as _____.
a) target b) source c) sensor d) Image
3. The device to detect the Electro Magnetic Radiation is _____.
a) target b) Sensor c) Object d) camera

II) Match the following.

- | | |
|--------------------|--------------------------|
| 1. Ground Survey | USA |
| 2. Remote Sensing | Many Months |
| 3. Hot air balloon | systematic aerial images |
| 4. Airplanes | French map makers |
| 5. TIROS | short span of time |
- Geographical Information System
Global Positioning System

III) Short Answers.

1. What is meant by remote sensing?
2. What are the disadvantages of ground survey?
3. Mention the basic components of remote sensing?
4. Define GIS.
5. Mention any two applications of GIS.
6. Write any two applications of GPS?

IV) Answer in Paragraph.

1. Write about Remote sensing Technology.
2. Explain the various components of remote sensing.
3. Explain the process involved in remote sensing Technology.
4. What are the advantages of remote sensing?

CIVICS

1. INDIA AND WORLD PEACE

India was a dependent country till August 15, 1947. So it could not play any important role in the world affairs. After its Independence, it has been taking an active and independent part in the world affairs. Within a short period, India had won a great name for itself in the Modern World. India, is a country with an unbounded faith in peace. It declared her determination to pursue the path of peace and take effective measures for the promotion of international peace, security and co-operation.



world peace

Promoter of world peace

India played a great role in settling many world disputes and thereby maintained peace and security. In Korea and in Indo-China peace has been established by the great efforts of India. Similarly when Israel, England and France attacked Egypt, there was a danger of a World War. But due to timely intervention of India, the war was averted.

Pancha sheel

India is called by the name of '**A Great Peace Maker**'. It followed five principles which are popularly known as '**Pancha sheel**'. Jawaharlal Nehru laid stress on these five principles.

1. Each country should respect the territorial integrity and sovereignty of others.
2. No country should attack any other country.
3. No one should try to interfere in the internal affairs of others.
4. All country shall strive for equality and mutual benefit.
5. Every country should try to follow the policy of peaceful coexistence.

These Pancha sheel greatly added to the international status of India.

Dis-Armament and Nuclear Weapons



Nuclear Test Ban Treaty

Economic development of the nations can be achieved only through world peace. World peace is essential not only for the economic development of India but also for all the developing countries of the world.

Some Countries of the world have invented such dangerous weapons like the Atom Bomb, Hydrogen Bomb etc. If no restrictions are imposed on them, the Modern World would be wiped out. India is very much against the production of such Nuclear weapons and began to condemn it throughout the World. India is the first nation to bring a resolution in the UN General Assembly in favour of disarmament in 1956. It took a great part in signing Nuclear Test Ban Treaty in 1963.

Policy of Non-alignment

After second world war the world was divided into two hostile blocs - the American Bloc and the Russian Bloc and both of them trying to increase their influence at the cost of the other. But India has not joined either of these two blocs. Whenever any difference arises between these blocs, India tries to remove that difference thereby contributing substantially towards the World Peace.

A Great Helper

India is basically against Colonization and wants to see all the countries of the world free from the foreign domination. It played a great role in freeing Indonesia from the domination of Holland. In the same way it has supported the Freedom movements started by Egypt, Sudan, Indo-China, Ghana, Morocco and Bangladesh.

Against Military Alliances

The modern countries of the world are busy in making military alliances and counter alliances. At present there are many pacts like NATO, SEATO, Baghdad and Warsaw etc. But India kept away from such military pacts and

also vehemently condemned these pacts.

India – a dead enemy of oppression and Injustice

When France acted as an aggressor against Algiers, England against Cyprus and Russia against Hungary, India condemned them.

Similarly India voted in favour of China becoming the member of UNO. So that India acted against the injustice.

A Great Supporter of the UNO

India has rendered whole-hearted support to the United Nations to bring World Peace and making the policies of the UNO a great success. It tried to solve many problems by giving full support to UNO.

Ending of Apartheid

Apartheid – Policy of racial discrimination followed in South Africa.

The recognition of sovereign equality of all people living in various parts of the world is the fundamental factor in India's foreign policy.



Nelson Mandela

In South Africa the whites, did not give equal rights to the native Africans. India had raised this issue for the first time in the UN General Assembly in 1946. It was due to the constant moral support of India and the continuous struggle of Dr. Nelson Mandela, the

policy of Apartheid has been abolished in 1990.

Dr. Nelson Mandela

Leader of African National Congress. Mandela fought against all traces of racial injustice in South Africa including laws denying the Africans the Right to vote. He was imprisoned for 26 years. Later he became the President of the Republic of South Africa in 1994.

Regional Co-operation

India took the initiative to form **SAARC** to maintain peace in the regional level. (**The South Asian Association for Regional co-operation**). SAARC'S first meeting was held at Dacca in Bangladesh on Dec 7, 1985. Ashan of Bangladesh was the first Secretary General of SAARC. The member countries are Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Afghanistan and Srilanka. On April 3, 2007 the SAARC has opened its Annual summit in New Delhi, where with Afghan President Hamid Karzai in attendance, Afghanistan became its 8th member.

16th SAARC summit took place on 28th and 29th of April 2010 at Thimpu, the capital of Bhutan.

The SAARC countries identified mutual co-operation in the following areas, transportation, postal service, tourism, shipping, meteorology, health, agriculture, rural reconstruction and telecommunication.

Cordial Relationship with Neighbouring Countries **India and Pakistan**

In spite of past conflicts both India and Pakistan are trying to come closer. The Delhi – Lahore bus service was launched on March 16th 1999 to bring

the people of the two countries closer. Negotiations for setting up Iran –Pakistan–India gas pipeline are taking place.



Wagha Border

India and China

When China became republic in 1949, India was the first country to recognize it. Both the countries have successfully attempted to restore the economic lines. China has formally declared that she will back India's claim for becoming a permanent member of United Nation's Security Council.

India and Srilanka

Srilanka is a Buddhist country. The Mauryan emperor Ashoka spread Buddhism there by sending his son and daughter. We have good trade relation with Srilanka. India always support Srilanka on just and reasonable grounds. The relationship between India and Srilanka is very smooth. It will be continued for ever.

India and Bangladesh

It is due to the effort and support of Smt. Indira Gandhi, the then Prime Minister of India, Bangladesh got freedom from Pakistan in 1971. In 1972, a 25 years treaty of friendship, Co-operation and peace was signed in Dacca by India and Bangladesh.

The Farakka Barrage issue regarding the distribution of Ganga water was settled amicably. India is a very good friend of Bangladesh. Our friendship with Bangladesh will go on for ever.

Suez Canal

When Egypt nationalized Suez Canal in 1956, France, Britain and Israel invaded Egypt. It is due to India's effort an emergency force was sent to Egypt and peace was restored.



Suez Canal

Congo

In the South African country, Congo, civil war broke out in 1960. The task of bringing peace was given to India by UNO. India restored peace in Congo by sending her peace keeping force under the Brigadier K.A.S. Raja.

Cyprus

During the civil war in Cyprus between Orthodox Christians and Turkish Muslims, UNO sent its peace keeping force under Timmaia, the Indian Commander in Chief. It is due to his hard and firm effort, peace was restored in the island.

India got its independence through Non-violence and Ahimsa under the leadership of Mahatma Gandhi. Even after independence India is working hard to ensure peace and stability among the countries of the world.

EXERCISE

I) Choose the correct answer.

1. India is a country with an unbounded faith in
a) War b) Peace c) Love d) Enmity
2. Pt. Jawaharlal Nehru's five principles of peace are named as
a) Swadeshi b) New Deal c) Pancha sheel d) Apartheid
3. Nuclear Test Ban Treaty was signed in
a) 1963 b) 1993 c) 1936 d) 1998
4. India brought a resolution in the UN General Assembly in favour of disarmament in
a) 1965 b) 1956 c) 1995 d) 1976
5. Apartheid was abolished in
a) 1990 b) 1991 c) 1890 d) 1989
6. The first Secretary General of SAARC was
a) Jinnah b) Ashan c) Kofi Annan d) Gandhiji

II) Answer the following in brief.

