

Nine other former Soviet republics joined later. Now CIS is a community of 12 independent states. Three former Soviet republics (Baltic States) — Estonia, Latvia & Lithuania — are fully independent states. It is notable that Soviet Union was a federal state consisting of 15 separate republics.

Chinese Revolution :

1911 (Republican Revolution); 1949 (Communist Revolution)

- In Oct., 1911, a revolution under the leadership of **Sun Yat-sen** ousted the Manchu or Ch'ing Dynasty and a republic was set up.
- However, first President Sun Yat-sen resigned in 1912, in favour of strongman **Yuan Shik-Kai (1912-16)**.
- The period 1916-18, known as the **Warlord Era**, was one of great chaos, as a number of generals seized control of different provinces.
- A party known as the **Kuomintang (KMT)** or Nationalists (formed by Sun Yat-sen in 1912) was trying to govern China and control the generals who were busy fighting each other. The KMT leaders were Sun Yat-sen and after his death in 1925, General **Chiang Kai-shek**.
- The Chinese Communist Party (CCP) was founded in 1921, and at first it cooperated with the KMT in its struggle against the warlords.
- As the KMT gradually established control over more and more of China, it felt strong enough to do without the help of the communists, and it tried to destroy them.
- The communists, under their leader **Mao Tse-tung (Mao Zedong)**, reacted vigorously, and after escaping from surrounding KMT forces, embarked on the 6000 mile **Long March (Oct. 1934-Oct. 35)** to form a new power base in northern China.
- Civil war dragged on, complicated by Japanese interference with culminated in a full-scale invasion in 1937.
- When the Second World War ended with defeat for Japan and their withdrawal from China, the KMT and the CCP continued to fight it out.
- Chiang Kai-shek had help from the USA, but in 1949 it was Mao Tse-tung and the communists who finally triumphed.
- Chiang Kai-shek and his supporters fled to island of Taiwan (Formosa).
- Mao Tse-tung quickly established control over the whole of China, and he remained leader until his death in 1976.

Turkish Revolution : 1923

- Turkey was called '**Sickman of Europe**'.
- The disintegration of Ottoman empire began in the 19th century and was completed after Turkey's defeat in the First World War.
- The Allies wanted to establish their domination over Turkey itself and to give away parts of Turkey to Greece and Italy.
- The treatment meted out to Turkey by the Allies had led to a mass upsurge in India directed against Britain. This upsurge is known as the **Khilafat Movement**.
- The nationalist movement in Turkey was organised to prevent the domination of the country by the Allied Powers and the annexation of parts of Turkey agreed to the terms dictated by the Allied Powers.

- However, even before the treaty was signed by the Sultan, a national government had been established under the leadership of **Mustafa Kemal Pasha** with its headquarter in Ankara.
- Following the treaty with the Sultan, Turkey had been invaded by Greece.
- The Turks under Kemal's leadership were able to repel the invasion and the Allies were forced to repudiate the earlier treaty. The Allied troops were withdrawn from Turkish territory and the areas which were to be annexed by European countries remained in Turkey. Thus, Turkey was able to win her complete independence.
- The success of the Turks in winning the complete independence of their country was followed by a programme to modernize Turkey and to end the influence of backward-looking feudal elements.
- Turkey was proclaimed a republic in Oct. 29, 1923 and Kemal became the first President of Turkey. He ruled the new republic for 15 years (1923-38). The Turkish Sultan had carried the title of Caliph (Khalifa); the new government abolished the institution of Caliph (Khalifa) in 1924. Education was taken out of the hands of the religious leaders. Religion was separated from the State.
- Mustafa Kemal Pasha is known as the 'founder of modern Turkey' and 'Ataturk' (the father of the Turks).

Economic Depression of the World : 1929-34

- In Economic terms, a decline in trade and general prosperity is called **Depression**.
 - The Great Depression of 1929-34 was worldwide, starting with an agricultural recession followed by financial panic and collapse, known as the **Wall Street Crash (Oct., 1929)**, in the USA.
 - The effects on the USA were catastrophic : by 1933 almost 14 million people were out of work and American President **Hoover's** efforts failed to make any impression on crisis.
- Nobody was surprised when the Republicans lost the presidential election of Nov., 1932. The new Democrat President, **Franklin D. Roosevelt**, introduced policies known as the **New Deal** to try and put the country on the road to recovery.
- The Great Depression in turn affected financial institutions and money markets in other parts of the world and caused a run on the pound in the UK. The result was a decline in internal consumption and exports in industrialized countries, factory closures and massive unemployment.

Fascism in Italy

- The unification of Italy was only completed in 1870, however, the new state suffered from economic and political weaknesses.
- The First World War (1914-18) was a great strain on her economy, and there was bitter disappointment at her treatment by the Versailles settlement.
- Between 1919 and 1922 there were five different governments, all of which were incapable of taking the decisive action that the situation demanded.
- In 1919 **Benito Mussolini** founded the Italian Fascist Party, which won 35 seats in the 1921 elections.

- At the same time there seemed to be a real danger of a left-wing revolution; in an atmosphere of strikes and riots, the fascists staged a 'March on Rome' which culminated in **King Victor Emmanuel** inviting Mussolini to form a government (Oct., 1922); he remained in power until July 1943.

- Gradually Mussolini took on the powers of a dictator and attempted to control the entire way of life of the Italian people.

- At first it seemed as though his authoritarian regime might bring lasting benefits to Italy, and he won popularity with his adventurous and successful foreign policy.

Later he made the fatal mistake of entering the Second World War on the side of Germany (June, 1940) even though he knew Italy could not afford involvement in another war.

- After the Italians suffered defeats by the British, who captured her African possessions and occupied Sicily, they turned against Mussolini. He was deposed and arrested (July, 1943), but was rescued by the German (Sep., 1943) and set up as ruler in northern Italy, backed by German troops.
- In April, 1945, as British and American troops advanced northwards through Italy towards Milan. Mussolini tried to escape to Switzerland but was captured and shot dead by his Italian enemies (known as partisans).

Nazism in Germany

- As Germany moved towards defeat in 1918, public opinion turned against the government, and in Oct., the Kaiser, in a desperate bid to hang on to power, appointed **Prince Max** as Chancellor. He was known to be in favour of more democratic form of government in which parliament had more power.
- But it was too late; in Nov. revolution broke out, the Kaiser escaped to Holland and abdicated, and Prince Max resigned. **Friedrich Ebert**, leader of the left-wing Social Democrat Party, became head of the government.
- In Jan., 1919, a general election was held, the first complete democratic one ever to take place in Germany. The Social Democrats emerged as the largest single party and Ebert became first President of the Republic. They had some Marxist ideas but believed that the way to achieve socialism was through parliamentary democracy.
- The new government was by no means popular with all German: even before the elections the communist had attempted to seize power in the **Spartacist Rising (Jan., 1919)**.
- In 1920 right-wing enemies of the republic occupied Berlin (the **Kapp Putsch**). The government managed to survive these threats and several later ones, including **Hitler's Munich Beer Hall Putsch (1923)**.
- By the end of 1919 a new constitution had been agreed by the National Assembly (Parliament), which was meeting at Weimar because Berlin was still torn by political unrest. This Weimar constitution, gave its name to the **Weimar Republic** and lasted until 1933, when it was destroyed by Hitler. The Great Depression, beginning with the Wall Street Crash in Oct., 1929, had disastrous effects on

Fascism

The ideology and political system of Benito Mussolini, which encouraged militarism and extreme nationalism, organizing Italy along right-wing hierarchical authoritarian lines fundamentally opposed to democracy and liberalism. The term is also applied to any ideology or movement inspired by such principles, e.g., German National Socialism.

Germany, producing massive 6.5 million unemployed. The Government was unable to cope with the situation and by the end of 1932 the Weimar Republic seemed on the verge of collapse.

- Meanwhile **Adolf Hitler** and his **National Socialists (Nazis)** had been carrying out a great propaganda campaign blaming the government for all the ills of Germany, and setting out Nazi solutions to the problems.
- In Jan., 1933, President **Hindenberg** appointed Hitler as Chancellor, and soon afterwards Hitler saw to it that democracy ceased to exist; the Weimar Republic was at an end, and from then until April 1945, Hitler was the dictator of Germany. Only defeat in the Second World War and the death of Hitler (April 30, 1945) freed the German people from the Nazi tyranny.

Militarism in Japan

- During the 20 years after Mussolini's March on Rome (1922), many other countries, faced with severe economic problems, followed the examples of Italy and Germany and turned to fascism or right-wing nationalism.
- In Japan the democratically elected government, increasingly embarrassed by economic, financial and political problems, fell under the influence of the army in the early 1930s.
- The military soon involved Japan in war with China, and later took the country into the Second World War with its attack on **Pearl Harbor (1941)**.
- After a brilliant start, the Japanese eventually suffered defeat and devastation when the two atomic bombs were dropped.
- After the Second World War, Japan returned to democracy and made a remarkable recovery, soon becoming one of the world's most powerful states economically.

SECOND WORLD WAR : Sep. 1, 1939 — Sep. 2, 1945

Causes : The causes of Second World War as under —

1. **The Treaty of Versailles (1919) :** The treaty of Versailles had in itself the germs of the Second World War. The Germany was very badly treated. She was forced to sign the treaty at the point of a bayonet, in a spirit of revenge. To tear away the treaty of Versailles, Hitler joined hands with Mussolini of Italy.
2. **Nationalist Movements of Germany & Italy :** The rise of the national movement in Germany & Italy added fuel to the fire. Although Hitler tried to assure the world that he meant peace, he could not conceal his ambition for long. He embarked on a career of aggression which ultimately led to war. The same was the case with Mussolini who had established his dictatorship in Italy in 1922.
3. **Conflict of Ideology between Dictatorship & Democracy :** Countries like Germany, Italy & Japan represented the ideology of dictatorship while Great Britain, France & USA represented the ideology of democracy. Mussolini described the conflict between the two ideology thus : 'The struggle between the two worlds can permit no compromise. Either we or they'.
4. **Inefficiency of League of Nations :** Unfortunately, when hostility was growing between the two camps there was no effective international organisation which could bring the leaders of the two camps on a common platform and bring about a reconciliation between them. The League of Nations was practically dead.

5. **Colonial & Commercial Rivalry**: The colonial and commercial rivalry between England and France on one side, and Germany and Italy on the other brought them in conflict with each other.
6. **Aggressiveness of Berlin-Rome-Tokyo Axis**: Hitler had become very aggressive. He annexed the Saar Valley, occupied Rhineland and Austria, captured Czechoslovakia etc. Mussolini attacked Abyssinia (Ethiopia) Japan attacked China. This aggressive mood of the Fascist Powers got its fullest expression when they formed an Axis providing for mutual aid in the international sphere.
- **Immediate Cause**: The immediate cause of the war was the refuse of Poland to surrender. Germany gave an ultimatum to Poland regarding: (i) surrender the port of Dazing, (ii) the right of establishing a rail link between Germany and East Prussia through the Polish corridor. These two demands were rejected by Poland. So Germany invaded Poland on Sep. 1, 1939. Britain and France as they were under treaty obligations to aid Poland, declared war against Germany on Sep. 3, 1939.

Course of War: On one side were Germany, Italy and Japan, called the **Axis Powers** (or **Central Powers**), and on the other were Great Britain, France, USSR, USA, China etc. called the **Allied Powers** (or **Allies**).

Germany had to face defeat once again. Hitler, Goebbels & Himmler committed suicide (April 30, 1945) and their successors surrendered unconditionally on May 7, 1945. After the fall of Germany, USA and UK concentrated their focus against Japan. On Aug. 6, 1945, an atom bomb, '**Little Boy**', was dropped on the city of Hiroshima. Japan was asked to surrender and when she refused another atom bomb, '**Fat Man**', was dropped on Aug. 9, 1945, on the city of Nagasaki. It is estimated that more than one lakh persons were killed and leaving thousands more slowly dying of radiation poisoning. On Aug. 14, 1945, Japan conveyed its acceptance of the Allied demand to surrender but the actual surrender took place on Sep. 2, 1945. With the Japanese surrender, the Second World War came to an end.

Effects of WW II: 1. After about 15 months of preparatory work, the peace treaties were given a final shape by the 21 participating countries and they were signed on Feb. 10, 1947, in Paris by the representatives of the five enemy states and the Allied Powers. As regards Germany she was occupied by the Big Four. After its fall in May, 1945, it was divided into four zones, each of which was administered separately by one of the occupying powers. Berlin came under joint occupation. Ultimately out of one Germany came two countries — West Germany and East Germany. Italy was also deprived of her colonies. As regards Japan, a peace treaty was signed with her at San Francisco in 1951. 2. The United Nation Organisation (UNO) was established in Oct. 24, 1945. 3. The USA and USSR emerged as the two most powerful nations in the world. 4. The emergence of Russia (USSR) gave rise to the desire for freedom in colonies under European control in Asia. 5. The British empire thus rapidly lost its leadership as more and more colonies won independence. 6. France also lost much of their past glory.

WW II : Axis Vs Allies

The Axis Powers or Central Powers:

Germany, Italy (entered June 1940), Japan (entered Dec. 1941) etc.

The Allies or Entente Powers:

Great Britain, France, USSR (entered June 1941), USA (entered Dec. 8, 1941), China (entered Dec. 1941) etc.

7. Nearly all the East European countries embraced communism and communist rule was established in the Chinese mainland also.

Important Axis Leaders of WW II: Adolf Hitler (Nazi dictator of Germany), Benito Mussolini (Prime Minister of Italy) and Hirohito (Emperor of Japan) & his Prime Ministers Hideki Tojo & Fumimaro Konoe.

Important Allied Leaders of WW II: Franklin D. Roosevelt — upto April 12, 1945 & Harry Truman — after April 12, 1945 (Presidents of USA), Winston Churchill (Prime Minister of Britain), Joseph Stalin (Premier of USSR), Paul Reynaud & Charles De Gaulle (Prime Ministers of France) and Chiang Kai-shek (Head of the Nationalist Government of China).

Miscellaneous

Important Dates

B.C.

- 776 First Olympiad in Greece.
- 753 Rome founded.
- 490 Battle of Marathon; the Greeks defeated the Iranians/Persians.
- 327-26 Invasion of India by **Alexander**, Battle of Hydaspes.
- 221 **Chin-Hung** Ti 'Univesral Emperor' in China, Great Wall of China completed.
- 55 Invasion of Britain by **Julius Caesar**, the Great Roman General.
- 44 Assassination of **Julius Caesar** by **Brutus**.
- 4 Birth of **Jesus Christ**.

A.D.

- 29 Crucifixion of **Jesus Christ**.
- 43 Roman conquest of Britain.
- 570 Birth of Prophet **Muhammad** at Mecca.
- 622 Migration of **Muhammad** from Mecca to Medina ('**Hijra**'), Beginning of Hijira Era (Muhammadan calender) on July 15.
- 800 Charlemagne crowned Roman Emperor at St. Peter's.
- 871 Accession of **Alfred the Great** to the throne of Britain.
- 901 Death of king **Alfred the Great**.
- 1066 Battle of Hastings; Norman invasion of England. **William the Conqueror**, Duke of Normandy, defeated the English king **Harold II** at Hastings.
- 1215 Magna Carta or the Great Charter signed by king **John II** at Runnymede in England on June 15.
- 1280 Gunpowder invented by **Roger Bacon**.
- 1338 The Hundred Years War broke out; it lasted upto 1453.
- 1431 **Joan of Arc**, a brave French peasant girl, obtained victory over the English at Orleans. She was burnt alive at the stakes.
- 1443 The Black death i. e., plague broke out in England.
- 1453 The capture of Constantinople (the home of classical learning) by the Ottoman Turks, compelled the Greek scholars to flee to Italy and other West European countries, where they spread the knowledge of Greek philosophy and literature. This was the beginning of Renaissance in Europe.

- 1486 *Bartholomew Diaz* rounded the Cape of Good Hope.
- 1492 *Columbus* sailed on his first expedition to the West Indies which later led to the discovery of America (the New World).
- 1498 *Vasco da Gama*, a Portuguese, discovered the sea-route to India via the Cape of Good Hope.
- 1517 Beginning of Reformation.
- 1529-36 Reformation in England under *Henry VIII*.
- 1564 Birth of *Shakespeare*.
- 1571 Battle of Lepanto; Turks defeated by the Christian League.
- 1577 *Drake*, the famous English Admiral, started his voyage round the world for the first time and plundered Spanish ships and ports in South America.
- 1588 Admiral *Drake* defeated the Spanish 'Armada'; England became the 'Mistress of the Seas'.
- 1600 Establishment of the British East India Company in India (31st Dec.)
- 1605 Gunpowder plot in England to blow up the English Parliament.
- 1616 *Shakespeare* passes away.
- 1649 Trial and execution of *Charles I*, beginning of Commonwealth.
- 1649-60 The Commonwealth and the Protectorate in England.
- 1660 Restoration of Monarchy in England.
- 1665 The Great Plague in London.
- 1679 Habeas Corpus Act.
- 1688 The Glorious or Bloodless Revolution in England. Despotism of the Stuarts ended, and the Parliamentary rule began. Establishment of parliamentary supremacy and abolition of the Divine Rights of Kings.
- 1704 Battle of Blenheim; Marlborough and Eugene inflicted a crushing defeat on the French army.
- 1707 Union of England and Scotland.
- 1763 Treaty of Paris; It ended the Seven Years' War (1756-63); weakened France, made England a great colonial power.
- 1776 Declaration of American Independence and formation of a Federal Republic of 13 states called the United States of America (July 4).
- 1783 Treaty of Versailles; England recognised the independence of the United States of America.
- 1789 *George Washington* elected First President of USA. Beginning of French Revolution : Fall of the Bastille Fort (July 14).
- 1798 Battle of the Nile; The English under Nelson gained victory over the French.
- 1805 Battle of Trafalgar; Death of Nelson.
- Battle of Austerlitz — *Napoleon Bonaparte* routed a combined army of the Russians and the Austrians.
- 1815 Battle of Waterloo — *Napoleon* was defeated and exiled to St. Helena.
- Congress of Vienna, it aimed at rearranging the map of Europe; The Vienna settlement proved unsatisfactory, because it disregarded national claims.
- 1821 Death of *Napoleon* at St. Helena (May 5).

- 1827 Battle of Navarino; the allied fleets of England, Russia and France destroyed the Turkish fleet; This victory practically secured the independence of Greece.
- 1832 Reforms Bill passed; French captured Antwerp.
- 1833 Emancipation Act of 1833; It abolished slavery in the British dominions.
- 1837 Accession of *Queen Victoria* to the throne of England.
- 1839 Introduction of Penny Postage system in England by Sir Rowland Hill; Aden annexed by England.
- 1854 The Crimean War began; Russia attacked Turkey; England and France came to the rescue of Turkey.
- 1861 American Civil War started. *Abraham Lincoln* elected 16th President of USA.
- 1863 Slavery abolished in America.
- 1869 Suez Canal opened for traffic.
- 1885 General Gordon captured and slain at Khartoum.
- 1899 Beginning of the Boer War.
- 1904 Outbreak of the Russo-Japanese War.
- 1905 Battle of the sea of Japan; Japan inflicted a crushing naval defeat on Russia; a wave of nationalism spread in Asia.
- 1911 Chinese Republican Revolution; *Amundsen* reached South Pole (Dec. 14).
- 1914 Outbreak of World War I (July 28).
- 1916 Battle of Jutland (Naval Battle). The British Grand Fleet under Admiral Jellicoe defeated the German Fleet under Admiral Scheer.
- 1917 March / Feb. Revolution in Russia : the Czar abdicated and later assassinated; reformist Mensheviks came into power (*Prince Lvov, Kerensky*).
- Nov./Oct. Revolution in Russia : Revolutionary Bolsheviks came into power (*Lenin*).
- 1918 End of World War I (Nov. 11).
- 1919 The Paris Conference; the Treaty of Versailles.
- 1920 Foundation of the League of Nations (Jan. 10).
- 1921 The Irish Free State established with the status of a Dominion like Canada (Dec. 6).
- 1923 Turkish Republic proclaimed with *Kemal Ataturk* as its First President.
- 1924 *Lenin* died, and power passed into the hands of *Stalin* in Russia.
- 1925 Treaty of Locarno (between Great Britain, France, Germany, Italy and Belgium).
- 1928 Kellogg Pact (signed in Paris by the principal powers of the world for the prevention of war; it had no effect).
- 1933 *Hitler* became the Chancellor of Germany.
- 1935 War between Italy and Abyssinia (Ethiopia); Italy annexed Abyssinia (Ethiopia); Plebiscite in Saar.
- 1939 Germany invaded Poland : Outbreak of World War II (Sep. 1).
- 1940 Fall of France after German invasion (June 5); Italy entered World War II (June 11).
- 1941 *Hitler* invades Russia (June 22); Framing of the Atlantic Charter (Aug. 14); Japan attacked Pearl Harbour (Hawaii Islands) (Dec. 7); USA entered World War II (Dec. 8); China entered World War II (Dec. 10) Air raids by Japan on Rangoon (Dec. 22).
- 1942 Capture of Singapore by Japanese forces (Feb. 15); Battle of Coral Sea, Japanese fleet suffered heavy losses at the hands of the American fleet (May 3); Battle of Stalingrad (Sep. 19).

- 1943** Defeat of Germany at Stalingrad (Feb. 8); Battle of the Bismarck Sea, America defeated Japan in a naval battle (March 4); Invasion of Italy by the Allies, Armistice between Italy & the Allies (Sep. 3).
- 1944** Allied forces landed in Normandy under the supreme command of General *Eisenhower* (D-Day) (June 6); Liberation of Paris (Aug. 25).
- 1945** Execution of *Mussolini* (Apr. 22); Unconditional surrender of Germany to the Allies (May 7); USA dropped atom bomb on Hiroshima & Nagasaki of Japan (Aug. 6 & Aug. 9); Actual surrender of Japan (Sep. 2); World War II ended (Sep. 2); Foundation of UNO (Oct. 24).

Association of Places

Place	Associated with	Place	Associated with
Corsica	Napoleon Bonaparte	Medina	Prophet Muhammad
Hiroshima	Dropping of first atom bomb	Pearl Harbour	Japan's attack during World War II
Jerusalem	Jesus Christ	St. Helena	Napoleon Bonaparte
Macedonia	Alexander, the Great	Trafalgar	Nelson
Mecca	Prophet Muhammad	Waterloo	Napoleon Bonaparte

Abbreviated or Alternative Names

Abbreviated/ Alternative Name	Original Name	Abbreviated/ Alternative Name	Original Name
Apostle of Free Trade	Richard Cobden	Li-Kwan	Pearl Buck
Bangabandhu	Shriekh Mujibur Rahman	Little Corporal	Napoleon
Father of English Poetry	Geoffery Chaucer	Maid of Orleans	John of Arc
Man of Blood and Iron	Bismarck	Man of Destiny	Napoleon
G. B. S.	George Bernard Shaw	Mark Twain	Samuel Clemens
Grand Old Man of Britain	Gladstone	Scourge of God	Chengiz Khan
Great Commoner	Pitt, the Younger	Uncle Ho	Ho Chi Minh
Iron Duke, The	Duke of Wellington	Desert Fox	Gen. Rommel
King Maker	Earl of Warwick	Bard of Avon	Shakespeare
Lady of the Lamp	Florence Nightingale	Maiden Queen	Elizabeth I
Voltaire	Francois Marie Arouet de	Ike	D. Eisenhower
Wizard of the North	Sir Walter Scott	Fuehrer	Adolf Hitler

Important Battles

Name of the Battle	Year	Countries Involved
Battle of Marathon	490 BC	Athenians and Persians. King <i>Darius</i> of Persia defeated.
Battle of Thermoplye	480 BC	Spartans led by <i>Leonidas</i> and Persians led by <i>Xerxes</i> . Greeks defeated.
Battle of Salamis	480 BC	Athenian fleet and Persian fleet in Bay of Salamis; Persian fleet defeated.
Battle of Platae	479 BC	Greek and Persians forces; Persian forces defeated.
Battle of Mycale	479 BC	Greek and Persian fleets; Persian fleet defeated.

Name of the Battle	Year	Countries involved
Spartan War I (Peloponesian War)	459 BC	Sparta and Athens, lasted for 30 years.
Spartan War II	431 BC-421 BC	Sparta and Athens; Spartans victorious.
Battle of Arabia	331 BC	Greek and Persian forces; Greeks victorious.
Battle of Magnesia	190 BC	Syrian and Roman forces; Syrian forces defeated (north-west Lydia).
Battle of Pharsalus	48 AD	<i>Caesar</i> defeated <i>Pompey</i> .
Battle of Hastings	1066	<i>William</i> , the Duke of Normandy defeated <i>Harold</i> , the King of England. England came under the control of Normans.
Hundred-Year War	1338-1453	Fought between France and England. The cause of the war was the succession question to the throne of France which was claimed by <i>Edward III</i> of England. The war was resumed by <i>Henry V</i> and was brought to an end by the heroism of <i>Joan of Arc</i> — 'A country girl who overthrew the power of England'. Joan of Arc was burnt alive at the stakes in 1431.
War of the Roses	1455-1485	Civil War in England; The cause of the war was a struggle for the throne of England between the two royal houses of Lancaster and York.
Anglo-Spanish War (Spanish Armada War)	1588	Spanish and English fleets fought in the English Channel; The English fleet under <i>Lord Howard</i> defeated of the Spanish Armada.
Battle of Gibraltar Way	1607	The Dutch defeated the Spanish and Portuguese.
Thirty-Year War	1618-1648	Started as religious-cum-political war between the Lutherans and Catholics in Germany and developed into an international war.
Civil War in England	1642-1649	Between Cavaliers (King Charles I supporters) and forces of Parliament led by <i>Oliver Cromwell</i> , King Charles I executed.
Battle of Blenheim	1704	England and Austria headed by <i>Marlborough</i> defeated France and Russia.
War of Austrian Succession	1740-1748	Queen of Austria, <i>Maria Theresa</i> (daughter of Charles VII) was challenged by <i>King Frederick II</i> of Prussia. England supported the queen and Frederick II was helped by France. Ended with a Treaty which recognised the Queen's right to the throne after the death of King Frederick.
Seven-Year War (Anglo-French War III)	1756-1763	Britain and France against Austria and Prussia; the British alliance won.
Battle of the Nile	1798	British and French fleets, Britain victorious.
Battle of Trafalgar	1805	British fleet defeated fleets of France and Spain. British fleets were commanded by Admiral <i>Nelson</i> , who was killed during the battle.
Battle of Austerlitz	1805	Britain, Austria, Russia and Prussia on one side and France on the other. <i>Napoleon</i> (France) defeated Austria and Russia.

Name of the Battle	Year	Countries involved
Battle of Borodino	1812	Between France and Russia. Napoleon invaded Russia at Borodino, and nearly defeated the Russians. However, on reaching Moscow, his army suffered heavy losses and was forced to retreat. Napoleon's ill-fated attack on Russia marked the beginning of the downfall of the French Empire.
Battle of Leipzig	1813	Germany and combined forces of Austria, Prussia and Russia, defeated Napoleon .
Battle of Waterloo	1815	British forces led by Duke of Wellington (Sir Arthur Wellesley) defeated French forces led by Napoleon . Napoleon was captured and exiled to St. Helena where he died in 1821.
First Opium War	1840	China and Britain; Chinese yielded opium. It was a trade war.
Crimean War	1854-1856	The combined forces of the British, French and Turks defeated Russia.
American Civil War	1861-1865	Northern states of America under Abraham Lincoln defeated the Southern states and established a Federal state and abolished the slavery.
Sino-Japanese War	1894-1895	Japan defeated China and occupied Formosa and Korea.
Battle of Omdurman	1898	The British and Egyptian forces defeated the forces of Khalifa (Mehdists).
Boer War	1899-1901	The revolt of Transvaal Boers was suppressed by the British forces. Boers belonged to Dutch Protestant stock who opposed Britishers because of abolition of slavery by Britain.
Russo-Japanese War (Battle of Port Arthur & Battle of Yalu)	1904-1905	Russia and Japan in the sea of Japan. Russia defeated; It led the wave of the idea of Asian Resurgence.
Balkan War I	1912	Turkey and Balkan countries (Montenegro, Serbia, Bulgaria and Greece), Turkey defeated.
Balkan War II	1913	Invasion of Serbia and Greece by Bulgaria. Bulgaria was defeated by combined forces of Serbia, Greece, Rumania, Montenegro who stripped Turkey of most of its European territories.
World War I	1914-1918	Central Powers (Germany and its allies) against the Allied Powers (Britain and its allies); Central Power were defeated. Famous Battles : 1. First battle of Marne (1914) — France defeated Germany. 2. Battle of Jutland (1916) — Naval battle between England and Germany. England defeated Germany. 3. Battle of Verdun (1916) — Fought between France & Germany. 4. Second battle of Marne (1918) — France defeated Germany. (See details on page 156)
World War II	1939-1945	Axis Powers (Germany and its allies) against the Allied Powers (Britain and its allies); Axis Powers were defeated. Famous Battle : Battle of El Alamein (1942) — The Allies victory during the World War II and retreat of General Rommel's forces. (See details on page 163).

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Geography

3

Universe The universe is commonly defined as the totality of everything that exists, including all physical matter and energy, the planets, stars, galaxies and the contents of intergalactic space.

The study of universe is known as **Cosmology**.

Cosmology = cosmos (**universe**) + logos (**science**)

The universe has no limit.

