

## HISTORY

### Evolution of Humans and Society - Prehistoric Period:

- The DNA of a chimpanzee is 98% identical to that of a human being
- The chimpanzee and the pygmy chimpanzee (also known as bonobo) are our closest living relatives.
- Wheat, barley and peas were cultivated around 10,000 years ago. Fruit and nut trees were cultivated around 4,000 BC (BCE). They comprised olives, figs, dates, pomegranates and grapes.
- Neolithic people perhaps devised the first pottery. They made pottery, using a slow wheel called turn-table or made pottery out of hand. Before firing, the pottery was polished with pebbles. This process is known as burnishing.

### Ancient Civilisations:

- The word 'paper' comes from 'Papyrus'. The Egyptians wrote on the leaves of a plant called papyrus, a kind of reed, which grew on the banks of Nile.
- The city of Akkad later became the city of Babylon, a commercial and cultural centre of West Asia.
- The Assyrian Empire was the first military State in history. They emerged militarily powerful because they were the earliest to use iron technology effectively.
- The Indus civilisation is also known as the Harappan civilisation, since Harappa was the first site to be discovered. This civilisation is known as Harappan civilisation rather than Indus Valley civilisation, since it extended beyond the Indus river valley.

### Early Tamil Society and Culture:

#### Intellectual Awakening and Socio-Political Changes:

- The statue of Bahubali (known as Gomateswara, 57 feet) at Shravanabelgola in Karnataka is the tallest Jain statue ever carved out in India.
- Jaina Kanchi : Jainism was one of the major faiths in the Tamil region during the 7th century AD (CE). The Pallava king. Mahendravarman was a Jain. Under the influence of Appar he got converted to Saivism. Close to the present town of Kanchi there is a place called Jaina Kanchi where you find many Jain temples. One of the important temples is the Thiruparuthikundram temple, where the ceiling is painted with the life story of Mahavira.
- When Buddha's closest disciple Ananda asked Buddha whether women can become monks. Buddha said, Yes, if women can follow the path of renunciation, they can become monks and completely enlightened just as men.
- Iron plough agriculture led to the rise of empires Assiryan in Iran and Magadha in India.
- There are 33 edicts, including 14 major rock edicts, 7 pillar edicts and 2 Kalinga edicts, apart from Minor Rock edicts and Minor Pillar inscriptions. They form the reliable sources to know about the Mauryan Empire, in particular the dharmic rule of Ashoka.
- Our national emblem with four lions is a replica of the Ashoka Pillar of Saranath.
- Chandragupta's minister Chanakya is credited with a book titled Arthashastra, which gives a detailed account of the Mauryan administration.

**The Classical World:**

- Classical World comprises ancient Greece and Rome. Classical Age refers to the inter-locking civilisation of ancient Greece and ancient Rome, known as GraecoRoman World.
- The ruling class in Greece controlled the land. Slaves cultivated the land. Greek writers and philosophers saw the ownership of slaves as essential to a civilized life. Aristotle compared the master and slave relationship to that of husband and wife, and father and children.
- The word 'democracy', literally means "rule of the people". In reality it excluded slaves, women, and non-residents known as metics (traders and craftsmen).
- The Athenian government, after Pericles, did not like Socrates' way of finding truth. In a trial, Socrates was accused of refusing to accept the gods recognized by the State and corrupting the youth. The jury found Socrates guilty and sentenced him to die by drinking hemlock (a poison).
- Cultural development that took place rapidly after Alexander's death 323 BC (BCE) is called Hellenistic civilisation.
- A major source of revenue to the Roman state was slave trade. The island of Delos became a great slave market.
- There were more slave revolts in Rome than in Greece. The revolt of Spartacus was the most famous. It began in 73 BC (BCE) involving about 70,000 slaves. The revolt threatened the power in Rome. Ultimately Spartacus was killed and the revolt crushed. 6,000 of the followers of Spartacus were executed.
- St. Sophia Cathedral was built in mid-sixth century AD (CE) The most magnificent building in Europe at that time, it was known for its innovative architectural techniques. This Cathedral was turned into a mosque by the Ottoman Turks when they captured Constantinople.

