



GENERAL STUDIES  
*for*  
SSC-JE  
STUDY MATERIAL

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# HISTORY

ANCIENT MEDIEVAL MODERN

STUDY MATERIAL

<b>HISTORY .....01-66</b>
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**Unit-I: ANCIENT HISTORY ..... 03-18**

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## UNIT-I ANCIENT HISTORY

- ‘Herodotus’, a Greek historian is known as ‘Father of History’.

### EARLY MAN

#### (a) Paleolithic Period (5,00,000 BC to 10000 BC)

- Hunters used stone equipments.
- Use of hand axes, cleavers and choppers is the characteristic feature of this period.
- **Sites:** Valley of river soan (Pakistan), Thar Desert, Belan valley of Mirzapur (UP), Narmada valley, Kashmir, Bhimbetka near Bhopal, Andhra Pradesh, Central Madhya Pradesh.

#### (b) Mesolithic Period (9000 BC – 4000 BC)

- Hunting, fishing, food gathering and in later period rearing of animals.
- Sites:** Rajasthan, UP, South of river Krishna, Adamgarh in MP.
- Rock painting of many birds, animals and human being found in Bhimbetka near Bhopal.

#### (c) Neolithic Period (5000 BC – 1800 BC)

- Cultivation of plants and rearing of animals is characteristic feature of this period, nomadic herders transformed into sedentary farmers due to the advancement in agriculture.
- Village settlement started.
- **Tools:** axes, saws, chisels, celts, burins etc.
- **Crops:** Wheat, barley, plum, dates, pea.
- Animals reared – Goat, Sheep, Cattle and Buffalo.
- **Sites:** Mehargarh (Baluchistan), Kashmir valley on Jehlum River (Barzahom and Gufkral), Belan valley in Mirzapur (U.P.), Assam, Deccan plateau.
- Dog burial along with human grave is a cultural feature of Central Asian Neolithic culture.

#### (d) Chalcolithic Period (1800 BC – 1000 BC)

- Stone copper age.
- First metal used by man was copper.
- Sites:** Banas and Berach Basin (Udaipur), Malwa, Western Maharashtra.
- Stage of settlement.

### Indus Valley Civilization and Culture (2500 BC – 1750 BC)

- Older than the chalcolithic age.
- First site discovered – Harrappa (1921 by Daya Ram Sahni) hence also called Harrappan culture.
- Total area 1.5 million km<sup>2</sup> and about 1500 sites spread over Sindh, Baluchistan, Punjab, Haryana, Rajasthan, Gujarat, Northern Maharashtra, Western UP and Kashmir.

**Northern Most Site:** Manda (Jammu Kashmir) bank of river Chenab.

**Southern Most Site:** Daimabad (Maharashtra) Pravara river.

**Eastern Most Site:** Alamgirpur (Meerut (U.P.)) Hindon river.

**Western Most Site:** Sutkagendor (Makran Coast) Iran-Pakistan border.

**Ports:** Lothal, Sukta gender, Allahdino, Balakot.

**Capital cities:** Harappa, Mohanjodaro

**Major Cities of Indus Culture****(a) Harappa:**

- Unearthed by Dayaram Sahni in 1921.
- Situated on the bank of river (**Ravi**) in Montgomery district of Pakistan Punjab.
- Two rows of 6 granaries (Nearest to the river), labourer's quarters.
- Seal of virgin goddess, stone symbol of male and female sex organs, painted pottery, two type of cemetery (R-37, H), Dice, copper mirror, wheat and barley in wooden mortar, copper scale, clay figure of Mother goddess.

**(b) Mohenjodaro:**

- Second site of Indus culture excavated in 1922 by R.D. Bannarji.
- Largest site.
- Largest building of Harappan culture, the **great Granary** found here.
- Situated at the bank of river Indus in Larkana district of Sindh (Pakistan).
- Mohenjodaro means "Mound of Dead".
- Great bath, Great granary, Bronze image of nude female with right hand on hips, multipillar rectangular assembly hall, seals of Pashupati Mahadeva, 2 Mesopotamian seals, Steatite seal of bearded man, Painted seal of Demi god. Clay figure of Mother Goddess, 1398 seals (57% of total seal).
- First street located in Mohenjodaro.

**(c) Chahundaro:**

- Unearthed by Mackey (1925) and R.C. Majumdar (1931).
- Situated on the banks of river Indus in Nawabshah, district of Sindh (Pakistan).
- Only Indus city with out Citadel.
- Bronze toy cart, Terracota model of Bullock cart, Inkpot, Lipsticks, Metal workers, Impression of dog's paw on bricks.

**(d) Lothal:**

- Excavated by S.R. Rao (1954).
- Situated on the banks of the river Bhagava in Kathiawar district of Gujarat (India).
- Only city having a artificial dockyard (world's first tidal port).
- Burial of male and female in same grave (Double burial), evidence of rice cultivation, terra cotta figurine of horse. Iranian, Persian and Baharainian seals, Bead makers seal.
- Game of chess evolved in Lothal.

**(e) Kali Bangan:**

- Excavated by A. Gosh and B.B. Lal in 1951.
- Situated on the banks of Ghaggar river in Hanuman garh district of Rajasthan (India).
- Kalibangan means "the bangles of black colour".
- Having both proto Harappan and Harappan culture phases.
- Evidence of mud bricks and mixed cropping from Kalibangan.
- Ploughed field, 7 fire altars, Mesopotamian cylindrical seal.