Galaxy A galaxy is a vast system of billions of stars, which also contains a large number of gas clouds (mainly of hydrogen gas) and dust, isolated in space from similar systems.

There are about 100 billion galaxies (10^{11} galaxies) in the universe, and each galaxy has, on an average, 100 billion stars (10^{11} stars). So, the total number of stars in the universe is 10^{22} stars.

The **Milky Way** Galaxy is the home of the Earth and our Solar System. It is spiral in shape.

Milky Way Galaxy was formed 5 billion years after the Big Bang.

Latest known galaxy is the **Dwarf Galaxy**.

According to the modern thought, universe can be classified into two parts namely—(a) Atmosphere and (b) Space.

Origin of the universe is explained by the **Big Bang Theory**, formulated and proposed by the Belgium astronomer and cosmologist **Georges Lemaitre**.

Andromeda is our **nearest galaxy**.

The Big Bang Theory

All the matter in the universe was originally a concentrated lump called primeval atom.

Big Bang was an explosion that occurred **15 billion years ago**, leading to the formation of galaxies of stars and other heavenly bodies.

Since then, all the galaxies have been flying away from one another causing expansion of the universe.

Star

Clumps of dust and gas in a nebula come together due to gravity and form stars.

Stars are made of hot burning gases.

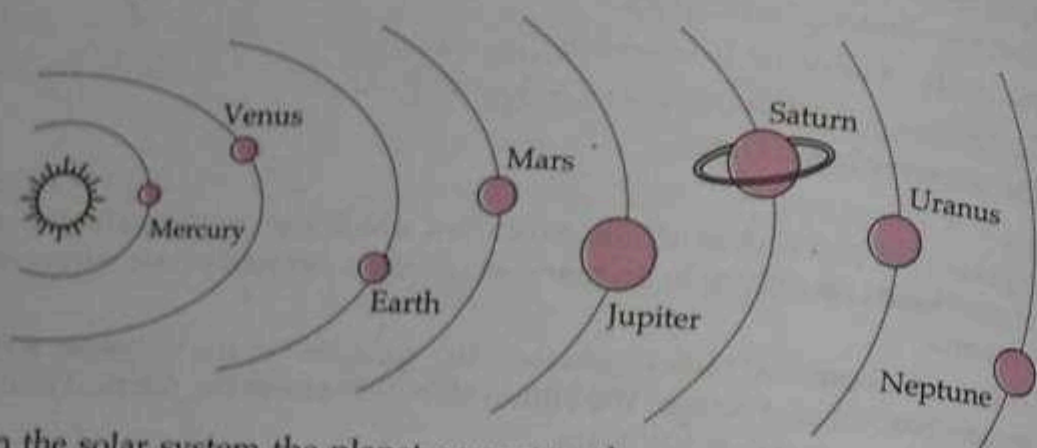
They emit light of their own and are very large and very hot.

Light takes about 4.3 years to reach us from the next nearest star **proxima centauri**.

The Solar System

The solar system consists of the sun, the eight planets and their satellites (or moons), and thousands of other smaller heavenly bodies such as asteroids, comets and meteors.

- > The sun is at the centre of the solar system and all these bodies are revolving around it.
- > The gravitational pull of the sun keeps all the planets and other objects revolving round it. Thus, the motion of all the members of the solar system is governed mainly by the gravitational force of the sun.
- > Planets revolve around the sun in elliptical orbit.



- > In the solar system the planet nearest to the sun is Mercury and the planet farthest from the sun is Neptune (not Pluto).
- > The size of solar system has been estimated to at about 10^5 A.U.
- > The solar system is dominated by the sun which accounts for almost 99.9% of the matter in the whole solar system.
- > The sun is also the source of all the energy in the solar system.
- > Pluto is a dwarf planet.
- > Mercury, Venus, Earth, Mars are called **terrestrial planets** and Jupiter, Saturn, Uranus and Neptune are called **gaseous planets**.

Members of the Solar System

The Sun

- > The Sun is at the centre of the Solar System.
- > Its size is thirteen lakh times as that of the Earth.
- > It is the nearest star to the Earth.
- > It is an ultimate source of energy for life on Earth.
- > Its diameter is 14 lakh kms.
- > It is composed of 71% Hydrogen, 26.5% Helium and 2.5% other elements.
- > **Hydrogen** and **Helium** are the main gases present in the Sun.
- > Within the Sun, hydrogen is converted to Helium due to nuclear fusion releasing a tremendous amount of heat and light.
- > It has a surface temperature of 5778 K or 5504.85°C.
- > The temperature at the centre is around 1.571×10^7 K or 15,000,000°C.
- > Shining surface of the sun is called photosphere, it appears like a disc, radiates energy and acts as a source of energy.
- > The outer layer of sun's atmosphere made up of thin hot gases, is called Corona. Corona is visible only during a total eclipse of the sun (or with a special solar telescope called Coronagraph).

- > The planet travels with the sun through millions of stars in our galaxy at a speed of about 70,000 km per hour.
- > The Sun is about 150 million kms away from the Earth.
- > Light (at the speed of 3,00,000 km per second) takes about 8.5 minutes to reach the Earth from the Sun.

The Planets

- > These are opaque bodies which continuously revolve around and are lighted by the Sun.
- > There are eight planets in the Solar system.
- > A ninth planet has been recently discovered by NASA named as **Carla**.
- > The sequence of planets according to their distance from the Sun is Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.
- > The sequence of planets according to their size (in descending order i.e. from big to small) is Jupiter, Saturn, Uranus, Neptune, Earth, Venus, Mars, Mercury.
- > Jupiter is the biggest and mercury is the smallest planets of our solar system.

Classification of Planets

- > The eight planets have been divided into two groups. All the planets of a particular group have some common features. 'Terrestrial planets' or 'Rocky planets' and 'Jovian planets' or 'Gaseous planets' (Gas giants) are the two groups of planets.
- > The four planets nearest to the Sun—Mercury, Venus, Earth and Mars are called terrestrial planets, because their structure is similar to the earth.
- > Other four planets—Jupiter, Saturn, Uranus and Neptune are called Jovian planets.
- > Planets are classified into the following two groups inner and outer planets. These are separated by asteroid belt. :

Inner Planets	Outer Planets
They include Mercury, Venus, Earth, Mars.	They include Jupiter, Saturn, Uranus Neptune etc.
They are nearer to the sun.	They are far away from the sun.
They are made up of dense metallic minerals.	They are made up of hot gases, mainly hydrogen and helium.
They move faster and have a shorter period of revolution.	They move rather slowly and have a longer period of revolution.
They have thin, rocky crust.	They are all gaseous bodies.
They have a mantle rich in iron and magnesium.	Made of gases.
They have a core of molten metals.	They have ring systems around them.
They have thin atmosphere.	
They have very few natural satellites (or moons) or no satellites.	They have a large number of natural satellites (or moons).

Some Notable Facts About Various Planets and Satellites

Mercury

- > Mercury is the closest planet to the Sun.

- > It is extremely hot planet.
- > The planet has no water on it.
- > Mercury planet has no gases like CO_2 , N_2 , H_2 and O_2 which can act as building blocks of life.
- > Mercury planet has no protective blanket like Ozone around it to prevent us from harmful radiations.

Venus

- > Venus is the second planet in distance from the Sun. This planet is nearest to the Earth and is also the brightest planet.
- > Venus is known as the 'Evening Star' as well as 'Morning Star'.
- > Venus is surrounded by a thick cloud cover, hence known as the 'Veiled Planet' ('veil' means unclear / cover).
- > Venus is like the Earth in size and mass, and hence also known as the 'Earth's twin'. It also rotates clockwise like Uranus.
- > Venus is the hottest planet (even hotter than Mercury) of our Solar System, due to its veil of cloud.
- > Venus has no water on it. There is no sufficient oxygen on the Venus.

The Earth

- > Earth is the largest of the inner planets.
- > The Earth is $23\frac{1}{2}^\circ$ tilted on its axis and thus makes $66\frac{1}{2}^\circ$ angle.
- > It takes 23 hours 56 minutes and 4.091 seconds to rotate on its axis.
- > It takes 365 days, 5 hours and 48 minutes to revolve around the Sun.
- > Earth is known as the 'watery planet' or the 'blue planet' due to the presence of huge amount of water on it.
- > Earth is the only known planet which provides sustenance or life on it. It has a large quantity of oxygen which supports life.

The Moon

- > The Moon is the only satellite of the earth.
- > It has a diameter of 3,475 km and its circumference is 10,864 km while its orbit is elliptical.
- > The maximum distance (apogee) of the moon from the earth is 4,06,000 km and the minimum distance (perigee) is 3,64,000 km.
- > It takes 27 days, 7 hours and 43 minutes to rotate on its axis (this period of about $27\frac{1}{2}$ days is called the *sidereal month*) and approximately the same period of time it takes to revolve around the earth. The moon's period of revolution with reference to the sun is about 29.53 days (29 days, 12 hours, 44 minutes and 2.8 seconds). This period is called a *synodic month*.
- > Only 59 per cent of the total surface of the moon is visible from the earth.
- > The bright part of the moon is full of mountains whereas the dark patches are low lying plains.
- > 'Sea of tranquility' made of the plain of dust particles, is on the rear side of the moon, which always remains dark.

- > The highest mountain on the moon is *liebuit mountain* which is 10,660 meter high.
- > The moon has no atmosphere, no twilight and no sound.
- > The temperature during daytime is about 100°C and during night it drops down to about -180°C .
- > The light from the moon takes 1.3 seconds to reach the Earth.
- > The size of the Moon is one-fourth ($1/4$ th) the size of the Earth.
- > Gravitational pull of Moon is one-sixth ($1/6$ th) that of the Earth.
- > Mainly silicon, iron, magnesium etc elements are found on the Moon's surface.
- > The study of the Moon is called 'Selenology'.
- > Moon is also known as the fossil planet.

Mars

- > Iron-rich red soil and pink sky of Mars give it the name, 'Red Planet'.
- > Phobos and Demos are two satellites of Mars.

Jupiter

- > Jupiter is the largest planet of the Solar System.
- > Jupiter is also known as *winter planet* as its average temperature is very low (-148°C).
- > Gannymeda, satellite of Jupiter is the largest satellite in the Solar System.

Saturn

- > Saturn is the second largest planet in the Solar System.
- > Saturn has bright concentric rings which are made up of ice and ice-covered dust particles which revolve around it.
- > Titan is the largest satellite of Saturn.

Uranus

- > Uranus is about four times the size of the Earth. This planet appears greenish in colour because of methane gas present in its atmosphere.
- > Uranus was discovered in 1781 by Sir William Hersiel.
- > Uranus is the 7th planet from the Sun.
- > Uranus is the first planet to have been discovered by the use of a telescope. Uranus is the third biggest planet of the Solar System.
- > Uranus is extremely cold, having surface temperature -190°C and is surrounded by 13 rings namely zeta (ζ) / R1986U2, 6, 5, 4, alpha (α), beta (β), eta (ϵ), gamma (γ), delta (δ), lambda (λ), epsilon (ϵ), nu (ν) and mu (μ).
- > Uranus rotates from east to west on its axis, which is opposite to other planets except Venus.
- > The axis of Uranus has large inclination so that it appears to be lying down, hence it bears the name 'A Planet on its Side'.

Neptune

- > Neptune is the 8th planet of the Solar System.
- > The temperature on the surface of Neptune remains low.
- > Neptune is very similar to Uranus and can be considered as its twin.
- > Neptune is surrounded by methane rings of sub zero temperature.

Pluto is not a Planet now

- On the basis of the new definition of planet given by the IAU (International Astronomical Union), the world's top institution on space science research, leading astronomers participating in IAU's meet at Prague (Czech Republic) on August 24, 2006, declared that Pluto would no longer remain a planet.
- Under the IAU's new guidelines, the number of planets in the Solar System has thus been reduced from nine to eight. Its merits mentioning here that, prior to this decision, Pluto had been holding the planetary status since its discovery in 1930 by Clyde Tombaugh.
- Now, with the omission of Pluto from the Solar System, its membership has been restricted to the eight 'classical' planets, namely Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

Pluto Gets a Numerical Denomination

Weeks after it was demoted to a sub-planetary status, Pluto was given a new name to reflect its new status as a dwarf planet in September, 2006. The former 9th planet was assigned the asteroid number 134340 by the Minor Planet Centre (MPC), the official organisation responsible for collecting data about asteroids and comets in our Solar System.

Pluto's companion satellites, Charon (Pluto's largest moon), Nix and Hydra are considered part of the same system and will not be assigned separate asteroid numbers. Instead, they will now be called 134340 I, II and III respectively.

- Before losing its planetary status on 24th August, 2006 Pluto was the outermost planet of the Solar System.

Some Facts and Figures about the Planets

Name of planet	Distance from the Sun	Time taken for one revolution around Sun	Time taken to turn once on its axis	Diameter of planet	Mass of planet compared to earth taken as 1	No. of satellites (or moons)
Mercury	58×10^6 km	88 days	58.6 days	4,878 km	0.055	None
Venus	108×10^6 km	224.7 days	243 days	12,100 km	0.8	None
Earth	150×10^6 km	365.26 days	23.9 hours (23 hours 56 min 04 sec.)	12,760 km	1	1
Mars	228×10^6 km	687 days	24.6 hours	6,780 km	0.1	2
Jupiter	778×10^6 km	11.9 years	9.9 hours	1,42,800 km	318	67 (50+17)
Saturn	1427×10^6 km	29.5 years	10 hours	1,20,000 km	95	62 (53+9)
Uranus	2870×10^6 km	84 years	16.2 hours	50,800 km	15	15
Neptune	4504×10^6 km	164.8 years	18.5 hours	48,600 km	17	8

Asteroids (or Planetoids)

- Asteroids are also known as minor planets.
- They are objects that revolve around the Sun.
- They are mostly found between the orbits of Mars and Jupiter. They are a belt of debris which failed to assemble into planets and keeps on revolving around the Sun. This has come to be called as 'asteroid belt'.

- More than 5000 asteroids have been identified.
- Asteroids may be spherical, elongated or irregular in shape.
- All asteroids rotate on their axis, every 5 to 20 hours. Certain asteroids may have satellites.
- Trojan asteroids are found in two clouds moving in the orbit of Jupiter, one moving ahead of it and the other moving behind it.
- Scientists believe that these asteroids occupy a place where a planet could have existed but was prevented from its formation by the disruptive gravitational force of the nearby giant planet, Jupiter.

Meteors and Meteorites

- Meteors and Meteorites are also called shooting stars.
- Meteors are fragments of rocks coming towards the earth, formed due to the collision of asteroids with one another.
- Meteors are usually small, and due to the heat produced by air resistance, burn up before they reach the Earth's surface.
- When meteors are large and do not burn up completely, they land on the Earth's surface and are known as Meteorites.
- All meteorites are believed to originate in the asteroid belt, where a sudden collision may send them towards the Earth and the Earth's gravity attracts them towards its surface.

Comets

- Visitors of the Solar System, Comets (the name derived from the Latin words *stella cometa* meaning 'hairy star') are among the most spectacular and unpredictable bodies in the Solar System.
- Comets move around the Sun in regular orbits, but their orbits are elongated ellipses that it takes them hundreds and, sometimes even thousands of years to complete one revolution around the Sun.
- Comets are made up of frozen gases which hold together rocky and metallic materials.
- A comet becomes visible only when it travels close to the Sun.
- Its ice melts and the gas and dust is swept back into a tail.
- The tail always points away from the Sun. So when it is travelling away from the Sun it is led by its tail.

Features of a Comet

- A comet is characterised by a long luminous tail, which emits light.
- But this is visible only when the comet's orbit passes close to the Sun.
- When the comet travels close to the Sun, the ice melts to a head of gas called a Coma.
- The Sun's radiation sweeps this into a gas tail.
- Dust particles are also swept back to form a dust tail.

Stars

- Stars are heavenly bodies made up of hot burning gases, thus shining by their own light.

- > Stars **seem to be fixed** with respect to each other. In fact they are in rapid motion but they are at such great distance that relative changes in position become noticeable only over the centuries.
- > According to NASA **Proxima Centauri** is the closest star to the Earth after the Sun. It is about 4.24 light years away.
- > Pole star (or Polaris), Sirius, Vega, Capella, Alpha centauri, Beta centauri, Proxima centauri, Spica, Regulus, Pleiades, Aldebaran, Arcturus, Betelgeuse and of course the Sun are some of the important examples of the stars.

Facts about Stars

- > There are billions and billions of stars in the sky but only about 2000 stars can be seen with the naked eye on a clear moonless night.
- > There are 10^{22} stars in the Universe.
- > About 8000 stars are visible from the Earth with naked eye. Out of this, 4000 stars are visible in the Northern Hemisphere and 4000 in the Southern Hemisphere.
- > In either hemisphere, only 2000 stars are visible at any given time.
- > The other 2000 are located in the day-time sky and the brightness of the Sun renders them invisible.

Constellations

- > To enable astronomers to identify roughly the position of the stars, the sky has been divided into units. These units are known as **Constellations**.
- > These constellations were named in the honour of mythological characters.
- > At present **88 constellations** are recognized.

Some well known constellations

- > Some well known constellations, with their Indian names are given below:

Constellations	Indian names	Constellations	Indian names
Ursa Major (Great Bear)	Saptarishi	Cancer*	Kark
Ursa Minor (Little Bear)	Dhruva Matsya	Leo*	Simha
Orion (Hunter)	Mriga	Virgo*	Kanya
Draco (Dragon)	Kaleya	Libra*	Tula
Scorpio*	Vrishchika	Sagittarius*	Dhanu
Aries*	Mesh	Capricorn*	Makar
Taurus*	Vrish	Aquarius*	Kumbh
Gemini*	Mithun	Pisces*	Meen

* 12 Zodiac signs

Galaxy

- > A large group of stars, dust and light gases, bound together by their own gravity is called a **galaxy**.
- > There are 10^{11} galaxies in the universe.
- > We live on the outer edge of a spiral type of galaxy called the **Milky Way**, which is about 100,000 light years in diameter and is rotating slowly.

Earth's Galaxy : The Milky Way

- > The Milky Way is a large spiral-shaped galaxy.

- > It spans about 1,00,000 light-years across and is about 10,000 light-years thick at the centre.
- > It is called the Milky Way because it appears as a soft **glowing light of billions of stars**. These stars are so far that they can be seen only in constellation, not separately.
- > Galileo discovered that this band of light was produced by countless individual stars which a naked eye can not see.
- > It takes about 250 million years to complete one revolution.

Andromeda : Earth's closest Galactic neighbour

- > **Andromeda** is a spiral galaxy and also our closest neighbour.
- > It appears as a **fuzzy patch of light** and contains millions of stars.
- > It is the farthest object that can be seen with the naked eye.
- > Along with the Milky Way, it belongs to a group of galaxies known as the **Local Group**, which in turn is a part of **Virgo Cluster** of groups.
- > Like stars, galaxies **are grouped into clusters**. Some clusters contain thousands of galaxies.
- > About 30 galaxies, along with the Milky Way and the Andromeda are grouped together in one cluster called the **Local Group**.
- > Clusters may group together into upper clusters.
- > Super clusters are also spread randomly throughout the universe.

Nebulae

- > Nebulae are huge interstellar clouds of gas and dust that appear as faint, misty patches of light scattered all over the sky.
- > They appear either as bright luminous clouds or as dark patches against a brighter background.
- > A nebula depends for its luminosity upon the presence of stars that have either arisen from it or are contained in it.
- > If the stars are extremely hot, the hydrogen in the nebula is ionized and emits a certain amount of light of its own.
- > If a star is less hot, the nebula shines only by reflection.
- > If there are no suitable stars, the nebula does not shine and remains dark and can be detected only because it blots out the light of the stars beyond.

The Earth : Shape and Size

Shape of the Earth

- > **Pythagoras** (572-500 B.C.), a Greek philosopher and mathematician, was among the first to suggest that the Earth was shaped like a globe.

The Earth is not flat

- > If the Earth were a flat disc, then the rising Sun would have been seen at all places at the same time. But this does not happen. Places in the east see the rising Sun earlier.
- > When a ship approaches land, its funnel or mast is seen first and then the hull. If the Earth had been flat, the whole ship would have been seen at the same time.

The Earth is a sphere

- > The Earth is rarely oriented in the same position during successive eclipses but it always casts a circular shadow, thus proving that the Earth is a sphere. A sphere is the only solid body that will always cast a circular shadow.
- > At the North Pole, the **Pole Star** can always be observed at 90 degrees in the sky, since the star lies in the line with the axis of the Earth.
- > As one travels southwards, the angle of Pole Star decreases.
- > At the Equator the angle becomes zero degree.
- > This observation proves that the path of travel is an arc of a circle.
- > The Sun, Moon and all the **heavenly bodies appear to be spherical** when viewed from different positions. It seems logical to conclude that the Earth is no exception.
- > The **photographs of the Earth taken from the space** prove beyond any doubt that the Earth is a sphere.

The Earth as an Oblate Spheroid

- > Refined measurements of the Earth have proved that the true form of the Earth resembles a sphere that has been **compressed at the poles** and made to **bulge at the Equator**. This form is known as an **oblate spheroid**.

The various factors which make the earth suitable for life to evolve and survive are

- > The earth has all the essential elements like carbon, hydrogen, nitrogen and oxygen, which act as building block for the origin of life.
- > The earth is neither too hot nor too cold. It has the right temperature range for carrying out the life-sustaining chemical reactions.
- > The earth has a lot of water in the form of lakes, rivers and oceans for the growth and survival of life.
- > The earth has enough oxygen gas in its atmosphere for the survival of living beings through breathing.
- > The earth has a protective blanket of ozone layer high up in its atmosphere to save life from harmful ultraviolet radiations coming from the sun.
- > **Biodiversity** changes increase towards equator. Biodiversity is the degree of variation of life. It is a measure of variety of organisms present in different ecosystems. It is richest in the tropics.

Composition of Earth (%)

1. Iron	35
2. Oxygen	30
3. Silicon	15
4. Magnesium	13
5. Nickel	24
6. Sulphur	1.9
7. Calcium	1.1
8. Aluminium	1.1
9. Others	0.5

Statistical Data of The Earth

The Earth, third planet from the Sun, is the fifth largest planet in the Solar System in terms of size and mass.

Age	4,550 million years
Mass	5.9726×10^{24} kg
Volume	108.321×10^{10} km ³
Mean Density	5514 kg/m ³

Total Surface area	51,00,66,000 sq.km
Total Land area	14,84,29,000 sq.km (29.1%)
Total Ocean area	36,16,37,000 sq.km (70.9%)
Total Water area	38,26,72,000 sq. km
Diameter	
Equatorial diameter	12,756 km
Equatorial radius	6,378.1 km
Polar diameter	12,713.6 km
Polar radius	6,356.8 km (IUGG)
Equatorial circumference	40,077 km
Polar circumference	40,009 km

Important Facts of Earth

Highest land point (Mt. Everest, Nepal)	8,850 m
Lowest land point (Dead Sea, between Jordan and Israel)	400 m / 1,300 ft (approx.)
Greatest ocean depth (Mariana Trench in Pacific Ocean, near Japan)	11,033 m. (36,201 ft)
Maximum distance from the Sun (At Aphelion)	152 million km (approx.)
Minimum distance from the Sun (At Perihelion)	147 million km (approx.)
The mean distance from the Sun	14,95,98,262 km (1.0 AU)

- > 29.1% of the total surface area of Earth is covered by continents (land), while 70.9% is covered by oceans.

- > The total water area of the earth including the oceans, lakes, rivers, ice sheets and the water in the atmosphere is called hydrosphere and it covers about 71% of the earth's surface.

Continents of The World

Asia, Africa, North America, South America, Europe, Australia and Antarctica are the seven continents.

Facts about Asia

Latitude	: 10°S and 80° N
Longitude	: 25° E and 170° W
Area	: 44,579,000 sq. km (approx. 30% of the world)
Population	: 4,351 million (mid-2014) [60.11% of world population]
Oceans and Seas	: Arctic Ocean, Pacific Ocean, Indian Ocean, Red Sea, Gulf of Aden, Persian Gulf, Gulf of Oman, Arabian Sea, Bay of Bengal, China Sea, Yellow Sea of Okhotsk, Bering Sea.
Highest and Lowest Points	: Everest (8,850 metres)* and Dead Sea (-396.8 m)* respectively. (* World's highest and lowest point)
Straits	: Strait of Malacca, Bering Strait.
Lakes	: Caspian Sea, Aral Sea, Lake Baikal, Lake Balkhash.

- Islands** : Kurile, Sakhalin, Honshu, Hokkaido, Taiwan, Borneo, Sumatra, Java, Celebes, New Guinea, Philippines, Sri Lanka, Bahrain, Cyprus.
- Mountains** : Pamir Knot, Himalayas, Karakoram, Kunlun, Tien Shan, Altai, Hindu Kush, Elbruz, Pontic, Sulaiman, Zagros, Taurus, Urals, Yablonovoi, Stanovoi.
- Plateaus** : Anatolia Plateau, Plateau of Iran, Plateau of Arabia, Plateau of Tibet, Tarim Basin, Plateau of Mongolia, Plateau of Yunnan, Decan Plateau.
- Peninsulas** : Kamchatka Peninsula, Peninsula of Korea, Peninsula of Indo-China, Malay Peninsula, Indian Peninsula, Arabian Peninsula.
- Deserts** : Arabian Desert, Thar Desert, Gobi Desert.
- Rivers** : Eupharates, Tigris, Indus, Ganga, Brahmaputra, Hwang-Ho, Yang-Tse, Si-Kiang, Amur, Lena Yenisei, Ob, Irrawady, Salween, Mekong.
- Important cities** : Aden, Karachi, New Delhi, Mumbai, Kolkata, Colombo, Yangon (former Rangoon), Kuala Lumpur, Bangkok, Ho Chi Minh City (former Saigon), Singapore, Manila, Guangzhou (former Canton), Hong Kong, Shanghai, Tokyo.

Facts about Africa

- Latitude** : 35° S and 37° N
- Longitude** : 50° E and 17° W
- Population** : 1,136 million (mid-2014) [15.69% of world population]
- Area** : 30,065,000 sq km (approx. 20.3% of the world).
- Oceans and Seas** : Indian Ocean, Red Sea, Atlantic Ocean, Gulf of Guinea, Mediterranean Sea.
- Highest and Lowest Points** : Kilimanjaro (5,895 m.) and Lake Assai (-156.1 m) respectively.
- Straits** : Strait of Bab-el-Mandeb, Straits of Gibraltar.
- Lakes** : Victoria, Tanganyika, Malawi, Chad, Rudolf, Albert.
- Islands** : Madagascar, Cape Verde Islands, The Comoros, Mauritius, Seychelles.
- Mountains** : Atlas, Drakensberg, Kilimanjaro.
- Plateaus** : Plateau of Africa - the entire continent is a plateau.
- Deserts** : Sahara, Kalahari, Namib.

Facts about North America

North America, northern continent of Western Hemisphere, comprising U.S.A., Canada, Central America, lower range in east and central plains. Climate varies considerably owing to wide range of latitude and altitude.

- Latitude** : 7° N and 84° N
- Longitude** : 20° W and 180° W
- Area** : 24,235,280 sq. km (approx. 16.5% of the world)
- Population** : 353 million (mid-2014) [4.88% of world population]

- Major Deserts** : Chihuahuan, Colorado, Mojave, Sonoran.
- Major Lakes** : Lake Superior (largest sweet water lake in the world), Huron, Michigan, Great Slave, Great Bear, Erie, Ontario etc.
- Major Rivers** : Mississippi, Missouri, St. Lawrence, Mackenzie, Colorado, Hudson, Potomac, Ohio etc.
- Oceans and Seas** : Atlantic Ocean, Pacific Ocean, Arctic Ocean, Gulf of Mexico, Caribbean Sea, Gulf of California, Gulf of Alaska, Bering Sea, Hudson Bay.
- Canada has the largest coastline (2,02,080 km) in the world.
- Coastline** : Mckinley (6,194 m) and Death Valley (-85.9 m) respectively.
- Highest and Lowest Points** : Bering Strait.
- Straits** : Greenland, Baffin, Victoria, Newfoundland, Cuba, Jamaica, Haiti.
- Islands** : Rockies, Appalachain, Brooks, Kuskolkwim, Alaska Range, Cascade Range, Coastal Range, Sierra Nevada, Sierra Madre etc.
- Mountains** : Columbia Plateau, Colorado Plateau, Mexican Plateau, Canadian Shield.
- Plateaus** : Temperate and tropical products, cereals, tobacco, sugarbeet, potatoes etc.
- Agriculture** : Coal, petroleum, iron, manganese etc.
- Minerals** : Ship building, occupied formerly by Red Indians; now mainly by Whites with many Blacks in the south.
- Industries** : New York, Washington D.C., Boston, Chicago, Dallas, Detroit, San Francisco, Los Angeles, Seattle, Montreal, Toronto, Vancouver, Mexico City, Havana, Kingston, Ottawa etc.
- Important cities** : Extending to within 10° of latitude of both the equator and the North Pole, North America has every climatic zone, from tropical rain forest and Savanna on the lowlands of Central America to areas of permanent ice cap, besides Sub-arctic and Tundra climates and arid as well as semi-arid zones.
- Climate**

Facts about Latin America, Caribbean

- Latitude** : 12° N and 55° N
- Longitude** : 35° W and 81° W
- Area** : 17,820,770 sq. km (approx. 12% of the world).
- Population** : 618 million (mid-2014) [8.54% of world population]
- Ocean and Seas** : Atlantic Ocean, Pacific Ocean, Caribbean Sea.
- Highest and Lowest Points** : Aconcagua (6,960 m) and Valdes Penin (-39.9 m) respectively.
- Straits** : Straits of Magellan
- Lakes** : Lake Maracaibo, Lake Titicaca
- Islands** : Galapagos, Falkland, Tierra del Fuego
- Mountains** : Andes

- Plateaus** : Plateau of Bolivia, Plateau of Equador.
Deserts : Atacama, Pantagonia
Rivers : Amazon, Orinoco, Paraguay, Parana, Uruguay
Important cities : Buenos Aires, Rio de Janeiro, Montivideo, Quito, Santiago, La Paz, Lima, Bogota, Valparaiso, Sao Paulo, Belem, Caracas, Manaus.