1. Mention the important aspects of India's policy for promoting peace.
2. Why is world peace an essential one?
3. What are the five principles of the Pancha sheel?
4. Write a note on the policy of Apartheid.
5. Name the areas identified by the SAARC Countries for mutual Co-operation.
6. India has rendered whole hearted support to the UNO –Justify.

III) Answer the following in a paragraph.

1. Write a paragraph about Pancha sheel and the policy of Non-Alignment .
2. Write a short note on SAARC.

2. Democracy

Democracy is the most popular form of government in modern times. But the transition from autocracy to democracy has not been simple. Many struggles have shaped this transition. The phenomenal rise of democracy has not been overnight. Many great revolutions took place before the people got the rights to exercise their power.

Meaning of Democracy

Democracy means many things to many people. The term Democracy was first used by **Herodotus** nearly 2500 years ago. Democracy is a term derived from two Greek words "Demos" and "Cratia".

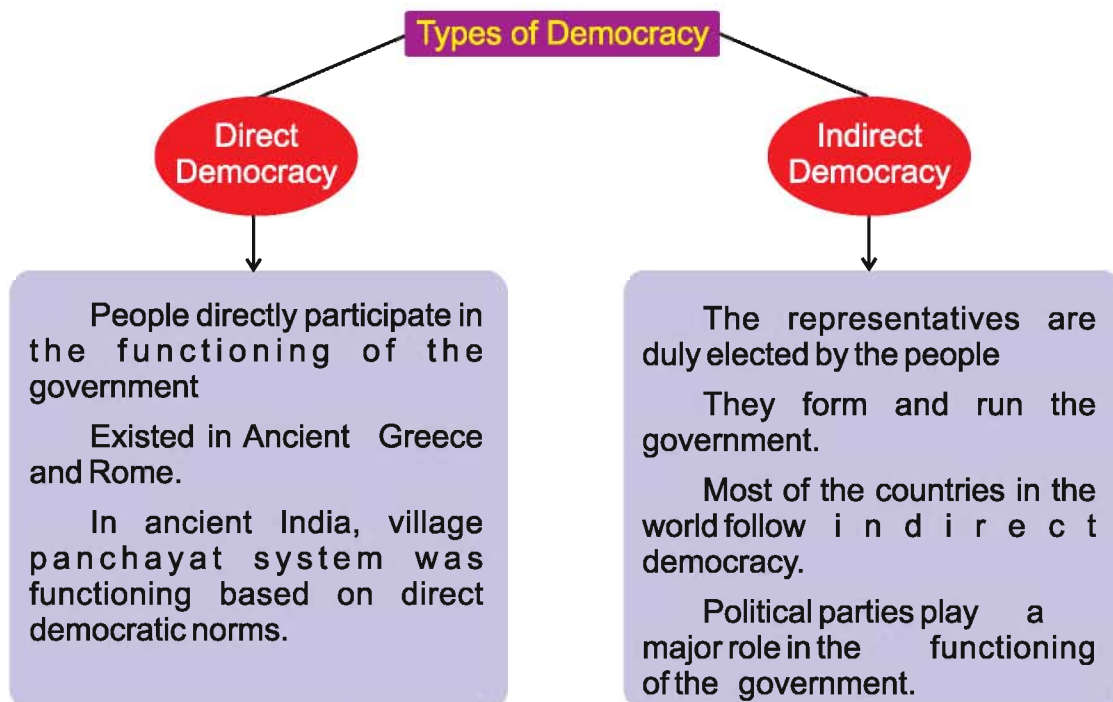
Demo - The People.

Cratia - The power or rule.

So Democracy means the power of the people. In short, democracy may be described as a system of government under which people exercise the governing power either directly or through representatives periodically elected by themselves. According to Abraham Lincoln, 'Democracy is a government of the people, by the people and for the people'. According to Prof. Seeley 'Democracy is a government in which everyone has a share'.

Kinds of Democracy

Democracy can be classified into two 1) **Direct Democracy** and 2) **Indirect Democracy**.



Merits

Democracy is the most popular government in modern world. It has various merits. It provided efficient government, guaranteed the rights of the people, provided equality, educate the people, promote national character, bring peaceful change of government, believes not in battle axe, but in ballot box. In democracy there is no place for rebellion and revolutions.

Demerits

It resulted the mob government. Democracy gave important not to quality. Most of the representatives elected by the people were ignorant, incompetent and inexperience. Democracy provided costly government. No importance for individual or minorities. It leads party government and create class wars.

Importance of Democracy

People have the freedom to choose their representatives. It ensures treating people with dignity. People are guaranteed fundamental rights like the right to life and liberty by the Constitution. In a Democracy all decisions are taken based on the majority. Democratic government should enhance public welfare. Principles of Liberty, Equality and Fraternity are the foundation of Democracy.

Political Parties

Party is a pre-requisite for democratic system of government. They provide smooth functioning of government because the majority party controls the government, while the opposition party would try to check the abuse of power by the ruling party. As the ruling party has a right to govern the state, the opposition party enjoy

the right to oppose the government, unearth its lapses and criticize the policies of the ruling party. A political party is an organized association of people who come together on a common platform with the objective of winning political power.

Functions of the Political Parties

The Political parties perform varied functions in a democratic polity. These functions are of immense value for stability as well as orderly functioning of the democratic system.

Formulation of General policies.

Contesting elections.

Educating the masses.

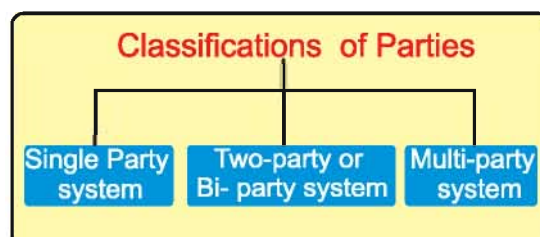
To conduct and criticize the government.

Playing the role of an intermediary body between the government and the people.

Integrative agency.

Classification of the Party System

The Political parties may be classified in to three kinds



Single Party System

In this system, only one party exists and it is officially recognized by the constitution and the people. It maintains and exercises political power without any opposition. It does not allow the existence of other parties within the state.

E.g.: China and Cuba.

Advantages of The Single Party Rule

- ✓ During the periods of emergency or external danger the one party rule could function more efficiently, independently and quickly to set matters right.
- ✓ Decisions could be taken quickly under the single party rule. Expenditure could also be controlled.
- ✓ It promotes greater national identity.

Disadvantages

- ✓ Deliberations could not take place at the national level in the single party system.
- ✓ Under the single party system sometimes political, fundamental rights and even ordinary freedom are denied to the people.
- ✓ If the single party government happens to be inefficient, the growth of the country and developmental activities will suffer.
- ✓ It paves way for totalitarianism and dictatorship.

Bi-Party System

In this system, there exist one ruling party and the other as the opposition. One party controls the government while the opposition effectively checks the government of its omissions and commissions.

Example:

1. **USA** (The Republican Party and the Democratic Party).
2. **England** (The Labour Party and the Conservative Party).

Advantages

Since there are only two parties it

is easy for the people to choose one of them.

The party in opposition makes the ruling party function effectively.

Disadvantages

In a Bi- Party system if both of them proved to be inefficient or bad there is no hope of electing a third party to power.

If both the parties come to an understanding with each other then people could be fooled. The mistakes of the parties as well as the corruption in the party could be hidden.

Multi-Party System

In this pattern there exist more than two political parties with contending ideologies and objectives. **France** and **India** come under this category.

Advantages

Since there are many parties each one will monitor the other and offer good plans to the people to capture the government.

New leaders who may come to power could give us fresh ideas and look at things in a different perspective to solve the problems.