**The Middle Ages:**

- Great Wall of China: Between 8th and 7th centuries B.C. (BCE), the warring states in China built defensive walls to protect themselves from enemies from the north. During Chin (Qin) Dynasty, the separate walls were connected and consequently the wall stretched from east to west for about 5000 kilometres. This wall, considered to be one of the wonders of the world, served to keep nomadic tribes out. The Wall was further extended and strengthened by the succeeding dynasties. Now it is 6,700 kilometres in length.
- The quantity of iron China produced in 1078 A.D. (C.E.) exceeded 114,000 tons (England produced only 68,000 tons even in 1788). China excelled in ceramics and porcelain-making. This technique was not known to Europe for another 700 years. Gun powder was in use by 1044. China possessed printed books half a millennium before Europe. (Chris Harman, A People's History of the World, p. 111.)
- Birth of Sunni and Shia Sects The quarrel for the leadership of Arabia led to a division in Islam. The two sects formed out of the division were the Sunnis and Shias. The Sunnites, Sunni Muslims, maintained that the head of the Islamic state and successor to the Prophet should be elected by representatives of the whole body of believers. The Shiites, the followers of Shia sect, opposed elevation to any highest political and religious office other than those related to the Prophet by blood or by marriage
- Baghdad- a city known as the city of Arabian Nights, 'was a vast city of palaces and public offices and schools and colleges, and great shops and parks and gardens. The merchants carried on a vast trade with the East and West.... Visitors came to Baghdad from all over the world, especially learned men and students and artists Nehru, Glimpses of World History.

- Mongols and Chengiz Khan Mongols were nomads. They were herdsmen. The Mongols were experts in warfare and produced a remarkable chief, Chengiz Khan. He was a great military genius. Mongols' hold over Russia for about 300 years made Russia technologically backward from the rest of Europe until the end of Middle Ages."

### State and Society In Medieval India (From the Cholas to the Mughals):

#### Industrial Revolution

- Cartel is an association of manufacturers or suppliers with the purpose of maintaining prices at a higher level and of restricting competition.
- In 1846, an American, Elias Howe invented the 'sewing machine' to stitch clothes. With the invention of new methods of bleaching, dyeing and printing, cloth with different colours could be produced during the early half of 19th century.

#### Colonialism in Asia and Africa:

- Portuguese 1505-1961
- Dutch East India Company (Netherlands) 1605-1825
- Danish East India Company (Denmark) 1620-1869
- French East India Company 1668-1954
- British East India Company 1612-1757
- British Company Rule 1757-1857
- British Imperial Rule 1858-1947

## GEOGRAPHY

#### Lithosphere – I Endogenetic Processes:

- The terms 'lithosphere' and 'crust' are not the same. The lithosphere includes the crust and the uppermost part of the mantle. All terrestrial planets have a lithosphere. The lithospheres of Mercury, Venus, and Mars are much thicker and more rigid than that of the Earth.
- The Deepest Place ever reached by human technology vary from time to time. Till 2011 Kola Super Hole (12,262m) in Murmansk, Russia was the deepest place. But in 2012, Z-44 Chavyo Well (12,376m) broke the record, and is supposed to be 15 times the height of Burj Khalifa in Dubai. The exploration of Earth's interior continues.
- The instrument which records the Earthquake waves is called 'seismograph' or 'seismometer'. The science that deals with Earthquakes is called 'seismology'.
- On 26 December 2004 a tsunami occurred in the Indian Ocean. It was the result of the Indio-Australian Plate subducting below the Eurasian Plate. It was caused by an Earthquake measuring a magnitude of above 9 in the Richter scale. The Earthquake caused the seafloor to uplift, displacing the seawater above.
- The term 'volcano' is derived from the Latin term VULCAN, which is the name of Roman "God of Fire".

**Lithosphere – II Exogenetic Processes:**

- The World's deepest sinkhole is China's xianozhai Tienkang at 2172 feet. There are as many as 15000 Sinkholes in Illinois.
- The thickest known deposit of loess is, 335 metre found in the loess plateau in China.