Facts about Europe

- Latitude** : 35° N and 73° N
Longitude : 25° W and 65° E
Area : 10,530,750 sq. km (approx.) (7.1%); greatest length north to south 3,860 km; breadth east to west 5,300 km.
Population : 741 million (mid-2014) [10.24% of world population]
Oceans and Seas : Atlantic Ocean, Arctic Ocean, Mediterranean Sea, Caspian Sea, Black Sea, White Sea, North Sea, Norwegian Sea, Baltic Sea, Gulf of Bothnia, Gulf of Finland, Bay of Biscay, Aegean Sea, Adriatic Sea.

- Highest and Lowest Points** : Mt. Elbrus (5,642 m) and Caspian Sea (-28.0 m) respectively.
Straits : Straits of Gibraltar
Lakes : Lake Ladoga, Onega, Peipus, Vanern, Vaitern.
Islands : British Isles, Iceland, Sardinia, Sicily, Crete.
Mountains : Alps, Pyrenes, Appenines, Dinaric Alps, Carpathians, Transylvanian Mts., Balkans, Caucasus, Urals.
Plateaus : Plateau of Bohemia, Plateau of Spain, Central Massif.
Rivers : Volga, Danube, Rhine, Po, Dnieper, Don, Vistula, Elbe, Oder, Seine, Loire, Garrone, Douro, Tagus Ural.
Important cities : London, Paris, Madrid, Antwerp, Amsterdam, Bonn, Moscow, Copenhagen, Oslo, Stockholm, Frankfurt, Berlin, Warsaw, Rome, Venice, Athens, Budapest, Belgrade, Munich, Prague, Vienna etc.

Facts about Australia

Australia is an island continent and a British Dominion.

Australia with New Zealand, Tasmania, New Guinea and the Pacific Islands (Micronesian, Melanesian and Polynesian Islands) is called Australasia by some geographers while some others call it 'Oceania', which includes proximate islands (Caribbean countries etc.). Oceania contains 39 million population which is 0.54% of total world population in 2014.

- Latitude** : 12° S and 38° S
Longitude : 114° E and 154° E
Area : 7,830,682 sq. km (approx. 5.3% of the world).
Population : Oceania—39 million (mid-2014)
Oceans : Pacific Ocean, Indian Ocean.

- Seas** : Tasman Sea, Timor Sea, Arafura Sea, Gulf of Carpentaria, Coral Sea, Great Australian Bight.
Highest Point : Puncak Jaya (4884 m) in island of New Guinea [Kosciuszko (2,228 m.) in Australian main land], Mt. Wilhelm (4509 m.) in Papua New Guinea.
Lowest Point : Lake Eyre (-15.8 m)
Straits : Bass Strait
Lakes : Lake Eyre
Islands : Tasmania
Mountains : Great Dividing Range
Plateaus : Western Plateau
Deserts : Gibson Desert, Great Sandy Desert, Great Victoria Desert, Simpson Desert.
Important Cities : Sydney, Melbourne, Adelaide, Brisbane, Darwin, Canberra, Hobart, Perth.

Oceans on The Earth

- There are four oceans. In order of their size, they are : Pacific Ocean, Atlantic Ocean, Indian Ocean and Arctic Ocean.

Pacific Ocean

- The explorer **Ferdinand Magellan**, who circumnavigated the Earth, named the ocean 'Pacific' meaning calm or peaceful.
- The Pacific Ocean (Area : 166,240,000 sq. km) is the **largest** ocean of the world.
- It is the **deepest ocean** with an average depth of 4,200 m.
- The **Mariana Trench** is the world's deepest trench with a depth of 11,033 metres (36,201 feet).
- Most of the islands of this ocean are of **volcanic** or **coral origin**.

Atlantic Ocean

- The Atlantic Ocean (Area : 8,65,60,000 sq. km) is the **second largest ocean** in the world.
- Its name is derived from Atlas, a Titan (giant) in Greek mythology.
- The Atlantic Ocean has the **longest coastline**.
- The Atlantic Ocean is the **busiest ocean for trade and commerce** since its shipping routes connect the two most industrialized regions, namely Western Europe and N.E. United States of America.
- The Atlantic Ocean was formed millions of years ago when a rift opened up in the Gondwanaland and the continents of South America and Africa separated. The separation continues even today and the Atlantic Ocean is **still widening**.
- The continental islands of **Newfoundland** and **British Isles** are the major ones.
- Volcanic islands are fewer and they include those of **Cuba, Jamaica and Puerto Rico**. **Iceland** is the largest island of volcanic origin.

Indian Ocean

- The Indian Ocean (Area : 73,430,000 sq. km) is the only ocean named after a country.

- The Indian Ocean is **deeper than the Atlantic Ocean**.
- It contains numerous continental islands, **Madagascar** and **Sri Lanka** are being the largest ones.
- Some of the islands of volcanic origin are those of **Mauritius**, **Andaman** and **Nicobar**, **Seychelles**, **Maldives** and **Lakshadweep** are of coral origin.

South Indian Ocean

- **Warm currents** : 1. South Equatorial 2. Mozambique 3. Madagascar 4. Agulhas.
- **Cool Currents** : 1. Antarctic drift 2. West Australian currents.

Arctic Ocean

- The Arctic Ocean (Area : 1,32,30,000 sq. km) is the **smallest** of all the oceans.
- It lies within the Arctic Circle, hence the name Arctic Ocean.
- The **North Pole** lies in the middle of the Arctic Ocean.
- Most of the parts of Arctic Ocean **remains frozen** with thick ice for most of the days every year.
- It is the **shallowest** of all oceans, with an average depth of 1,500 m.
- It has the least salinity of all the oceans. It has a salinity of 20 unit per thousand.

Ocean Currents

- The flow of a large amount of water in a definite direction with a great intensity is known as Ocean Current.
- Ocean Currents are of two types—Hot and Cold.

Hot Currents

- The currents flowing from tropical zones of lower latitudes to higher temperate and sub polar zones are known as hot water currents.

Cold Currents

- The currents flowing from higher latitudes to lower latitudes are known as cold water currents.
- The only exception to the conduction of ocean currents is found in the Indian Ocean. The flow of currents changes here with a change in the direction of the Monsoon Winds. The hot currents flow towards cooler oceans and the cold currents flow towards the warmer oceans.

Biosphere

- The part of the Earth where life exists is called the **Biosphere** ('bios' means 'life').
- The Earth is the only planet of the solar system that supports life. Life is possible because of its unique lithosphere, hydrosphere and atmosphere.

Lithosphere

- The uppermost layer of the Earth's crust which is capable of supporting life is called Lithosphere.
- The Lithosphere (or land) covers two-sevenths or 29.22% (14,90,41,182 sq. km) of the total surface area of the earth.

Hydrosphere

- Hydrosphere (or sea) covers five-sevenths or more accurately 70.78% (36,10,59,226 sq. km) of the total surface area of the earth.

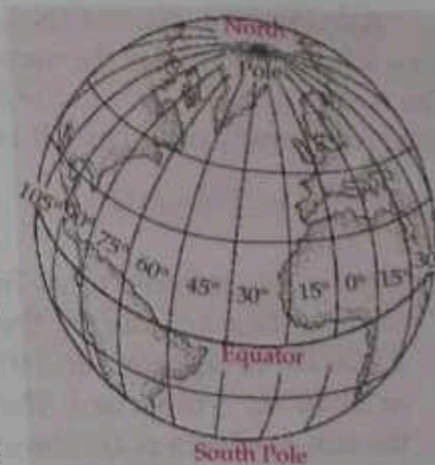
- Water is freely available in the gaseous, liquid and solid state.
- It is necessary for carrying out chemical reactions within the bodies of the living organisms.
- Water also dissolves and transports nutrients from the soil to the plants.
- It is used by plants for making food.

Latitude and Longitude

Any location on Earth is described by two numbers—its **latitude** and its **longitude**.

Latitude

On a globe of the Earth, lines of latitude are circles of different size. The longest is the equator, whose latitude is zero, while at the poles—at latitudes 90° north and 90° south (or -90°) the circles shrink to a point.



Longitude

On the globe, lines of constant longitude ('meridians') extend from pole to pole.

Every meridian must cross the equator. Since the equator is a circle, we can divide it—like any circle—into 360 degrees, and the longitude of a point is then the marked value of that division where its meridian meets the equator.

For historical reasons, the longitude (meridian) passing the old Royal Astronomical Observatory in *Greenwich, England*, is the one chosen as zero longitude. Located at the eastern edge of London, the British capital, the observatory is now a public museum and a *brass band* stretching across its yard marks the 'prime meridian'.

A line of longitude is also called a meridian, derived from the Latin, from *meri*, a variation of '*medius*' which denotes '*middle*', and *diem*, meaning '*day*'. The word once meant 'noon', and times of the day before noon were known as '*ante meridian*', while times after it were '*post meridian*'. Today's abbreviations *a.m.* and *p.m.* come from these terms, and the Sun at noon was said to be '*passing meridian*'. All points on the same line of longitude experienced noon (and any other hour) at the same time and were therefore said to be on the same '*meridian line*'.

Local Time (LT) and Time Zones

Two important concepts, related to latitude and (especially) longitude are Local Time (LT) and Universal Time (UT)

Longitudes are measured from zero to 180° east and 180° west (or -180°), and both 180-degree longitudes share the same line, in the middle of the Pacific Ocean.

As the Earth rotates around its axis, at any moment one line of longitude 'the noon meridian' faces the Sun, and at that moment, it will be noon everywhere on it. After 24 hours the Earth has undergone a full rotation with respect to the Sun, and the same meridian again faces noon. Thus each hour the Earth rotates by $360/24 = 15$ degrees.

The Date Line and Universal Time (UT)

Longitude determines only the hour of the day—not the date, which is

determined separately. The international date line has been established—most of it following the 180th meridian—where by common agreement, whenever we cross it the date advances one day (going west) or goes back one day (going east).

That line passes the **Bering Strait** between Alaska and Siberia, which thus have different dates, but for most of its course it runs in mid-ocean and does not inconvenience any local time keeping.

Astronomers, astronauts and people dealing with satellite data may need a time schedule which is the same everywhere, not tied to a locality or time zone. The **Greenwich Mean Time**, the astronomical time at Greenwich (averaged over the year) is generally used here. It is sometimes called Universal Time (UT).

Heat Zones of The Earth

Torrid Zone

- > This is also referred to as Tropical zone. The Tropics is a region on the Earth surrounding Equator by the Tropic of Cancer in the northern hemisphere at $23^{\circ}26'16''$ N (approx.) and the Tropic of Capricorn in the southern hemisphere at $23^{\circ}26'16''$ S (approx.). The Tropics include all the areas on the Earth where the sun reaches a point directly overhead at least once in a year.
- > This area receives **maximum heat** and is called the **Torrid (hot) Zone**.

Frigid Zone

- > Near the polar regions, the rays of the Sun are very slanting and so it is **very cold**.
- > The region/area between the Arctic Circle and the North Pole in the Northern Hemisphere is called the **Frigid zone**.
- > There are similar regions in the Southern Hemisphere between the Antarctic Circle and the South Pole, also called the Frigid Zone (frigid means cold).

Rotation of the Earth

- > The Earth spins (rotates), west to east on its axis once in 24 hours approximately.
- > The Earth's axis is not vertical. It makes an angle of $23^{\circ}30'$ with the vertical or $66^{\circ}30'$ with the plane of the Earth's orbit.
- > The Earth's axis always remains pointed in the same direction (towards the Pole Star) as the Earth moves around the Sun. The tilt of the Earth's axis is known as the inclination of the Earth's axis.
- > Movements of tides are mostly determined by rotation of the Earth.

Effect of the Tilted Axis on Day and Night

- > Rotation of the Earth on its tilted axis causes days and nights to be of different length in different parts of the Earth.
- > Since the Earth's axis is tilted in the same direction, the orientation of the Earth's axis to the Sun's rays is constantly changing as the Earth moves around the Sun. This results in a continuous change in the length of days and nights throughout the year.

Perihelion

- > The position of the earth or any other planet in its orbit when it is at its nearest point to the sun.
- > The earth reaches its perihelion about 3rd January at a distance of about 147 million kilometer near one extremity of the major axis of the earth's elliptical orbit, the axis being called Apsides line.

Aphelion

- > The position of the earth or any other planet in its orbit when it is at its distant point from the sun.
- > The earth reaches its aphelion on 4th July when the earth is at a distance of 152 million kilometer near the other extremity of the major axis.

Solstice

- > Solstice is one of the two dates in the year on which the sun reaches greatest altitude north or south of the equator and is directly overhead along one of the lines of the tropics.

Summer Solstice

- > On June 21, the earth is so located in its orbit that the sun is overhead on the Tropic of Cancer ($23\frac{1}{2}^{\circ}$ N).
- > On this date the northern hemisphere is tipped towards the sun having the **longest day**, while the southern hemisphere is tipped away from the sun having the **shortest day**.

Winter Solstice

- > On December 22, the earth is in an equivalent position on the opposite points in its orbit, so the southern hemisphere is tipped towards the sun and the northern hemisphere away from it.
- > The sun is overhead on the Tropic of Capricorn ($23\frac{1}{2}^{\circ}$ S), resulting in the **shortest day** in the northern hemisphere.

Equinoxes

- > Two days in a year when day and night are equal throughout the world are equinoxes.
- > Falling midway between the dates of solstices, on these dates, the earth's axis lies at 90° to the line joining the centres of the earth and the sun and neither the northern nor the southern hemisphere is inclined towards the sun.
- > The 'vernal equinox' occurs on **March 21** and it is also called the **spring equinox** in the northern hemisphere.
- > The 'autumnal equinox' occurs on September 23.

Midnight Sun

- > This phenomenon is observed in the Arctic and Antarctic zones around mid-summer, when the sun does not sink below the horizon throughout 24 hours of the day and therefore, may be seen at midnight.
- > This is the direct consequence of the inclination of the axis of the earth to the plane of the orbit.
- > Norway is the **place of midnight sun** where the sun is continuously visible between May and July.
- > In the southern hemisphere, the phenomenon is seen in the Antarctica continent.

Eclipses

- > An Eclipse occurs when the sun, moon and earth are in a straight line.
- > A 'solar eclipse' occurs between sunrise and sunset on new moon when the moon passes directly in front of the sun so that its shadow lies on the earth. In other words, the moon lies between the sun and the earth.

- > The 'lunar eclipse' takes place when the earth comes in between the sun and the moon so that the shadow of the earth is cast on the moon.
- > A lunar eclipse takes place on a full moon.
- > Generally a total of seven eclipses, including solar and lunar eclipses, take place every year.

Atmosphere

- > The envelope of air that completely surrounds the earth is known as atmosphere.
- > The atmosphere extends to about 1000 km from the surface of the earth. But 99% of the total mass of the atmosphere is found within 32 km.
- > This is because the atmosphere is held by the gravitational pull of the earth.

Composition of the Atmosphere

1. Nitrogen	78%	2. Oxygen	21%	3. Argon	0.93%
4. Carbon dioxide	0.03%	5. Neon	0.0018%	6. Helium	0.0005%
7. Ozone	0.0006%	8. Hydrogen	0.00005%		

- > Carbon dioxide is present in small quantity in the atmosphere.
- > It is an important constituent of air because it has the ability to absorb heat and thus keep the atmosphere warm, thereby, balancing the heat of the earth.
- > Water vapour is the most significant component of the atmosphere as far as its effect on weather is concerned although its quantity varies considerably from practically none (0) to up to about 4% by volume.
- > Water vapour is the source of all clouds and precipitation (rain, hail storm etc). Water vapour, like carbon dioxide, has the ability to absorb heat energy. It also regulates the hydrological cycle.
- > Dust intercepts and reflect incoming insolation.
- > The polluted particles present in the air not only absorb larger amount of insolation but also greatly absorb the terrestrial radiation.
- > Dust in the atmosphere contributes to the red and orange colour of sunrise and sunset.

Layers of the Atmosphere

There are five distinct layers of the atmosphere—(a) Troposphere, (b) Stratosphere, (c) Mesosphere, (d) Thermosphere and (e) Exosphere.

Troposphere

- > This is the first layer of the atmosphere. It extends to a height of 18 km at the equator and 8 km at the poles.
- > In this layer temperature decreases with height. This is due to the fact that the density of air decreases with height and so the heat absorbed is less. It contains more than 90% of gases in the atmosphere.
- > Since most of the water vapour form clouds in this layer, all weather changes occur in the troposphere ('tropo' means 'change').
- > The height at which the temperature stops decreasing is called tropopause. Here the temperature may be as low as -58°C .

Stratosphere

- > This the second layer of the atmosphere. It extends from the tropopause to about 50 km.

- > Temperature increases due to the absorption of the ultraviolet radiation of the Sun by ozone present in this layer. The temperature slowly increases to 4°C .
- > This layer is free from clouds and associated weather phenomena. Hence, it provides ideal flying conditions for large jet planes.
- > At about 50 km the temperature begins to fall again. This marks the end of the stratosphere. The end of the stratosphere is called the stratopause.

Mesosphere

- > Above the stratosphere lies the mesosphere.
- > The mesosphere extends to a height of 80 km.
- > Here the temperature decreases again, falling as low as -90°C .
- > The end of this layer is known as the mesopause.

Thermosphere

- > The thermosphere lies above the mesosphere.
- > This layer extends to a height of about 640 km.
- > In this layer temperature rises dramatically, reaching upto 1480°C .
- > This increase in temperature is due to the fact that the gas molecules in this layer absorb the X-rays and ultraviolet radiation of the Sun.
- > This results in the break up of the gas molecules into positively and negatively charged particles or ions. Thus, this layer is also known as the ionosphere.
- > The electrically charged gas molecules of the thermosphere reflect radio waves from the Earth back into space. Thus, this layer also helps in long distance communications.
- > The thermosphere also protects us from meteors and obsolete satellites, because its high temperature burns up nearly all the debris coming towards the Earth.

Exosphere

- > This layer lies above the thermosphere.
- > The exosphere extends beyond the thermosphere upto 960 km.
- > It gradually merges with interplanetary space.
- > The temperatures in this layer range from about 300°C to 1650°C .
- > This layer contains only traces of gases like oxygen, nitrogen, argon and helium because the lack of gravity allows the gas molecules to escape easily into space.

How the Sun Creates Energy

- > Hydrogen and helium are the predominant gases that constitute the Sun. The proportion of hydrogen to helium is 3 : 1.
- > The core of the Sun acts like a gigantic nuclear reactor and converts huge quantity of hydrogen into helium. In this process of nuclear fusion, the Sun releases tremendous amount of energy in all directions.
- > The Sun radiates energy (both heat and light) in all directions.
- > Because of its small size in relation to the Sun, the Earth intercepts only a small part of the Sun's radiant energy.
- > Solar radiations are the primary source of heat and light to the Earth.

Insolation

- > The incoming solar radiation (energy intercepted by the Earth) is known as insolation and it is received in the form of short waves.

Terrestrial Radiation

- > The Sun's energy absorbed by the Earth's surface when radiated out into space is called **terrestrial radiation**.

Weather and Climate

- > **Weather** is the description of the atmospheric conditions of a particular place at a particular time for a short period of time.
- > **Climate** is the composite or integrated picture of the weather conditions over a long period of time.
- > **Climatic data** is based on calculated averages of data recorded over a period of 35 years. The classical period is 30 years, as defined by WMO.

Atmospheric Pressure

- > Atmospheric pressure is the pressure at any point on the surface of the Earth due to the weight of the column of air above that point.
- > **Standard sea level pressure is 76 cm or 29.92 inches** on this scale.
- > Another pressure unit used by meteorologists in drawing weather charts is **milli bars (mb)**.
- > One bar is divided into 1000 millibars. Millibars are now known as **hectopascals**.

Winds

- > Wind is the movement of air caused by the uneven heating of the Earth by the Sun.
- > Sometimes wind blows gently, refreshing us. At other times, it blows strongly creating storms that cause widespread damages.
- > We need measurements of two quantities : **direction and speed, to give a description of the wind.**

Trade Winds

- > They blow from the Sub-tropical High Pressure Belt to the Equatorial Low Pressure Belt in the tropics between **30° North and 30° South latitudes**.
- > They blow as the **N.E. Trades** in the Northern Hemisphere and as the **S.E. Trades** in the Southern Hemisphere.
- > The name '**Trade**' is derived from a nautical expression 'to blow tread' meaning to blow along a regular path or 'tread'.

Westerlies

- > They blow from the Sub-tropical high Pressure Belt to the Sub-polar low Pressure Belt in the temperate latitudes between **30° and 60°, on either side of the Equator**.
- > They are more constant and stronger in the Southern Hemisphere because there are **no large landmasses** to interrupt them.
- > In places they become so strong that these winds are known as the **Roaring Forties** or the **Brave West Winds** and the **Furious Fifties**.
- > The belts of the Westerlies move north and south following the Sun's movement. These are known as Westerlies because they blow out of the west.

Pressure Measuring Instruments

1. Mercurial Barometer (or Fortin's Barometer)
2. Aneroid Barometer
3. Altimeter or Altitude Barometer
4. Barograph (automatic recording Aneroid Barometer)
5. Microbarometer
6. Microbarovariograph

Wind Measurement Instruments

- Windvane or Weather-cock** measures the wind-direction.
- Anemometer** measures the wind velocity.

Polar Winds

- > They blow from the Polar High Pressure Belt to the Sub-polar Low Pressure Belt between latitudes 60° and the poles on both sides of the Equator.
- > These winds blow from the east to form the Polar Easterlies.
- > They are more regular in the Southern Hemisphere.
- > Polar winds are extremely cold and dry.

Climatic Winds or Periodic Winds

- > These winds change their direction along with change in time or change in climate. **Land** and **sea breezes** and the **Monsoon winds** are typical examples of periodic winds.

Monsoon Winds

- > Monsoon winds are **seasonal winds** characterised by a complete **reversal in their direction** from one season to another.
- > They blow from the **sea to the land in summer**.
- > They blow from the **land to the sea in winter**.

Internal Structure of The Earth**The Earth's Crust**

- > The outermost solid cover or shell of the earth is known as the earth's **crust**.
- > The thickness of the crust is about 30 km.
- > It is thicker in the region of the continents and thinner in the region of the ocean floors.
- > The density of the rocks in the earth's crust ranges from 2.7 to 3 g/c.c (grams per cubic centimeter).
- > The upper part of the crust consists of silica and aluminium in greater proportions. That is why, it is called '**Sial**'.
- > Whereas the lower part of the crust is called '**Sima**' because the proportion of silica and magnesium is higher in this part.

Mantle

- > This layer lies below the crust.
- > Its thickness is about 2900 km and the density of substances in the mantle ranges from 3.0 to 4.7.

Core

- > The earth's **core** lies below the mantle. Its thickness may be about 3,471 km.
- > Its **radius** is 6,371 km., according to IUGG.
- > It is divided into two parts—the outer core and the inner core. The outer core is probably in a liquid state and the inner core in a solid state.
- > The core mainly consists of iron with some amount of nickel and sulphur (NIFE).
- > After the mantle, the earth's density goes on increasing rapidly towards its centre and finally is more than 13.
- > The temperature of the central part of the earth may be about 5000°C.
- > The study of the earth's interior helps us to understand the original rocks in the earth's crust and their later transformation.

Rocks

- > The **solid parts of the earth's crust are called rocks**. Most of the rocks are made up of two or more minerals.
- > In the same type of rocks, the proportions of minerals may be different in different areas.
- > Rocks may not always necessarily be hard.
- > Minerals are obtained from rocks.
- > Rocks are classified in three main types depending on the process of their formation : (a) Igneous, (b) Sedimentary, (c) Metamorphic.

Igneous rocks**Igneous rocks Metamorphic rocks**

Granite	Gneiss
Gabbro	Serpentine

- > Hot **lava** pours out at the time of volcanic eruptions and cools down later on, forming rocks.
- > The molten materials known as **magma**, sometimes cool down beneath the earth's crust, again forming rocks.
- > Both these types of rocks are known as **Igneous rocks**.
- > When the earth's surface first became solid after it cooled down from its hot liquid state, the original rocks of the earth's crust were formed. They are the Primary Igneous rocks, which are usually not found today.
- > Igneous rocks are generally **harder** and **granular**.
- > There are **no layers** in Igneous rocks.
- > **Fossils** are **not found** in Igneous rocks.
- > The formation of Igneous rocks takes place beneath and above the surface of the earth.
- > Rocks formed by the cooling of molten matter beneath the earth's surface are called **intrusive igneous rocks**. 'Granite' and 'Gabbro' are the main examples of these rocks.
- > The intrusive rocks are thus crystalline rocks.
- > Sometimes, the molten matter oozes out through cracks in the earth's crust and spreads on the surface, forming **extrusive igneous rocks**.
- > Gabbro, Obsidian, Basalt etc are examples of extrusive igneous rocks.
- > A very large area of the Deccan Plateau consists of basalt rocks.
- > These rocks contain silica from 40 to 80%, others are felspar, magnesium and iron etc.
- > Other examples of Igneous rocks are—Granite, Pumic stone, Basalt and Gabbro.

Sedimentary rocks

- > They are formed by the deposition, sedimentation and lithification of sediments over a long period of time.
- > As layers over layers get deposited, over a period of time, unified sedimentary rocks are formed on account of the tremendous pressure exerted by the layers above.
- > Sometimes the remains of plants, dead animals etc are found in the deposited material. Such fossil containing sedimentary rocks are useful for studying life on earth.

- > Sandstone, limestone, shale are some examples of sedimentary rocks.
- > **Limestone** is white as well as black.
- > **Sandstone** is dull white, pink, bright red or sometimes black.

Metamorphic rocks

- > The nature of igneous and sedimentary rocks changes due to the effects of tremendous heat or pressure, and new, transformed rocks, called **metamorphic rocks**, are formed.
- > Minerals in the rocks get restructured on account of heat and pressure. This brings about a change in the original formation of the rocks.

Some examples of metamorphic rocks formed from igneous and sedimentary rocks :

Type of rock	Original rock	Metamorphic rock	Type of rock	Original rock	Metamorphic rock
Igneous	granite	gneiss	Sedimentary	coal	graphite coal
Igneous	basalt	hornblend	Sedimentary	sandstone	quartzite
Sedimentary	limestone	marble	Sedimentary	shale/clay	slate, mica schist

Earthquakes and Volcanoes**Earthquakes**

- > The sudden tremors or shaking of the earth's crust is called an **earthquake**. When a part of the earth's surface moves backward and forward or up and down, the earth's surface 'quakes', and these are called the 'earthquake'.
- > The earth's crust is made up of different parts of various sizes. They are called plates.
- > Most of the earthquakes in the world are caused by the movements of the plates.
- > '**Seismology**' the special branch of Geology, It deals with the study of earthquake.
- > '**Richter scale**' and '**Mercalli scale**' are the instruments to measure / record the **magnitude** and the **intensity** of an earthquake respectively.

Seismic Waves

- > The place where the seismic waves originate beneath the earth's surface is called the **focus of the earthquake**.
- > The **epicenter** is that point on the ground surface which is closest to the focus.
- > Seismic waves are recorded on the **seismograph**. Seismic waves are mainly of three types—1. Primary waves, 2. Secondary waves and 3. Surface or Long waves.

The earthquake zones in India

- > The Indian plate is moving from south to north. That is why there are earthquakes in the Himalayan region.
- > Earthquakes occur in Assam, Arunachal Pradesh, Nagaland, Tripura, Manipur, Mizoram, Andaman and Nicobar Islands, Jammu and Kashmir, the north-western region of Uttar Pradesh, the northern region of Bihar etc.

Sedimentary rocks Metamorphic rocks

Limestone	Marble
Sandstone	Quartzite*
Shale / clay	Slate, Phyllite, Schist
Coal	Diamond

* Quartzite is a hard, non foliated metamorphic rock which was originally pure quartz sandstone. Sandstone is converted into quartzite through heating and pressure usually related to tectonic compression within orogenic belts.

- During the last few years, there have been several earthquakes of varying intensities in Maharashtra and Gujarat.

Volcanic Activity

- Magma or molten rock is formed beneath the ground surface due to various reasons.
- This molten rock ruptures the ground and pours out. Sometimes, it cools down beneath the ground surface instead of pouring out.
- All these activities are called **volcanic activities**.
- Volcanic activities have been taking place since times immemorial.
- There are three types of Volcanoes :

1. Active Volcanoes 2. Dormant Volcanoes 3. Extinct Volcanoes.

Volcanic eruptions

- The pouring out of the magma or molten rock through ground surface is called a **volcanic eruption**.
- At the time of eruption, the magma, steam, fragments of rock, dust and gaseous substances are ejected with great force from under the ground surface through a pipe like passage.
- The opening of this pipe on the earth's surface is known as the **vent** which forms a **crater**.
- The **lava** which is thrown into the sky during an eruption, falls to the ground in the form of solid fragments. Dark clouds gather in the sky and it begins to rain heavily.
- The volcanic ash and dust mixes with the rainwater giving rise to hot mud flows.