Disadvantages

There is a possibility of the ruling party caring more for the welfare of the party members than the good of the common people.

There could be inability of the government on account of members deserting one party and joining the other.

On account of defection there by, people might lose faith in the government leading to general deterioration in conduct and character.

Political Parties in India

a) National Parties

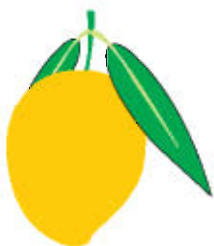
A party recognized by the Election Commission, that secures at least six percent of the total votes in Lok Sabha election in four or more states, then it is called National Party. Eg: **Congress, BJP.**



National Parties

Regional Parties

A party that secures at least six percent of the total votes in an election to the Legislative Assembly of a state and wins at least two seats is recognized as State or Regional party. Eg: **DMK, AIADMK, Telugu Desam.**



Regional Parties

Point out the National and Regional parties in our country.

Election

The success of democracy depends upon conducting periodical elections. It is only through election people judge the functioning of the ruling party and ignore corrupt politicians by not voting them. To ensure this, the democratic countries in the world follow **Universal Adult Franchise.** In India, all the citizens above the age of eighteen have been given the right to vote in elections. People above the age of 25 can contest in the elections.



Electronic Voting Machine

Types of Elections in India

In India, people elect their representatives through direct and indirect elections.

I) Direct Election

The citizens themselves elect the representatives through votes. Members of the Lok Sabha and State Legislative Assemblies are elected in this manner.

II) Indirect Election

The citizens do not directly take part in the election. The elected representatives are the voters here. The members of the Rajya Sabha, the President and Vice- President are elected in this manner.

By-Elections

By-elections held when an elected candidate from a constituency dies or resigns from the parliament or the state

legislatures. Under these circumstances elections will be held only in those constituencies. Such elections are called by-elections.

Mid-term polls

Some times it happens that the Parliament or the state legislatures do not function for the whole period of five years for various reasons. Then they are dissolved, elections are held. These elections are called the mid-term polls.

Role of opposition parties

The Success of the democracy depends to a great extent on the constructive role of the opposition parties. In every democracy all the parties cannot get majority seats all the time in the parliament. The parties which do not get majority seats are called opposition parties. The party which gets majority seats in the Lok Sabha next to the ruling party is called the recognised opposition party. The leader of the opposition party enjoys some privileges equivalent to that of a cabinet minister.

The work of the ruling party is very important. All the powers mentioned in the constitution are exercised by the ruling party. The opposition party also functions in an effective manner, and their work is no less important than that of the ruling parties.

To check the government from becoming authoritarian and to restrict its powers, the opposition parties keep a watch over them. The main duty of the opposition party is to criticize the policies of the government. Outside the legislature the opposition parties attract the attention of the press and report their criticism of the government policy in the news papers.

The opposition parties have the right to check the expenditure of the government also. During the question hour, the opposition parties criticize the government generally. The criticisms of these parties make the ruling party correct its actions. Thus the opposition parties try to restrain the government from abusing its power.

How does democracy help a Nation?



Election Voting

Constitution of India is based on the democratic principles. India has Parliamentary democracy. Constitution of India has provided two types of government. One at the Union (Central) level and other at the State level. The elected representatives of the parliament are known as **MPs (Member of Parliament)** and the body of the elected representatives at the state level are known as State Legislature (**MLA - Member of the Legislative Assembly**). Apart from this the Local Self Government also enjoys power in villages and towns.

The Election Commission

The Indian constitution has provided for an election commission to conduct elections, to elect the peoples 'representatives to the state legislatures' and the parliament. The election commission is an independent constitutional body. It is situated at New Delhi. It is also known as "**Nirvachan sadan**".

The election commission of India consist three member with Chief Election Commissioner and two other election commissioners. They are all appointed by the President of India. The election commissioners hold office for a term of six years. The status of election commissioner is equivalent to that of the Supreme Court judges.



Mention the name of the Chief election Commissioner of India.

The Chief Electoral Officer

Every state has a chief electoral officer. They are appointed by the president in consultation with the state government. The chief electoral officer is authorized to supervise the election work in the state.

Who is the present Chief Electoral Officer of Tamil Nadu?

Functions of the Election Commission

The election commission has the following important functions.

1. It gives recognition to the political parties.
2. It allots symbols for the parties as well as independent candidates who stand for the election.
3. It announces the dates of election and the dates on which the votes will be counted and the declaration of the final results.

Our country is the largest democratic country in the world with a large density of population. In spite of several hardships India had succeeded in preserving the democratic functioning in all spheres of life and government. For the effective functioning of democracy, all political parties, citizens should play a major role. More over, the citizens of our country should judiciously use their political rights i.e., the Right to Vote to make democracy more effective. We should not forget that it is our fundamental duty.

EXERCISE

I) Choose the correct answer.

1. The most popular form of Government in modern days
a) Monarchy b) Oligarchy c) Democracy d) Hirarchy
2. Direct democracy existed in ancient
a) Greece b) Italy c) Sardinia d) Cyprus
3. Telugu Desam is a
a) Regional Party b) National Party
c) International Party d) Cultural Party

4. If two parties exist in a country, it is called
 - a) Single party system
 - b) Bi-party system
 - c) Multi party system
 - d) Regional party system
5. The opposition party leader will be given the status of a
 - a) Cabinet Minister
 - b) Deputy Minister
 - c) Minister of State
 - d) Council of Ministers
6. To contest an election a person should be above the age of
 - a) 20
 - b) 18
 - c) 25
 - d) 35
7. The body of the elected representative at the Central level is known as
 - a) Legislature
 - b) Supreme Court
 - c) House of Common
 - d) Parliament
8. The status of election commissioner is equivalent to that of the
 - a) High court judge
 - b) Supreme court judge
 - c) District court judge
 - d) Magistrate
9. The election process in the state level is supervised by
 - a) Chief Election Commissioner
 - b) Chief Electoral officer
 - c) Supreme court judge
 - d) High court judge
10. Election Commission is situated at
 - a) Madras
 - b) Mumbai
 - c) Moradabad
 - d) New Delhi

II. Answer the following in brief.

1. Give Abraham Lincoln's definition of Democracy.
2. What are National Parties?
3. What is a Political Party?
4. Mention the functions of the Political Parties.
5. Write the advantages of Single Party System.
6. Give a brief note on the functions of the Election Commission.

III. Answer the following in a paragraph.

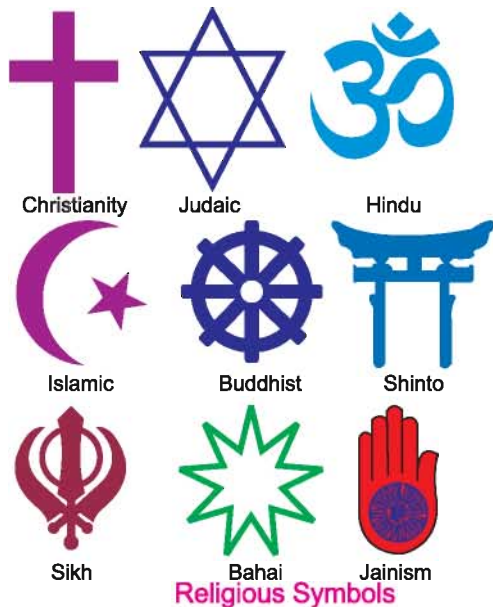
1. Explain the types and importance of democracy.
2. Mention the types of election and explain them.
3. Explain the role of Opposition Party in a democracy.

3. Unity in Diversity

India is a vast country with extreme diversity in geographical, religious linguistic, racial, cultural aspects. There are high mountains, low coastal plains, fertile plains, desert, evergreen forests, and dry scrub vegetation, variety of flora and fauna and cultures. In spite of diversities we maintain unity. The unity in diversity of India is because of our long history and rich heritage.