**Atmosphere:**

- In 1772 CE Daniel Rutherford discovered Nitrogen in atmosphere. In 1774 Joseph priestly discovered oxygen in atmosphere
- Auroras are cosmic glowing lights produced by a stream of electrons discharged from the Sun's surface due to magnetic storms that are seen as unique multicoloured fireworks hanging in the polar sky during midnight.
- Magnetosphere lies beyond the exosphere. It is the earth's magnetic belt, where proton and electrons, coming out from the sun are trapped by the earth. The magnetic field extends to around 64,000 km above the Earth.
- During the day, the land masses get heated more rapidly than the oceans. Heated air ascends and this causes low pressure on the adjoining ocean. Therefore, the wind blows from ocean to land in the afternoon. This is called **sea breeze**.
- Sea breeze helps in reducing the temperature of the coastal region especially during the summer season. During the night, the land cools more rapidly than the ocean. Cold air sinks and forms high pressure. The wind blows from land to sea during the night, this is called **land breeze**.
- The **windward** is the side of a mountain which faces the prevailing wind. It **receives heavy rainfall**. The **leeward side of the mountain** is the side sheltered from the wind. It receives **very less rainfall**.
- The rotation of the Earth causes deflection of winds from their original path, called the "Coriolis effect". Winds are deflected to the right in the northern hemisphere and to the left in the southern hemisphere which is known as "Ferrel's law". This was profounded by William Ferrel. He used "Coriolis force" named after G.G Coriolis (1792-1843) for proving Ferrel's Law.
- Super Cyclone A violent cyclone that hit Odisha, on Friday, 29 October 1999, was one of the most devastating and strongest storm to hit the Indian coast. Winds of up to 260 kph raged for over 36 hours. The winds caused a sevenmetre tidal wave that swept more than 20 km inland and brought massive destruction and death to a number of coastal districts in the state of Odisha. It is estimated that more than 10 million people in 12 coastal belt districts were affected by the cyclone. More than 10,000 people lost their lives.
- Deliberations for naming cyclones in the Indian ocean region began in 2000 and a formula was agreed upon in 2004. Eight countries in the region Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Srilanka, and Thailand contributed a set of names which our assigned sequentially whenever a cyclonic storm develops.
- During sunset cirrus clouds look colourful hence they are called as "Mare's Tails".
- The only sphere which contains all clouds in the atmosphere is troposphere.
- Any thunderstorm which is associated with fall of hail stones is known as hailstorm. Hailstorm is one of the most feared weather phenomenon because it has the potential to destroy plant, trees, crops, animals and human life.
- Mawsynram is the wettest place of India as it is located in the windward side of the Purvachal hills, whereas Shillong lies on the leeward side and thus receives less rainfall. This is the same, in the case of Mumbai and Pune.

- When the **relative humidity** of the air is 100%, the air is said to be **saturated**. **Saturated** air will not absorb any more water vapour. The temperature at which air gets saturated is called **dew point**. Humidity of the atmosphere is measured by the wet and dry bulb thermometer also called the **Hygrometer**.
- Absolute humidity is expressed in terms of grams of water vapour present per cubic metre of air. Relative humidity is expressed in percentage.

### Hydrosphere:

- Finland is known as the land of thousand lakes. There are 1,87,888 lakes in Finland.
- Water table is a level below the ground, where water is found collected beneath the Earth's surface.
- **Aquifers** are porous rock strata filled with water, found below the earth's surface.
- **Sylvia Earle** is a famous American oceanographer. She was named as the first, 'Hero for the Planet' by Time magazine for her efforts towards marine life protections.
- **Jacques-Yves Cousteau (1910-1997)** was a famous French Ocean explorer, who conducted extensive under-sea investigations .
  - He belonged to the information service of the French Navy, and was sent on missions to **Shanghai and Japan (1935-1938)** and in the **USSR (1939)**.
- **Honours**
  - Cross of War 1939-1945 (1945)
  - U.S. Presidential Medal of Freedom (1985)
- A Hypsometric Curve is a graphic representation which shows the height of a certain place found on land and the height of ocean features at sea. 'Hypso' means height in Greek.
- ONGC: Oil and Natural Gas Corporation is India's largest oil and gas exploration and production company. Its latest estimate is that about 20 million tons of oil reserves are found west of Mumbai High offshore.
- Abyssal plains in the Atlantic and Indian Oceans tend to be extensive than the Pacific Ocean because, majority of the world's largest rivers empty their sediments into
- either Atlantic or Indian Ocean. E.g. Amazon, Ganga and Brahmaputra rivers.
- Dragon Hole is the deepest known underwater sinkhole in the world. The local fishermen call it the 'eye' of the South China Sea.
- **Fathoms** - A nautical measurement of the depth of water in the ocean.
- **Isobath** - An imaginary line on a map joining the points of equal depths.
- **Isohaline** - An imaginary line on a map joining the points of equal salinity in oceans.
- The energy of the falling wave water is used to turn hydro turbines to generate power. Wave energy power plants have been installed at Vizhinjam in Kerala coast and Andaman and Nicobar islands of India.
- **Potential tidal energy zones** of India are the **Gulf of Khambhat**, the **Gulf of Kutch**, and the **Sundarbans**.