**(f) Banwali:**

- Excavated by R.S. Bist and located on banks of River Ghaggar in Hissar district of Haryana.
- Largest number of barley grain found from the Banwali.
- Lack of systematic drainage system, clay figure of Mother goddess.

**(g) Sur Kotada:**

- Located in Gujarat and Excavated by J.P. Joshi.
- Evidence of hoarse bone found from Surkotada.
- Only city to have stone wall fortification.
- Evidence of Pot burial.

**(h) Dholavira:**

- Excavated by J.P. Joshi in 1967-68 located in Kutchh distric of Gujarat on the River Luni.
- Largest Indus settlement, latest site discovered in India.
- Large stadium found.
- Entire city was divided into three parts instead of two as usual the citadel, the middle town and the lower town.
- Evidence of dams, embankments and irrigation from dholavira.
- A unique water harnessing system and storm water drainage system, gaint water reservoir.

**(i) Daimabad:**

- Excavated by Dhavalikar, located in Maharastra on the river Pravara.
- Largest number of bronze items found (charioteer with chariot, rhino, ox, elephant).

**SOCIAL, ECONOMIC AND POLITICAL SYSTEM OF INDUS CIVILIZATION****1. Main Crops:**

- Wheat, Barley, Cotton, Musturd, Peas, Dates, Pome, Sesame, Leguminous plants.
- Evidence of Rice cultivation from **Lothal** and Rangpur only.
- Cotton was first produced in the world by Indus people.
- Evidence of Indigo production from **Rojdi** in Gujarat.
- Wooden ploughs and stone cutter were used in agriculture.

**2. Animal Rearing:**

- Besides agriculture animal rearing also common in Indus civilization.
- They reared buffaloes, oxen, sheep, asses camels, pigs, goats, dogs, elephants etc.
- Remains of horses found only in Surkotada.

**3. Trade:**

- There was extensive foreign and inland trade.
- In land trade developed first among the areas of saurastra, Rajasthan, South India, Bihar Uttar Pradesh, Maharastra.
- Foreign trade with **Sumeria** or **Mesopotamia** (Iraq), Bahrain, Afganistan, central Asia.

**4. Main Exports:** Agriculture products, cotton goods, pottery, terracotta figurines, beads, conch-shell, Ivory product, copper etc.

- Iron was not known to Indus people.

Imports	From
Jade	Central Aisa
Torquoise	Persia
Lapis Hazli and Sapphire	Badak – shan (Afganistan)
Gold and silver	Afganistan, Persia and Kolar (Karnataka)
Tin	Afganistan
Stealite	Shahar – i – sokhta, Kirthar hills
Copper	Baluchistan, Arabia
Amethyst	Maharastra

- Bullock carts, pack animals and boats used for transportation.



# INDIAN-POLITY

STUDY MATERIAL



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## CONSTITUTION (POLITY)

Constitution is the fundamental & organic law of the country establishing conception; character & organs of its government as well as prescribing the extent of its sovereign powers and manner of its exercise.

**Indian Constitution Is Written Constitution. Characteristics Of Written Constitution Are**

- It is Codified
- Constitution Is Supreme
- It is Enacted Constitution
- It is rigid
- It has dual polity.

**Making of Indian Constitution**

- Constituent assembly is a body of members which is responsible for drafting constitution Assembly at the time of Indias independence consist of indirectly elected member of parliament. They were elected by elected member of provincial legislative assembly. Phases of constituent assembly and characteristics associated with it are given below :-

**Phase 1 (9 Dec. 1946 – 14 Aug. 1947)**

- Not sovereign body
- Merely drafting body
- Acted According to provision of Cabinet missions.

**Phase 2 (15 Aug 1947-26 Nov 1949)**

- Sovereign body
- Was drafting body as well as provisional parliament

**Phase 3 (27 Nov 1949 – 22 Mar 1952)**

- Acted as provisional parliament

1<sup>st</sup> Amendment Act 1951 was taken by provisional parliament. Inclusion of National Song, National Anthem and tricolour were done.

Original Constitution hadl	<ul style="list-style-type: none"> <li>• 395 Articles</li> <li>• 22 Part</li> <li>• 8 schedules</li> </ul>
Present Constitution have	<ul style="list-style-type: none"> <li>• more than 440 Articles</li> <li>• 22 Parts</li> <li>• 12 schedules</li> </ul>

**INFLUENCE OF OTHER CONSTITUTION ON INDIAN CONSTITUTION****(1) Government of India Act 1935**

- 60% of constitution is based on it.
- Federal scheme
- Office of governor
- Ordinance making power of government and president

**(2) British constitution**

- Rule of law
- Single citizenship
- Civil services
- Parliamentary of government

**(3) U.S. Constitution**

- Fundamental right
- Independence of Judiciary
- Removal of Supreme Court and High Court judge
- Preamble Judicial Review

**(4) Canadian constitution**

- Residuary power

**(5) Ireland irish constitution**

- Directive principle of state policy
- Method of election of president

**(6) Weimer constitution of Germany**

- Emergency provision

**(7) Australian constitution**

- Concurrent list
- Freedom of trade and commerce

**(8) South African constitution**

- Procedure for amendment simple function by majority so it is called functional majority of constitution

**(9) USSR constitution**

- Fundamental duties

**TYPES OF MAJORITIES DEFINED IN INDIAN CONSTITUTION****(1) Simple Majority**

- More than 50% of members present and voting member of house
- Following provisions are included in it
- No confidence motion
- Confidence motion
- Vote of thanks to president
- Adjournment Bill
- Ratification of amendment by state legislature
- Money bill, financial bill
- Election of Chairman of Rajya Sabha, Speaker and deputy speakers of Lok Sabha and legislative assembly.