Types of Volcanic Eruptions

- Volcanic eruptions are classified into two types depending on the manner of ejection of the magma : 1. Central eruption, 2. Fissure eruption.

Central eruption

- This type of eruption is sometimes very explosive, because lava, steam, gas, dust, smoke, stone fragments are ejected from a narrow pipe from under the ground with greater intensity. This type of eruption gives rise to conical or dome-shaped hills.

Some examples of volcanic mountains formed due to central eruption are **Mt. Kilimanjaro** in Africa, the **Fujiyama** in Japan and the **Vesuvius** and **Mount Etna** in Italy.

- It is basically poured acidic lava.

Fissure eruption

- A very long fissure (cracks) develops in the ground surface and so, the molten rock, rock fragments, steam and gases within, pour out slowly.
- These eruptions take place at a very slow speed. Since this lava is more fluid, it spreads over longer distances.
- The lava cools down on the ground over a period of time, increasing the thickness of the surface in that area. **Basalt** plateaus are formed due to these eruptions.

- Basalt plateaus are also found in Brazil in South America and Saudi Arabia in West Asia and Deccan plateau in India.
- In Maharashtra, the fertile black regur soil has been formed from basalt rocks. It is also called **black cotton soil**.

Various Landforms

Mainly there are three types of landforms—Mountains, Plateaus, Plains.

Mountains

The height of mountains are over 600 m and have conical peaks. On the basis of origin there are four types of mountains : Block Mountains, Residual Mountains, Accumulated Mountains and Fold Mountains.

Block Mountains

- The middle part of such mountains is lower and the parts on both the sides are higher. The middle lower portion is called as **Rift valley**. The longest rift valley is the valley of the Jordan river.
- Black Forest (Germany), Vindhya and Satpura (India), Salt Range (Pakistan) are some examples of block mountains.

Residual Mountains

- Such mountains are formed as a result of weathering. Examples— Aravalli, Nilgiri, Parasnath, Hills of Rajmahal (India), Sierra (Spain).

Accumulated Mountains

- These are formed due to accumulation of sand, soil, rocks, lava etc on the Earth's Crust, e.g. Sand Dunes.

Fold Mountains

- These are formed because of the folds in the rocks due to internal motions of the earth. These are wavelike mountains which have numerous peaks and lows, e.g. Himalayas, Ural, Alps, Rockies, Andes etc.

Plateaus

- Plateaus are extensive upland areas characterised by flat and rough top surface and steep walls which rise above the neighbouring ground surface at least for 300 m.
- Generally the height of plateau ranges from 300 to 500 feet.

Intermountainous Plateaus : Plateaus formed between mountain, Example— Tibetan Plateau.

Mountainstep Plateaus : The flat region between a plain and the base of a mountain.

Continental Plateaus : These are formed when the Lacolith inside the Earth comes to the surface due to weathering. e.g. the Southern Plateau

Bank Plateaus : These are the plateaus on the banks of the oceans.

Domelike Plateaus : These are formed due to the movement of man and animals on the surface. e.g. Ramgarh Plateau.

Plains

Plains can be defined as flat areas with low height (below 500 ft.)

Some plateaus having more than average height

Tibetan Plateau	16,000 ft
Bolivian Plateau	11,800 ft
Columbian Plateau	7,800 ft

Weathered Plains : The plains formed due to weathering by rivers, glaciers, winds etc.

Loess Plains : These are formed by the soil and sands brought by winds.

Karst Plains : Plains formed due to the weathering of limestone.

Erosional Plains : Plains near the river banks formed by river erosion.

Glacial Plains : Marshy plains formed due to the deposition of ice.

Desert Plains : These are formed as a result of the flow of rivers.

Deposition Plains : Large plains are formed due to the silt brought by the rivers. Such plains are plains of Ganga, Sutlej, Mississippi, Hwang-Ho.

Forests

They are of the following types :

- Tropical Evergreen Rain Forests** : Such forests are found in the equatorial and the tropical regions with more than 200 cms annual rainfall. The leaves of trees in such forests are very wide. Ex-Red wood, palm etc.
- Tropical Semi Deciduous Forests** : Such forests receive rainfall less than 150 cms. Saagwan, saal, bamboo etc are found in such forests.
- Temperate mixed Forests** : Such forests are a mixture of trees and shrubs. Cork, Oak etc are the major trees of these forests.
- Coniferous Forests or Taiga** : These are evergreen forests. The trees, in these forests, have straight trunk, conical shape with relatively short branches and small needlelike leaves. Example-Pine, Fir etc.
- Tundra Forests** : Such forests are covered with snow. Only Mosses, a few sludges and Lichens grow here in the summers. This type of vegetation is chiefly confined to the northern hemisphere (e.g. in Eurasia, North America and Greenland Coast).
- Mountainous Forests** : Vegetation varies according to altitude.

Pastures (or Grasslands)

- They can be divided into two types :

(i) Tropical Pastures and (ii) Temperate Pastures

Tropical Pastures : They have different names in different countries. Savanna in Africa, Campos in Brazil, Llanos in Venezuela and Columbia.

Temperate Pastures : They are known by the following names—Praries in USA and Canada, Pampas in Argentina, Veld in South Africa, Rangelands or Downs in Australia and New Zealand, Steppes in Eurasia (Ukraine, Russia).

Land forms created by the river system

V-shaped valley

- A river flows with a greater velocity in the mountainous region and big, pointed fragments of rock also flow with a great speed along with the water.
- The river bed is scoured and down cutting starts, ultimately giving rise to a deep valley with steep sides. This valley is called a **v-shaped valley**.
- These valleys are found in mountainous regions.
- A deep and narrow valley with steep sides is called a **gorge**.
- The gorge of the river Ulhas in Thane district in Maharashtra and the gorge of the river Narmada at Bhedaghat near Jabalpur in Madhya Pradesh are well known.
- There are many gorges in the Himalayas.

Waterfall

- If there are both hard (resistant) and soft (less resistant) rocks in the course of the river, the less resistant rock is eroded faster.
- The resistant rock does not erode so easily. That is why, the river falls with a great speed from a cliff-like part of hard rock. This is called a waterfall.
- The **Niagara Falls** on the Niagara river is in North America.

Potholes

- In areas where the river bed consists of hard rock, the stones carried along with the river water due to the whirling impact of water.
- That is why holes of various shapes are formed in the rocky river bed. Such holes are called **potholes**.
- Many potholes are observed in the river bed of the Kukadi, Krishna, Godavari etc. in Maharashtra.

Meanders and ox-bow lakes

- Meanders are formed by lateral erosion. As the erosion increases over a period of time, the meanders in the river again starts flowing in a straight line.
- The loop previously formed then separates from the main course of the river. Water accumulates in this separated part.
- As this loop resembles on ox-bow it is called ox-bow lake. It formed due to impounding of water in the abandoned meander loop.

Fan-shaped plains

- In the region near the source of a river the tributaries joining the main river deposit materials carried by them on the banks of the main river.
- This deposition creates fan-like plains. They are called **fan-shaped** plains or alluvial fans.

Flood plains

- When, during the floods, the river-water overflows its banks and spreads in the surrounding areas, the silt carried by the water gets deposited in those areas. This creates flat plains on both the banks of the river. Plains created by this depositional work done during floods are called **flood plains**.
- The Gangetic Plain is a flood plain.

Natural levees

- When a river is over flooded, its water crosses its banks. At that time, the speed of the water is reduced, and the pebbles and stones carried by the river get deposited near the banks.
- On account of frequent floods, the area where these sediments are deposited near the bank of the river rises higher than the flood plain.
- This high wall is called a **natural levee** or natural embankment.
- Such levees are found on the banks of the Mississippi, the Huang-Ho etc, Southern bank of river Ganga.

Delta

- Delta was coined by Herodotus (the 'Father of History') after the Greek letter delta (Δ) because of the deltoid shape at the mouth of the Nile.
- A delta is a land form that is formed at the mouth of a river where that river flows into an ocean, sea, estuary, lake, reservoir, flat arid area or another river.

- > Deltas are formed from the deposition of the sediment carried by the river as the flow leaves the mouth of the river. Over long periods of time, this deposition builds the characteristic geographic pattern of a river delta.

Delta region

- > A river meets a sea or a lake. The silt carried by the river is deposited on the bed near its mouth.
- > The area near the mouth of the river gets gradually filled up by this deposition and gets raised causing an obstruction for the river to flow in a single channel. It, therefore, splits into two branches and meets the sea.
- > Over a period of time, there is deposition also at the mouth of these branches. In this manner, the main course of the river gets split into a network of small channels. These sub-channels are called **distributaries**.
- > A triangular region of innumerable such distributaries is formed near the mouth of the river. This region is called the **delta region**.
- > There are delta regions near the vent (opening) of the rivers Godavari, Ganga, Nile, Mississippi etc. Deltas are very fertile.
- > The largest delta of the world is 'Ganges Delta' / 'Sunderbans Delta' (350 km).

Land forms created by the actions of river

Erosion	Erosion Deposition	Deposition
V-shaped valley	Meanders	Fan-shaped plains
Gorge	Ox-bow	Flood Plains
Potholes	Lakes	Delta
Waterfall		Natural Levees

Glacier

- > A mass of ice sliding down the slope from a snow-clad region is called a glacier. On an average a glacier moves 1 to 15 metres a day.
- > While a glacier is moving, the friction of the ice at the bottom slows down the movement of the bottom layers.
- > There are two main types of glaciers : 1. Continental Glacier and 2. Alpine Glacier.

Continental Glacier

- > An extensive sheet of ice spreading across a vast region sometimes begins to move due to the pressure of the ice.
- > This moving sheet of ice is called a **continental glacier**.
- > Such glaciers are seen in Antarctica and Greenland.

Alpine or mountain glacier

- > There are snow-field in the mountainous regions of the Himalayas, the Alps, the Andes, the Rocky mountains etc.
- > The ice accumulating in these areas starts sliding down the slopes.
- > This mass of ice sliding down from the mountains is called a mountain glacier or an **alpine glacier**.

Iceberg

- > Blocks of ice break off from the continental glaciers and float away into the sea.
- > A block of ice floating in the sea is called an **iceberg**. These icebergs are huge in size.

- > The density of ice being slightly less than that of water, a very little portion of an iceberg is seen above the water and the rest of it is submerged under water.

Land forms of glaciation

- > Various land forms are created on account of the transportation, erosion and depositional work of a glacier. Let us consider the major land forms thus created.

Cirque

- > When the snow from the mountain peaks slides, it gets deposited in a hollow, if there is one on any side of the peak.
- > The accumulated snow starts sliding down the slope. This causes friction at the floor and at the sides of the hollow, thus enlarging it further. This is called a **cirque**.
- > The back wall of a cirque is like a high cliff and the floor is concave and huge in size. The total shape resembles an armchair.
- > When a glacier melts completely, water accumulates in the cirque and forms a lake which is known as **tarn**.

Fjord

- > Where the lower end of the trough is drowned by the sea it forms a deep steep-side inlet called '**Fjord**' as on the Norwegian and South Chilean Coasts.

U-shaped valley

- > When a glacier is flowing through a valley in a mountainous region, the sides of the valley get eroded. Ice causes friction on the sides of the valley.
- > As the erosion of the sides is greater than that of the floor, a valley is formed with vertical sides and a wide floor. This valley is called a **U-shaped valley**.

Hanging valley

- > In the mountainous region, many tributaries join the main glacier.
- > The quantity of ice in a tributary is comparatively smaller. Hence, it causes less friction.
- > The valley of a tributary is at a higher level than a valley of the main glacier, the valley of the tributary appears to be hanging. That is why, such a valley is called a **hanging valley**.

Moraine

- > The material transported and deposited by a glacier is known as **moraine**.
- > Moraines are made up of pieces of rocks that are shattered by frost action and are brought down the valley.
- > Moraines are of the following types : 1. lateral moraine, 2. medial moraine, 3. terminal moraine and 4. ground moraines.
- > After a glacier has melted, different land forms of deposition are seen.
- > The oval-shaped hills of lesser height are called **drumlins**.
- > Zig-zag hills, with many steep slopes, made up of long stretches of sand and gravel are called **eskers**.

Land forms created by the action of wind

Mushroom rock

- > The wind blowing in desert regions erodes the rock near the ground surface

to a great extent. At the same time, the upper part of the rock gets eroded to a lesser extent.

- > As this is a continuous process, the foot of the rock becomes narrow.
- > The top portion of the rock then looks like an umbrella. This land form is called a **mushroom rock**.

Sand dunes

- > Sand gets transported from one place to another along with the wind.
- > At a spot where the wind meets an obstruction or where the speed of the wind reduces, dunes are formed out of the sand which gets deposited.
- > The side of the dune facing the wind has a gentle slope and the opposite side has a steep slope.
- > Because of the slow speed of the wind, the sand on the gentle slope gets carried to the top and comes down the steep slope on the other side. Sand dunes gradually move forward in this manner.

Barkhan

- > The fine sand particles carried by the wind get deposited when the speed of the wind is reduced forming crescent shaped dunes. Such hills are called **barkhans**.

Loess

- > **Loess** is a soil finer than sand.
- > **Loess** is a silt transported by the wind from the desert regions and deposited much further way.
- > Loess transported from the desert regions of Central Asia has been deposited in layers in China. The plain they form is known as the **Loess plain**.

Groundwater

- > Some water from the rainfall received on the earth's surface seeps through the ground.
- > This water trickles down until it reaches an impervious rock.
- > Water accumulated under the ground surface in this manner, is called **ground water**.
- > Some rocks on the earth's surface are porous and some have cracks or joints. Water seeps in through these pores or joints.
- > Groundwater gushes out in the form of **springs**.

Land forms created by the actions of groundwater

Sink holes

- > Water on the ground surface seeps through limestone. Some portion of the limestone dissolves in that water. If this process takes place continuously, it makes holes in these rocks.
- > As this process continues over a number of years, these holes get enlarged. These holes are called **sink holes**.

Caves

- > In limestone region, water goes very deep through sink holes.
- > If there is a layer of impervious and hard rock underneath, water flows horizontally on the impervious rock instead of going deeper.
- > Hence, soft rocks get eroded and a **cave** is formed.

Stalactites and stalagmites

- > Inside the cave created by groundwater under the ground surface in a limestone region, water is always seeping through the roof. This water contains **calcium carbonate**.
- > As the seeping water evaporates, some of the calcium carbonate, it contains, is deposited on the cave's roof. This deposition continues to grow very slowly. Hence a column is seen growing from the roof towards the floor. It is called a **stalactite**.
- > The water dripping on the floor of the cave also evaporates leaving behind calcium carbonate which accumulates over a period of time.
- > A column then starts growing from the floor to the roof. This column which grows upwards is called a **stalagmite**.
- > Stalactites and stalagmites are observed in the Parner Taluka of Ahmadnagar district, in Bastar District in Chhattisgarh and also in the Karst region of former Yugoslavia now Serbia and Montenegro.

Land forms created by the actions of sea waves

Sea Cliff

- > The base of the rocks on the coast get eroded because of the impact of the ocean waves and notches develop in these rocks.
- > The crest of the rock overhangs the notch. These notches in the rocks gradually extend landwards over a period of time. Then the crest falls and a steep **cliff**, which has receded away from the sea is formed.

Sea cave

- > Rocks on the coast have many cracks. They become wider and wider with the impact of the waves, creating small caves. They are called sea caves.
- > Such sea cliffs and sea caves are observed at Shrivandhan, Ratnagiri, Malvan, Vengurle etc.

Beach

- > The fine sand and other material that flows along with the waves get deposited in a direction parallel to the sea coast.
- > This deposition of sand is called a **beach**.
- > There are extensive beaches in the coastal regions of the states of Maharashtra, Goa, Kerala, Tamil Nadu, Odisha and West Bengal in India and in other countries like Bangladesh and Canada.

Sand bar

- > A deposition of sand which results in a long, narrow embankment in the sea near the coast is called a **sand bar**.

Lagoon

- > A shallow lake is formed between the sand and the sea coast. It is called a **lagoon**. Such a lake is called **Kayal** in Kerala.

The Indian Subcontinent : Position, Extent and Physical Features

Location of the Sub Continent

- > Mainland of the Indian subcontinent, comprising India, Pakistan, Bangladesh, Nepal and Bhutan extends between 8°4'N and 37°6'N latitudes and between 68°7'E and 97°25'E longitudes.

- > If the sixth country of this subcontinent Sri Lanka, is included, then it starts from 6°N latitude.
- > The Tropic of Cancer ($23\frac{1}{2}^{\circ}\text{N}$) passes through the middle of India.

Size and Extent of Subcontinent

- > Total area of the Indian subcontinent is 44.9 lakh sq. km i.e. India 32,87,263 sq. km, Pakistan 7,96,095 sq. km, Bangladesh 1,48,393 sq. km, Nepal 1,47,181 sq. km, Bhutan 46,500 sq. km and Sri Lanka 65,610 sq. km. From North to South this subcontinent stretches over 3,200 km and from east to west it is 3,000 km. $82^{\circ}30'\text{E}$ meridian helps in calculating the Indian Standard Time (IST) which is 5 hours 30 minutes ahead of the Greenwich Mean Time (GMT).
- > This very meridian ($82\frac{1}{2}^{\circ}\text{E}$) dictates time in Sri Lanka and Nepal also.

Political Divisions of India

- > India is divided into 29 States and 7 Union Territories.

Position and Extent of India and its Locational Advantage

- > India forms part of the large continental land mass of Eurasia.
- > It is located on one of the peninsulas of Southern Asia. The country extends from Kashmir in north to Kanyakumari in the south.
- > The Arabian sea and the Bay of Bengal are situated on western and eastern side of peninsular India respectively.
- > The latitudinal extent of the country is from $8^{\circ}4'$ North to $37^{\circ}6'$ North.
- > The Tropic of Cancer ($23\frac{1}{2}^{\circ}\text{N}$) which passes through the middle of the country measures from $68^{\circ}7'\text{E}$ to $97^{\circ}25'\text{E}$. The location of the country is in the northern and the eastern hemispheres.
- > The importance of location of India is that it is located on the world's major sea routes.
- > Due to its location, India has maritime contacts with south-west Asia and Africa on the west and south-east Asia in the east. Its location has given India an advantage of the route of the Suez Canal for trade with North America and Europe.

Size of India (in terms of area and population)

- > India is the **seventh largest country** (in terms of area) in the world.
- > The area of India is about 3.28 million sq. km.
- > The area of India is nearly equal to the area of the continent of Europe excluding Russia.
- > India is eight times as large as Japan. India ranks as the **second largest country** in terms of population (next to China only).
- > No continent of the world except Asia has a largest population than that of India.
- > India contains about one-sixth of the total population of the world.

Physical Divisions of the Indian Subcontinent

- > A chain of high mountains radiate out from the Pamir Knot which lies just in the north of India
- > In these mountains the Hindukush, the Sulaiman and the Kirthar in the east and the Himalayas in the west separate the Indian subcontinent from rest of Asia.

- > Indian subcontinent can be divided into following physical divisions :
 - * The Great Mountain Wall of the North
 - * The Great Northern Plains
 - * The Great Peninsular Plateau
 - * The Coastal Plains
 - * The Great Indian Desert
 - * The Island Groups

The Great Mountain wall of the North

- > The Himalayas, the highest mountain wall of the world, are situated on the northern boundary of India like an arc.
- > From west to east the Himalayas are 2500 km long. The average breadth of the Himalayas is between 250 to 400 km.
- > Mount Everest, the highest peak in the world, lies in these mountains in Nepal.

Division of the Himalayas

- > The Himalayas consist of three parallel mountain ranges : (i) The Greater Himalayas, (ii) The Lesser Himalayas and (iii) The Outer Himalayas.

The Greater Himalayas (or Himadri)

- > This is the loftiest of the three ranges of Himalayas. Mount Everest lies in this range.
- > These snow-covered mountains give birth to many glaciers.
- > The Ganga originates from this glacier.

Location	Important Passes
Jammu & Kashmir	Burzi-La, Jaji-La
Hemachal Pradesh	Bara-La, Cha-La, Shipki-La
Uttarakhand	Niti-La, Lipu-Leh-La
Sikkim	Jelep-La, Nathu-La
Arunachal Pradesh	Bomdi-La

The Lesser Himalayas (or the Himachal Himalayas)

- > South of the Greater Himalayas, the range also lies parallel to it from west to east. This ranges 60 to 80 km wide and its average height ranges between 3500 to 4500 metres.
- > Tourist centres like Shimla, Mussoorie and Nainital are situated in this range.

The Outer Himalayas (or Shiwaliks)

- > This is the southernmost and the third parallel range of the Himalayas with an average height of 900 to 1200 metres.
- > Its breadth is only 10 to 50 km. Shivalik range is broader in the west.

Heights of Major Mountain Peaks in India

Peaks	Elevation● (in mts.)	Peaks	Elevation● (in mts.)
Godwin Austin (K-2)	8,611*	Masher Brum ¹ (East)	7,821*
Kanchenjunga	8,586	Nanda Devi	7,817
Nanga Parvat	8,126*	Masher Brum (West)	7,806*
Gasher Brum	8,068*	Rakaposhi	7,788*
Broad Peak	8,051*	Kamet	7,756
Dasteghil Sar	7,885*	Saser Kangri	7,672

● Height in metres above mean sea level * Situated in Pak occupied Kashmir (PoK)

1. Masher Brum is also known as K-1

The Great Northern plains

- > The northern plains are divided into three sub-divisions. These are the Punjab and Haryana plains. The Ganga plains and the Brahmaputra valley.
- > The Ganga plains form the largest lowland drained by the Ganga and its tributaries.
- > The Yamuna is the most important tributary of the Ganga.
- > The Ghaghara, the Gandak, the Kosi and the Tista are other tributaries of the Ganga.
- > The Sone and the Damodar are tributaries of the Ganga while the Chambal and the Betwa are tributaries of the Yamuna from the peninsular plateau.
- > The Ganga plain has an extremely gentle slope. Parts of the plain are subject to floods in the rainy season. In the lower course, the Ganga divides itself into tributaries to form a large delta along with the Brahmaputra.
- > The Punjab and Haryana plains represent a part of the Indus basin.
- > A low watershed separates these plains from the Ganga plains.

The Great Peninsular Plateau

- > Anamudi or Anaimudi (2,695 m) situated in Sahyadri range is the highest peak of the peninsula.
- > The Deccan plateau includes the area to the south of the Vindhyas.
- > The western edge of the plateau rises steeply from the Arabian Sea to form the **Western Ghats** (which includes the **Sahyadri**).
- > The Deccan plateau slopes gently towards the east. The surface of the plateau is dissected into a rolling upland by a number of rivers.
- > The elevation ranges from 300 to 900 metres.
- > The eastern edge of the plateau is known as the **Eastern Ghats**.
- > The north-western region of the Deccan plateau is covered by nearly horizontal sheets of lava. This region is called '**Deccan trap region**.' The Deccan plateau is drained by many long east flowing rivers. These rivers originate in the Western Ghats, flow towards the east and enter the Bay of Bengal.
- > The Godavari, the Mahanadi, the Krishna and the Cauvery are the major rivers that have built deltas along the coast.
- > The Narmada and the Tapi rivers are west flowing.
- > Both the rivers enter the Arabian Sea along the Gujarat coast.
- > These rivers do not have deltas.

Major Plateaus : Marwar Upland, Central Highland, Bundelkhand, Malwa Plateau, Baghelkhand, Chhotanagpur Plateau (Hazaribagh Plateau, Ranchi Plateau and Raj Mahal Hills), Meghalaya Plateau, Deccan Plateau, Maharashtra Plateau, Karnataka Plateau, Telangana Plateau, Chhattisgarh Plain.

The Coastal Plains

- > Narrow strips of flat land on eastern and western coasts are known as the East Coastal Plain and the West Coastal Plain respectively.

The West Coastal Plain

- > This plain which lies between the Arabian Sea and the Western Ghats spreads from Gujarat in the north to Kanyakumari in the south.

- > It is broader in the north and narrower in the south. This uneven plain has been dissected by many fast flowing rivers.
- > Its northern part from Gujarat to Goa is called **Konkan**, while southern part from Goa to Kanyakumari is known as **Malabar**. Several lagoons (salt water lakes separated from the main sea by sand bars and spits) are found on the coastal plain.
- > **Important ports** developed on its coast from north to south are : Kandla, Mumbai, New Jawahar Port Mumbai, Marmagao, Mangalore and Cochin.

The East Coastal Plain

- > This broader coastal plain spreads along the Bay of Bengal from Odisha in the north to Kanyakumari in the south.
- > Its northern part is known as Northern Circar plains and the southern part is called **Coromandal Coast**. Rivers like Mahanadi, Godavari, Krishna and Cauvery form deltas on this plain.
- > This coast is famous for rice cultivation.
- > A large number of lagoons are also found here.
- > **Chilka and Pulicat lakes** are fine examples of **lagoons** on our east coast.

The Great Indian Desert

- > It lies to the west of the Aravali range.
- > It extends over major part of Rajasthan and Sindh in Pakistan.
- > This desert does not get much rain as the Aravali range run parallel to the south-western monsoon winds.
- > It is in the rain shadow area of the Bay of Bengal current.
- > **Lake Sambhar** is found here.

The Island Groups

- > **Lakshadweep** is a group of 36 coral islands in the Arabian Sea.
- > It is located 300 km to the west of the coast of Kerala.
- > **Andaman and Nicobar** islands are a group of about 324 islands.
- > Most of these islands are uninhabited.
- > Andaman and Nicobar islands are separated by the **Ten Degree Channel** because 10°N latitude passes through this place.

Climatic Diversity in the Indian Subcontinent

- > Due to the vastness of the country and a variety of relief features there are regional variations in the climate of India.
- > The interior of the country, specially in the north, has a continental type of climate.
- > The coastal areas have a more equable climate. In mountainous areas, altitude determines the climate. There is a great deal of variation in the amount of annual rainfall.
- > In June, the highest temperature in Rajasthan may go up to 55°C. But, in Drass and Kargil the night temperature in January may go down to -45°C to -50°C.
- > Mawsynram and Cherrapunji in Meghalaya have an annual rainfall of 11,873 mm (467 in) and 11,430 mm (450 in) respectively. But, in the Thar Desert the annual rainfall is less than 500 mm (20 in).

- > Along the Malabar Coast (Kerala) the annual range of temperature is about 3°C. But, it is 20°C in Hissar, Ambala and other parts of the interior.

Soil Resources of the Indian Sub-continent

Soil

- > Soil forms the upper layer of the earth's crust capable of supporting life.
- > It is made up of loose rock materials and humus.
- > The soil forming processes are mainly influenced by the parent rock, climate, vegetation and animal life.

Importance of Soil Resources

- > Soil is an extremely important resource, especially in agricultural countries like India, Pakistan and Bangladesh.
- > Most food items, like rice, wheat, pulses, fruits and vegetables and much of our clothing are derived from the soil directly or indirectly.
- > Soil also gives us firewood, timber, rubber, fibres, etc. Food like milk, meat and eggs are obtained indirectly from the soil. Flowers, grass, plants and trees are also grown out of soil.

Soil Erosion and its types

- > Removal of top layer of soil when it is exposed to wind and rain, is easily blown or washed away. This condition is known as **soil erosion**.
- > Basically, soil cover is removed by two powerful agents :
1. Running water and 2. Wind.

Types of Soil found in India

- > Indian Council of Agricultural Research (ICAR) divides Indian soils into eight groups : (a) Alluvial soil (b) Black soil (c) Red soil (d) Laterites and Lateritic soil (e) Arid and Desert soil (f) Saline and Alkaline soil (g) Forest soil (h) Peaty and other organic soil. However, Indian soils are generally divided into four broad types : 1. Alluvial soils 2. Regur soils 3. Red soils and 4. Laterite soils.

Alluvial Soils

- > This is the most important and widespread category. It covers 40% of the land area. In fact the entire Northern Plains are made up of these soils.
- > They have been brought down and deposited by three great Himalayan rivers—Sutlej, Ganga and Brahmaputra and their tributaries.
- > Through a narrow corridor in Rajasthan they extend to the plains of Gujarat.
- > They are common in Eastern coastal plains and in the deltas of Mahanadi, Godavari, Krishna and Cauveri.
- > **Crops Grown** : Suitable for Kharif & Rabi Crops like cereals, Cottons, Oilseeds and Sugarcane. The lower Ganga-Brahmaputra Valley is useful for jute cultivation.

Regur or Black Soils

- > These soils are of volcanic origin. These soils are black in colour and are also known as **black soils**.
- > Since, they are ideal for growing cotton, they are also called **black cotton soils**, in addition to their normal nomenclature of Regur soils.
- > These soils are most typical of the Deccan trap (Basalt) region spread over north-west Deccan plateau and are made up of lava flows.

- > They cover the plateaus of Maharashtra, Saurashtra, Malwa and southern Madhya Pradesh and extend eastward in the south along the Godavari and Krishna Valleys.