Religion

India has a population of more than hundred Crores made up of diverse ethnic groups, divided in number of castes, professing different religions, speaking hundreds of languages and dialects. It is this marvelous diversity of people in India which has made it both a museum and a laboratory for the study of man. Hence India is rightly called the "Museum of human race".



India is the birth place of many religions and has become the home of many others. Vedic religion is an ancient religion of our country.

Christianity was first brought to India by St. Thomas, an apostle of Christ in the first century A.D. The Persians who were driven into India brought to us their religion Zoroastrianism. Muslim conquest of India brought Islam into the land. Buddhism, Jainism and Sikhism had their origin in India. In spite of all the religious diversity we have developed a spirit of religious tolerance and never give room for religious fanaticism.

Language

People of India speak different languages like Tamil, Telugu, Kannada, Malayalam, Hindi, Urdu, Sanskrit, Gujarathi and Bengali, besides many foreign languages and dialects are spoken by its people.

Almost, in India about 845 languages are spoken. Out of these 22 are recognized as the official languages by our government. **Hindi in Devanagari Script** has been chosen as the national language of India. English is being used as the concurrent – language. Language is the means of communication, now it has become an instrument of division rather than unity. If we realize all other languages are as good and special as our own language, they would become the instruments of growth, development and common brotherhood.

Literature

The growth of Indian languages led to Indian literature to reach its zenith. Sanskrit and other languages have helped the growth of thoughts and philosophy.

The Ramayana and Mahabharata are the two great epics of India. Thirukkural by Thiruvalluvar is the greatest literary work in Tamil. The Bhagavad-Gita is the holy book of Hindus. Umarupulavar's Seerappuram tells the life history of Prophet Mohammad. Thembavani written by Veeramamunivar is related to Christianity.

Festivals

The Hindu festivals of Deepavali, Navarathri, Vinayaka Chatthurthi, Pongal, Chittirai Thiruvizha, Aadi Velli, and Vaikunta Ekadesi, Sri Rama Navami and Kumbamela are important festivals celebrated by all.



Deepavali

The Christians celebrate X-mas and New year day. The Muslims celebrate Meeladi-Nabi and the Ramzan. The Buddhist celebrate the Buddha poornima while the Jains celebrate Mahavir Jayanthi. The Sikhs celebrate Guru Nanak Jayanthi. In spite of all these different festivals celebrated by different people, and they advocate and practice religious

tolerance. Yet all the religious people believe that Godhood could be attained by devotion and tolerance.



Pongal

Our customs, Habits and Heritage

The Indian heritage advocates hospitality, charity, friendship, love, unselfishness, dharma, proper conduct, humility, truth, peace, mercy, spiritual feelings, respect for parents and elders and tolerance. All these help the Indian people live in unity forgetting their difference in other respects.

Art and Architecture



Statue of Buddha

Even from ancient days, India was famous for its architectural unique. Still they are growing to suit the modern tasks.

The paintings at Ajantha and Ellora are world famous. The Gandhara Art and Sculpture speaks the excellence of India's greatness in this field. Temple architecture is the best among Indian building architecture.

The North Indians go on a Pilgrimage to the South Indian temples, Churches and Dharkas In the same way the South Indians go on pilgrimage to the North Indian places like Kasi, Mathura, Haridwar and Rishikesh. Thus the Holy centres bring the unity among Indians.

Music and Dance

The Carnatic style and Hindustani style of music is originated in India which is loved and learned by many. Bharathanatiya, Kuchipudi, Kathak,



Bharathanatiyam

Manipur and Oddissi are some of the famous dances in India. In addition to this there are various folk dances which are loved and patronized by the people. In many respects the rich and varied Indian Music and Dance play an important part in fostering unity and integration.

National integration

In spite of diversity in physical features, its influences on person's living, their varied habits, religious faiths, language, food and dress habits make the people look different but the heritage of India binds them together; Humanism, spiritual urge, brotherhood, friendship, love for all and religious tolerance make the Indians live in unity and harmony.

The feeling and thought that all are the sons of Bharath, all are Indians and brothers and sisters help towards the growth of National Integration along with national symbols. National flag, and National anthem. United we live, divided we fall is the spirit with which the Indians live and safeguard National Integration. This unity of India which we have achieved is basically the result of cultural heritage which has developed through the ages right from the days of the Indus culture.

EXERCISE

I) Choose the correct answer.

1. The ancient religion of our country is
a) Vedic religion b) Christianity c) Islam d) Zoroastrianism
2. Recognised official languages of India
a) 25 b) 23 c) 22 d) 27

3. Language is, the means of
a) Transport b) Irrigation c) Communication d) Spirituality
4. Thembavani is related to
a) Hinduism b) Sikhism c) Christianity d) Islam
5. Buddha Poonima is celebrated by the
a) Hindus b) Muslims c) Jains d) Buddhist
6. They play an important part in fostering unity and integration
a) Music and Dance b) Art and Architecture
c) Food and Customs d) Dress and Habits.

II) Answer the following in brief.

1. Why is India called the “Museum of human race”?
2. Name some of the religions of India.
3. How do our customs, habits and heritage help to maintain unity?
4. What do you know about art and architecture of India?
5. Give a brief note on Indian Music and Dance.

III. Answer the following in a paragraph.

1. Explain how do language and literature help to maintain unity in diversity.
2. Write a paragraph on National Integration.

4. Consumer Rights

Consumer is a person one who gives final utility to a commodity. When we pay a price for a commodity or service and use it, we become consumers. Sometimes the shopkeeper cheats us as he or she gives poor quality goods, or charges more for a commodity or service.

Forms of Consumer Exploitation

Due to the expansion of business activities in an economy, we have a variety of goods available in the market. We also have a number of services including insurance, transport, electricity, finance and banking. Our demand for goods and services is influenced by the advertisement.



Grocery Shop

The companies spend a considerable amount on advertisements alone to attract consumers and feed information that they want us to know, but not the information that we as consumers need about the products. When the consumers, do not have sufficient information about the products, normally they get exploited and are sometimes even harassed by the business community.

The consumers are exploited by manufacturers and traders in different ways.



Electronic Shop

The goods being sold in the market are sometimes not measured or weighed correctly. The goods sold are sometimes of sub-standard quality. Selling of medicines beyond their expiry dates and supply of deficient or defective home appliances are generally the regular grievances of consumers. Very often the traders charge a price higher than the prescribed retail price. In the name of genuine parts, duplicate items are being sold to the consumers.

Rights of Consumers

The following are the rights of consumers as codified in the Indian laws, which the business community has to keep in mind:

Rights

The consumers have the right to be protected against marketing of goods and services, which are hazardous to life and property. The quality, quantity, potency, purity, standard and price of goods; should be properly informed. assurance of access to variety of goods and

services at competitive price. In case of single supplier, the consumer has the right to be assured of satisfactory quality and service at a fair price. The consumer's interests should receive due consideration at appropriate forums relating to consumer welfare. They seek redressal against unfair trade practices or exploitation of consumers and right to fair settlement of the genuine grievances and the knowledge about goods and issues relating to consumer welfare. **The Right to Information Act** was passed by the Parliament on 12th Oct 2005 to enable all citizens to use their fundamental rights to access information from public bodies.

The main objectives of the RTI Act

To promote transparency and accountability in the working of every public authority and to setup a practical regime for giving citizens access to information that is under the control of public authorities.

The Right to Information Act (RTI) will cover all levels of government Centre, State, district and the local self governing bodies like Panchayats and Municipal bodies. It will also cover non-governmental organizations- i.e. NGOs, VOs, and other private bodies- that are financed substantially with public funds provided by the government. This means every citizen has the right to put in an application requesting information or copies of records held by these bodies and such information should be given by the concerned body. The citizens' right to information is not explicitly mentioned in the fundamental rights chapter of the Constitution. Parliament passes the Act to enable all the citizens' fundamental right to access information from public bodies.