**(2) Absolute Majority**

- More than 50% of total strength of house
- Nowhere used in isolation. It is used in association with other majorities.

**(3) Effective Majority**

- More than Total strength of house excluding vacancy
- Provision included under it are
- **Article 67 (b)** – passing of resolution in Rajya Sabha for removal of vice president
- Removal of deputy chairman of Rajya Sabha and legislative council and; removal of speaker and deputy speaker of Lok Sabha and legislative assembly.

**(4) Special Majority (SM). There are three types of special majorities.**

- (i) *Special Majority under article 249*
  - More than or equal to 2/3 present and voting
  - Example:– Rajya Sabha authorising parliament for creation of all India Service (Art 312)
- (ii) *Special Majority under article 368*
  - Relating to amendment of constitution
  - > 2/3 present and voting plus majority of total membership of house
  - Example
  - Removal of Supreme Court and High Court Judge
- (iii) *Special Majority under article 61*
  - More than 2/3 of total member of house.
  - Impeachment of president

**PREAMBLE**

- We the people of India, having solemnly resolved to constitute India into a sovereign, socialist, secular democratic, republic and to secure to all its citizens JUSTICE, social, economic & political; LIBERTY of thought, expression, belief, faith & worship; EQUALITY of status & opportunity; and to promote among them all FRATERNITY assuring the dignity of individual & unity and integrity of the Nation. In our constituent assembly this 26th day of November 1949, do hereby adopt, enact and give ourselves this constitution.
- According to decision by Supreme Court Preamble is a Part of Indian constitution. It can be amended but it is included under basic structure framework as defined by Supreme Court. So it can be amended but its basic features cannot be amended.
- Words secular socialist and integrity were added by *42 Amendments Act*.

**STATES AND UNION**

Under article 3 union government can change name, area and boundary of state

**Procedure** defined under Article 3

- Recommendation of President needed
- President refer the bill for consent of state and the sets time limit for it. Opinion of state is not binding on union.
- Bill introduced in either house of parliament
- Bill is passed by simple majority by both house of parliament.

**CITIZENSHIP**

- Legal relationship between centre and states
- Constitution do not lay down comprehensive definition regarding citizenship. All matter are covered by Indian citizenship act 1955.
- Citizenship law are based on two principle
  - (i) Jus soli (law of soil)
  - (ii) Jus sanguine (law of blood relationship)

**5 modes of obtaining citizenship**

- (i) By birth (Jus soli) – Born on the soil of India and one or both parent of child were Indian.
- (ii) By descent (Jus sanguine)
  - Person born outside India but one or both of parents were Indian citizens
- (iii) By registration



# ECONOMICS

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11. Taxation in India
12. Concept of Budget
13. Practice-Set

# 1. INDIAN ECONOMY

## Important Terms

**AMALGAMATION:** It is the final form of monopoly combination. When two independent firms or limited companies constitute themselves into a single business entity it is called amalgamation. The concerned business firms then lose their separate entity and merge into one. Amalgamation takes place with a view to effect economies, reduce competition and capture markets.

**ABSOLUTE ADVANTAGE:** A country has an absolute advantage if its output per unit of input of all goods and services produced is higher than that of another country.

**AGGREGATE:** Any total (e.g., the gross national product; the sum of monthly sales).

**AMORTISATION:** The process of fully paying off indebtedness by instalments of principal and earned interest over a definite time.

**ANTI-TRUST:** The laws and legal actions designed to ensure fair trade and competition and to prevent business monopolies.

**APPRAISAL FEE:** The charge for estimating the value of property offered as security.

**ASIAN-PACIFIC ECONOMIC COOPERATION (APEC):** Forum to advance economic cooperation, trade, and investment freedom in the Asia-Pacific region, chaired by Indonesia. Goals include long run development, growth of small and medium sized businesses and infrastructure development.

**ASSOCIATION OF SOUTH-EAST ASIAN NATIONS (ASEAN):** An economic cooperation, which includes Thailand, Indonesia, Malaysia, Singapore, the Philippines, and Brunei. The ASEAN Alliance for Mutual Growth (AMG) is a multilateral initiative to encourage beneficial trade relations between the US and ASEAN countries.

**ASSETS:** Possessions of value, usually measurable in terms of rupees.

**ASIAN DEVELOPMENT BANK (ADB):** Created to foster economic growth and cooperation in the region of Asia and Far East and help accelerate economic development for the countries of the region. The Head Office is located at Manila, Philippines.

**AUTOMATION:** Use of self-operating machines to perform processes within a manufacturing system.

**AUTOMATED CLEARING HOUSE - ACH:** Electronic clearing and settlement system for exchanging electronic transactions among participating depository institutions; such electronic transactions are substitutes for paper checks and are typically used to make recurring payments such as payroll or loan payments.

**AUTOMATED TELLER MACHINES - ATM:** Computer-controlled terminals located on the premises of financial institutions or elsewhere, through which customers may make deposits, withdrawals, or other transactions as they would through a bank teller. Other terms sometimes used to describe such terminals are customer-bank communications terminal (CBC) and remote service unit (RSU). Groups of banks sometimes share ATM networks located throughout a region of the country that may include portions of several states.

**ARBITRAGE :** When a person performs functions of middle man and buys and sells goods at a particular time to cash the price differences of two markets, this action is termed as arbitrage. Purchases are made in the market where price is low and at the same time, goods are sold in other market where the price are high. Thus the middleman earns profit due to price difference in two markets.