- > **Crops Grown** : Cotton, Jowar, Wheat, Sugarcane, Linseed, Gram, Fruit & Vegetable.

Red Soils

- > Formed by weathering of crystalline and metamorphic mixture of clay and sand.
- > These soils are developed on old crystalline Igneous rocks under moderate to heavy rainfall conditions.
- > They are red in colour because of their high Iron-oxide (FeO) content.
- > They are deficient in phosphoric acid, organic matter and nitrogenous material.
- > Red soils cover the eastern part of the peninsular region comprising Chhotanagpur plateau, Odisha (Orissa), eastern Chhattisgarh, Telangana, the Nilgiris and Tamil Nadu plateau.
- > They extend northwards in the west along the Konkan coast of Maharashtra.
- > **Crops Grown** : Wheat, Rice, Millets, Pulses.

Laterite Soils

- > The Laterite soils are formed due to weathering of lateritic rocks in high temperatures and heavy rainfall with alternate dry and wet period.
- > They are found along the edge of plateau in the east covering small parts of Tamil Nadu, Odisha and a small part of Chhotanagpur in the north and Meghalaya in the north-east.
- > Laterite soils are red in colour with a high content of iron-oxides; poor in Nitrogen and Lime.
- > **Crops Grown** : Unsuitable for agriculture due to high content of acidity and inability to retain moisture.

Arid & Desert Soil

- > **Region** : NW India. Covers entire area of the west Aravalis in Rajasthan and parts of Haryana, Punjab & Gujarat.
- > **Characteristics** : Rich in Phosphates and Calcium but deficient in Nitrogen and humus.
- > **Crops Grown** : Fertile if irrigated e.g. Ganganagar area of Rajasthan (Wheat basket of Rajasthan).

Agriculture in India

- > About 65-70% of the total population of the country is dependent on agriculture.
- > Approximately 48.9% of our population derives its livelihood from agriculture.
- > It provides food to the second biggest population and the biggest population of cattle in the world.
- > Our agro-based industries are fully dependent on raw material provided by agriculture.
- > Agriculture with its allied activities accounts for 45% of our national income.

Types of Agriculture in India :**Subsistence Farming**

- > In this type of agriculture, farmers work hard to grow enough food to survive only.
- > In this type of farming the produce is consumed mainly by farmer and his family.
- > There remains no surplus to sell in the market.

Mixed Farming

- > The combination of agriculture and pastoral farming is called **mixed farming**.
- > In this type of farming, cultivation of crops and rearing of animals are done together on the same farm.

Jhum/Shifting Cultivation

- > This is a primitive form of agriculture, in which a plot of land is cultivated for a few years and then is deserted.
- > This slash and burn method of farming is carried on in jungles of north-eastern part of India e.g. in Assam, Meghalaya, Mizoram etc.
- > A plot of land is cleared for cultivation. As the yield decreases after two or three years, the plot is abandoned and a fresh clearing is made.

Extensive Farming

- > This is a system of farming in which the cultivator uses a limited amount of labour and capital on relatively large area.
- > This type of agriculture is practised in countries where population size is small and land is enough.
- > Here, per acre yield is low but overall production is in surplus due to less population.
- > Agriculture is done with the help of machines.

Intensive Farming

- > This is a system of farming in which the cultivator uses large amount of labour and capital on a relatively small area.
- > In countries where the size of population is big but land is less, this type of farming is done.
- > Annually two or three crops are grown due to the demand of food for the large size of population.
- > Agriculture is done with the help of manual labour.

Plantation Agriculture

- > In this type of agriculture, trees or bushes are planted on huge estates.
- > A single crop like rubber, sugarcane, coffee, tea or banana is grown.
- > These crops are major items of export.

Problems of Indian Agriculture

- > The low productivity of our agriculture is mainly due to the difficulties faced by our peasants.
- > Indian agriculture is chiefly of subsistence type where a large manual labour is employed to work on farms to grow just enough food for the needs of the family and very little is left for marketing.

- > A major part of the Indian soil has been impoverished because it has been under plough for the last 4000 or 5000 years.
- > Deforestation, overgrazing and heavy rainfall have led to soil erosion.
- > Divisions of land have led to fragmentation.
- > The size of land holding is very small and uneconomic.
- > The farmers are poor, illiterate and ignorant.
- > They use primitive tools and out dated method.
- > They lack financial credit and investment.
- > Good seeds, fertilizers and improved technology are not available to them.
- > They lack irrigation facilities and are still on the mercy of nature.
- > Most of the farmers have no security against crop failure or loss caused by nature.
- > Generally farmers are uneducated and have no scientific approaches.

Three Crop Seasons in India :**1. Rabi**

- > This season starts after the rainy season. Sowing begins in September-October and harvesting takes place in February-March.
- > Wheat, barley, pulses and some oil seeds are grown in the Rabi season.

2. Kharif

- > The Kharif season begins with the onset of the monsoons in June-July.
- > The crop grows in the rainy season and harvesting takes place after the retreat of monsoon in September-October.
- > Rice, maize, millets, groundnuts, cotton and jute are grown in the Kharif season.

3. Zayad

- > This is the summer season for growing crops which remain till April, May and June.
- > Products are mainly vegetables and fruits.

Green Revolution

- > The increase in agriculture productivity of cereals that has taken place since the 1960s mainly as a result of introduction of high yielding varieties of wheat and rice and use of fertilizers, machines and irrigation etc., is known as **green revolution**.
- > Green revolution has made us self-sufficient in food production.
- > This has not only saved our much precious foreign exchange but has also made us self-reliant.
- > But green revolution has proved more beneficial to rich farmers only, because it involves a lot of investment.

Land use Pattern of India

Uses of land	Percentage (%)	Uses of land	Percentage (%)
Cultivated land	43.41	Wasteland (arid, rocky and sandy areas)	6.29
Forested area	22.57	Area under non-agricultural use	6.29
Fallow land	10.85	Cultivable waste	4.41
		Pastures and meadows	3.45

- > The total geographical area of India is 32.88 crore hectares.
- > Of this, data is available for only 92.5% land area. Though land is put to different uses, but cultivation of land is its most important use.

Water Resources and Their Utilization in India

- > India has 4% of water resources of the world, while it has to support 16% of the world population and 15% of livestock.
- > The annual precipitation including snowfall, which is the main source of water in the country, is estimated to be of the order of 4,000 Billion Cubic Metres (BCM).
- > The estimated precipitation during the monsoon season (June to September) is of the order of 3,000 BCM.
- > The resources potential of the country, which occurs as natural run off in the rivers is about 1869 BCM, considering both surface and ground water as one system.
- > Water resources of India can be divided into two parts :
1. Surface Water Resources and 2. Underground Water Resources.

Surface Water Resources

- > According to the estimate, India receives an average of 109 cm of rainfall annually.
- > This rainfall amounts to 37,000 million cubic metre. Out of this, 12,500 million cubic metres evaporates and another 7,900 million cubic metres is absorbed by land. Only 16,600 million cubic metres water is available in our rivers.
- > Out of this, only 6,600 million cubic metres of water can be used for irrigation.

Underground Water Resources

- > Out of total rainfall, only 7,900 million cubic metres of water percolates inside/beneath the earth.
- > Out of this, only 4,300 million cubic metres of water is able to reach the upper layer of the soil.
- > This water is more important for agricultural production.
- > Rest 3600 million cubic metres reaches the impervious rocks which can be used by digging wells or tubewells. Out of this only 2250 million cubic metres of water is economically viable.

Sources of Irrigation in India

There are various sources of irrigation which are :

(a) Wells & Tubewells	46% of total irrigation
(b) Canals	39% of total irrigation
(c) Tanks	8% of total irrigation
(d) Other Sources	7% of total irrigation (Dongs, Kuhls, Springs etc.)

Power Resources of India

India uses a large amount of fossil fuels as a source of energy along with a number of renewable sources of energy, viz., hydroelectric power, thermal power, petroleum, nuclear or atomic power, solar energy, wind energy, tidal energy, bio-gas etc.

Multipurpose Projects of India

Multipurpose river valley projects, once referred by Jawahar Lal Nehru as 'Temples of Modern India', present an integrating system of controlling floods, generation of hydroelectricity, irrigation, development of fishery and tourists spots, boating, navigation and draining away extra water. These projects aim at all round development of river valleys.

Multipurpose River Valley Projects

Project/River	Purposes	Name of Power Houses
Bhakra-Nangal Project On river Sutlej 518 m long, 226 m high	1. Irrigation, 2. Hydroelectricity generation, 3. Soil conservation	1. Bhakhra, 2. Ganguwal, 3. Nangal, 4. Kotla
Damodar Valley Project On river Damodar, located in West Bengal and Jharkhand	1. Irrigation, 2. Generation of Hydro and Thermal power, 3. Navigation, 4. Flood control (Damodar has turned from a 'Valley of Sorrow' 'Valley of Plenty')	1. Maithon, 2. Tilaia, 3. Panchet Hill, 4. Bokaro, 5. Durgapur, 6. Chandrapura
Hirakud Project On Mahanadi river in Odisha; 4800 m long.	1. Irrigation, 2. Production of Hydel power, 3. Navigation for over 480 km.	1. Hirakud, 2. Chiplima
Tungabhadra Project At Malappuram on the river Tungabhadra, it is 2441 m long and 49.3 m high; in Andhra Pradesh and Karnataka.	1. Irrigation, 2. Generation of Hydro electricity	1. At Malappuram, 2. At Hampi, 3. On left side of Malappuram
Rihand Project On river Rihand	Hydroelectricity production.	Pimpri

Transport in India

- > The present transport system of the country comprises several modes of transport including rail, road, coastal shipping, air transport etc.

Road Transport

- > The total road length of the country increased from 3.99 lakh kms on 31st March, 1951 to 48.65 lakh kms as on 31st March, 2012, growing at a Compound Annual Growth Rate (CAGR) of 4.2%. About 60% freight traffic and 87.4% passenger traffic is carried by the roads.
- > At present Indian road network of 48.85 lakh km. is the one of the largest in the world and consists of—

Expressways/		Major District Roads,	
National Highways	92,851 km	Rural and other roads	46,49,462 km
State Highways	1,42,687 km	Total length 48.85 lakh km (approx.)	

(Source : INDIA 2015)

National Highways

- > They are constructed and maintained by the central government.
- > The National Highways has 79,116 km. length comprising only 2% of the total length of roads, carries about 40% of the total traffic of India.
- > The development and maintenance of the National Highways system is carried out through three agencies—1. National Highways Authority of India (NHAI),

2. State Public Works Departments (PWDs) and 3. Border Roads Organisation (BRO).

- > In order to give boost to the economic development of the country, the government has embarked upon a massive National Highways Development Project (NHDP) in the country.
- > The NHDP is the **largest highway project** ever undertaken in the country.
- > The NHDP is being implemented mainly by National Highways Authority of India (NHAI).
- > As on 31st March, 2012 around 99.1% of SHs (State Highways) was surfaced.
- > The State/UT-wise break-up SHs shows that Maharashtra accounted for the largest share (19.8%) as on 31st March, 2012, followed by Karnataka (12.6%), Gujarat (11.2%), Tamil Nadu (6.6%) and Andhra Pradesh (6.5%). These five states accounted for about 56.7% of the total length of SHs.

Some Important National Highways (As on 23 June, 2012)

- N.H. 1 Delhi - Ambala - Amritsar - Indo-Pak Border (456 km)
- N.H. 2 Delhi - Agra - Kanpur - Varanasi - Kolkata (1,465 km)
- N.H. 3 Agra - Gwalior - Indore - Nasik - Mumbai (1,161 km)
- N.H. 4 Junction with N.H. 3 near Thane - Belgaum - Bangaluru - Ranipet - Chennai (1,235 km)
- N.H. 7 Varanasi - Jabalpur - Nagpur - Hyderabad - Bangaluru - Madurai - Kanyakumari (2,369 km)
- N.H. 8 Delhi - Jaipur - Ahmedabad - Vadodara - Mumbai (1,375 km)
- N.H. 9 Pune - Solapur - Hyderabad - Vijayawada - Machhilipatnam (841 km)
- N.H. 15 Pathankot - Amritsar - Bhatinda - Ganganagar - Bikaner - Jaisalmer - Barmer - Samakhiali (1,526 km)
- N.H. 22 Ambala - Kalka - Shimla - Rampur - Indo-Tibet (China) Border near Shipki-La (459 km)
- N.H. 24 Delhi - Bareilly - Lucknow (438 km)
- N.H. 39 Numaligarh - Imphal - Palel - Indo - Myanmar Border (436 km)
- N.H. 44 Nongstoin and connecting Shillong - Passi Badarpur - Agartala - Sabroom (723 km)
- N.H. 47 Salem - Coimbatore - Trichur - Ernakulam - Thiruvananthapuram - Cape Comorin - Kanyakumari (640 km)
- N.H. 48 Bangaluru - Hassan - Mangaluru (328 km)
- N.H. 49 Kochi - Madurai - Dhanushkodi (440 km)
- N.H. 55 Siliguri - Darjeeling (77 km)
- N.H. 80 Mokamah - Raj Mahal - Farakka (310 km)
- N.H. 102 Chhapra - Rewaghat - Muzaffarpur (80 km)
- N.H. 205 Ananthpur - Renugunta - Chennai (442 km)
- N.H. 217 Raipur (Chhattisgarh) - Gopalpur (Odisha) - (508 km)
- N.H. 229 Tawang - Bomdila - Ziro - Aalong - Pasighat (Arunachal Pradesh) (1,090 km)
- N.H. 327 Bongaon (Bariyahi Bazar) on NH 107 - Supaul - Pipra (106) - Tribeniganj - Bhargama - Araria - Bahadurganj - Raniganj - Thakurganj - Galgalia (225 km)
- N.H. 947 Sarkhej - Virumgaon - Jamnagar - Dwarka - Okha (461 km)
- N.H. 953 Vyara (NH-6) - Netang - Rajpipla - Bodali (190 km)

- > **The longest National Highway in India is NH-7** (from Varanasi to Kanyakumari); which has a length of 128 kms in Uttar Pradesh, 504 kms in Madhya Pradesh, 232 kms in Maharashtra, 753 kms in Andhra Pradesh (including Telangana), 125 kms in Karnataka, 627 kms in Tamil Nadu i.e. **total 2,369 kms.**

State Highways and other Roads

- > They are constructed and maintained by the state government.
- > As on 31st March, 2012—
 - ★ Average road density of India—148 km per 100 sq. kms.
 - ★ Average road length per lakh population (census 2011)—402.03 kms.
 - ★ The length of NHs per 100 sq. kms of area—2.34 kms and the length of NHs per lakh population—6.35 kms.
 - ★ U.P. has the largest share (10.2%) of the total length of NHs, followed by Rajasthan (9.3%), M.P. (6.6%), Tamil Nadu (6.4%) and Rajasthan (5.9%). These five states accounted for about 38.4% of the total road length of NHs.
- > Roads on the borders are constructed and maintained by the Border Roads Organisation (BRO).
- > BRO was established in May 1960.
- > BRO is a premier construction agency roads airfields, bridges, buildings, hospitals and schools.
- > The BRO, through 'Project Dantak' is constructing and maintaining a large road infrastructure and executing other prestigious projects in Bhutan.
- > The BRO is doing highly commendable jobs of construction and maintenance in Myanmar and Afghanistan too.

Rail Transport

- > The Indian Railways have been a great integrating force for more than 160 years.
- > From a very modest beginning in 1853, Indian Railways have grown into a vast network of 7,030 stations spread over a route-length of 64,015 km. with a fleet of 8,592 (43 steam, 4,963 diesel and 3,586 electric) locomotives, 49,110 passenger service vehicles, 5,985 other coaching vehicles and 2,11,763 wagons as on 31 March, 2009.
- > **Indian Railway network is the largest in Asia and world's second largest** under one management.
- > The first rail in India started in 1853 between Mumbai and Thane (34 kms).
- > Indian Railway Board was established in March, 1905.
- > Indian Railway was nationalised in 1950.
- > There are three types of rail lines in India : 1. Broad Gauge, 2. Meter Gauge and 3. Narrow Gauge.
- > The network runs multigauge operations extending over 1,08,706 (BG-86,526, MG-18,529 and NG-3,651) Track kilometres.

Gauge	Route	Contribution
Broad Gauge (1.676 mts)	54,257 km	84.81 %
Meter Gauge (1.000 mts)	7,180 km	11.22 %
Narrow Gauge (0.762 and 0.610 mts)	2,537 km	3.97 %
Total (as on 31st March, 2010)	63,974 km	100.00 %

- > The management and governance of the Indian railways is in the hands of the Railway Board.
- > Railways have been divided into 17 zones.
- > Kolkata Metro Zone (17th zone) has been established on 29 December, 2010.

Divisions and Headquarters of the Zonal Railways

Zone	Headquarter	Divisions
Zones that started functioning on 1st April, 2003		
East Coast Railway	Bhubaneswar	Khurda Road, Waltair and Sambalpur divisions of SER
South Western Railway	Hubli	Bangalore and Mysore divisions of SR reorganized Hubli division of SCR, including Hospet-Toragal (Earlier constituted to have Gutakal division of SCR as well.)
West Central Railway	Jabalpur	Jabalpur and Bhopal divisions of CR, reorganized Kota division of WR
North Central Railway	Allahabad	Reorganized divisions: Allahabad of NR, Jhansi of CR, and new Agra division
South East Central Railway	Bilaspur	Nagpur division and reorganized Bilaspur division of SER, new Raipur division
Zones that were created on 10th October, 2002		
North Western Railway	Jaipur	Jodhpur division and reorganized Bikaner division of NR, reorganized Jaipur and Ajmer division of WR
East Central Railway	Hajipur	Sonepur and Smastipur divisions of NER, Danapur, Mughalsarai and Dhanbad divisions of ER (was earlier constituted to have Katihar division of NFR as well).
Old Zones as they are after April, 2003		
Western Railway	Mumbai	Bhavnagar and Mumbai divisions, reorganized Ratlam, Rajkot and Vadodara divisions, new Ahmedabad division
Eastern Railway	Kolkata	Howrah, Malda, Sealdah and Asansol divisions
Central Railway	Mumbai	Bhusawal and Nagpur divisions, reorganized Mumbai CST and Solapur divisions, new Pune divisions (including Pune Kolhapur)
Southern Railway	Chennai	Chennai, Palghat, Thiruvananthapuram, Tiruchirappalli and Madurai divisions
Northern Railway	New Delhi	Ferozpur, Ambala, Lucknow and Moradabad divisions, reorganized Delhi division
North Eastern Railway	Gorakhpur	Lucknow and Varanasi divisions, reorganized Izzatnagar division
South Central Railway	Secunderabad	Reorganized Secunderabad, Hyderabad, Guntakal (including Bellary-Guntakal (MG) and Bellary-Rayadurg) and Vijayawada divisions, new Guntur and Nanded divisions.
South Eastern Railway	Kolkata	Kharagpur division, reorganized Adra and Chakradharpur divisions, new Ranchi division
North-East Frontier Railway	Guwahati	Katihar, Lumding, Tinsukia divisions, reorganized Alipurduar division, new Rangiya division

Air Transport

- > Airways in India started in 1911.
- > Indian National Airways Company was started in 1933.
- > All the airway companies were nationalised in 1953 and were put under two corporations namely — Indian Airlines and Air India.
- > Indian Airlines provides its services to the internal parts of India along with neighbouring countries of Nepal, Bangladesh, Pakistan, Afghanistan, Sri Lanka, Myanmar and Maldives.
- > Air India provides its services to the foreign locations.
- > Vayudoot was established in 1981 for domestic services, but was later merged in Indian Airlines.

Merger of Air India and Indian Airlines

Indian Airlines operates to 54 domestic stations along with its subsidiary Airlines 'Alliance Air'. Besides it also operates to 18 international stations.

The Indian Airlines has a fleet of 75 aircraft. 41 aircraft were expected to be added in its fleet by April 2010.

On the 1st March, 2007 the Union Cabinet approved the proposal to merge Indian Airlines and Air India. Accordingly, a new company, viz. National Aviation Company of India Limited (NACL) has been incorporated on 30th March, 2007 with its Headquarters at Mumbai.

The brand name of the new airlines is Air India (or Indian) and its logo is Maharaja.

GAGAN

GPS Aided Augmented Navigation (GAGAN) system is a prestigious satellite based augmentation system of India, jointly developed by Airports Authority of India (AAI) and Indian Space Research Organisation (ISRO) for enhanced Air Navigation Services across the country.

Major International Airports of India

Name of Airport	Place
Chhatrapati Shivaji Int. Airport (Santa Cruz Airport)	Mumbai
Subhash Chandra Bose Airport (DumDum Airport)	Kolkata
Indira Gandhi International Airport	Delhi
Anna (Meenambakkam) International Airport	Chennai
Trivendram International Airport	Thiruvananthapuram
Guru Ramdasji (Rajasansi) International Airport	Amritsar
B. R. Ambedkar International Airport	Nagpur
Kampagowada (Bangaluru) International Airport	Bangaluru
Devi Ahilyabai Holkar International Airport	Indore (M.P.)
Calicut International Airport	Kozhikode (Kerala)
Veer Savarkar International Airport	Port Blair
Rajeev Gandhi International Airport	Hyderabad
Lokpriya Gopinath Bordoloi International Airport	Guwahati
Loknayak Jai Prakash Narayan International Airport	Patna
Goa International Airport	Goa
Sardar Vallabh Bhai Patel International Airport	Ahmedabad
Mangalore International Airport	Mangalore
Aranmula International Airport	Pathanamthitta
Raja Bhoj International Airport	Bhopal
Lal Bahadur Shastri International Airport	Varanasi
Choudhary Charan Singh International Airport	Lucknow

Water Transport

- > The Central Water Tribunal was established in 1987.
- > Its headquarter is in Kolkata.
- > The waterways of the country have been divided into Internal waterways and Oceanic waterways.

Internal Waterway

- > This transport is through rivers, canals and lakes.
- > India has got about 14,544 km of navigable waterways which comprise rivers, canals, backwaters, creeks etc.
- > About 55 million tonnes of Cargo is being moved annually by Inland Water Transport (IWT).
- > The waterway from Haldia to Allahabad was made a National Water way in 1986.
- > The Inland Waterways Authority of India (IWA) came into existence on 27 October, 1986 for development and regulation of inland waterways in the country.

Oceanic Waterway

- > The peninsular bank is very important for this purpose.
- > There are 13 large and 200 small ports on the major bank of 5600 kms.
- > Large ports are maintained by the central government whereas small ports are included in the concurrent list and are managed by the state government.
- > As on 31st March, 2014 the capacity of major ports was about 800.52 MMT against cargo traffic of 555.54 MMT handled in 2013-14. Thus the capacity utilization is 70%.
- > Largest port of India is Jawahar Lal Nehru Port in Mumbai.
- > The largest natural port is in Vishakhapatnam.
- > Kandla in Gujarat is a tidal port. It has been made into a free trade zone.
- > Haldia Port (WB) is said to be developed as the first Green Port of India.

IWA

The IWA came into existence on 27 October, 1986 for development and regulation of inland waterways for shipping and navigation. The Authority primarily undertakes projects for development and maintenance of IWT infrastructure on national water ways through grant received from Ministry of Shipping. The Head Office of the IWA is at NOIDA. The authority also has its regional offices at Patna, Kolkata, Guwahati and Kochi and sub-offices at Allahabad, Varanasi, Bhagalpur, Farakka, Hemnagar, Dibrugarh, Kollam, Chennai and Vijaywada.

Major Ports of India

Name	State/UT	River/Strait/Ocean
Kolkata	West Bengal	Hoogly River
Mumbai	Maharashtra	Arabian Sea
Chennai	Tamil Nadu	Bay of Bengal
Kochi	Kerala	Arabian Sea
Vishakhapatnam	Andhra Pradesh	Bay of Bengal
Paradip	Odisha (Orissa)	Bay of Bengal
New Tuticorin	Tamil Nadu	Bay of Bengal
Marmagao	Goa	Arabian Sea
Kandla	Gujarat	Arabian Sea

Name	State/UT	River/Strait/Ocean
New Mangalore	Karnataka	Arabian Sea
Shriharika	Maharashtra	Arabian Sea
Jawahar Lal Nehru Port	Tamil Nadu	Bay of Bengal
Ennore	Andaman and Nicobar	Bay of Bengal
Port Blair		

India Facts and Figures

- * The state and union territory capitals are sorted according to the administrative, legislative and judicial capitals.
- * The **administrative capital** is where the executive government offices are located. The **legislative capital** is where the state assembly convenes.
- * The **judicial capital** is the location of the state or territorial High Courts of India.
- * The date mentioned in the table refers to when the city became the capital of the state or territory.
- * In the following table S and W refers to the summer and winter sessions respectively. B refers to the budget session of the legislature.
- * The administrative capital is considered to be the *main* capital of the state.
- * The former capital refers to a city which was the capital from admission into the Indian Union. An absence of a legislative capital means that it is administered by the Central government.

States and Their Capitals

State / UT	Administrative Capital	Legislative Capital	Judicial Capital	Since
Andaman and Nicobar Islands	Port Blair	—	Kolkata	1956
Arunachal Pradesh	Itanagar	Itanagar	Guwahati	1972
Andhra Pradesh	Hyderabad*	Hyderabad	Hyderabad	1956
Assam	Dispur	Dispur	Guwahati	1972
Former Capital : Shillong (1874-1972)				
Bihar	Patna	Patna	Patna	1936
Chhattisgarh	Raipur	Raipur	Bilaspur	2000
Chandigarh	Chandigarh	—	Chandigarh	1966
Dadra and Nagar Haveli	Silvassa	—	Mumbai	1961
Daman and Diu	Daman	—	Mumbai	1987
NCT-Delhi	Delhi	Delhi	Delhi	1956
Goa	Panaji	Porvorim	Mumbai	1961
Gujarat	Gandhinagar	Gandhinagar	Ahmedabad	1970
Former Capital : Ahmedabad (1960-1970)				
Haryana	Chandigarh	Chandigarh	Chandigarh	1966
Himachal Pradesh	Shimla	Shimla	Shimla	1948
Jammu and Kashmir	* Srinagar (S) * Jammu (W)	* Srinagar (S) * Jammu (W)	Srinagar	1948

State / UT	Administrative Capital	Legislative Capital	Judicial Capital	Since
Jharkhand	Ranchi	Ranchi	Ranchi	2000
Karnataka	Bengaluru	Bengaluru	Bengaluru	1956
Kerala	Thiruvananthapuram	T'puram	Ernakulam	1956
<i>Former Capital : Kochi (1949-1956)</i>				
Lakshadweep	Kavaratti	—	Ernakulam	1956
Madhya Pradesh	Bhopal	Bhopal	Jabalpur	1956
Maharashtra	Mumbai	*Mumbai (S+B) *Nagpur (W)	Mumbai	1818
Manipur	Imphal	Imphal	Imphal	1960
Meghalaya	Shillong	Shillong	Shillong	2013
Mizoram	Aizawl	Aizawl	Guwahati	2013
Nagaland	Kohima	Kohima	Guwahati	1972
Odisha (Orissa)	Bhubaneswar	Bhubaneswar	Cuttack	1963
<i>Former Capital : Cuttack (1936-1948)</i>				
Puducherry	Pondicherry	Pondicherry	Chennai	1954
Punjab	Chandigarh	Chandigarh	Chandigarh	1966
<i>Former Capital : Lahore (1936-1947) & Shimla (1947-1966)</i>				
Rajasthan	Jaipur	Jaipur	Jodhpur	1948
Sikkim	Gangtok	Gangtok	Gangtok	1975
Tamil Nadu	Chennai	Chennai	Chennai	1956
Telangana	Hyderabad	Hyderabad	Hyderabad	2014
Tripura	Agartala	Agartala	Agartala	2013
Uttarakhand	Dehradun	Dehradun	Nainital	2000
Uttar Pradesh	Lucknow	Lucknow	Allahabad	1937
West Bengal	Kolkata	Kolkata	Kolkata	1905

★ According to the 'Andhra Pradesh Reorganisation Act 2014' Hyderabad is the joint capital of Telangana and Andhra Pradesh states for maximum 10 years period. The ancient town of 'Amaravati', place between Guntur and Vijayawada in central A.P. will be developed as the new Headquarter of Andhra Pradesh.