Consumer Protection Measures

In order to protect the interests of the consumers, the government adopted three strategies:

(1) Legislative measure- Enactment of Consumer Protection Act (2) Administrative measure- Distributing essential commodities through Public Distribution System (PDS) (3) Technical measure- Standardization of the product

a) Legislations Concerning Consumer Rights

The Government enacted a specific law called the consumer Protection Act in 1986. The Act has led to setting up of separate Departments of Consumer Affairs in Central and State governments, which focus exclusively on the rights of the consumers as enshrined in the Act.

Legal formalities for filing a complaint

There are no legal formalities for filing the complaint. Suppose, you find yourself cheated by a trader or a manufacturer and wish to make a complaint to consumer court, you can write the details on a plain paper. Attach the supporting documents, that is, guarantee or warranty card and cash memo with the complaint and submit it in the district consumer court. You do not have to go to any lawyer or professional for legal assistance. You yourself can plead the case in the consumer court.

Most important feature of the Act is the provision for setting up a three-tier system, popularly known as Consumer Courts at national, state and district levels.

National Level- National Consumer Commission (Delhi) Apex court under the Act.

State Level- State Consumer Commission

District Level - District Forum

b) Public Distribution System

Apart from ensuring food security to the poor as a part of certain administrative measures, Public Distribution system is also expected to be strengthened. Measures to prevent hoarding, black-marketing and over-charging by traders need to be enforced.

c) Standardization of Products

Another important measure taken by the government to protect the consumers from lack of quality and varying standards of goods is creation of institutions for setting up the standards for making and producing various products and enforcing them. In India, this has been achieved through **Bureau of Indian Standards (BIS)** and **Agmark**. While BIS caters to the industrial and consumer goods, the Agmark is meant for the agricultural products.

Just as we have standardization of products in India, at the International level also, an institution called **International Organization for Standardization (ISO)**, located in Geneva, serves to provide such a common reference standard. It is a non-governmental organization established in 1947. ISO's work results in international agreements, which are published as international standards.

For setting international food standards, there is a similar body called **Codex Alimentations Commission**. This commission was

created in 1963 by the **Food and Agriculture Organisation (FAO)** and **World Health Organisation (WHO)**, located in Rome, Italy. It develops food standards, guidelines and codes of practices for production and international trade in food products.

India has been observing 24th December as the National Consumers' Day. It was on this day that the Indian Parliament enacted the Consumer Protection Act in 1986. March 15 is observed as 'the World Consumers' day'. This day has a historic importance as it was on this day in 1962, when the Bill for Consumer Rights was moved in the US Congress.

Ralph Nadar, a consumer activist was considered as the Father of Consumer Movement.

Birth of 'Copra'

The right to redress lead to the passing of the **Consumer Protection Act (COPRA)** in 1986 in India which has been defined as the Magna Carta of consumers.

Measures taken by the Government of Tamil Nadu to protect-the consumers

Establishment of Citizen Consumer clubs in every educational institution. Providing consumer education to rural masses through Women Self Help Groups/ Panchayat level federations and through Residents Welfare associations in urban areas. Generating awareness through sectoral workshops/ seminars. Publication and distribution of monthly magazine under the caption. "**Tamil Nadu Nugarvor Kavasam**". Propagating consumer awareness messages through Radio/ Television Media and short video films.

With the motive of developing citizen as a "Valuable Consumer" various consumer organisations are serving together with Government of Tamil Nadu in providing consumer education to general public.



Ration Shop

Consumer Rights in Different Nations

United States

In the United States a variety of laws are passed at both the federal or state levels to regulate consumer affairs. Among them are the Federal Fair Debt Collection Practices Act, the Fair Credit Reporting Act, Truth in Lending Act etc.

At the state level, many states have a Department of Consumer Affairs devoted to regulating certain industries and protecting Consumers.

United Kingdom

The United Kingdom, as member state of the European Union, is bound by the consumer protection directives of the EU.

It also acts as the UK's official consumer and competition watchdog.

Germany

A minister of the federal cabinet is responsible for consumer rights and protection.

Advantages and Disadvantages Advantages

1. Create Awareness – The responsibility to be alert and questioning the price and quality of the goods and services we buy and use.

2. Social Concern – We need to make sure that the product and services that we use or not produced in a situation that harms others.

3. Environmental concern – We should understand the environmental and other consequences of our consumption.



Social Awareness



Environmental Awareness

Disadvantages

1. In many cases consumers are exploited by attractive advertisements through media.

2. The sellers take full advantage of weakness of consumers to mould it

in their favour whether it is scheme of exchange, gifts, lotteries, etc., if there is any problem arise most of the people cannot move to consumer court.

3. The Government in most of the countries has found that, though consumer is the king, he is exploited.

4. The People had no awareness of the consumer rights and products.

Current Planning to create consumer awareness

Planning for Elders staff and leaders participate in core activities, discussions, and popular education activities.

Other Plans

- Trade Fair
- Consumer Fest

- Consumer Awareness Training to self help group / Panchayat level
- Federation members
- Seminar or Orientation to Residents Welfare Associations on Consumer Rights
- Workshop on Unfair Trade Practices
- Seminar on "Credit Cards"
- Seminar on "Mobile phones"

By creating consumer awareness among the people the Government can uplift the standard of living of the people.

EXERCISE

I) Choose the correct answer.

1. A person one who gives final utility to a commodity is
a) Producer b) Consumer c) Shop keeper d. farmer
2. The customer are exploited by the
a) Carpenters b) Farmers c) Tailors d) Traders
3. The Right to Information Act was passed by the parliament on
a) 12th Oct. 2005 b) 21st Oct. 2005
c) 12th Oct 2006 d) 21st Oct .2006
4. World consumer day is celebrated on
a) March 15 b) March 16 c) March 14 d) March 11
5. The Magnacarta of consumers
a) WHO b) COPRA c) EXNORA d) FAO
6. One of the planning schemes to create awareness among the consumers
a) Vana Mahotsava b) Operation 21 c) Trade fair d) Rajarajan 1000

II) Answer the following in brief.

1. How are the customers exploited? Mention any two forms.
2. Write a brief note on the birth of COPRA.
3. Write any two measures taken by the Government of TamilNadu to protect the consumers against exploitation.

III) Answer the following in a paragraph.

1. Write a paragraph on the rights of consumers.
2. What are the measures taken by the Government of TamilNadu to protect the consumers?

The background of the page is a photograph of several stacks of gold coins. The coins are arranged in a way that they appear to be scattered across a document. The document has some text on it, but it is mostly illegible due to the focus on the coins. The lighting is warm, highlighting the metallic sheen of the gold.

ECONOMICS

1. NATIONAL INCOME

Introduction

We classify the people of our society into three such as rich, middle and poor on the basis of their individual income. Likewise the countries are also classified into two such as developed countries and developing countries based on their national income. Now we study what is national income, its components, the measurement of National Income and the need for the study of National Income.

Definition of National Income

“National Income is a measure of the total value of goods and services produced by an economy over a period of time, normally a year”. Commonly National Income is called as Gross National Product or National Dividend.

Basic concepts of National Income Gross National Product (GNP)

Gross National Product 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 (GDP)

Gross Domestic Product is the total value of output (goods and services) produced by the factors of production within the geographical boundaries of the country.

“Goods include the total number of cars, motorcycles, ships, rail engines, pens, pencils, rice, wheat, edible oils etc. The services include the services of doctors, engineers, teachers, artists etc.”

Net National Product (NNP)

Net National product is arrived by making some adjustment with regard to depreciation. That is we arrive the NNP by deducting the value of depreciation from Gross National Products (GNP)

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

Depreciation

Decline in the value of capital assets (machineries) due to tear and wear is measured as depreciation.

Net Domestic Product (NDP)

Net Domestic Product is part of Gross Domestic product. Net Domestic Product is obtained from the Gross Domestic Product by deducting the quantum of tear and wear expenses (depreciation).