### MARITIME BORDERS:

- Maritime boundary of most the Countries is fixed to be 12 nautical miles from the baseline. This was fixed by the U.N. Convention on the Law of the sea 2013 where as Jordan and Palau have 3 nautical miles as their maritime boundary and Benin, Republic of Congo, El Salvador, Peru and Somalia have 200 nautical miles.
- NIO (National Institute of Oceanography) was established in 1st January 1966. The headquarters of NIO is located at Dona Paula, Goa. It Conducts research and observations to understand oceanic features, Ocean engineering, marine Archaeology etc.



- **The Great Barrier Reef:** The Great Barrier reef is the world's largest coral reef system composed of 2,900 individual reefs and 900 islands stretching for about 2,000 kilometres. It covers an area of about 3,50,000 km. The reef is located in the Coral sea, off the coast of Queensland, Australia. The Great Barrier Reef can be seen from the outer space. This sprawling coral reef system is one of the most biologically diverse places on the planet. Coral reefs are built by billions of tiny organisms, known as Coral polyps. CNN labelled it as one of the seven natural wonders of the world.
- The Gangetic Dolphin was declared the National Aquatic Animal in 2010. This has become an endangered species. Are the Dolphins really at risk? If so, list out the reasons.

### Biosphere:

- The branch of science that deals about ecosystem is called Ecology.
- A person who studies ecology is referred to as an Ecologist.
- An ecological region that has lost more than 70% of its original habitat is considered a hotspot.
- Hotspots in India are the Himalayas, Western Ghats, Indo Burma Region and Sundaland.
- here are 34 areas around the world which are qualified as biodiversity hotspots.
- The U.S. National Cancer Institute has identified about 70% of the plants used for treating cancer. Which are found only in rain forests. Eg. Lapacho.
- Of late, parts of the Savanna grasslands are being converted into farmlands, which pose a great threat to the wide range of fauna. For Eg. The population of the big cats like cheetah, lion etc. are dwindling drastically.
- An oasis is a fertile fresh water source found in deserts and semi-arid regions. Oases are fed by springs. Crops like date palms, figs, citrus fruits, maize etc. are cultivated near these oases.
- Temperate grasslands are called differently in different parts of the world.
  - Prairies -- North America
  - Steppes -- Eurasia
  - Pampas -- Argentina and Uruguay
  - Veld -- South Africa
  - Downs -- Australia
  - Canterburg -- Newzealand
  - Manchurian -- China
- A Biosphere Reserve is a special ecosystem or specialized environment with flora and fauna that require protection and nurturing. There are 18 Biosphere Reserves in India.

### Man and Environment:

- The Stockholm Conference, 1972, declared man as both a creator and moulder of his environment. 'The Earth Summit', formally known as the United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro in 1992.
- The black death is estimated to have killed 30 - 60 percent of Europe's total population during the 14th century. The dominant explanation for black death is attributed to the outbreak of plague.
- World Population Day is observed on 11th July every year. It seeks to raise awareness of global population issues. The United Nations Development Programme started celebrating this event in 1989.
- India has an official population policy implemented in 1952. India was the first country to announce such a policy. The main objective of this policy was to slow down the rate of population growth, through promotion of various birth control measures.

- Damascus is widely believed to be the oldest, continuously inhabited city in the world, dating back to at least 11, 000 years.
- Tokyo is the world's largest city with the greater Tokyo area, housing about 38 million inhabitants.
- According to the Quality of Living Rankings by Consultancy Mercer, in 2016, the city offering the best quality of life was Vienna, with Zurich falling second. (Sources: United Nations, UNESCO, Mercer).