**ARBITRATION:** Where there is an industrial dispute, the Arbitration comes to the force. The judgement is given by the Arbitrator. Both the parties have to accept and honour the Arbitration. Arbitration is the settlement of labour disputes that takes place between employer and the employees.

**AUCTION :** When a commodity is sold by auction, the bids are made by the buyers. Whoever, makes the highest bid, gets the commodity which is being sold. The buyers make the bid taking into consideration the quantity and quality of the commodity.

**AUTARCHY :** If a country is self-sufficient, it does not require the imports for the country. Autarchy is an indicator of self-sufficiency. It means that the country itself can satisfy the needs of its population without making imports from other countries.

**BALANCE OF TRADE:** The difference between the value of the goods that a nation exports and the value that it imports. When a country has an export surplus, its balance is favourable.

**BANK FOR INTERNATIONAL SETTLEMENTS - BIS:** The BIS, located in Basle, Switzerland, was established in 1930 to administer the post-World War I reparations agreements. Since the 1960s, the BIS has evolved into an important international monetary institution, and has provided a forum in which central bankers meet and consult on a monthly basis. As an independent financial organization, the BIS performs a variety of banking, trustee, and agent functions, primarily with central banks.

**BANK HOLDING COMPANY - BHC:** A company owns, or has controlling interest in, one or more banks. A company that owns more than one bank is known as a multi-bank holding company. A bank holding company may also own another bank holding company, which in turn owns or controls a bank; the company at the top of the ownership chain is called the top holder.

**BANK NOTE:** A term used synonymously with paper money or currency issued by a bank. Notes are, in effect, a promise to pay the bearer on demand the amount stated on the face of the note.

**BANK RUN - BANK PANIC:** A series of unexpected cash withdrawals caused by a sudden decline in depositor confidence or fear that the bank will be closed by the chartering agency, i.e. many depositors withdraw cash almost simultaneously. Since the cash reserve a bank keeps on hand is only a small fraction of its deposits, a large number of withdrawals in a short period of time can deplete available cash and force the bank to close and possibly go out of business.

**BARTER:** Trade in which merchandise is exchanged directly for other merchandise. No money is used. Barter is important in countries using currency not readily convertible to another form of currency.

**BILATERALISM:** An international policy having as its objective the achievement of particular balances of trade between two nations by means of discriminatory tariffs, exchange, or other controls. The initiative is usually taken by the country having an 'unfavourable' balance of trade. Extensive bilateralism results in a shift of international trade away from channels that would result from the principle of comparative advantage.

**BOND:** Certificate or evidence of debt issued by corporation and governments involving a promise to pay a certain amount of money on a specific date and interest at a stated rate.

**BUSINESS PROCESS OUTSOURCING:** In many instances corporations move certain processes of their business to Lesser Developed Countries where the supply of labour is large and cheap. This is popularly known as BPO. India has become the preferred global hub for software development and Business Process Outsourcing.

**BUYDOWN:** A lump sum payment made to the creditor by the borrower or by a third party to reduce the amount of some or all of the consumer's periodic payments to repay the debt.

**BALANCE OF PAYMENT:** Balance of payment of a country is a systematic record of all economic transactions completed between its residents and the residents of remaining world during a year. In other words the balance of payment shows the relationship between the one country's total payment to all other countries and its total receipts from them. Balance of payment is a comprehensive term which includes both visible and invisible items. Balance of Payment not only include visible export and imports but also invisible trade like shipping, banking, insurance, tourism, royalty, payments of interest on foreign debts.

**BALANCE SHEET:** Balance sheet is a statement showing the assets and liabilities of a business at a certain date. Balance sheet helps in estimating the real financial situation of a firm.

**BANK RATE:** Bank Rate is the rate of discount at which the central bank of the country discounts first class bills. It is the rate of interest at which the central bank lends money to the lower banking institutions. Bank rate is a direct quantitative method of credit control in the economy.

**BIRTH RATE :** Birth Rate (or Curde Birth Rate) is number of the births per thousand of the population during a period, usually a year. Only live births are included in the calculation of birth rate.

**BLACK MONEY :** It is unaccounted money which is concealed from tax authorities. All illegal economic activities are dealt with this black Money. Hawala market has deep roots with this black money. Black money creates parallel economy. It puts an adverse pressure on equitable distribution of wealth and income, in the economy.

**BLUE CHIP :** It is concerned with such equity shares whose purchase is extremely safe. It is a safe investment. It does not involve any risk.

**BULL :** Bull is that type of speculator who gains with the rise in prices of shares and stocks. He buys share, or commodities in anticipation of rising prices and sells them later at a profit.

**BULL MARKET:** It is a market where the speculators buy shares or commodities in anticipation of rising prices. This market enables the speculators to resale such shares and make a profit.

**BUOYANCY:** When the government fails to check inflation, it raises income tax and the corporate tax. Such a tax is called Buoyancy. It concerns with the revenue from taxation in the period of inflation.

**BUSINESS CYCLE:** Business Cycle (also known as trade cycle) are periods of fluctuations in the economic activity of organised communities. It is composed of period of good trade characterised by rising prices and low unemployment, alternating with period of bad trade characterised by falling prices and high unemployment. Every trade cycle have five different subphases-depres-;ion, recovery, full employment, prosperity (boom) and recession.

**CAPACITY UTILISATION RATE:** The percentage of the country's total plant and equipment hat is currently in production. Usually a decrease n this percentage signals an economic slowdown, *while* an increase signals economic expansion.