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

Percapita Income (PCI)

Percapita Income or output per

person is an indicator to show the living standard of people in a country. It is obtained by dividing the national Income by the population of a country.

$$\text{Percapita Income} = \frac{\text{National Income}}{\text{Population}}$$

International Comparison of Percapita Income

Name of the Country	Percapita income (in us dollars)
Japan	47490
United States of America	46040
United Kingdom	42740
Germany	38860
France	38500
Italy	33540
Brazil	4870
China	2360
Srilanka	1540
India	950
Pakistan	870
Bangladesh	470

Source: World Bank Report

Factors of production are land, labour, capital and organization.

Method of calculating National Income

The National Income of a country can be calculated by the following three Methods.

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

1. Product Method

In this method the total value of all goods and services produced in a country is taken into account.

2. Income Method

In this method, the Income and Payments received by all the people in the country are calculated.

3. Expenditure Method

In this method we add up the expenditure of all people on consumer goods, investment and saving.

Generally in India we use the product method and the Income method to arrive at National Income.

Difficulties in the calculation of National Income

1. Black money: Black money is nothing but unaccounted money. That is money earned by illegal activities, illegal business and money through corruption. This unreported money affecting the economy as well as the society. This black money under estimates the national income

2. Non-monetization: In most of the rural economy, considerable portion of transaction occurs informally and they are called non-monetized economy. This presence of such non-monetary economy keeps the National Income estimates at lower level than the actual.

3. Double counting: Double counting is a difficulty associated in the calculation of National Income. The error of double counting may occur in calculating raw materials first and then the finished products.

E.g. Tyre is the final output of Tyre manufacturers. Its value is accounted under output method. But the same tyre value is added again in a car manufacturing industry.

4. Unscientific and unreliable data: The data collected in the agriculture sector is unreliable and the estimates are unscientific too.

5. Household services: The National Income analysis ignores domestic work, house keeping and social services. Most of such valuable work rendered by our women at home does not enter our national counting

6. Social Services: It ignores volunteer and unpaid social services. For example the wonderful services of Mother Teresa to destitute orphans and the diseased are not included in our National Income.

Need for the study of National Income

1. To measure the size of the economy and level of country's economic performance.

2. To measure the production of goods and services.

3. To trace the trend or speed of the economic growth of our country in relation to previous years and that of other countries.

4. To know the contribution of primary, secondary and tertiary sector in the National Income.

5. To help government, to formulate development plans and policies to increase economic growth.

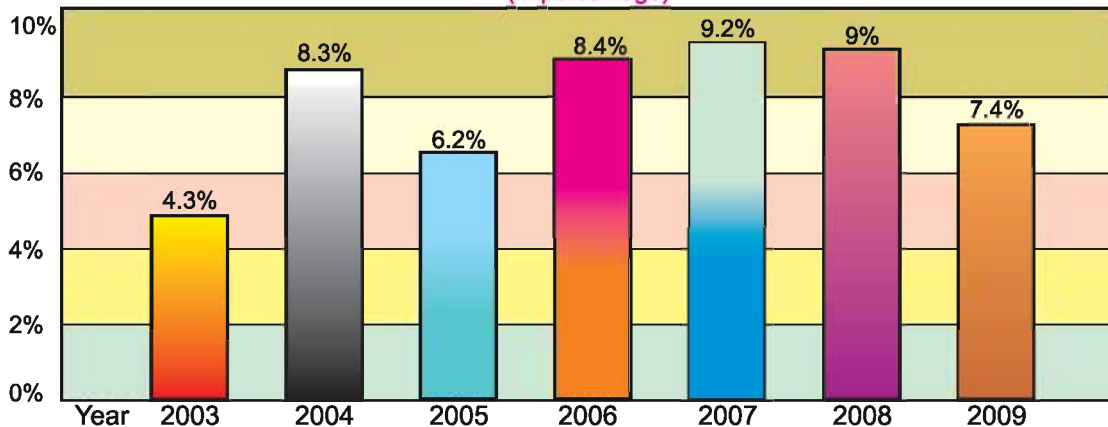
Economic activities are classified into three sectors namely Primary Sector, Secondary Sector and Tertiary Sector.

Primary sector consists of agriculture, forestry, fishing, mining and quarrying.

Secondary sector includes manufacturing industries, electricity, gas, water supply and construction.

Tertiary sector includes trade, hotel industry, transport, storage, communication, finance, insurance, real estate and social services.

Trends in National Income
Growth of National income in India
(in percentage)



Source : central statistical organisation

Sectoral Growth rate of National Income in India (2009).

Sector	Percentage
Primary sector	15.8
Secondary sector	25.8
Tertiary sector	58.4

Source : central statistical organisation

Role of Government in economic development

In modern days, the role of government has totally changed. In olden days, the Laissez-faire doctrine was very much prevalent. The government was more or less a police state confining their activities to maintain law and order, rendering justice and protecting the country from external aggression.

Laissez-faire means non-intervention by the government.

In recent times the role of government has expanded. Government functions as a welfare state catering to the needs and aspirations of the people.

Functions of Modern welfare state

1. Protective functions

Economic development can be achieved only if there is peace in the state. So the primary function of the government is to maintain law and order besides protecting the people from external aggression and internal disorder.

2. The Administrative function

The three important wings of the state are legislature, Executive and Judiciary

3. Social Security functions

The government undertakes social security measures by offering relief to the poor, sick and the unemployed.

4. Economic Functions

The government takes various measures to improve agriculture and develop trade and industry.

Eg. Grant of subsidies loans at lower rate of interest, administered and support prices etc.,

Conclusion

Thus the Government performs a wide range of functions in order to accelerate economic development.

EXERCISE

I) Choose the correct answer.

- National Income is otherwise called
 - Real Income
 - Money Income
 - Nominal Income
 - Gross National Product
- National Income of a country can be calculated by
 - 2 methods
 - 3 methods
 - 4 methods
 - 5 methods
- Net National Product
 - GNP (-) Depreciation
 - Net domestic product (-) Depreciation
 - Percapita Income (-) Depreciation
 - Gross domestic product (-) Depreciation
- India's percapita Income is
 - 220 dollars
 - 950 dollars
 - 2930 dollars
 - 600 dollars
- Primary sector consists of
 - Trade
 - Construction
 - Agriculture
 - telecommunication
- National Income is a measure of
 - Total value of money
 - Total value of food grains
 - Total value of Industrial products
 - Total value of goods & services
- Expenditure method estimates national income from the
 - Output side
 - Income side
 - Expenditure side
 - Savings side
- Income method sums all forms of
 - Expenditure
 - Income
 - Savings
 - Investment
- Percapita Income is an Indicator of
 - Richness of People
 - Poverty of people
 - Living Standard of people
 - Literacy of people
- Primary sector Contribution to national Income in India is
 - 15.8 %
 - 25.8%
 - 58.4%
 - 12.8%

II) Write Short Notes on the Following.

1. Define National Income
2. How you arrive at NNP?
3. Write a note on Income method?
4. What is Percapita Income?
5. Write any two needs for the study of National Income.
6. What is tertiary Sector?
7. What is Laissez-faire?
8. Write a note on the Productive functions of modern welfare State.
9. Define Gross Domestic Product?
10. What is net Domestic Product?

III) Write in a Paragraph.

1. Explain two basic concepts of National Income.
2. Explain the need for the study of National Income.
3. Explain the methods of calculating National income
4. Write about the Functions of Modern Welfare State.

Activity

1. Find out the Percapita income of Tamilnadu

2. INDIAN ECONOMY AFTER INDEPENDENCE

INTRODUCTION

This lesson explains the basic features of the Indian economy, its status during the British rule and after Independence. Now we study the Indian economy before the Independence.

Indian Economy during the British Rule

Indian economy in the early days was a village economy. Agriculture was the primary occupation and nearly 70 percentage of the population engaged in Agriculture. The community of the village produced the necessary requirements and rarely the products went beyond the local market. The relationship with neighbouring village is very much limited.