Population of India, States and UTs (Census 2011)

India	Population
Uttar Pradesh	199,812,341
Maharashtra	112,374,333
Bihar	104,099,452
West Bengal	91,276,115
Meghalaya	2,966,889
Madhya Pradesh	72,626,809
Tamil Nadu	72,147,030
Rajasthan	68,548,437
Jammu and Kashmir	1,210,854,977
Uttarakhand	12,541,302
Himachal Pradesh	10,086,292
Tripura	6,864,602
Andhra Pradesh (including Telangana)	3,673,917
Manipur	84,580,777
Nagaland	2,721,756
	1,978,502

Karnataka	61,095,297	Goa	1,458,545
Gujarat	60,439,692	Arunachal Pradesh	1,383,727
Odisha	41,974,218	Puducherry	1,247,953
Kerala	33,406,061	Mizoram	1,097,206
Jharkhand	32,988,134	Chandigarh	1,055,450
Assam	31,205,576	Sikkim	610,577
Punjab	27,743,338	Andaman & Nicobar Islands	380,581
Chhattisgarh	25,545,198	Dadra and Nagar Haveli	343,709
Haryana	25,351,462	Daman and Diu	243,247
Delhi*	16,787,941	Lakshadweep	64,473
<i>Note: After Telangana's birth as the 29th state of India</i>			
Population of Andhra Pradesh			4,96,65,533
Population of Telangana			3,52,86,757

Union Territories : Facts and Figures (Census 2011)

UT	Capital	Area in sq km	Population
Puducherry	Pondicherry	490	12,47,953
Chandigarh	Chandigarh	114	10,55,450
Andaman & Nicobar	Port Blair	8,249	3,80,581
Dadra & Nagar Haveli	Silvassa	491	3,43,709
Daman & Diu	Daman	111	2,43,247
Lakshadweep	Kavaratti	30	64,473

* National Capital Territory / Region (Census 2011)

State	Capital	Area	Population
Delhi	Delhi	1,483 sq km	1,67,87,941

Top 10 Most Populous Countries (Projected as of June 1, 2015)

Sl.	Country	Population	Sl.	Country	Population
1.	China	1,36,15,12,535	6.	Pakistan	19,90,85,847
2.	India	1,25,16,95,584	7.	Nigeria	18,15,62,056
3.	U.S.A.	32,13,62,789	8.	Bangladesh	16,89,57,745
4.	Indonesia	25,59,93,674	9.	Russia	14,24,23,773
5.	Brazil	20,42,59,812	10.	Japan	12,89,19,659

Source : U.S. Census Bureau, International Data Base

Wildlife Sanctuaries and National Parks in India

Name	Location	Important Species
1. Bandipur National Park	Mysore, Karnataka	Elephant, Tiger, Bear, Sambhar, Panther
2. Balphakram Sanctuary	Garo Hills, Meghalaya	Tiger, Elephant, Bison, Marbled Cat, Red Panda, Wild Water Buffalo
3. Chandraprabha Sanctuary	Varanasi, UP	Asiatic Lion, Tiger, Panther, Indian Gazelle, Sloth bear

Name	Location	Important Species
4. Corbett National Park	Nainital, Uttarakhand	Elephant, Tiger, Sloth bear, Nilgai, Panther, Sambhar
5. Dachigam Sanctuary	Jammu and Kashmir	Kashmir Stag (Hangul)
6. Dudhwa National Park	Lakhimpur Khiri, UP	Tiger, Panther, Sambhar, Nilgai
7. Ghana Bird Sanctuary	Bharatpur, Rajasthan	Siberian Crane, Spoonbill, Heron teal, Stork
8. Gir National Park	Junagarh, Gujarat	Asiatic Lion, Panther, Sambhar, Nilgai, Crocodile, Rhinoceros
9. Hazaribagh National Park	Hazaribagh, Jharkhand	Tiger, Leopard, Sambhar, Chital
10. Jaldapara Sanctuary	West Bengal	Tiger, Leopard, Sambhar, Chital
11. Kanha National Park	Mandla and Balaghat, MP	Tiger, Panther, Antelope, Barking Deer, Nilgai
12. Kaziranga National Park	Assam	Tiger, Great Indian one horned Rhinoceros, Wild Buffalo, Sambhar
13. Manas	Barpeta, Assam	Tiger, Elephant, Panther, Wild Buffalo, One horned Rhinoceros
14. Mudumalai Sanctuary	Nilgiri Hills, Tamil Nadu	Elephant, Deer, Pigs
15. Namdapha National Park	Tirap district, Arunachal Pradesh	Tiger and Elephant
16. Palamau	Daltonganj, Jharkhand	Tiger, Elephant, Panther, Leopard
17. Pakhal	Warangal, Telangana	Tiger, Panther, Chital, Nilgai
18. Periyar	Idukki, Kerala	Elephant, Tiger, Panther, Wild boar, Gaur, Sambhar
19. Ranganthitoo Bird Sanctuary	Karnataka	Birds
20. Shivpuri National Park	Shivpuri, MP	Tiger, Birds
21. Sunderbans	West Bengal	Tiger, Wild boar, Crocodile, Deer
22. Vedanthangal Bird Sanctuary	Tamil Nadu	Birds
23. Wild Ass Sanctuary	Little Rann of Kutch, Gujarat	Wild Ass, Wolf, Nilgai, Chinkara

Important Irrigation and Power Projects

Name of the Project	Location	State	Purpose
Nagarjuna Sagar Multipurpose Project	River Krishna	Andhra Pradesh	Irrigation, Hydro-electricity
Pochampad Project	River Godawari	Andhra Pradesh	Irrigation
Lower Sileru Project	River Sileru (Godawari)	Andhra Pradesh	Hydro-electricity
Kakrapar Project	River Tapi	Gujarat	Irrigation
Kothagudam Project	Singareni Coalfields	Telangana	Thermal Power
Kosi Project	River Kosi	Bihar	Flood Control, Irrigation

Name of the Project	Location	State	Purpose
Gandak Project	River Gandak	Uttar Pradesh, Bihar	Irrigation, Hydro-electricity
Dhuvaran Power Station	Kheda District	Gujarat	Thermal Power
Sabarigiri (Pamba-Kakki) Project	River Pamba-Kakki	Kerala	Hydro-electricity
Idukki Project	Rivers Periyar Cherutheni Idukki	Kerala	Hydro-electricity
Tawa Project	River Tawa (Narmada)	Madhya Pradesh	Irrigation
Chambal Project	River Chambal	Rajasthan, Madhya Pradesh	Irrigation, Hydro-electricity
Korba Project	Near Korba Coalfields	Chhattisgarh	Thermal Power
Satpura Power	Patharkada Station	MP Coalfield	Thermal Power
Koyna Project	River Koyna	Maharashtra	Hydro-electricity
Nagpur Power Station	Koradi, Near Nagpur City	Maharashtra	Thermal Power
Tungabhadra	River Tungabhadra Multipurpose Project	Karnataka and Telangana	Irrigation, Hydro-electricity
Upper Krishna Project	River Krishna	Karnataka	Irrigation
Sharavati Project	River Sharavati	Karnataka (near Jog Falls)	Hydro-electricity
Hirakud Multipurpose Project	River Mahanadi	Odisha	Irrigation, Hydro-electricity
Mahanadi Delta Project	River Mahanadi	Odisha	Irrigation
Talcher Power Station	Near Talcher	Odisha	Thermal Power
Bhakra-Nangal Multipurpose Project	River Sutlej	HP, Punjab, Haryana	Irrigation, Hydro-electricity
Rajasthan Canal Project	River Sutlej in Punjab	Rajasthan Headworks in Punjab	Irrigation
Kundah Project	River Kundah	Tamil Nadu	Hydro-electricity
Neyveli Power Station	Neyveli	Tamil Nadu	Hydro-electricity
Ramganga Multipurpose Project	Chuisot stream (near Kalagarh)	Uttarakhand	Irrigation, Hydro-electricity
Matatilla Multipurpose Project	River Betwa	Uttar Pradesh, Madhya Pradesh	Irrigation, Hydro-electricity
Rihand Scheme	River Rihand	Uttar Pradesh	Hydro-electricity
Obra Power Station	Obra	Uttar Pradesh	Thermal Power
Damodar Valley Project	River Damodar	Jharkhand shared with West Bengal	Flood Control, Hydro-electricity
Ukai Project	River Tapi	Gujarat	Irrigation
Mahi Project	River Mahi	Gujarat	Irrigation
Ghataprabha Project	River Ghataprabha	Karnataka	Irrigation

Name of the Project	Location	State	Purpose
Bhima Project	River Bhima	Maharashtra	Irrigation
Sardar Sarovar Project	River Narmada	Gujarat and Madhya Pradesh	Irrigation and Hydro-electricity
Bana Sagar Project	River Sone	Chhattisgarh, MP, UP and Jharkhand	Irrigation
Dul Hasti Project	River Chenab	Jammu and Kashmir	Hydro-electricity
Salal Project	River Chenab	Jammu and Kashmir	Hydro-electricity
Thein Dam Project	River Ravi	Punjab	Irrigation, Hydro-electricity
Malaprabha Project	River Malaprabha	Karnataka	Irrigation
Jaykwadi Project	River Godawari	Maharashtra	Irrigation
Beas Project	River Beas	Punjab and Haryana	Hydro-electricity
Ghanda Shayak	River Ghaghra	Uttar Pradesh	Irrigation
Mayurakshi Project	River Mayurakshi	West Bengal	Irrigation, Hydro-electricity
Rana Pratap Sagar	River Chambal	Rajasthan	Hydro-electricity
Suratgarh Super Thermal Project	Suratgarh	Rajasthan	Thermal Power
Mettur	River Cauvery	Tamil Nadu	Hydro-electricity
Pallivasal	River Mundirapujha	Kerala	Hydro-electricity
Papanasam Project	River Tambiraparani	Tamil Nadu	Hydro-electricity
Loktak Project	Lake Loktak	Manipur	Hydro-electricity
Tehri Project	River Bhagirathi (Ganga)	Uttarakhand	Irrigation, Hydro-electricity
Farakka Project	Ganga	West Bengal	Irrigation

Indian Satellites : At a Glance

Satellite	Launch Date	Wt (Kg.)	Launching Station	Launch Vehicle	Purpose
Aryabhata	19 Apr, 1975	360	R.R.L.S., USSR	ICR	Scientific (S)
Bhaskar-1	07 June, 1979	442	R.R.L.S., USSR	ICR	Earth Scanning (S)
Rohini RS-1	10 Aug, 1979	35	R.L.C., Sriharikota	SLV-3	Earth Scanning
Rohini RS-2	18 July, 1980	35	R.L.C., Sriharikota	SLV-3	Earth Scanning
Rohini RSD-1	31 May, 1981	38	R.L.C., Sriharikota	SLV-3	Scientific
Apple	19 June, 1981	670	E.R.L.S., Kourou	Ariane-1	Commun.(S)
Bhaskar-2	20 Nov, 1981	436	R.R.L.S., USSR	ICR	Earth Scanning (S)
INSAT-1A	10 Apr, 1982	1160	A.R.L.S., USA	Delta 3910	Multipurpose(S)
Rohini RSD-2	17 Apr, 1983	41.5	R.L.C., Sriharikota	SLV-3	Scientific (S)
INSAT-1B	30 Aug, 1983	1193	K.S.C., USA	Shuttle (PAM-D)	Multipurpose (S)

Satellite	Launch Date	Wt (Kg.)	Launching Station	Launch Vehicle	Purpose
SROSS-1	24 Mar, 1987	150	R.L.C., Sriharikota	ASLV-D1	R. Sensing
IRS-1A	17 Mar, 1988	980	R.S.S., Baikonour	Vostok	R. Sensing (S)
SROSS-2	13 July, 1988	150	R.L.C., Sriharikota	ASLV-D2	R. Sensing
INSAT-1C	21 July, 1988	-	E.R.L.S., Kourou	Ariane-3	Multipurpose
INSAT-1D	12 June, 1990	650	K.S.C., USA	Delta 4925	Multipurpose
IRS-1B	29 Aug, 1991	985	R.S.S., Baikonour	Vostok	R. Sensing (S)
SROSS C-1	20 May, 1992	106	R.L.C., Sriharikota	ASLV-D3	R. Sensing (S)
INSAT-2A	10 July, 1992	1416	E.R.L.S., Kourou	Ariane	R. Sensing(S)
INSAT-2B	23 July, 1993	1906	E.R.L.S., Kourou	Ariane	Multipurpose (S)
IRS-1E	20 Sep, 1993	850	R.L.C., Sriharikota	PSLV-D1	R. Sensing
SROSS C-2	04 May, 1994	113	R.L.C., Sriharikota	ASLV-D4	R. Sensing(S)
IRS-P2	15 Oct, 1994	870	R.L.C., Sriharikota	PSLV-D2	R. Sensing(S)
INSAT-2C	7 Dec, 1995	2050	E.R.L.S., Kourou	Ariane	Multipurpose (S)
IRS-1C	29 Dec, 1995	1250	B.L.S., Kazakhstan	Molniya	R. Sensing(S)
IRS-P3	21 Mar, 1996	930	R.L.C., Sriharikota	PSLV-D3	R. Sensing(S)
INSAT-2D	04 June, 1997	2070	E.R.L.S., Kourou	Ariane-4	Multipurpose(S)
IRS-1D	29 Sep, 1997	1200	R.L.C., Sriharikota	PSLV-C1	R. Sensing (S)
INSAT-2E	03 Apr, 1999	2550	E.R.L.S., Kourou	Ariane 42P	Multipurpose (S)
IRS-P4	26 May, 1999	—	R.L.C., Sriharikota	PSLV-C2	R. Sensing(S)
INSAT-3B	22 Mar, 2000	2070	E.R.L.S., Kourou	Ariane-5G	—
GSAT-1	18 Apr, 2001	1540	S.H.A.R., Andhra Pradesh	GSLV-D1	CC
TES	22 Oct, 2001	1109	S.H.A.R., Andhra Pradesh	PSLV - C3	Techno. Ex(S)
INSAT-3C	24 Jan, 2002	—	E.R.L.S., Kourou	Ariane-4	Comm.(S)
METSAT*	12 Sep, 2002	1060	S.H.A.R., Andhra Pradesh	PSLV - C4	Mete. (S)
INSAT-3A	10 Apr, 2003	2958	A.L.S.C., Kourou	Ariane-5G	Comm. Met. and Tele. (S)
GSAT-2	08 May, 2003	1800	Sriharikota, Andhra Pradesh	GSLV-2	Comm. (S)
INSAT-3E	28 Sep, 2003	2795	Kourou	Ariane-5G	Comm. (S)
RESOURCE SAT-1	17 Oct, 2003	1360	Sriharikota, Andhra Pradesh	PSLV-C5	R. Sensing (S)
EDUSAT	20 Sep, 2004	1950	Sriharikota, Andhra Pradesh	GSLV-F01	Education (S)
CARTO SAT-1	05 May, 2005	1560	S. S.C., Sriharikota, Andhra Pradesh	PSLV-C6	Mapping Satellite (S)

Satellite	Launch Date	Wt (Kg.)	Launching Station	Launch Vehicle	Purpose
HAMSAT	05 May, 2005	—	S.S.C., Sriharikota, Andhra Pradesh	PSLV-C6	Radio Comm. (S)
INSAT-4A	22 Dec, 2005	3080	Kourou	Ariane	Comm. (S)
INSAT-4C	10 July, 2006	2168	S.S.C., Sriharikota	GSLV-F02	Comm. (S)
INSAT-4B	12 Mar, 2007	3025	Arianespace's Ariane	5-ECA	DTH and Comm. (S)
INSAT-4CR	02 Sep, 2007	2130	S.S.C., Sriharikota, Andhra Pradesh	GSLV-F04	Comm. (S)
CARTOSAT-2A	28 April, 2008	690	S.H.A.R., Andhra Pradesh	PSLV-C9	R. Sensing (S)
IMS-1 (TWSat) ¹	28 April, 2008	83	S.H.A.R., Andhra Pradesh	PSLV-C9	Micro Satellite Imaging
Chandrayaan-1 ²	22 Oct., 2008	1380	S.D.S.C., S.H.A.R.	PSLV-C11	R. Sensing (S)
RISAT-2 ³	20 April, 2009	300	S.D.S.C., S.H.A.R.	PSLV-C12	R. I. Satellite
ANUSAT	20 April, 2009	40	S.D.S.C., S.H.A.R.	PSLV-C12	Research Microsatellite
Oceansat-2 ⁴	23 Sep., 2009	960	S.H.A.R., Andhra Pradesh	PSLV-C14	R. Sensing (S)
GSAT-4	15 April, 2010	2180	S.D.S.C., S.H.A.R., Andhra Pradesh	GSLV-D3	Commun. (S)
CARTOSAT-2B	12 July, 2010	694	S.H.A.R., Andhra Pradesh	PSLV-C15	R. Sensing (S)
GSAT-5P ⁵	25 Dec., 2010	2310	S.D.S.C., S.H.A.R., Andhra Pradesh	GSLV-F06	C-band Comm.
RESOURCESAT-2 ⁶	20 April, 2011	1206	S.H.A.R., Andhra Pradesh	PSLV-C16	R. Sensing (S)
GSAT-8/INSAT-4G	21 May, 2011	3093	Kourou	Ariane-5	Comm. (S)
GSAT-12	15 July, 2011	1410	S.H.A.R., A. P.	PSLV-C17	Comm. (S)
Megha-Tropiques ⁷	12 Oct., 2011	1000	S.D.S.C., S.H.A.R., Andhra Pradesh	PSLV-C18	Tracking Weather
RISAT-1 ⁸	26 April, 2012	1858	S.D.S.C., S.H.A.R., Andhra Pradesh	PSLV-C19	R. Sensing (S)
GSAT-10 ⁹	29 Sep., 2012	3400	Kourou	Ariane-5	Comm. (S)
SARAL ¹⁰	25 Feb. 2013	407	S.D.S.C., S.H.A.R., Andhra Pradesh	PSLV-C20	Earth Observation (S)
INSAT-3D ¹¹	26 July, 2013	2026	Kourou	Ariane-5	Mete. (S)
GSAT-7	30 Aug., 2013	—	Kourou	Ariane-5	Geost. (S)
Mangalyaan ¹²	05 Nov., 2013	1350	S.D.S.C., S.H.A.R., Andhra Pradesh	PSLV-C25	Mars mission (S)
GSAT-14 ¹³	05 Jan., 2014	1982	Sriharikota Andhra Pradesh	GSLV-D5	Comm. (S)
IRNSS-1B	04 April, 2014	1432	S.D.S.C., S.H.A.R., Andhra Pradesh	PSLV-C24	Navigation Satellite (S)

Satellite	Launch Date	Wt (Kg.)	Launching Station	Launch Vehicle	Purpose
5 Foreign Satellites ¹⁴	30 June, 2014	—	S.D.S.C., S.H.A.R., Andhra Pradesh	PSLV-C23	(S)
IRNSS-1C ¹⁵	16 Oct., 2014	1425.4	S.D.S.C., S.H.A.R., Andhra Pradesh	PSLV-C26	Navigation Satellite (S)
GSAT-16	07 Dec., 2014	3181.6	Kourou, French Guiana	Ariane-5	Comm. (S)
IRNSS-1D ¹⁶	28 March, 2015	1425	S.D.S.C., S.H.A.R., Andhra Pradesh	PSLV-C27	Navigation Satellite (S)

Abbreviations used in the above table :

- R.R.L.S. : Russian Rocket Launching Station, Cosmodrome
 R.I.S. : Radar Imaging Satellite
 R.L.C. : Rocket Launching Centre, Sriharikota Range, A.P.
 E.R.L.S. : European Rocket Launching Station, Kourou, French Guiana
 A.R.L.S. : American Rocket Launching Station, Cape Canaveral, USA
 K.S.C. : Kennedy Space Centre, Cape Canaveral, USA
 R.S.S. : Russian Space Station, Baikanour, USSR
 S.H.A.R. : Sriharikota High Altitude Range, Andhra Pradesh (A.P.)
 S.S.C. : Satish Dhawan Space Centre, Sriharikota, A.P.
 A.L.S.C. : Ariane Launching Space Centre, South America

★ (named after Kalpana Chawla)

Note : (CC) — Commercial Communication; (S) — Successful; (Comm.) — Communication; (Techno. Ex.) — Technology Experiments; (Mete.) — Meteorological

- Third World Satellite (TWSAT)** : Launched as co-passenger with CARTOSAT-2A for low cost micro satellite imaging.
- Unmanned lunar probe, that carried 11 scientific instruments built in India, USA, UK, Germany, Sweden and Bulgaria.
- Co-passenger with ANUSAT
- IRS-P4** : Gathers data for oceanographic, coastal and atmospheric applications. Continues mission of Oceansat-1.
- INSAT-4D** : Indian communication satellite, failed to reach orbit due to GSLV-F06 failure.
- PSLV-C16 placed three satellites with a total payload mass of 1404 kg - RESOURCESAT-2 weighing 1206 kg, the Indo-Russian YOUTHSAT weighing 92 kg and Singapore's X-SAT weighing 106 kg - into an 822 km polar Sun Synchronous Orbit (SSO).
- PSLV-C18 is configured to carry four satellites in which, one satellite, developed by India and France will track the weather, two were developed by educational institutions, and the fourth is from Luxembourg.
- First indigenous all-weather Radar Imaging Satellite.
- India's advanced communication satellite.
- The Satellite with ARGOS and ALTIKA (SARAL)
- Advanced meteorological satellite, enhancing India's capability in Weather Forecasting and Disaster warning areas.
- Mangalyaan reached in to Mars Orbit and Captured first image of Mars on Sept. 24, 2014. Total journey—680 million km.

13. The successful use of indigenous cryogenic engine in the GSLV-D5 puts India among a league, five other nations—the US, Russia, France, Japan and China, that possess the technology that is considered the ultimate frontier in rocket science.
14. The five satellites—a 714 kg French Earth Observation Satellite 'SPOT-7', a 14 kg German satellite 'AISAT' two 15 kg satellites from Canada 'CAN-X4' & 'CAN-X5' and a 7 kg satellite of Singapore 'VELOX-1'. These satellites were launched under commercial arrangements of ANTRIX (ISRO's commercial arm) with foreign agencies.
15. IRNSS-1C is the 3rd navigation satellite of the 7 satellites constituting the IRNSS space segment. Its predecessors, IRNSS-1A and IRNSS-1B were launched by PSLV-C22 and PSLV-C24 in July 2013 and April 2014 respectively. The configuration of IRNSS-1C is similar to that of IRNSS-1A and IRNSS-1B.
16. IRNSS-1D is the fourth navigational satellite and one of the seven of the IRNSS constellation of satellites slated to be launched to provide navigational services to the region.

Note : IRNSS (Indian Regional Navigation Satellite System) is an independent regional navigation satellite system being developed by India. It is designed to provide accurate position information service to users in India as well as the region extending up to 1500 km from its boundary, which is its primary service area. The IRNSS space segment consists of seven satellites, with three satellites in geostationary orbit and four satellites in inclined geosynchronous orbit.

General Introduction to Asia

- > The word 'Asia' is derived from the word 'Asu' (of Hibu language), which literally means 'the rising sun'.
- > Asia is the largest of all the seven continents of the world.
- > With 44.6 million sq km area, it covers 30% (about one-third) of the land surface of the world.
- > With 4,299 million people, it contains about 60% of the world population and emerges as the most populous continent of the world.
- > This vast continent comprises the greatest diversity in terms of physical features, climate, vegetation, wildlife and people.
- > It has the highest mountain peak on the Earth, Mount Everest (8850 m) and the lowest point, the Dead Sea (396.8 m below sea level).
- > It has the coldest place, Vostok, Antarctica has winter temperature of -89.2°C.
- > Mawsynram, near Cherrapunji (India) has the world's highest average rainfall of 11,873 mm. Simultaneously, it has desert areas of central Asia.
- > Asia has the world's deepest fresh water lake, i.e. Baikal Lake (Russia) which is 1741 meters deep.
- > It has the largest delta 'Sunderbans', the most fertile river valleys (Ganga, Indus, Brahmaputra, Yangtze Kiang and Huang-Ho etc) and the extensive barren lands of Baluchistan.
- > It has rich and varied wildlife which is peculiar to this continent.
- > Asia has been the cradle of ancient civilizations like the Mesopotamian Civilization, the Indus Civilization and the Chinese Civilization which sustained in the fertile river valleys of Asia.

- > Asia has the privilege of being the birthplace of major religions of the world Judaism, Hinduism, Christianity, Islam, Taoism, Shintoism, Jainism, Sikhism, Buddhism and Zoroastrianism etc.
- > Asia wholly lies in the Northern Hemisphere.
- > **Latitude :** It lies between 10°S to 80°N latitudes, i.e. it spans over 90° of latitudes.
- > **Longitude :** It lies almost entirely in the Eastern Hemisphere.
- > It extends from 25°E to 170°E. This large longitudinal extent brings about a difference of 11 hours between the local times of the easternmost part and the westernmost part of Asia.
- > **Boundaries :** The continent is bounded by oceans on three sides—Arctic Ocean in the north, Pacific in the east and the Indian Ocean in the south.
- > In the west, Asia is separated from Europe by the low Yural Mountains, the Yural river and the Caspian Sea. The Red Sea and Suez Canal separate it from Africa.
- > In the north-east, the Bering strait separates it from North America.

Geography of the Indian Subcontinent

Introduction : India, Pakistan, Bangladesh, Nepal, Bhutan, Myanmar and Sri Lanka, collectively constitute the Indian subcontinent.

These six countries are India's closest and nearest neighbours and share a common heritage of history and geography.

Pakistan

Location : Pakistan is our western neighbour.

It is bordered by Iran in the west, India in the east the Arabian Sea in the south and Afghanistan in the North.

Latitude : Pakistan lies between 24°N and 37°N latitudes.

Longitude : It lies between longitudes 61°E and 75°E.

Area and composition : Pakistan has an area of about 3,12,685 sq km.

It comprises of West Punjab, Sind, Baluchistan, N.W.F.P. and a few tribal areas.

Physical Divisions of Pakistan : Pakistan may be divided into following four physical divisions :

The Northern and Western Highlands : The Hindukush mountains which extend from the Pamir Knot form a mountain wall in the north of Pakistan. Tirich Mir (7690 m) is the highest peak of the Hindukush.

- > The famous Khyber Pass lies in this region.
- > Other important mountain ranges are Sulaiman range and Kirthar range.
- > These ranges spread in north-south direction.

The Baluchistan Plateau : Situated in the south-west of Pakistan.

- > It is a dry and rocky plateau with little vegetation.
- > **The Indus Plain :** Without the Indus, Pakistan would have been a complete desert.
- > It is a 2700 km long fertile plain in the eastern Pakistan made by rich alluvial soil brought down by Indus and its five tributaries.

The Thar Desert : It is located in south-eastern part of Pakistan and continues into India.

Climate of Pakistan : The climate of Pakistan is one of the extremes.

- > It is very hot in summer and very cold in winter.
- > It gets little rainfall in summer.
- > The average rainfall in Pakistan is less than 25 cm in a year.
- > There is some rainfall in winter brought by the Western disturbances coming from the Mediterranean Sea.

Natural Vegetation

- > In plateaus, plains and desert mostly bushes, shrubs and coarse grasses are found.
- > In mountainous area in the north and west temperate deciduous trees, coniferous trees and alpine vegetation is found.

Language—Urdu, **Currency**—Rupee, **Religion**—Islam.

Economic Development

Agriculture : Rainfall in this agricultural country is very low and unreliable.

- > Rivers and a developed network of canals make irrigation possible.
- > Pakistan is known as the 'Land of Canals'. Mangla Dam and Tarbela Dam in Pakistan are very famous.
- > Wheat, millets, cotton, rice, sugarcane and oil seeds are cultivated.

Animal Rearing : People of Pakistan rear milch cattle.

- > Drought animals are also reared. Sheep and goats are reared in dry Baluchistan Plateau and the mountainous areas.

Mining : Mineral position of Pakistan is not satisfactory.

- > It has some deposits of petroleum, coal, iron and copper.
- > The gas fields of Sui is important.
- > Salt deposits near Khewra are well known.

Industrial Development : Industrially Pakistan is now well developed.

Cotton textile, woolen textile, chemicals, cement, sugar, paper, etc are important industries of Pakistan. Carpets, embroidered goods, pottery and handicrafts are also manufactured here.

Population : Pakistan has a population of 182,142,594 (2013) excluding 4 million residents of Pakistan ruled Jammu and Kashmir and 01 million Afghan refugees.

- > The density of population is 236 persons per sq km. (in 2013).
- > 90% people are Muslims, who follow Islam. Urdu is the state language.

Bangladesh

Bangladesh is our eastern neighbouring country.

Location : It is bordered on the north, west and east by India and on the south by the Bay of Bengal.

Latitude : Bangladesh lies between latitudes 21°N and 26°30'N. The Tropic of Cancer passes through the middle of it.

Longitude : It lies between longitudes 88°E and 92°30'E.

Physical Division of Bangladesh : Nearly whole of Bangladesh lies in the largest delta of the world.

- > It is a vast flat alluvial plain. It is a land of big rivers, lakes, swamps and marshes.
- > A large part of Bangladesh is flooded every year during rainy season.
- > It has an area of 1,47,570 sq km.
- > The Jamuna (Brahmaputra), Padma (Ganga) and Meghna are the important rivers.
- > A small hilly area in the south-east forms the Chittagong Hill tract.

Climate

- > It has hot and humid climate.
- > Rainfall varies from 250 to 40 cm. It has distinct dry and rainy season.
- > In early summer, Bangladesh experiences cyclone storms.

Natural Vegetation

- > In the fringes of delta Mangrove forests are found.
- > Sundari and bamboo trees are found in these Sunderbans.

Agriculture

- > Because of fertile alluvial soil and abundant water supply, rice is the main crop of Bangladesh as it covers 85% of the cultivated area.
- > Jute the main cash crop.
- > Tea plantations are found in some areas in the north.
- > Sugarcane, cotton and tobacco are also grown.

Animal Rearing

- > Most of the animals reared in Bangladesh work as beasts of burden.
- > Bangladesh has become a leading supplier of animal hides and skins.

Fishing

- > Large number of rivers and nearness to the sea make fishing an important activity in Bangladesh.

Language—Bangla, **Currency**—Taka, **Religion**—Islam

Minerals

- > Bangladesh is not rich in mineral resources.
- > Coal, natural gas and oil are mined in a small quantity.

Industries

- > The important industries of Bangladesh include jute and cotton textiles, cement, fertilizers, sugar, paper, glass etc.