**CAPITAL:** Money, goods, services, and information used for the production of further wealth. Capital can be in the form of money (in the form of ash or assets), raw materials (such as minerals, vehicles, computers), human labour (including expertise), and information (software, data, knowledge).

**CAPITAL GOODS:** The tools, equipment and achinery used to produce other goods or to provide services.

**CAPITAL FORMATION:** The use of money and other resources to increase inventories and to produce new plants, tools and equipment, which will improve productive capacity.

**CAPITAL- INTENSIVE INDUSTRY:** Production of goods or services where the capital investment per person employed is higher (labour cost is less than 50% of total production cost). An ex-

ample would be a chemical plant with expensive production and control equipment but few employees. The opposite type is labour-intensive industry. Industries in the more developed countries tend to be capital intensive.

**CAPITAL INVESTMENTS:** An expenditure for plant or for equipment that adds to the value of the property of a business, rather than for operating expenses.

**CAPITALISM:** An economic system in which the means of production are privately owned and controlled and which is characterised by competition and the profit motive.

**CASH CROP:** Crops that are grown primarily for export purposes (such as coffee in Columbia).

**CENTRAL BANK:** The principal monetary authority of a nation, a central bank performs several key functions, including issuing currency and regulating the supply of credit in the economy. In India this is the Reserve Bank of India.

**CENTRALLY PLANNED ECONOMY:** The economic system of communist or socialist states in which decisions on production, investment, distribution, wages and prices are made by the central government. In other words all corporations are publicly owned. This is to be contrasted with a free market economy. For many Lesser Developed Countries a centrally planned economy can be a useful phase for building infrastructure such as roads or electrical power grids that are necessary for the development of a more productive free market economy.

**CERTIFICATE OF ORIGIN:** Document required by certain foreign countries for tariff reasons certifying the country of origin of specified goods.

**CLEARING HOUSE:** An institution where mutual claims are settled between accounts of member depository institutions. Clearinghouses among banks have traditionally been organised for check-clearing purposes, but more recently Indian Economy have cleared other types of settlements, including electronic fund transfers.

**COLLATERAL:** Property that is offered to secure a loan or other credit and that becomes subject to seizure on default.

**COMPETITIVE BIDDERS:** One of two categories of bidders on Treasury securities: competitive and non-competitive. Competitive bidders are usually financial institutions.

**CONSORTIUM:** A grouping of corporations to fulfil a combined objective or project that usually requires inter-business cooperation and sharing of the goods.

**COMPARATIVE ADVANTAGE:** When a country specialises in products that it can produce at a lower cost than another country; and trade to get products it can only produce at a higher cost than another country.

**CONGLOMERATE:** A big business made up, of several unrelated industries or product lines.

**CONSIGNMENT:** Delivery of merchandise from an exporter to an agent under agreement that the agent sells the merchandise; for the account of the exporter retains title to the goods until the agent has sold them. **Agents sells the goods for commission and remits proceeds to producer.**

**CONSUMER:** One who uses goods and services; buyer of goods and services.

**CONSUMER GOODS:** Products used to meet immediate consumer demands rather than being used for further productive purposes.

**CONSUMER PRICE INDEX:** A measure of the cost of living as tabulated by the U.S. Bureau of labour Statistics based on the actual retail prices of a wide variety of consumer goods and services at a given time and compared to a base period, which is changed from time to time.

**CONTRACTIONARY FISCAL POLICY:** A policy to increase governmental spending and/ or a reduction in taxes.



# GEOGRAPHY

WORLD GEOGRAPHY

&

INDIA GEOGRAPHY

## STUDY MATERIAL

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# PART-I : WORLD GEOGRAPHY

## CHAPTER-1 UNIVERSE

Geography term was coined by the Greek Scholar **Eratosthenes (276 – 194 B.C)**, also known as “**Father of Geography**”.

### **Physical Geography**

Totality of all physical matters energy, the planets, stars, galaxies and the contents of the inter galactical space.

**Galaxy:** A Huge congregation of stars held together by the forces of gravity.

- Our own galaxy is **Milky way** or **Akash Ganga**
- Andromeda nearest galaxy, spiral in shape
- **Dwarf galaxy** latest known galaxy.
- **NGC 4486 (M87)** and **NGC 4472(M49)** largest and brightest galaxies.

### **Theories of Universe Origin**

#### **(a) Big Bang Theory:**

Proposed by Belgian astronomer – priest **Abbe Georges Lamaitre**. It is also known as **expanding universe hypothesis**. According to this theory.

(i) In the beginning, all matter forming the universe existed in one place in the form of a “tiny ball” (singular atom) with an unimaginably small volume. Infinite temperate and infinite density.

(ii) At the Big Bang the “tiny ball” exploded violently. This led to huge expansion. Big Bang took place 13.7 billion years before the present. The expansion continues even to the present day. As it grew, some energy was converted into matter. There was particular rapid expansion with in fraction of second after the bang. There after the expansion has slowed down. With in the first three minutes from the Big Bang event, the first atom began to form.

(iii) With in 300,000 years from the Big Bang, temperature dropped to 4500 K (Kelvin) and gave rise to atomic matter. The universe became transparent.

(iv) The expansion of the universe means increase in space between the galaxies.

**(b) Steady State Theory:**

Proposed by **Hermann Boudi** and **Thomas Gold**. According to this theory:

The universe everywhere remained relatively uniform, unchanged without beginning or end.

**(c) Pulsating (Oscillating) Universe Theory:**

Proposed by Dr. Alan Sandage, According to this theory– The universe expands and contracts alternately between periods running into tens of billion years.

This is the latest theory of the evolution of the universe.