### Mapping Skills:

- A cartographer is one who measures, analyzes and interprets geographical information to create maps and charts for political, cultural and educational purposes.
- The mainland of India extends from 8o4'N to 37o6'N latitude and from 68o7' E to 97o25' E longitude. Here, (o) is degree and (') is minutes.
- The actual shape of the Earth is termed Geoid, which is an oblate spheroid.
- The "azimuthal" polar projection is depicted on the United Nations flag.
- North America was prominent on the initial 1945 UN flag (which had the longitude line 90 degrees west pointing upwards). The following year, the map on the flag was reoriented to be more neutral by having the International Date Line (180 degrees east, lying in the middle of the Pacific Ocean) pointing upwards. The map ends at 60 degrees South latitude, meaning Antarctica does not appear.
- We operate three remote sensing organs in our body.
  - a) Eyes -sense of sight
  - b) Nose - sense of smell
  - c) Ear – Sense of hearing
- Felix Nadar was a French photographer, j o u r n a l i s t, novelist and balloonist. In 1858, he became the first person to take aerial photographs. He took his first photograph in 1853 and pioneered the use of artificial lighting in photography, working in the catacombs of Paris. Around 1863, Nadar built a huge (6000 m<sup>3</sup>) balloon named Le Géant ('The Giant').

### Disaster Management: Responding to Disasters

- Japan is in a very active seismic area and it has the densest seismic network in the world.
- Which country actually has the most number of earthquakes? Indonesia is in a very active seismic zone also, but because it is larger than Japan, it has more earthquakes.
- Which the most earthquakes per unit area? This would probably be Tonga, Fiji or Indonesia, since they are all in extremely active seismic areas along subduction zones.

## Polity

### Forms of Government and Democracy

- The term 'republic' was first coined in 500 BCE in Rome. It is derived from res publica, a Latin word meaning public matter.
- India became a Republic on 26 January 1950. It is governed in accordance with the Constitution adopted on 26 November 1949, which came into force on 26 January 1950.

- The term 'democracy' is derived from two Greek words: DEMOS meaning people and cratia meaning power. Thus, literally democracy means "the power of the people".
- Abraham Lincoln, one of the Presidents of USA, defines democracy as a government of the people, by the people and for the people.
- The Parliament House in India was designed by the British architects Edwin Lutyens and Herbert Baker in 1912-13 and construction began in 1921 and ended in 1927.
- Two Houses of Parliament
  - Lok Sabha / Lower House / House of People
  - Rajya Sabha / Upper House / Council of States
- **British India -General elections, 1920** : General elections were held in British India in 1920 to elect members to the Imperial Legislative Council and the Provincial Councils. They were the first elections in the country's history.

### Election, Political Parties and Pressure Groups:

- Kudavolai was the system of voting followed during the Chola period in Tamil Nadu
- We celebrate National Voters Day on 25th January in India.
- Voters Verified Paper Audit Trail (VVPAT) is the way forward to enhance credibility and transparency of the election process. This system was first introduced in the 2014 General Election.
- NOTA was first introduced in the General Elections held in 2014. India is the 14th country in the world to introduce NOTA.

### How is the President of India elected?

The President of India is elected by the members of an electoral college consisting of

1. The elected members of both Houses of Parliament
2. The elected members of the Legislative Assemblies of all the states and Union territories in India

**NOTE:** The members nominated to either House of Parliament or the Legislative Assemblies of states are not eligible to be included in the electoral college.

### Human Rights:

- Maintenance and welfare of parents and Senior Citizens Act, 2007 is a legislation passed in 2007 by the Government of India. This Act is a legal obligation for children and heirs to provide maintenance to senior citizens and parents.
- The Kavalan SOS App is launched by the Government of Tamil Nadu for public use during emergencies. Anyone in a critical situation, not only women, can easily and directly access the State Police Control Room using this App.
- Kailash Satyarthi is a Nobel Peace Prize recipient and the founder of Bachpan Bachao Andolan, and many other child rights organisations. More than 86,000 children in India have been liberated by him and his team members from child labour, slavery and trafficking. An 80,000 km long Global March against Child Labour was led by Kailash in 1998 which turned the world's attention towards the issue of Child labour. He received Nobel prize for peace in the year 2014.