More over India had a well established industries in the nature of handicrafts. The chief among them is textile industry. Trade and commerce flourished only in urban centres.

Bengal was famous for calicos, Benares for silk, Tamilnadu for Handlooms, Kashmir for shawls and Ludhiana for woolen products.

When the British conquered India they disintegrate the village economy. The British rule coincided with the industrial revolution in England. This Industrial revolution exploited India to serve the economic interests of Great Britain. India was considered as the repository of raw materials intended for supplying the industrial needs of England. All the expansions in the fields of transport, communication, irrigation, education etc were mainly aimed at accelerating the process of economic drain from India.

The important consequences of British rule in India are as follows:

1. Decline of the rural economy
2. Decline of Indian handicrafts
3. Introduction of new land system.

We conclude, though the British policy was aimed at exploiting the natural resources for the benefit of England, their administration ensured unified India, security and safety but not prosperity.

After Independence the leaders and the planners aimed at improving the economy of the nation. The then Prime Minister Jawaharlal Nehru wanted strengthening the rural base. He gave high priority to agriculture, irrigation and power projects. To achieve progress Nehru decided that India would be a mixed economy in which public and private sectors would co exists. Hence Nehru recommended five year plans to improve the National Economy.

Five Year Plans in India

Five Year plan concept was borrowed from former Soviet Russia. In Russia it was a seven year plan. To execute Five Year plan, the planning commission was set up in India in the year 1950. The Prime Minister of India is the chairman of planning commission of India. Its activities are coordinated by a full time Vice-Chairman.

Objectives of Five Year plans

The important objectives of five year plans in India are as follows:

1. Increasing the National Income .
2. Reducing the inequalities in the distribution of income and wealth.

3. Elimination of poverty.

4. Providing additional employment.

5. Removing the bottlenecks in agriculture production and in manufacturing sector.

National development council is formed to ensure the cooperation of states in the implementation of five year plans. Chief Ministers of the states are its members.

Ten five year plans have already been completed. Now, Eleventh Five year plan is in progress.

Eleventh five year plan (2007-2012)

The eleventh five year plan commenced in April 2007. It covers a period of five years i.e., 2007-2012.

Objectives of Eleventh five year plan

1. Increasing the public investment in irrigation, rural electrification and rural roads.

2. To reduce the subsidies in power, fertilizer.

3. Promoting agricultural research.

4. To ensure environmental protection.

5. Larger employment opportunities.

6. To develop rural infrastructure.

7. To abolish poverty.

8. To reduce the dropout rate in primary schools.

Now, let us discuss the agricultural and industrial development which are the key factors for our national Economy.

Agricultural Development and food production

In India, agriculture is the backbone of the economy. Nearly 40% of the

National Income of India is derived from agriculture.

Green revolution

Green revolution was introduced in the year 1967. The Indian Council of Agricultural Research (ICAR) introduced this new strategy through land reforms, promoting the use of High Yielding Variety (HYV) seeds and improved irrigation facilities, to increase the agricultural production.



Impact of Green Revolution

Land reforms

The government initiated speedy land reform measures like land ceiling legislation, abolition of intermediaries and tenancy legislation. In this regard the Bhoodhan movement started by Vinobhabhave deserves a mention.



Acharya Vinobhabhave

Through the Bhoodhan movement millions of acres of land were received from the landlords and distributed to the landless poor.

High Yielding Variety seeds programme

The green revolution largely means increasing production of food grains by using High Yielding Variety seeds especially of wheat and rice. The use of High Yielding Variety seeds requires regular supply of water, fertilizer, pesticides and financial resources.

As a result of green revolution large number of states benefited by producing more crops. This enabled India to achieve self-sufficiency in food grain production. The credit of introducing the High Yielding Variety seeds goes to Indian Council of Agriculture Research and many agricultural universities in India particularly Ludhiana, Pantnagar (UP) and Coimbatore.

Industries



Hindustan ship yard-vizakapattinam

A number of public sector industries were started. The important public sector industries are Hindustan machine tools, Hindustan Shipyard, Sindhri Fertilizer factory, Integral Coach Factory and newsprint mills.

Public sector units refer to industries run by government e.g. Neyveli Lignite Corporation, Bharath Heavy Electricals Limited, BSNL and Air India.

Private sector industries refer to industries run by private like Asokh Leyland, TVS group of companies, Godrej and TI cycles.

High priority was given to heavy engineering and machine building industries, castings and forgings, fertilizer and petroleum products.

Economic reforms of 1991

The year 1991 has a special significance in the Indian economy. Many economic measures were introduced to achieve the objectives of new economic policies of government.

The economic reforms aimed at rapid industrialization. For this, abolition of industrial licensing, allowing foreign investment, encouragement to private sector and coexistence of public sector and private sector were taken by the government.

Because of the economic reforms foreign investment in India is increased many fold. Multi national companies like Nokia, Ford, Hyundai and L&T have made investment in India.

Multi National corporations (MNC) are business firms operating in several countries but centrally managed from one (home) country.

More over small scale industries and cottage industries were allowed to expand by providing them concessions.

Cottage industries are household industries depending on local market and production is of primitive methods. Example-handlooms, Coir industries.



Cottage industries

Small scale industries are more or less mini factories. They depend on large scale industries:

Example: Industrial units in and around BHEL of Trichy and Ranipet.

The notable aspects of economic reforms are as follows 1.Liberalisation, 2.Privatisation 3.Globalisation.

1. Liberalisation

Liberalisation means movement towards a free market system. Liberalisation otherwise known as withdrawal of regulation and restrictions for private sectors.

Private sectors are encouraged to enter into core industries which are reserved for public sector.

2. Privatisation

Privatisation generally means transforming all economic activities from public sector to private sector. It also refers to the setting up of private units in public utility services.

3. Globalisation

Globalisation refers where a country draw raw materials from any source of the world and manufacture goods and services. The finished goods also find a place in the global market. Thus globalisation is the linkage of nation's markets with global markets.

The Ultimate benefits of Liberalisation, Privatisation and Globalisation in India are the sizable increase in foreign exchange reserves.

Science and technology

The another important aspect in Indian Economy is the science and technology. India occupies a unique position in the fields of nuclear programmes, space research, astronomy and Astro physics, oceanography, bio-technology and organic chemistry.

Nuclear power programme

The importance of nuclear energy to meet the long term energy needs of the country was felt quite early in 1954. The primary objective of India's nuclear energy programme is the development and use of nuclear technology for peaceful purposes such as power generation, application in agriculture, medicine and industry. The first atomic power station in Trombay was started in the year 1956. At present there are 17 atomic power stations in India.



Atomic power station-kalpakkam

Space research

India is one of the six nations in the world, capable of launching satellites. The Indian space research organization (ISRO) under the department of space is responsible for research and development in the area of satellite communications and remote

sensing. In the year 1975 the first satellite Aryabhata was launched. So far in the last 40 years 50 satellites were launched. An Indian mission to moon-Chandrayan 1 was launched in 2008. It discovered presence of water in the moon.



Rocket launching

Oceanography

The department of ocean development has projects for exploration of marine living and non-living resources and conservation of its environment.



Marine Resources

Bio-technology

Through several research and development projects significant developments in the field of agriculture, health care, animal sciences, environment and industry have been achieved. (e.g. oral vaccine for cholera)

Telecommunication

India has the tenth largest telecom network in the world. The network

comprises of 77.93 million telephone connections and over 1.79 million public call offices. There are 65.2 crores cellular subscribers in the country and the cellular base is growing at the rate of one million per month.



Tele Communication Antenna

Information technology

Information technology refers to the use of computers and software to manage information. Bangalore, Hyderabad and Chennai are the main information technology centres in India. It earns millions of crores of rupees as foreign exchange. Tata Consultancy Services, Infosys, Wipro, HCL and Cognizant technologies are the major players in the information technology sector. IT sector provides massive employment opportunities to the Indian youth.