**Light Year:**

The distance the light travel in one year is called light year.

$$\text{One light year} = 9.461 \times 10^{12} \text{ km}$$

- Speed of light = 300,000 km/s
- Light year is the measure of distance in space.

**Astronomical Unit (A.U.):**

- Evolved by radar astronomy
- A light year is equal to 60,000 Astronomical unit (A.U.)
- One Astronomical unit is equal to 93 million miles or 150 million km.

**Black Holes:**

A black hole is the smallest and the densest object in universe. Its gravitational power is incredible. It can swallow up every thing near it and nothing that gets into it can never escape it. It can neither crack nor split and do not decrease in size. Black holes are the stars which have contracted so much that they developed super density  $10^{16}$  gm per cubic centimeter. CYGNUS X – 1 is recently identified black hole.



## CHAPTER-2

# THE SOLAR SYSTEM

### Origin of Earth and Solar System:

Many theories have been advanced with regard to the origin of solar system and Earth as follows.

#### A. Early Theories:

##### (i) Geocentric Theory: By CLAUDIUS PTOLEMY (140 A.D)

According to him:

- Earth was the unmoving centre of the universe, around which the sun and other heavenly bodies revolved.

(ii) **Heliocentric Theory:** First advanced by Copernicus (1473 – 154), a Polish astronomer later supported by Italian astronomer Galileo Galilei (1564 – 1642), According to this theory.

- The sun was the centre of the universe and the earth and other planets revolve round it.

#### B. Modern Theories:

##### (i) Buffon's Hypothesis:

Proposed by French naturalist comet de Buffon (1749)

- “Planetary system originated as the result of a collision between the sun and a huge comet, due to this collision lot of matter freed from the sun on condensation this matter formed planets and sub planets.”

##### (ii) The Gaseous Mass Theory:

In 1775 German Philosopher IMMNUEL KANT suggested this theory. According to this theory “Scattered primordial matter of small shape and low temperature were pulled towards one another due to gravitational force. This result into collision which increased the temperature of matter and produced “angular velocity”. High increase in temperature and speed changed the mass of particles in gaseous state and began to emit light. Due to the angular velocity. “Centrifugal force” increased so much that rings began to separate from the gaseous mass, on cooling these rings became planets and sub planets and remaining gaseous mass became the sun.”

##### (iii) Tidal Hypothesis:

Proposed by James Jeans and Jaffreys H. Also known as Hit and Run Theory or CATASTROPHIC

#### Theory or Tidal action theory

According to this hypothesis. A wandering star approached the sun. As a result, a cigar shaped extension of material was separated from the solar surface. As the passing star moved away. The material separated from the solar surface continued to revolve around the sun and slowly condensed into planets.

Some other theories with the regard of origin of solar system are as follows.

- **Nebular theory** proposed by Marquis de Laplace in 1799.
- **Planetesimal theory** proposed by T.C. Chamberlain and F.R. Moulton in 1904.
- **Meteorite theory** proposed by British scientist Lockyer.
- **Inter staller hypothesis** proposed by OTTO Schmidst
- **Binnary star theory** proposed by Russel and Lyttleton in 1936.
- **The Nova theory** by Hoyle and Lyttleton.



### The Sun

- Centre of solar system, ultimate source of energy for life on earth.
- Diameter 1400000 kms.
- Surface temperature 6000° C, temperature of centre around 15,000,000° C.
- Composed of 71% Hydrogen, 26.5% Helium and 2.5% other elements.
- Hydrogen is converted into Helium by nuclear fusion.
- Shining surface of sun is called photosphere.
- Outer layer of sun is called corona visible only during the total eclipse of sun or with special telescope called **coronagraph**.
- About 150 million kms away from earth.
- Light of sun take 8.5 minutes to reach the earth.

### The Planets

Opaque bodies which continuously revolving around the sun and lighted by the sun. There are eight planets namely mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.

**Classification of Planets :** Eight planets are divided in two groups.

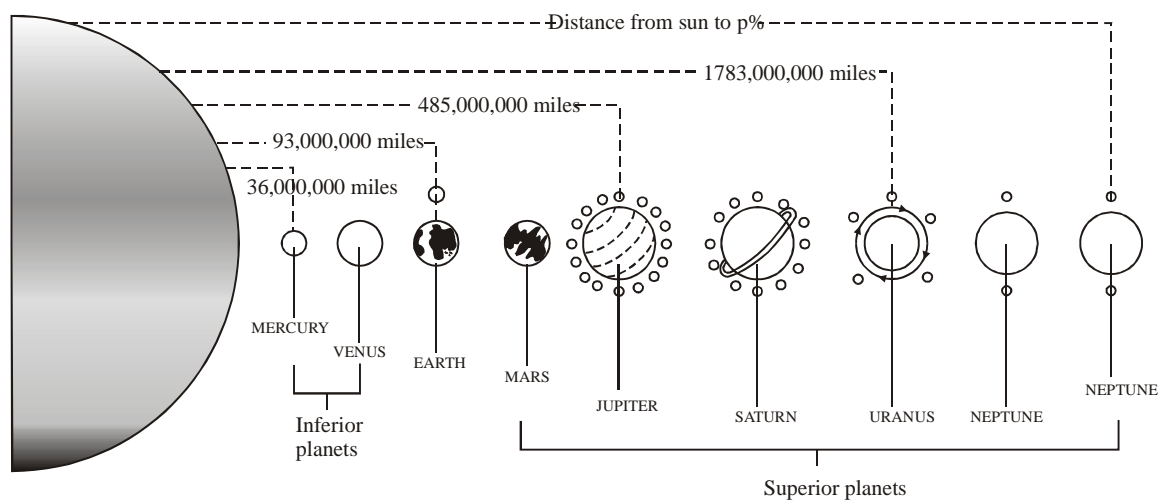
(i) **Inner Planets:** Mercury, Venus, Earth and Mars are called inner planets because they lie between the sun and belt of asteroids. These four planets are called **Terrestrial planets** or **Earth like planets** as they are made up of rock and metals and have relatively high densities.