- In Tamil Nadu, ancestral property rights were given to women through Hindu Succession (Tamil Nadu Amendment) Act 1989.
- The Central Government amended the Hindu Succession Act in 2005. By this amendment, women are now given equal shares in inheritance of the undivided property

### Contribution of Dr.B.R. Ambedkar:

Dr.B.R. Ambedkar's contribution to labourers.

- Reduction in Factory Working Hours (8 hours a day)
- Compulsory Recognition of Trade Unions
- Employment Exchange in India
- Employees State Insurance (ESI)
- Minimum Wages for labourers
- Coal and Mica Mines Provident Fund
- It is a great victory for female workers who stand all the **time more or less 12-14 hours** per day while they are working in shops and commercial malls. Female workers who are working in shops and commercial malls are not allowed to **sit or even lean on the wall**. They were allowed **only 5 minutes** of break two times a day to take rest. There was a strong voice against this inhuman practice among women workers for a long time. Considering this, the **Government of Kerala** has decided to redress by amending the **Shops and Commercial Establishment Act in July 2018**.

### Forms of Government:

#### Local Self Government:

#### Road safety:

- With over 1,30,000 deaths annually India has the worst road accident rate worldwide.
- Every three minutes a child is killed in an accident in the world. The main causes of death by road accidents include 1. Drunk and drive (40%), speeding (24%), car boom in India (16%), inefficient law enforcement (15%) and less use of helmets and seat belts (5%) 2. Distractions to Driver 3. Red Light Jumping 4. Overtaking in a wrong manner.
- The chances of death by accident can be decreased by 51% with the proper use of seat belt and helmet.

## ECONOMICS

### Understanding Development: Perspectives, Measurement and Sustainability

Final money value of total goods and services produced within the geographic boundaries of a country during a specified period of time, normally a year, is known as Gross Domestic Product (GDP).

Per Capita Income According to the World Bank report, new income measurements of countries are classified as below (2017-18)

#### Types of Countries Per Capita Income (US Dollar)

1. Low Income < 1005
2. Lower Middle Income 1006-3955
3. Upper Middle Income 3956-12,235

4. High Income > 12,235
  - The Ministry of Human Resource Development is responsible for the development of human resources in India. Its headquarters is situated at Shastri Bhavan in New Delhi.
  - Literacy rate of Tamil Nadu is the second highest among the southern states. Tamil Nadu's literacy rate is higher than the national average. The enrolment for higher education in Tamil Nadu is the highest in India.

### Employment in India and Tamil Nadu:

In the medieval period, Feroz Shah Thuglaq, the Sultan of Delhi, had set up an 'Employment Bureau' to solve the unemployment problem.

### Money and Credit:

- During his rule(1540-1546) Sher Shah Suri set up a new civic and military administration and issued a coin of silver weighing 178 grams, which was termed the Rupiya. The silver coin remained in use during the Mughal period, the Maratha era and in British India as well.
- Dr. B.R. Ambedkar's Ph.D. thesis on 'The Problem of the Rupee - Its origin and solution' was the reference tool and provided guidelines for the Reserve Bank of India Act of 1934.

### How is currency printed in India?

- One rupee and two rupee notes were first printed in India in the year 1917. The Reserve Bank of India has been empowered to issue the Government of India notes since 1935. the 500 rupee note currency was introduced later. In 1940, one Rupee note were issued again. Till 1947, currency notes with the image of King George VI were in circulation. After Independence, the Government of India issued currency notes.
- In 1925, the British government established a government press at Nasik in Maharashtra. Currencies were printed three years later. In 1974, a press was started in Dewas, Madhya Pradesh. (Security Printing and Minting Corporation of India Ltd.) In the 1990s. two more presses were started in Mysuru, Karnataka and Salboni in West Bengal to print bank notes.
- The Reserve Bank of India has the authority to decide the value of currency to be printed and how the amount should reach its destination safely.
- Though the RBI has the power to print up to ten thousand rupee notes, at present a maximum of upto rupees two thousand is printed.

### Agriculture in Tamil Nadu:

- River Cauvery is the 3rd largest river in South India. Its length is 765 km.
- The dams constructed across Cauvery in Tamil Nadu are Mettur Dam, Kallanai.

### Migration:

- The largest migration corridor in the world in 2010 was Mexico – U.S.A.
- The Arctic tern has the longest migration distance of any bird in the world.