Educational achievement in India

In 2011 census the literacy rate increased to 74.04 percent. The male literacy rate increased to 82.14 percent. The female literacy rate was 65.46 percent. The number of literate persons increased to 778.45 millions in 2011.

Among the states Kerala has the highest literacy rate exceeding 93.9

percent while the lowest literacy rate has been Bihar with 63.8 percent. Literacy rate of Tamilnadu is 80.3 percent.

Primary education

The Indian government takes serious efforts for the enrolment of children up to the age of 14 years. It has also banned child labour. In India 80% of all recognized schools at the elementary stage are government run or supported. Education has been made free and compulsory upto the age of 14 under the Right of children to Free and Compulsory Education Act of 2009.

Because of the quality enhancement programs through the agencies of District primary education programme and Sarva Sikhsha Abhiyan enrolment has been enhanced. Now the right to education gives impetus to primary education.

Secondary education

The Secondary education covers children of 14 – 18 years which covers 88.5 million children. A significant feature of India's secondary school system is inclusion of vocational stream at the higher secondary level. Another new feature of secondary education is the implementation of Rashtriya Madhyamik Shiksha Abhiyan (RMSA).

Higher education

India's higher education system is the third largest in the world after China and the United states. The main governing body at the tertiary level is the University Grants Commission. As on 2009, India has 20 central Universities, 215 state Universities, 100 Deemed Universities and 13 institutes which are of national

importance. Other institutions include 16000 colleges including exclusive 1800 women colleges. The emphasis in the tertiary level education lies on science and technology. Some institutions of India such as the Indian Institute of Technology (IIT) and Indian Institute of Management (IIM) have been globally acclaimed for their standard of education.

The Union and the state governments in India have been earmarking substantial financial outlays for the development of education. The spread of education across different sections of society should be ensured so as to attain economic growth.

Socio-Economic Development in Tamilnadu

Tamilnadu stands third among the Indian states in the achievement of socio-economic development.

Education

Primary Education

The primary education in Tamil Nadu had a remarkable expansion during the period of Thiru. K.Kamaraj, the then Chief Minister of Tamilnadu. In the field of primary education, access to primary schools is almost totally achieved. All the villages and habitations have been provided with a primary school. To ensure Universal enrolment, universal retention, universal achievement the government provides welfare schemes such as the noon meal and free bus pass. Under the noon meal scheme food is prepared in every school daily and five eggs per week are served to the students. More over the state collaborates with centrally sponsored scheme Sarva Shiksha Abhiyan (SSA) to achieve the objectives of elementary education for all.

Secondary Education

Secondary education serves a bridge between primary and higher education. With the aim of encouraging the students the government distributes free cycles to the XI Standard Students. Laptop computer were provided to X Std students who get ranks. The government is also providing computer education and vocational education to the students for gainful employments. The Rashtriya Madhyamik Shiksha Abhiyan (RMSA) scheme is implemented with the central government to promote talent among students to enable them to become socially and economically active citizens.

Teacher Education

There are 30 District Institute of Education and Training to produce efficient teachers and to impart skills in modern teaching techniques.

Higher Education

Tamilnadu is one of the most advanced states in the country in the field of Higher Education. The government makes higher education more accessible to the economically weaker sections and rural students. The aim of the government is to increase the gross enrolment rate in higher education from the present level of 11.72% to 25% by 2020.

Agriculture

Agriculture has been the major source of livelihood for the people of Tamilnadu. The major food crops of Tamilnadu are paddy, cholam, cumbu and ragi. Sugarcane, cotton, sunflower, coconut, cashew, chilli, gingelly and groundnut are the commercial crops. The plantation crops of Tamilnadu are

coffee, Tea, cardamom and rubber. Agricultural production in Tamilnadu has increased due to land reforms and improved methods of agriculture.

Industrial development

The Tamilnadu government encourages industrial development. The major industries in Tamilnadu are cement, Textiles, petro chemicals, sugar and information technology.

Electricity



Neyveli lignite corporation

The important power stations in Tamilnadu are listed below:

1. Thermal Power

Thermal power stations are in Ennore, Tuticorin, Mettur, Basin Bridge and Neyveli.

2. Hydel Power

Hydel power stations are in Mettur, Kundah, Periyar Dam, Kothayar Dam, Pykara, Singara and Moyar.

3. Atomic Energy

Atomic power stations are in Kalpakkam and Koodankulam.

4. Wind Energy

It is a non-conventional form of energy. The windmills are situated in Coimbatore, Kanyakumari, Tuticorin, Ramanathapuram and Tirunelveli.



Wind mill

5. Biomass Energy

This is another kind of non-conventional energy. This kind of electricity is produced in Namakkal and Dharmapuri Districts.

Biomass energy is a non conventional form of energy made from agricultural waste.

To cope with the increasing demands 8315 MW Production capacity thermal Stations are being started in Tamilnadu. In a joint venture the National Thermal Power Corporation and Tamilnadu Electricity Board have established a thermal station in Valloor of Thiruvallur District. These will definitely augment the increasin

Transport

The efficient road system in Tamilnadu is the reason for rapid industrialization. The rail transport has connectivity throughout India. Surveys are conducted to lay new railway lines. Mass rapid transit systems and Chennai metro rail project provides a rail network to Chennai city. There are three major ports in Tamilnadu-Chennai, Ennore and Tuticorin. The minor ports are Cuddalore and Nagapattinam. The airports in Tamilnadu are Chennai, Coimbatore, Madurai, Trichy, Salem and Tuticorin.



Chennai Port

Conclusion

Because of the efforts of the union and state governments agricultural development and industrialisation are taking place in India. In the near future India is to be a major economic power in the World.

EXERCISE

1) Choose the correct answer.

- Five year plan in India was borrowed from
 - Soviet Russia
 - United States of America
 - United Kingdom
 - United Arab Emirates
- Eleventh Five Year Plan Period is
 - 1956-1961
 - 1997-2002
 - 2002-2007
 - 2007-2012

3. Chairman of Planning commission of India is
 - a) President of India
 - b) Prime Minister of India
 - c) Finance Minister of India
 - d) Vice President of India.
4. Planning Commission of India was setup in the year
 - a) 1962
 - b) 1950
 - c) 1956
 - d) 1949
5. Nehru decided that India would be a
 - a) Mixed economy
 - b) Socialist Economy
 - c) Capitalist Economy
 - d) Money economy
6. Green revolution was introduced in the year
 - a) 1967
 - b) 1977
 - c) 1987
 - d) 1957
7. Bhoodan Movement was started by
 - a) Jayaprakash Narayan
 - b) Jawaharlal Nehru
 - c) Acharya Vinobhabhave
 - d) Dr. Rajendra Prasad
8. Which year has a special Significance in Indian Economy.
 - a) 1981
 - b) 1991
 - c) 2001
 - d) 2010
9. The Organization which is responsible for research and development in the area of Satellite and Communication is
 - a) ICAR
 - b) ICMR
 - c) ISRO
 - d) CSIR
10. As per 2001 census the literacy rate in India is
 - a) 64.8%
 - b) 65.8%
 - c) 66.8%
 - d) 67.8%

II) Write Short notes on the Following.

1. Write any three Objectives of Eleventh Five year plan.
2. Write a note on Green revolution?
3. What is Mixed Economy?
4. What is Multi National Corporation?
5. Write a note on cottage Industries.
6. Write a note on Liberalization
7. What is Privatisation?
8. What do you mean by Globalization?
9. List down any four welfare measures implemented by the Tamil Nadu Government.
10. Write a note on Transport System in Tamil Nadu.

III) Write in a Paragraph.

1. Write down the Objectives of Eleventh Five Year Plan.
2. Explain Green Revolution.
3. Explain Economic Reforms of 1991.
4. List down the various welfare measures implemented by the Tamil Nadu Government.
5. Explain the Various Power Programs in Tamil Nadu.

Activity

1. Find out the major agricultural crops in your area.