(ii) **Outer Planets:** Other four planets Jupiter, Saturn, Uranus, Neptune are called outer planets as they lie beyond the asteroid belt. These planets also called Jovian (Jupiter like) or gas giant planets. Most of them are much larger than terrestrial planets and have thick atmosphere, mostly of Helium and Hydrogen.

– Mercury and Venus are called **inferior planets** and rest of planets are called **superior planets**.

Jupiter > Saturn > Uranus > Neptune > Earth >  
Venus > Mars > Mercury

**Figure Sequence of planets according to their size (descending order)**



**Figure: Sun and eight planets**

# GENERAL STUDIES

ENVIRONMENT

STUDY MATERIAL



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## CHAPTER-1 ENVIRONMENT

### Introduction

Environmental studies deals with every issue that affects a living organism. It is essentially a multidisciplinary approach that brings about relation of our natural world and human impact. It is an applied science since it gives partial approach to make human civilization sustainable on the finite resources that are available.

Environment is not a single subject because it is an integration of several subjects that include both science as well as social studies. If we want to understand the different aspects of our environment. We need to understand biology, chemistry, physics, geography, resource management economics and population issues. Thus the scope of environmental studies is extremely wide and covers some aspects of nearly every major discipline.

### Ecology:

Ecology is a scientific study of the reciprocal relationship between organisms (including microbes, plants, animals, man) with their environment. It deals with ways in which organism are affected by their environment, how they make use of environmental resources including energy flow and mineral cycling.

The term ecology was coined in late 1868. It has been derived from two Greek word namely 'oikos' meaning home or place to live in and 'logos' meaning study. Literally it is the study of the home of nature.

Ecology is defined as the scientific study of the relationship of the living organisms with each other and with their environment.

### Environment:

Everything that surrounds or affects an organism during its life time is collectively known as its environment which comprises both living (biotic) and non-living (abiotic) components. All organisms i.e., from virus to man are dependent on the environment for food, energy, water, oxygen, shelter and other needs.

The environment can be defined as the sum total of living and non-living components, influences and events, surrounding an organism.

The environment provides us variety of goods and services which are important for our daily life. These natural resources include air, water, soil and minerals, along with the climate and solar energy.

### Concept of environment:

The relationship and interaction between organism and environment is complex. Since no organism can survive without interacting with other organisms. So each organism has other organism as a part of its environment. As we know environment is not static therefore both biotic as well as abiotic factors keep changing continuously.

**Components:**

There are two components of environment

1. Biotic (living)
2. Abiotic (non-living)

**Biotic component**

Green plant  
Human being  
Non-green plants  
Decomposers  
Parasites  
Animals

**Abiotic component**

energy  
Temperature  
Water  
Sunlight  
Soil  
Wind

**For example** to understand it let us take the example of fish in the pond.

The fish in the pond consists of both biotic and abiotic component for e.g., microscopic organism called plankton as well as aquatic plants and animals and decomposers are biotic component.

Abiotic components are light, water, oxygen, nutrients, other gases and organic matter are dissolved

**Ecosystem**

An ecosystem is a complex set of relationship among the living resources, habitats and resident of an area. It induces plants, trees, animals, fish, birds, micro-organism water, soil and people. An ecosystem can be defined as the system resulting from the integration of all living and non-living factors of the environment.

An ecosystem is an open system with a continuous but variable influx and loss of material and energy. It is a basic functional unit with no limits of boundaries and consists of both biotic and abiotic components interacting with each other both necessary for maintenance of life upon earth. Thus an ecosystem represents the highest level of ecological integration which is energy based and this functional unit is capable of energy transformation accumulation and circulation.

**Concept of an ecosystem:**

An ecosystem is a region with a specific and recognizable landscape form, for e.g., forest, grassland, coastal area, wetland, mangroves, desert etc. The nature of the ecosystem depends on its geographical features such as hills, mountains, plains, rivers, lakes, coastal areas or islands and is also controlled by climatic conditions i.e., the amount of sunlight, temperature and rainfall in the region. The geographical, climatic and soil characteristics form its non-living i.e. abiotic components. These features create conditions that support a community of plants and animals whose evolution has produced to live in these specific condition. The living part of an ecosystem is called biotic components.

Ecosystems are divided into Terrestrial or land based ecosystem and Aquatic or water based ecosystem. These form the two main habitat conditions for the earth's living organisms. Life can exist only in a small portion of the earth's land, water and atmosphere.

An ecosystem can be understood at various levels:

**At global level:** the skin or layer of the earth on the land, sea and air forms the *biosphere*.

**At sub-global level:** this is divided into biographical realms for e.g., Eurasia is called the Palearctic realms, south and south east Asia is called oriental realms, North America is the Nearctic realm, South America's is Neotropical realm, Africa is the Ethiopian realm and Australia is Australian realm.

*At a national or state level*, this is divided into **Biographical region** for e.g., western ghat, Eastern ghat, Deccan plateau, the Himalayas, the Gangetic plains, the Coastal belts, Andaman and Nicobar Islands etc. These geographically distinctive areas contain plants and animals that have adapted themselves to live in each of these regions.