Population, Language and Religion

- > The population of Bangladesh is about 156,594,962 (2013).
- > The density of population here is 1,203 persons per sq km. (in 2013)
- > Bengali is the official language of Bangladesh.
- > Most of the people follow Islam.
- > Dhaka, Chittagong, Khulna and Narayanganj are some of the important cities of Bangladesh.

Countries with Their Capital & Currency

Country	Capital	Currency
Afghanistan	Kabul	Afghani
Algeria	Algiers	Dinar
Angola	Luanda	Kwanza
Argentina	Buenos Aires	Argentino Sentavos
Australia	Canberra	Australian Dollar
Austria	Vienna	Shilling
Azerbaijan	Baku	Manat
Bahrain	Manama	Bahrain Dinar
Bangladesh	Dhaka	Taka
Belgium	Brussels	Euro
Belarus	Minsk	Belaros Rubbe
Bhutan	Thimphu	Nugultram
Brazil	Brasilia	Real (BRC)
Brunei	Bander Seri Begawan	Brunei Dollar or Ringhit
Bulgaria	Sofia	Lev
Cambodia	Phnom Penh	Rial
Canada	Ottawa	Dollar
China, Peoples Republic	Beijing	Yuan
Cuba	Havana	Peso
Cyprus	Nicosia	Cyprus Pound
Denmark	Copenhagen	Danish Krone
Egypt	Cairo	Pound
Ethiopia	Adis Ababa	Birr
Fiji	Suva	Dollar
Finland	Helsinki	Euro
France	Paris	Euro
Germany	Berlin	Euro
Ghana	Accra	Cedi
Greece	Athens	Euro
Guatemala	Guatemala City	Quetzal
Hong Kong	Victoria	Dollar
Hungary	Budapest	Florint
Iceland	Reykjavik	Krona
India	New Delhi	Rupee
Indonesia	Jakarta	Rupiah
Iran	Teheran	Rial
Iraq	Baghdad	Iraqi Dinar
Ireland	Dublin	Euro

Country	Capital	Currency
Israel	Jerusalem	New Shekel
Italy	Rome	Euro
Jamaica	Kingston	Dollar
Japan	Tokyo	Yen
Jordan	Amman	Dinar
Kazakhstan	Almati	Ruble
Kirghizistan	Bishkek	Ruble
Korea (North)	Pyongyang	Won
Korea (South)	Seoul	Won
Kuwait	Kuwait	Dinar
Laos	Vientiane	New Kiplao
Lebanon	Beirut	Pound
Libya	Tripoli	Dinar
Luxembourg	Luxembourg Ville	Euro
Macau	Macau	Pataka
Malaysia	Kuala Lumpur	Ringrit
Maldives, Republic of	Male	Rufia
Mauritius	Port Luis	Rupee
Mexico	Mexico City	New Peso
Mongolia	Ulan Bator	Tugrik
Myanmar	Naypyidaw	Kyat
Mozambique	Maputo	Metical
Nauru	Yaren	Dollar
Nepal	Kathmandu	Rupee
Netherlands	Amsterdam	Euro
New Zealand	Wellington	Dollar
Nigeria	Abuja	Naira
Norway	Oslo	Kroner
Oman	Muscat	Rial
Pakistan	Islamabad	Rupee
Panama	Panama City	Balboa
Philippines	Manila	Peso
Poland	Warsao	Zloty
Portugal	Lisbon	Euro
Qatar	Doha	Riyal
Romania	Bucharest	Lau
Russia	Moscow	Rouble
Saudi Arabia	Riyadh	Riyal
Senegal	Dakar	CFA Franc

Country	Capital	Currency
Serbia and Montenegro	Belgrade	Dinar
South Africa	Cape Town	Rand
Spain	Madrid	Euro
Singapore	Singapore	Dollar
Sri Lanka	Colombo	Rupee
Syria	Damascus	Pound
Syprus	Nicosia	Pound
Taiwan	Taipei	New Taiwan Dollar
Thailand	Bangkok	Baht
Trinidad & Tobago	Port of Spain	Dollar
Tunisia	Tunis	Dinar
Turkey	Ankara	Lira
United Arab Emirates	Abu Dhabi	Dirham
Uganda	Kampala	Shilling
Ukraine	Kiev	Karbovanets
U.K.	London	Pound Sterling
U.S.A.	Washington D.C.	U.S. Dollar
Venezuela	Caracas	Bolivar
Vietnam	Ho Chi Minh City (Hanoi)	Dong
Yemen	Sana'a	Riyal
Zaire	Kinshasa	Zaire
Zambia	Lusaka	Kwacha
Zimbabwe	Harare	Dollar

River Side Cities

Town	River	Town	River
Kabul	Kabul	Canton	Si-Kiang
Allahabad	Confluence of Ganga, Jamuna, Saraswati	Basra (Iraq)	Tigris and Euphrates
Nasik	Godawari	Cairo (Egypt)	Nile
Kolkata	Hooghly	Ankara (Turkey)	Kizil
Cuttack	Mahanadi	Baghdad (Iraq)	Tigris
Patna	Ganga	Berlin (Germany)	Spree
Chittagong	Maiyari	Khartoum (Sudan)	Nile
Lucknow	Gomati	Belgrade	Dunube
Jamshedpur	Subarnarekha	Cologne (Germany)	Rhine
Haridwar	Ganga	Lisbon (Portugal)	Tangus
Delhi	Jamuna	Glasgow (Scotland)	Clyde
Kanpur	Ganga	Paris (France)	Seine
Surat	Tapti	Hamburg (Germany)	Elbe

Town	River	Town	River
Srinagar	Jhelum	Budapest (Hungary)	Danube
Ferozepur	Sutlej	Rome (Italy)	Tiber
Ludhiana	Sutlej	Warsaw (Poland)	Vistula
Karachi (Pak)	Indus	Bristol (U.K.)	Avon
Lahore (Pak)	Ravi	London (U.K.)	Thames
Vijayawada	Krishna	New Castle (U.K.)	Tyre
Varanasi	Ganga	New York	Hudson
Yangon (Myanmar)	Irawady	Philadelphia	Delaware
Akyab (Myanmar)	Irawady	New Orleans	Mississippi
Shanghai	Yang-tse-Kiang	Montreal (Canada)	Ottawa
Nanking	Yang-tse-Kiang	Quebec (Canada)	St. Lawrence
Chungking	Yang-tse-Kiang		

Wonders of The World

Seven Wonders of the Ancient World	Seven Wonders of the Medieval World
1. Hanging Garden of Babylon	1. Great Wall of China
2. Temple of Diana at Ephesus (Rome)	2. Porcelain Tower of Nanking (China)
3. Statue of Jupiter at Olympia	3. Colosseum of Rome (Italy)
4. Pyramids of Egypt	4. Stone henge of England
5. Mausoleum of Mausolus (Ruler of Halicarnassus)	5. Leaning Tower of Pisa (Italy)
6. Light house of Alexandria	6. Catacombs of Alexandria
7. Colossus at Rhodes (912 ft. high Statue of Helos, the Sun God)	7. Mosque at St. Sophia (Constantinople)

New Seven Wonders of the World

As declared on July 7, 2007 by New Seven Wonders Foundation of Switzerland, at a grand ceremony organised in 'Stadia da Lutz, Benefica stadium in Lisbon (Portugal).

1. The Taj Mahal (Agra, India)
2. The Great Wall of China (China)
3. The Pink Ruins of Petra (Jordan)
4. The Statue of Christ the Redeemer in Rio de Janeiro (Brazil)
5. Incan Ruins of Machu Pichu (Peru)
6. The ancient Mayan City of Chichen Itza (Mexico)
7. The Colosseum of Rome (Italy)

Other Wonders of the World

1. The Sphinx, near Gizeh (Ghiza) in Egypt
2. The Catacombs at Rome
3. The Circus Maximus at Rome
4. Angkor Vat temple in Cambodia
5. The Alhambra at Granada in S. Spain
6. Shew Dragon Pagoda or the Golden Pagoda at Yangon in Myanmar
7. Mosque at St. Sophia (Constantinople)

Countries and their main Produces/ Industries

Afghanistan	Dry and fresh fruits, carpets, wool
Australia	Wood, dairy products, wheat, meat, lead, zinc

Austria	Machinery, textiles, leather goods
Brazil	Coffee
Belgium	Glass, textiles
Chile	Copper Nitrate
Canada	Wheat, newsprint, machinery
China	Silk, tea, rice
Congo	Copper, uranium, cobalt, ivory
Cuba	Sugar, tobacco, cigar
Denmark	Textiles, paper
France	Textile, wine, silk
Germany	Machinery, chemical, iron and steel equipments
Ghana	Coco, gold, coffee
India	Jute, textiles, sugar, spices, tobacco, tea, cement, mica
Indonesia	Sugar, spices, rubber, rice, cinchona, petroleum
Iran	Petroleum, carpets, dry fruits
Iraq	Dates, petroleum
Italy	Mercury, textiles
Japan	Machinery, textiles, toys, silk, automobiles
Kenya	Coffee, tea, meat, sisal, hides and skins, cement, soda ash
Kuwait	Petroleum
Malaysia	Rubber, tin
Netherlands	Machinery, aircraft, electricals
Saudi Arabia	Oil, date
Spain	Lead
Sweden	Matches, timber
Switzerland	Watches, chemicals, electricals
Taiwan	Camphor, rice
UK	Textiles, medicines, machinery, cars
USA	Petroleum, wheat, machinery, coal, automobiles, iron
Russia	Petroleum, wheat, chemicals, heavy machinery
Vietnam	Tin, rice, rubber, teak

Towns Associated with some important industries

Town	Industry
Ahmedabad (Gujarat)	Cotton Textiles
Agra (U.P.)	Leather, marble
Baku (Russia)	Petroleum
Bangaluru (Karnataka)	Aircraft and telephones
Bhilai (Chhattisgarh)	Steel Plant
Bangkok (Thailand)	Ship-building, teak and wood

Town

Bhagalpur (Bihar)
Mumbai (Maharashtra)
Buenos Aires (Argentina)
Cadiz (Portugal)
Kolkata (W. Bengal)
Chittaranjan (W. Bengal)
Cochin (Kerala)
Chicago (USA)
Dhaka (Bangladesh)
Dalmianagar (Bihar)
Darjeeling (W. Bengal)
Delhi (India)
Detroit (USA)
Dhariwal (Punjab)
Digboi (Assam)
Ferozabad (U.P.)
Guntur (Andhra Pradesh)
Havana (Cuba)
Jamshedpur (Jharkhand)
Jharia (Jharkhand)
Khetri (Rajasthan)
Johannesberg (South Africa)
Kolar (Karnataka)
Los Angeles (USA)
Ludhiana (Punjab)
Lyons (France)
Chennai (Tamil Nadu)
Moradabad (U.P.)
Nagpur (Maharashtra)
Nepanagar (M.P.)
Pittsburgh (USA)
Perambur (Tamil Nadu)
Raniganj (W.B.)
Sialkot (Pakistan)
Sindri (Jharkhand)
Sheffield (UK)
Titagarh (W. Bengal)
Venice (Italy)
Varanasi (U.P.)

Industry

Silk
Film industries
Dairy products, meat
Cork
Jute, paper, leather works
Locomotives
Ship-building
Agricultural equipments, automobiles
Jute
Cement
Tea
Textiles, chemicals, Small Scale Industries
Motorcar
Woolen goods
Oil refinery
Bangles, Glass refinery
Tobacco
Sugar, tobacco, cigars
Steel
Coal mines
Copper mines
Gold mines
Gold fields
Film Production
Hosiery
Silk Industry
Leather, Integral Coach Factory
Brassware, cutlery
Oranges, Cotton mills
Newsprint
Iron and steel, coal, petroleum
Integral Coach Factory
Coal mines
Sports goods
Fertilizers and chemicals
Cutlery
Paper and Jute
Ship-building
Silk, Brocade Industry

Famous Sites (India)

Site	Location
Ajanta	Maharashtra
Akabar's Tomb	Agra (U.P.)
Amarnath Cave	Kashmir
Ambar Palace	Jaipur (Rajasthan)
Anand Bhawan	Allahabad (UP)
Bhakra Dam	Bilaspur (Himachal Pradesh)
Birla Planetarium	Kolkata (West Bengal)
Island Palace	Udaipur (Rajasthan)
Jagannath Temple	Puri (Odisha)
Jai Stambh (Tower of Victory)	Chittorgarh (Rajasthan)
Jama Masjid	Delhi
Black Pagoda	Konark (Odisha)
Brihadeeshwara Temple	Tanjavur
Brindaban Gardens	Mysore (Karnataka)
Buland Darwaza	Fatehpur Sikri (U.P.)
Char Minar	Hyderabad (Telangana)
Chilka Lake	Near Bhubaneswar (Odisha)
Dal Lake	Srinagar (J & K)
Dilwara Temples	Mt. Abu (Rajasthan)
Elephanta Caves	Mumbai (Maharashtra)
Ellora Caves	Aurangabad (Maharashtra)
Gateway of India	Mumbai (Maharashtra)
Golden Temple	Amritsar (Punjab)
Gol Gumbaz	Bizapur (Karnataka)
Hanging Gardens	Mumbai
Hawa Mahal	Jaipur (Rajasthan)
Howrah Bridge	Kolkata (W. Bengal)
Mt. Girnar (Jain Temple)	Junagadh (Gujarat)
Nataraja Temple	Chennai (Tamil Nadu)
Nishat Bagh	Srinagar (J & K)
Padmanabha Temple	Thiruvananthapuram (Kerala)
Palitana	Junagadh (Gujarat)
Panch Mahal	Fatehpur Sikri (U.P.)
Pichola Lake	Udaipur (Rajasthan)
Prince of Wales Museum	Mumbai (Maharashtra)
Qutub Minar	Delhi
Raj Ghat	Delhi
Rashtrapati Bhawan	Delhi

Site	Location
Red Fort	Delhi
Jantar Mantar	New Delhi
Kailash Temple	Ellora (Maharashtra)
Kanya Kumari	Tamil Nadu
Kirti Stambha (Tower of fame)	Chittorgarh (Rajasthan)
Lal Bagh Garden	Bengaluru (Karnataka)
Lingaraj Temple	Bhubaneswar (Odisha)
Mahakaleshwar	Ujjain (M.P.)
Maheshmukh (Trimurti) Temple	Elephanta Cave (Maharashtra)
Malabar Hills	Mumbai (Maharashtra)
Man Mandir Palace	Gwalior Fort (M.P.)
Marble Rocks	Jabalpur (M.P.)
Marina Beach	Chennai (T.N.)
Minakshi Temple	Madurai (T.N.)
Sidi Sayyid Masjid	Ahmedabad (Gujarat)
Shalimar Bagh	Srinagar (J & K)
Shahi Chashma	Srinagar (J & K)
Shanti Van	Delhi
Statue of Gomateshwara	Shravanabelagola, Hasan (Karnataka)
Sun Temple (Black Pagoda)	Konark (Odisha)
Taj Mahal	Agra (Uttar Pradesh)
Tower of Silence	Mumbai (Maharashtra)
Victoria Memorial	Kolkata (W. Bengal)
Victoria Garden	Mumbai (Maharashtra)
Vijay Ghat	Delhi

Famous Sites (World)

Site	Location	Site	Location
Al-Aqsa Mosque	Jerusalem (Israel)	Pentagon	Washington (U.S.A.)
Big Ben	London (U.K.)	Potala	Nanking (China)
Bradenberg Gate	Berlin (Germany)	Pyramid	Egypt
Broadway	New York (U.S.A.)	Red Square	Moscow (Russia)
Brown House	Berlin (Germany)	Scotland Yard	London (U.K.)
Buckingham Palace	London (U.K.)	Shwe Dragon Pagoda	Yangon (Myanmar)
Colossium	Rome (Italy)	Sphinx	Egypt
Downing Street	London (U.K.)	Statue of Liberty	New York (U.S.A.)
Eiffel Tower	Paris (France)	Vatican	Rome (Italy)
Fleet Street	London (U.K.)	Wailing Wall	Jerusalem (Israel)
Harley Street	London (U.K.)	Wall Street	New York (U.S.A.)

Site	Location	Site	Location
Hyde Park	London (U.K.)	Westminster Abbey	London (U.K.)
India House	London (U.K.)	White Hall	London (U.K.)
Kaaba	Mecca (Saudi Arabia)	White House	Washington (U.S.A.)
Kremlin	Moscow (Russia)	Merdeka Palace	Jakarta (Indonesia)
Leaning Tower	Pisa (Rome)	Oval	London (U.K.)
Louvre	Paris (France)		

Changed Names of Cities, States and Countries

Old Name	New Name	Old Name	New Name
Abyssinia	Ethiopia	Ceylon	Sri Lanka
Angora	Ankara	Christina	Oslo
Aurangabad	Sambhaji Nagar	Cochin	Kochi
Banaras	Varanasi	Constantinople	Istanbul
Bangalore	Bangaluru	Dacca	Dhaka
Baroda	Vadodara	Dahomey	Benin
Batavia	Djakarta	Dutch East Indies	Indonesia
Basutoland	Lesotho	Dutch Guiana	Surinam
Bechuanaland	Botswana	Ellice Islands	Tuvalu
Bhatinda	Bathinda	Formosa	Taiwan
Bombay	Mumbai	Gauhati	Guwahati
British Guiana	Guyana	Gold Coast	Ghana
Burma	Myanmar	Holland	The Netherlands
Calcutta	Kolkata	Ivory Coast	Cote D'Ivoire
Calicut	Kozhikode	Jubbulpore	Jabalpur
Cape Canaveral	Cape Kennedy	Jullundur	Jalandhar
Cawnpore	Kanpur	Leopoldville	Kinshasa
Central Provinces	Madhya Pradesh	Madagascar	Malagasy
Madras	Chennai	Malaya	Malaysia
Manchukuo	Manchuria	Mesopotamia	Iraq
New Hebrides	Vanuatu	Nippon	Japan
Northern Rhodesia	Zambia	Nyasaland	Malawi
Ooty	Udhagamandalam	Orissa	Odisha
Panjim	Panaji	Peking	Beijing
Petrograd	Leningrad	Persia	Iran
Palghat	Palakkad	Pondicherry	Puducherry
Poona	Pune	Pretoria	Tshwane
Quilon	Kollam	Rangoon	Yangon
Rhodesia	Zimbabwe	Saigon	Ho Chi Minh City
Salisbury	Harare	Sandwich Islands	Hawaiian Islands

Old Name	New Name	Old Name	New Name
Siam	Thailand	Simla	Shimla
South West Africa	Namibia	Spanish Guinea	Equatorial Guinea
Stalingrad	Volgograd	Tanganyika and Zanzibar	Tanzania
Trichur	Thrissur	Trivandrum	Thiruvananthapuram
United Provinces	Uttar Pradesh	Upper Volta	Burkina Faso
Uttaranchal	Uttarakhand	Vizagapattam	Visakhapatnam
Zaire	Republic of Congo	Tanjore	Thanjavur

Highest Mountain Peaks (World)

Name	Height (in metres)	Range
1. Mount Everest	8850	Himalayas
2. K-2 (Godwin Austen)	8611	Karakoram
3. Kanchenjunga	8598	Himalayas
4. Lhotse	8511	Himalayas
5. Makalu I	8481	Himalayas
6. Dhaulagiri I	8167	Himalayas
7. Manaslu I	8156	Himalayas
8. Cho Uyo	8153	Himalayas
9. Nanga Parvat	8126	Himalayas
10. Annapurna I	8091	Himalayas

Three Deepest Oceans

Name	Greatest depth (in metres)	Greatest depth location
1. Pacific Ocean	11,033	Mariana Trench
2. Atlantic Ocean	9,460	Puerto Rico Trench
3. Indian Ocean	7,542	Java Trench

Geographical Epithets (Sobriquets)

Blue Mountains	Nilgiri Hills, India
City of Sky Scrapers	New York, USA
City of Seven Hills	Rome, Italy
City of Dreaming Spires	Oxford, England
City of Golden Gate	San Francisco, USA
Cockpit of Europe	Belgium
China's Sorrow	Hwang-Ho
Dark Continent	Africa
Eternal City	Rome
Forbidden City	Lhasa, Tibet
Gate of Tears	Bab-el-Mandeb, Jerusalem

Granite City	Aberdeen, Scotland
Herring Pond	Atlantic Ocean
Hermit Kingdom	Korea
Honeymoon Lake	Titicaca Lake (on Peru and Bolivia border in Andes)
Island Continent	Australia
Island of Cloves	Madagascar
Island of Pearls	Bahrain
Key to the Mediterranean	Gibraltar
Land of Golden Fleece	Australia
Land of Mid Night Sun	Norway
Land of Rising Sun	Japan
Land of White Elephant	Thailand
Never Never Land	Prairies of N. Australia
Pearl of Antilles	Cuba
Pillars of Hercules	Strait of Gibraltar
Pearl of the Pacific	Guyayaquil Port of Ecuador
Pink City	Jaipur, India
Queen of the Adriatic	Venice, Italy
Sugar Bowl of the World	Cuba
Venice of the East	Cochin, India
Venice of the North	Stockholm
Windy city	Chicago, USA
Yellow River	Hwango-Ho

Some Important Boundary Lines

Durand Line	between Pakistan and Afghanistan
Hindenberg Line	between Germany & Poland
49th Parallel	between USA & Canada
Mac Mahon Line	between India & Tibet/China
Maginot Line	between France & Germany
38th Parallel	between North & South Korea
Oder Neisse Line	between Germany and Poland
Radcliffe Line	between India & Pakistan
17th Parallel	between India & Pakistan (as claimed by Pakistan)

Some Important Tribes and their Homeland (World)

Eskimos : Greenland, North Canada, Alaska, N. Siberia	Lapps : N. Finland, Scandinavian country
Koryaks : N. Siberia, Eurassian Tundra, North-East Asia	Chukchi : North-East Asia, U.S.S.R., North Siberia

Aluts : Alaska	Bedouin : Sahara and Middle East
Bushman : Kalahari	Biodibu or Aborigines : Australia
Turkeys : Sahara	Gobi Mongols : Gobi
India Tribes : Amazon basin	Orang Asli : Malaysia
Pygmies : Congo basin, Zaire	Masai : East & Central Africa
Hansa : North Nigeria	Acta : Phillipines
Ainus : Japan	Tapiro : Papua New Guinea
Maoris : New Zealand	Fulani : Western Africa
Hotten tots : Hot Tropical Africa	Zulus : South Africa
Ibans : Equatorial rain forest region of South-East Asia	Kirghiz : Asiatic steppes
Kalmuk : Central Asia	Kazakhs : Kazakhstan
Buryak : Central Asia	Red Indian : N. America
Yakuts : Siberia	Samoyeds : Siberia
Berbers : N. Africa	Guicas : Amazon forest area
Kareus or Meos : Myanmar	Semangs : East Sumatra

Glossary of Geographical Terms

- Ablation** : Loss of ice in the body of a glacier through melting etc.
- Abrasion** : Erosion of rocks by water, wind or ice (glacier).
- Absolute humidity** : Amount of water vapour present in a unit volume of air; usually expressed as grames per cubic metre.
- Advection** : Transfer of heat through horizontal movement of air.
- Aeolian** : Relating to or caused by wind. Example, aeolian landforms.
- Alluvium** : The fine debris transported and deposited by a river. Landforms formed by deposition of such material are called alluvial landforms, for example, alluvial plains. Soils formed through river deposition are called alluvial soils.
- Altimeter** : A type of aneroid barometer for measuring height, used mainly in aeroplanes.
- Anemometer** : An instrument used for measuring wind velocity.
- Anticline** : The arch or crest of a fold in the rocks. Its opposite is a syncline, the bottom of a fold.
- Antipodes** : Two points diametrically opposite on the surface of earth.
- Aphelion** : The position of the earth in its orbit when it is at its greatest distance from the sun. At its nearest distance from the sun the earth is said to be in *perihelion*.
- Apogee** : The position of the moon or any other heavenly body, when it is at its greatest distance from the earth. At its shortest distance from the earth the moon is said to be in *perigee*.
- Asteroids or planetoids** : Minor planets revolving around the sun between the orbits of Mars and Jupiter.
- Atmosphere** : The envelope of air surrounding the earth. The most abundant among its constituents are nitrogen and oxygen.

Atoll : A ring or horseshoe-shaped coral reef.

Attrition : Mutual wearing down of rock particles during transportation by wind, water or ice.

Aurora Australis and Aurora Borealis : The light phenomena seen in the sky at night in the higher latitudes of the southern and northern hemisphere respectively. Aurora comprises an electrical discharge and is usually accompanied by a magnetic storm.

Avalanche : A large mass of snow and ice at high altitude, sliding down slope on a mountain. Usually a large amount of rock material is also involved in an avalanche.

Azonal soil : Soil which has not been subjected sufficiently to soil forming processes and thus has changed little from the parent material. Such soils do not have a mature profile.

Barometer : Instrument used for measuring pressure. A self-recording barometer giving a continuous record of pressure conditions in the form of a line graph is called a barograph and the graph thus provided is called a barogram.

Barysphere, Bathysphere or Centrosphere : Inner portion of the earth below the lithosphere or outer crust.

Base level : The lowest level to which a river can deepen its valley. It is the level of the surface of the water body, a lake or sea, in which the stream finally falls.

Beach : A gently sloping strip of land along the coast. This lies between the high and low tide levels and is formed by depositional action of waves.

Bearing : The horizontal angle between the direction of an object and the meridian through the observer, measured in degrees (zero to 360) clockwise from the north.

Beaufort scale : A scale identifying wind strength. The lowest point on the scale is zero which refers to calm conditions and the highest is 12 referring to a hurricane.

Biogeography : Study of geographical distribution of plants and animals.

Biosphere : That portion of the earth and its environment occupied by various forms of life.

Blizzard : A storm of powdery snow in the polar regions.

Bog : An area of soft, wet, spongy ground consisting mainly of decayed or decaying moss and other vegetable matter.

Bora : A cold and often dry wind experienced along the eastern coast of the Adriatic Sea.

Bore : A high tidal wave causing backflow of water in river.

Caatinga : Thorn-forest of Brazil.

Canyon : A narrow, deep, steep-sided river valley cut in the soft rocks.

Cape : A headland, a more or less pointed piece of land jutting out into the sea.

Cardinal points : The four main directions of the compass.

Cartography : The art of drawing maps and charts.

Celestial equator : The imaginary circle formed by the intersection of a plane through the centre of the earth perpendicular to its axis and the celestial sphere.

Celestial sphere : A sphere of infinite radius having its centre at some point in the solar system, for example, at the centre of the earth, on to which all members of the solar system may be projected.

Chaparral : The low, dense scrub, characteristic of Mediterranean type of climatic regions.

Chronometer : An accurate time-keeping instrument.

Climate : The average weather conditions of region throughout the seasons.

Climatology : The science studying climates and their influence on other components of the environment.

Clinometer : An instrument used for determining the difference in elevation between two points.

Cloud : A mass of tiny water droplets or ice crystals formed by condensation of water vapour in the atmosphere.

Condensation : The process by which a substance changes from vapour to liquid.

Condensation nuclei : Microscopic particles having an affinity for water. These serve as the nuclei for the formation of raindrops. The presence of these particles in the atmosphere is necessary for condensation to occur.

Coniferous : Cone-bearing plants with needle-shaped leaves.

Connate water : Water entrapped in the interstices of rocks during their formation; also called fossil water.

Convection : The uplift of air as a result of surface heating or instability due to other reasons. Generally this term refers to vertical movement of gases in contrast to advection.

Convection currents : Due to instability in air some vertical motions in the atmosphere are set up which are more or less in the form of currents.

Coral : A kind of rock formed of polyps forming reefs in the oceans.

Colour of the sky : Seems blue because of the selective scattering of light in the atmosphere by gases and dust particles.

Deciduous forest : Consists of trees that shed their leaves in the dry season.

Downs : Grasslands of Australia.

Denudation : Wearing away of rocks by various agencies like wind, water and ice (glaciers).

Eclipse : Partial or full obscuring of the moon when the earth comes between the sun and the moon is called **lunar eclipse**. It occurs usually on the day of the full moon.

A partial or complete obscuring of the sun because of the presence of the moon between the sun and the earth is called the **solar eclipse** and it occurs on the day of the new moon, that is, on the day the moon is not visible.

Ecliptic : The apparent track of the sun throughout the year as a result of the motion of the earth around it. The plane of the ecliptic is the plane passing through this path and is coincident with the plane of the earth's orbit.

Ecology : Studies of organisms in relation to their environment.

Edaphic : Relating to soil.

Eluviation : Removal of material in solution or suspension from the upper horizons of the soils to the lower.

Epicentre : Point on the surface of the earth vertically above the seismic focus or deep focus, that is, the point where an earthquake originates.

Estuary : Mouth of a river where tidal effects are evident and where fresh water and sea water mix. The term also refers to river valleys which have been flooded by sea due to coastal subsidence.

Eustatic movement : A large scale rise or fall of sea level.

Evapotranspiration : The term signifies total loss of water (moisture) from soil in the form of water vapour, including that lost by evaporation from open water bodies, the surface of rocks and also that lost by transpiration from growing plants.

Fathometer : Instrument used for measuring the depth of the ocean.

Fauna : The animal life of a region or a geological period.

Fiord : A glacial valley or part there of now under the sea.

Flood-Plain : A plain bordering a river and formed by river deposition.