*At the local level*, each area has several structurally and functionally identifiable ecosystem. Such as different types of forests, grassland, rivers catchments, wetlands mangroves etc. Therefore we can say the living community of plants and animals in any area together with the non-living component of the environment i.e. soil, air water surely constitute the ecosystem.

### **Difference between Ecology, Environment and Ecosystem:**

For example let us take the example of Engineers India of Institute (EII) and its students. Let's say that ecology would be the scientific study of student's relationship with the EII as a whole. The institute being the environment in which students studies and the set of circumstances surrounding the student in which the environment would be the teachers, books, other students etc, are said to be ecosystem.

### **Components of Ecosystem:**

The ecosystem comprises of two components are Biotic i.e. living components and Abiotic i.e. nonliving component. But both the component of ecosystem and environment are same.

#### **1. Biotic components:**

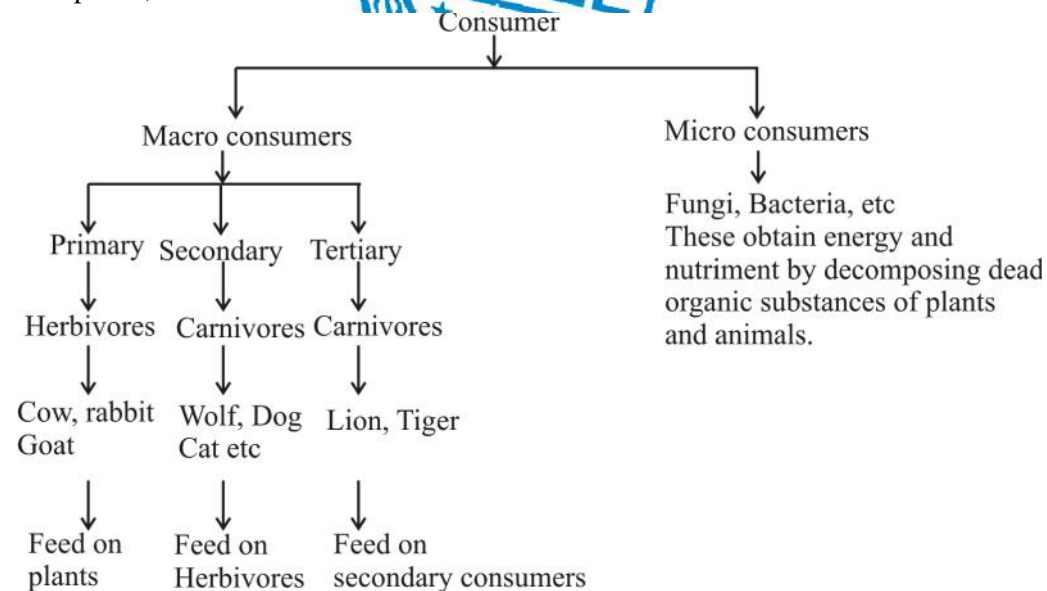
It includes living organism consisting of plants, animals and microbes and are classified according to their functional attributes into producers and consumers:

(a.) *Primary producers:* Autotrophs (self-nourishing)

These mainly consist of green plants which make their food from inorganic raw materials like carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O) in the presence of sunlight through the process of photosynthesis and supply indirectly to other non-producers.

(b.) *Consumers:* Heterotrophs

Consumers are incapable of producing food themselves so they depend on organic food derived from plants, animals or both. Consumers can be divided into macro and micro consumers.



Omnivores are organism which consume both plants and animals e.g., Human being.



## 2. Abiotic components:

Abiotic components are the inorganic and non-living organism. It consists of water, air, soil, light etc. It also includes various gases like oxygen, Nitrogen, carbon dioxide etc, and physical processes like climate, weather conditions, floods, forest fire, earthquakes etc. Abiotic factors are the most important determinants of an organism which exists in the environment.

### Advantages of the ecosystem:

- Provision of food, fuel and fibre
- Provision of shelter and building materials
- Purification of air and water
- Detoxification and decomposition of water
- Stabilization and moderation of earth's climate
- Moderation of floods, droughts, temperature extremes and forces of wind
- Generation and renewal of soil fertility, including nutrient cycling
- Pollination of plants, including many crops control of pests and diseases
- Maintenance of genetic resources as key inputs to crop varieties and livestock breeds, medicines and other products.
- Cultural and aesthetic benefits

### Ecotone

Ecotone is a zone of function between two or more diverse ecosystem for e.g, mangrove, wetlands forests represent an ecotone between marine and terrestrial ecosystem, other example are grassland, estuary and river bank.

### Function of an Ecosystem

The function of an ecosystem is quite broad and dynamic. But its main function can be divided into three parts:

1. Energy flow
2. Nutrient cycling (biogeochemical cycles)
3. Ecological succession

#### 1. The Energy flow:

The energy cycle is based on the flow of energy through the ecosystem. The energy from sunlight is used by the plant into growing new plant material like leaves, flowers, fruit etc. since plant grow by converting sun's energy directly into their tissues, they are known as producers in the ecosystem. The plants are used by herbivores which give them energy. The carnivores in turn depend on the herbivores for the energy need. Thus different plant and animal species are linked to one another through food chains. Each food chain has three or four links. However each plant or animal can be linked to various other plants and animals which are called food web.

*The energy in the ecosystem can be shown in the Trophic level interaction.* Which shows how the members of an ecosystem are connected based on nutritional needs.

The trophic level interaction involves three steps are:

- A. Food chain
- B. Food web
- C. Ecological pyramids