Flora : The plant life of a region or geological period.

Fluvial : Belonging or relating to a river.

Fog : A dense mass of small water drops or smoke or dust particles in the lower layers of the atmosphere.

Geosyncline : A large depression or trough in the earth's crust, that is a syncline on a large scale.

Geyser : A thermal spring which throws up a jet of hot water and steam intermittently.

Glacier : A moving mass of ice.

Gorge : A narrow and deep valley of a river.

Great circle : A circle on the earth's surface whose plane passes through its centre and thus bisects it into two hemispheres.

Great circle route : A route between any two points on the earth's surface which follows the great circle between them.

Gulf : A large, deep bay.

Habitat : Natural environment of a plant or animal.

Halophyte : A plant which grows naturally in saline environment.

Hemisphere : One half of the earth's surface, formed when a plane passing through its centre bisects it.

Hinterland : Area from which a port gets most of its exports.

Horse latitudes : Subtropical belt of high pressure over the oceans.

Humidity : State of the atmosphere with respect to the water vapour it contains.

Humus : Decomposed and partly decomposed organic matter in the soil.

Hydrology : The study of the water content on the earth.

Hyetograph : A self-recording rain-gauge.

Hygrometer : Instrument used for measuring humidity in the atmosphere.

Hygrophyte : Plant growing in wetlands.

Iceberg : A mass of land ice which has been broken off or carved from the end of a glacier and is afloat in the sea.

Illuviation : Deposition, in the lower soil horizon, of material removed by eluviation from the upper horizons of the soil.

Insolation : Energy radiated from the sun received by the earth.

International date line : The line approximating to 180° East or West longitude, where the date changes by one day as it is crossed. The date is one day earlier east of this line.

Intertropical convergence zone or inter-tropical front : Zone of low atmospheric pressure near the equator where the northeast and southeast trade winds converge.

Intrazonal soil : Soil which has been influenced in its development, less by climate and vegetation than by factors like parent material and drainage.

Isopleth : Line drawn on the map along which the value of a particular phenomenon or product is uniform.

Isonomal : Isopleth of anomaly.

Isorithm : Any line representing continuous value on maps.

Isobars : Lines of equal pressure.

Isobaths : Lines of equal depth in sea.

Isobronts : Lines joining places experiencing a thunderstorm at the same time.

Isochrones : Lines joining places located at equal travel time from a common centre.

Isogonals : Lines joining places with same magnetic declination.

Isohalines : Isopleths of salinity.

Isohels : Isopleths of equal amount of sunshine.

Isohyet : Isopleth of rainfall.

Isohypse or contour lines : Isopleths of elevation above sea level.

Isonif : Isopleth of amount of snow.

Isophene : Isopleth of seasonal phenomena, for example, flowering dates of plants.

Isopotential : Surface to which artesian water can rise.

Isorymes : Lines of equal frost.

Isoseismals : Lines of equal seismic activity.

Isotherms : Isopleths of temperature.

Isthmus : A narrow strip of land joining two land masses, viz. the Isthmus of Panama joining North and South America.

Karst region or Karstland : Limestone region in which most of the drainage is underground, the surface being dry and barren.

Katabatic wind : Local wind caused by the flow of air down mountain slopes and valleys.

Lagoon : Part of sea partially cut off from it by deposits of sand or coral reefs, viz. Chilika Lake in Odisha.

Lapse rate : The rate of change of temperature in atmosphere with height; it is said to be positive when temperature decreases with height, as it normally does, and negative when temperature increases with height, as in temperature inversion.

Latitude : The angular distance of a point on the earth's surface north or south of the equator, as measured from the centre of the earth. Latitudinal lines are also called parallels of latitude.

Leaching : The process by which soluble substances are washed out of the upper layers of the soils into lower layers by percolating rainwater.

Leeward : The side or direction sheltered from the wind.

Light year : Distance travelled by light in one year, the speed being 1,86,000 miles per second. The unit is used for measuring the distance of stars from the earth.

Lithosphere : The solid crust of the earth.

Loess : A deposit of fine silt or dust generally held to have been transported to its present situation by wind.

Longitude : The angular distance measured along the equator, between the meridian through a given point and a standard or prime meridian.

Lunar month : The interval of time in which the moon makes one complete revolution around the earth—about 29.5 days.

Magnetic storms : Large, irregular variations or disturbances in the earth's magnetic field.

Meridian : A line of longitude, or half of one of the great circles that pass through the poles and cut the equator at right angles.

Mesophyte : A plant that requires a moderate amount of moisture. Most common trees and shrubs are mesophytes.

Mestizo : Offspring of a European and an American Indian—the term is used mostly in South America.

Meteors : Small pieces in the atmosphere appearing as shooting stars.

Midnight sun : A phenomenon observed in high latitudes around midsummer when the sun does not sink below the horizon throughout the 24 hours of a day and night cycle and may thus be visible even at midnight.

Monsoon : A type of wind system in which there is complete reversal or almost so, of prevailing wind direction from season to season.

Moraine : The debris or fragments of rock material brought down with the movement of glacier.

Mulatto : The offspring of a white and a black person, commonly used in America.

Nivation : Erosion due to action of snow.

Nomadism : The practice, among certain primitive people, of frequently changing their habitation. These people keep moving residence in search of food and fresh pasture for animals. People following this mode of life are called nomads.

Oasis : Area in the desert where water is available.

Ocean Current : Movement of the surface water of the ocean.

Opisometer : Instrument used for measuring distances on a map.

Orbit : Path of a heavenly body through space in relation to some selected point.

Orographic rain : Rain caused by mountains standing in the path of moisture-laden winds.

Outwash Plain : Alluvial plain formed by streams originating from the melting ice of a glacier.

Pampas : The mid-latitude grasslands of South America.

Pastoralism : Practice of breeding and rearing cattle. Some pastoral communities may be nomadic in their habits.

Pedology : The science of the study of soils.

Pelagic : Belonging to the open sea.

Peninsula : A stretch of land almost surrounded by water.

Perigee : The point in the orbit of moon or a planet or in the apparent orbit of the sun, nearest to the earth.

Perihelion : The position of the earth in its orbit or any other heavenly body, nearest to the sun.

Permafrost : Ground that is permanently frozen.

Petrology : The study of the composition, structure and history of rocks forming the crust of the earth.

Phenology : Science dealing with the effects of seasonal changes upon animal and plant life.

Phytogeography : The study of the distribution of plants, on the earth, in relation to environment.

Piedmont : Belonging to or related to the foot of a mountain.

Planetary winds : The general distribution of winds throughout the lower atmosphere which is determined by differences in insolation and would be set up similarly on any rotating planet possessing an atmosphere.

Planimeter : Instrument for measuring irregular plane areas on maps.

Plateau : Extensive level or near level area of elevated land.

Prairies : Mid-latitude grasslands of North America.

Precipitation : Falling water (in liquid or solid form, as the case may be) from the atmosphere to the earth.

Pressure gradient : Rate at which pressure declines horizontally on the earth's surface.

Psychrometer : Instrument used for measuring humidity of the atmosphere.

Radiation : Process by which a body emits radiant energy, viz. in the form of heat.

Rain shadow : Area having relatively lower average rainfall because it is sheltered from the prevailing rain-bearing winds by a range of mountains or hills.

Reef : Ridge of rocks lying near the surface of the sea, which may be visible at low tide, but usually covered by water.

Reg : A stony desert. A sandy desert is called an erg.

Rhumb line of loxodrome : Line on the earth's surface which cuts all meridians at the same angle.

Saprophyte : A plant which lives on decaying organic matter. Most such plants are fungi.

Satellite : A relatively small body revolving around a planet.

Savanna : An area of tropical grassland with scattered trees.

Seismic focus or deep focus : Point below the earth's surface where an earthquake originates.

Seismograph : Instrument used for measuring and recording earthquake shocks.

Seismology : Science of the study of earthquakes.

Selvas : Dense equatorial forests of the Amazon basin in South America.

Sericulture : The culture of silkworms for production of raw silk.

Sidereal day : The period of time during which a star describes a complete circle in its apparent journey around the pole star, representing the period of one rotation of the earth on its axis and equal to 23 hours 56 minutes 4 seconds. It is thus about 4 minutes shorter than the mean solar day.

Sleet : Precipitation consisting of a mixture of snow and rain.

Smog : Fog heavily laden with smoke.

Snow-line : Lower limit of perpetual snow. The snow above this line does not melt completely even in summer.

Soil erosion : The wearing away and loss of soil mainly by the action of wind and water.

Solar constant : Intensity of the sun's radiation in space at the mean distance of the earth from the sun.

Solar day : The average period taken by the earth in making one rotation on its axis in relation to the sun-24 hours.

Solstice : The time during summer or winter when the sun is vertically above the point which represents its farthest distance north or south of the equator—the two tropics.

Steppe : Mid-latitude grasslands of Eurasia.

Strait : Narrow stretch of sea connecting two extensive areas of sea.

Syncline : Trough or inverted arch of a fold in rock strata.

Sublimation : Change of state of water from solid to vapour directly or vice-versa.

Taiga : Coniferous forestland of Siberia.

Temperature inversion : Condition when the temperature is found to be increasing instead of decreasing with height.

Theodolite : Instrument used for measuring angular distances in the vertical plane (elevation) and the horizontal plane (azimuth).

Thermograph : Self-recording thermometer—an instrument for measuring temperature.

Tidal range : Average difference in water level between height and low tide at one place.

Topographic map : Map on sufficiently large scale to show the detailed surface features of an area.

Trans-humance : Practice among pastoral communities to move with their animals seasonally between two regions of different climate.

Tributary : Smaller river which joins a larger river.

Tropics : The Tropic of Cancer and the Tropic of Capricorn located at degrees N and S, respectively, are the northward and southward limits up to which the sun's vertical rays can reach.

Tropical Zone : The area bounded by the two tropics is called the tropical zone.

Tropophyte : A plant which acts as hygrophite in one season and xerophyte in the other.

Tsunami : A large sea wave caused by an earthquake originating on the sea bed.

Van Allen's Radiation Belts : Named after the physicist who discovered them, these are two bands of the outermost layer of the atmosphere (magnetosphere), at heights of 3,000 and 16,000 km above the earth's surface. Here the ionized particles trapped by the earth's magnetic field from the solar radiation, concentrate.

Viticulture : The culture of grape-vine.

Volcano : Vent in the earth's crust caused by magma forcing its way to the surface through which molten or solid rock flow from the interior of the earth.

Watershed : Elevated boundary line separating headstreams which are tributaries to different river systems or basins.

Weather : Condition of the atmosphere at certain time or over a certain period of time as described by meteorological phenomena including temperature, atmospheric pressure and humidity.

Weathering : Decay and disintegration of rocks of the earth's crust by exposure to the atmosphere; it is one of the main processes of denudation.

Willy-willy : Tropical cyclone in the Pacific near the east coast of Australia.

Wind vane : Instrument used to indicate the direction of the wind.
Xerophyte : Plant which is adapted, to living in a region where little moisture (or dry climatic condition) is available.

Yazoo river : Tributary which is prevented from joining the main river because the latter has built up high natural levees; it thus runs parallel to the main stream for a considerable distance before joining it downstream.

Zenith : Point in the celestial sphere vertically above one's head.

Zodiac : Zone of the heavens in which lie the paths of the sun, the moon and the chief planets.

Zonal soil : A soil which owes its well developed characteristics largely to the influence of climate and vegetation. They are characterised by well-developed soil profiles.

Zoo-geography : Study of the distribution of animals and successional development on the earth's surface.

Zoophyte : An animal which resembles a plant, viz.—a coral polyp, a sponge.

Indian Polity and Constitution

4

Constitution : Constitution is the foundational law of a country which ordains the fundamental principles on which the government (or the governance) of that country is based. It lays down the framework and principal functions of various organs of the government as well as the modalities of interaction between the government and its citizens. With the exception of the United Kingdom (U.K.), almost all democratic countries possess a written constitution. India also possesses an elaborate written constitution which was enacted by a constituent assembly specifically set up for the purpose.

Our Constitution : Our present constitution—the first Constitution of India framed and given to themselves by the people of India was adopted by the Constituent Assembly on 26 November, 1949. It came into full operation with effect from 26 January, 1950. The Constitution as originally adopted had 22 parts, 395 articles and 8 schedules. Its present text is as amended from time to time.

1. Evolution of Indian Constitution

Although the systems of ancient India do have their reflections in the Constitution of India, the direct sources of the Constitution lie in the administrative and legislative developments of the British period. A concise and chronological description of the Acts, documents and events that culminated in the framing of the world's largest written Constitution is given here.

Administrative & Legislative Reforms Before 1857

Regulating Act of 1773

- This Act was based on the report of a committee headed by the British Prime Minister Lord North.
- Governance of the East India Company was put under British parliamentary control.
- The Governor of Bengal was nominated as Governor General for all the three Presidencies of Calcutta, Bombay and Madras. Warren Hastings was the first such Governor General.
- A Supreme Court was established in Calcutta (now Kolkata).
- Governor General was empowered to make rules, regulations and ordinances with the consent of the Supreme Court.

Pitts India Act of 1784

- It was enacted to improve upon the provisions of Regulating Act of 1773 to bring about better discipline in the Company's system of administration.
- A 6-member Board of Controllers was set up which was headed by a minister of the British Government. All political responsibilities were given to this board.
- Trade and commerce related issues were under the purview of the Court of Directors of the company.
- Provinces had to follow the instructions of the Central Government, and Governor General was empowered to dismiss the failing provincial government.

Charter Act of 1793

- > Main provisions of the previous Acts were consolidated in this Act.
- > Provided for the payment of salaries of the members of the Board of Controllers from Indian revenue.
- > Courts were given the power to interpret rules and regulations.

Charter Act of 1813

- > Trade monopoly of the East India Company came to an end.
- > Powers of the three Councils of Madras, Bombay and Calcutta were enlarged, they were also subjected to greater control of the British Parliament.
- > The Christian Missionaries were allowed to spread their religion in India.
- > Local autonomous bodies were empowered to levy taxes.

Charter Act of 1833

- > The Governor General and his Council were given vast powers. This Council could legislate for the whole of India subject to the approval of the Board of Controllers.
- > The Council got full powers regarding revenue, and a single budget for the country was prepared by the Governor General.
- > The East India Company was reduced to an administrative and political entity and several Lords and Ministers were nominated as ex-officio members of the Board of Controllers.
- > For the first time the Governor-General's Government was known as the 'Government of India' and his Council as the 'Indian Council'.

Charter Act of 1853

- > This was the last of the Charter Acts and it made important changes in the system of Indian legislation.
- > This Act followed a report of the then Governor General Dalhousie for improving the administration of the company.
- > A separate Governor for Bengal was to be appointed.
- > Legislative and administrative functions of the Council were separately identified.
- > Recruitment of the Company's employees was to be done through competitive exams.
- > British Parliament was empowered to put Company's governance of India to an end at any suitable time.

Administrative & Legislative Reforms After 1857**Government of India Act, 1858**

- > British Crown decided to assume sovereignty over India from the East India Company in an apparent consequence of the Revolt of 1857, described as an armed sepoy mutiny by the British historians and remembered as the First War of Independence by the Indians.
- > The first statute for the governance of India, under the direct rule of the British Government, was the Government of India Act, 1858.
- > It provided for absolute (British) imperial control over India without any popular participation in the administration of the country.

- > The powers of the crown were to be exercised by the Secretary of State for India, assisted by a council of fifteen members, known as the Council of India.
- > The country was divided into provinces headed by a Governor or Lieutenant Governor aided by his Executive Council.
- > The Provincial Governments had to function under the superintendence, direction and control of the Governor General in all matters.
- > All the authority for the governance of India was vested in the Governor General in Council who was responsible to the Secretary of State.
- > The Secretary of State was ultimately responsible to the British Parliament.

Indian Councils Act, 1861

- > This is an important landmark in the constitutional history of India. By this Act, the powers of the crown were to be exercised by the Secretary of State for India, assisted by a council of fifteen members (known as the Council of India). The Secretary of State, who was responsible to the British Parliament, governed India through the Governor General, assisted by an Executive council.
- > This Act enabled the Governor General to associate representatives of the Indian people with the work of legislation by nominating them to his expanded council.
- > This Act provided that the Governor General's Executive Council should include certain additional non-official members also while transacting legislative business as a Legislative Council. But this Legislative Council was neither representative nor deliberative in any sense.
- > It decentralised the legislative powers of the Governor General's Council and vested them in the Governments of Bombay and Madras.

Indian Councils Act, 1892

- > The non-official members of the Indian Legislative Council were to be nominated by the Bengal Chamber of Commerce and the Provincial Legislative Councils while the non-official members of the Provincial Councils were to be nominated by certain local bodies such as universities, district boards, municipalities, zamindars etc.
- > The Councils were to have the power of discussing the Budget and addressing questions to the Executive.

Morley-Minto Reforms and the Indian Councils Act, 1909

- > Reforms recommended by the then Secretary of States for India (Lord Morley) and the Viceroy (Lord Minto) were implemented by the Indian Councils Act, 1909.
- > The maximum number of additional members of the Indian Legislative Council (Governor General's Council) was raised from 16 (under the Act of 1892) to 60 (excluding the Executive Councillors).
- > The size of Provincial Legislative Councils was enlarged by including elected non-official members so that the official majority was gone.
- > An element of election was also introduced in the Legislative Council at the centre also but here the official majority there was maintained.
- > The Legislative Councils were empowered to move resolutions on the Budget, and on any matter of public interest, except certain specified subjects, such as the Armed forces, Foreign Affairs and the Indian States.

- > It provided, for the first time, for separate representation of the Muslim community and thus sowed the seeds of separatism.

The Government of India Act, 1915

- > This act was passed to consolidate the provisions of the preceding Government of India Acts.

Montague-Chelmsford Report and the Government of India Act, 1919

- > The then Secretary of State for India Mr. E.S. Montagu and the Governor General Lord Chelmsford formulated proposals for the Government of India Act, 1919.
- > Responsible Government in the Provinces was to be introduced, without impairing the responsibility of the Governor (through the Governor General), for the administration of the Province, by resorting to device known as 'Dyarchy' or dual government.
- > The subjects of administration were to be divided into two categories **Central** and **Provincial**.
- > **Central subjects** were those which were exclusively kept under the control of the Central Government.
- > The **provincial subjects** were sub-divided into 'transferred' and 'reserved' subjects.
- > The '**transferred subjects**' were to be administered by the Governor with the aid of Ministers responsible to the Legislative Council in which the proportion of elected members was raised to 70 per cent.
- > The '**reserved subjects**' were to be administered by the Governor and his Executive Council with no responsibility to the Legislature.
- > The previous Central control over the provinces in administrative, legislative and financial matters was relaxed. Sources of revenue were divided into two categories so that the provinces could run the administration with the revenue raised by the provinces themselves.
- > The provincial budget was separated from the central budget.
- > The provincial legislature was empowered to present its own budget and levy its own taxes relating to the provincial sources of revenue.
- > The Central Legislature, retained power to legislate for the whole country on any subject.
- > The control of the Governor General over provincial legislation was retained by providing that a Provincial Bill, even though assented to by the Governor, would become law only when assented to also by the Governor General.
- > The Governor was empowered to reserve a Bill for the consideration of the Governor General if it was related to some specified matters.
- > The Governor General in Council continued to remain responsible only to the British Parliament through the Secretary of State for India.
- > The Indian Legislature was made more representative and, for the first time '**bi-cameral**'.
- > The Upper House was named the **Council of State**. This was composed of 60 members of whom 34 were elected.

- > The Lower House was named the **Legislative Assembly**. This was composed of about 144 members of whom 104 were elected.
- > The electorates were arranged on a communal and sectional basis, developing the Morley-Minto device further.
- > The Governor General's overriding powers in respect of Central legislation were retained as follows:
 - (a) His prior sanction was required to introduce Bills relating to certain matters;
 - (b) he had the power to veto or reserve for consideration of the Crown any Bill passed by the Indian Legislature; (c) he had the converse power of certifying Bill or any grant refused by the Legislature; (d) he could make Ordinances, in case of emergency.

Simon Commission

- > This commission, headed by Sir John Simon, constituted in 1927 to inquire into the working of the Act of 1919, placed its report in 1930. The report was examined by the British Parliament and the Government of India Bill was drafted accordingly.

The Government of India Act, 1935

- > The Act of 1935 prescribed a federation, taking the Provinces and the Indian States (native states) as units.
- > It was optional for the Indian States to join the Federation, and since they never joined, the **Federation never came into being**.
- > The Act divided legislative powers between the Centre and Provinces.
- > The executive authority of a Province was also exercised by a Governor on behalf of the Crown and not as a subordinate of the Governor General.
- > The Governor was required to act with the advice of Ministers responsible to the Legislature.
- > In certain matters, the Governor was required to act 'in his discretion' without ministerial advice and under the control and directions of the Governor General, and, through him, of the Secretary of State.
- > The executive authority of the Centre was vested in the Governor General (on behalf of the Crown).
- > Counsellors or Council of Ministers responsible to the Legislature was not appointed although such provisions existed in the Act of 1935.
- > The Central Legislature was bi-cameral, consisting of the Federal Assembly and the Council of State.
- > In six provinces, the legislature was bi-cameral, comprising a Legislative Assembly and a Legislative Council. In other provinces, the Legislature was uni-cameral.
- > Apart from the Governor General's power of veto, a Bill passed by the Central Legislature was also subject to **veto by the Crown**.
- > The Governor General could prevent discussion in the Legislature and suspend the proceedings on any Bill if he was satisfied that it would affect the discharge of his special responsibilities.
- > The Governor General had independent powers of legislation, concurrently with those of the Legislature.

- On some subjects no bill or amendment could be introduced in the Legislature without the Governor General's previous sanction.
- A three-fold division in the Act of 1935—There was a Federal List over which the Federal Legislature had exclusive powers of legislation. There was a Provincial List of matters over which the Provincial Legislature had exclusive jurisdiction. There was a Concurrent List also over which both the Federal and Provincial Legislature had competence.
- The Governor General was empowered to authorise either the Federal or the Provincial Legislature to enact a law with respect to any matter which was not enumerated in the above noted Legislative Lists.
- **Dominion Status**, which was promised by the Simon Commission in 1929, was not conferred by the Government of India Act, 1935.

Cripps Mission

- In March 1942, Sir Stafford Cripps, a member of the British cabinet came with a draft declaration on the proposals of the British Government.
- These proposals were to be adopted at the end of the Second World War provided the Congress and the Muslim League could accept them.
- According to the proposals
 - ★ The Constitution of India was to be framed by an **elected Constituent Assembly** by the Indian people.
 - ★ The Constitution should give India **Dominion Status**.
 - ★ There should be one Indian Union comprising all the Provinces and Indian States.
 - ★ Any Province (or Indian State) not accepting the Constitution would be free to retain its constitutional position existing at that time and with such non-acceding Provinces the British Government could enter into separate Constitutional arrangements.

Cabinet Mission Plan

- In March 1946, Lord Attlee sent a Cabinet Mission to India consisting of three Cabinet Ministers, namely Lord Pethick Lawrence, Sir Stafford Cripps and Mr. A.V. Alexander.
- The **object of the Mission** was to help India achieve its independence as early as possible, and to set up a Constituent Assembly.
- The Cabinet Mission rejected the claim for a separate Constituent Assembly and a separate State for the Muslim.
- According to Cabinet Mission Plan there was to be a Union of India, comprising both British India and the States, and having jurisdiction over the subjects of Foreign Affairs, Defence and Communication. All residuary powers were to be vested in the Provinces and the States.
- The Union was to have an Executive and a Legislature consisting of representatives of the Provinces and the States.
- Any decision involving a major communal issue in the legislature was to require a majority support of representatives of each of the two major communities present and voting as well as a majority of all the members present and voting.
- The provinces could form groups with executives and legislatures, and each group could be competent to determine the provincial subjects.

The Mountbatten Plan

- The plan for transfer of power to the Indians and partition of the country was laid down in the Mountbatten Plan.
- It was given a formal shape by a statement made by the British Government on 3rd June, 1947.

The Indian Independence Act, 1947 of the British Parliament

- In pursuance of this Act, the Government of India Act, 1935, was amended by the Adaptation Orders, both in India and Pakistan, for setting up an interim Constituent Assembly to draw up the future Constitution of the country.
- From the 15th August, 1947 India ceased to be a Dependency, and the suzerainty of the British Crown over the Indian States and the treaty relations with Tribal Areas lapsed from that date.
- The office of the Secretary of State for India was abolished.
- The Governor-General and the Governors lost extraordinary powers of legislations to compete with the Legislature.
- The Central Legislature of India, composed of the Legislative Assembly and the Council of States, ceased to exist on August 14, 1947.
- The Constituent Assembly itself was to function also as the Central Legislature with complete sovereignty.

2. Constituent Assembly and Making of the Constitution

- The Cabinet Mission envisaged the establishment of a Constituent Assembly to frame a Constitution for the country. Members of the Constituent Assembly were elected by the Provincial Legislative Assemblies.
- Each Province and each Indian State were allotted seats in proportion of its population, roughly in the ratio of **one to a million**. The seats so ascertained were distributed among the main communities in each Province. The main communities recognised were Sikh, Muslim and General.

Important Committees of the Constituent Assembly and their Chairman

Sl.	Name of the Committee	Chairman
1.	Committee on the Rules of Procedure	Dr. Rajendra Prasad
2.	Steering Committee	
3.	Finance and Staff Committee	
4.	Ad hoc Committee on the National Flag	Pt. Jawahar Lal Nehru
5.	Union Constitution Committee	
6.	Union Powers Committee	
7.	State Committee	Sardar Vallabhbhai Patel
8.	Advisory Committee on Fundamental Rights, Minorities and Tribal and Excluded Areas	Dr. B.R. Ambedkar
9.	Drafting Committee	Alladi Krishnaswami Ayyar
10.	Credential Committee	B.Pattabhi Sitaramayya
11.	House Committee	K. M. Munshi
12.	Order of Business Committee	

Sl.	Name of the Committee	Chairman
13.	Committee on the Functions of the Constituent Assembly	G.V. Mavalankar
14.	Minorities Sub-Committee	H.C. Mookherjee
15.	Fundamental Rights Sub-Committee	J. B. Kripalani
16.	North-East Frontier Tribal Areas and Assam Excluded & Partially Excluded Areas Sub Committee	Gopinath Bardoloi
17.	Excluded and Partially Excluded Areas (other than those in Assam) Sub-Committee	A. V. Thakkar

- > The total number of members of the Constituent Assembly was 385, of whom 93 were representatives from the Indian States and 292 from the Provinces (British India).
- > After the partition of India number of members of the Constituent Assembly came to 299, of whom 284 were actually present on the 26th November, 1949 and signed on the finally approved Constitution of India. The Constituent Assembly, which had been elected for undivided India, held its first meeting on December 9, 1946, and reassembled on August 14, 1947, as the sovereign Constituent Assembly for the dominion of India.
- > It took **two years, eleven months and eighteen days** for the Constituent Assembly to finalise the Constitution.
- > **Objective Resolution** was moved in the first session of the Constituent Assembly (on 13 December, 1946) by Pt. Jawahar Lal Nehru which was adopted after considerable deliberation and debate in the Assembly on 22 January, 1947. The following objectives were embodied in the resolution :
 - ★ To foster unity of the Nation and to ensure its economic and political security, to have a written Constitution, and to proclaim India as a Sovereign Democratic Republic.
 - ★ To have a federal form of Government with the distribution of powers between the centre and states.
 - ★ To guarantee and secure justice, equality, freedom of thought, expression, belief, faith, worship, vocation, association and action to all the people of India.
 - ★ To provide adequate safeguards for minorities, backward and tribal areas and depressed and other backward classes.
 - ★ To maintain the integrity of the territory of the republic and its sovereign rights on land, sea and air according to justice and the law of civilised nations.
 - ★ To attain rightful and honoured place in the world and make its full and willing contribution to the promotion of the world peace and the welfare of mankind.
- > The principles of the Constitution were outlined by various committees of the Assembly, and there was a general discussion on the reports of these Committees. The Assembly appointed the Drafting Committee with Dr. B.R. Ambedkar as the Chairman on August 29, 1947.

- > The Drafting Committee, headed by Dr. B. R. Ambedkar, submitted a Draft constitution of India to the President of the assembly on 21 February, 1948.
- > **The members of Drafting Committee** were N. Gopalaswamy Ayyangar, Alladi Krishnaswamy Ayyar, K.M. Munshi, Mohd. Saadullah, B.L. Mitter (later replaced by N. Madhava Rao), Dr. D.P. Khaitan (replaced on death by T.T. Krishnamachari).
- > **The third and final reading** of the draft was completed on November 26, 1949. On this date, the signature of the President of the Assembly was appended to it and the Constitution was declared as passed.
- > The provisions relating to citizenship, elections and provisional Parliament etc were implemented with immediate effect, that is, from the 26th November, 1949. The rest of the provisions of the constitution came into force on January 26, 1950 and this date is referred to in the Constitution as the *date of its commencement*.

3. Different Sources of the Indian Constitution

Although the skeleton of the constitution was derived from the Government of India Act 1935, many provisions were imported from other constitutions of the world. Some of them are listed below along with the Government of India Act, 1935:

Government of India Act, 1935 : This Act formed the basis or 'blueprint' of the constitution of India with the features of Federal system, office of Governor, emergency powers etc. Besides, the Constitution of India has borrowed from the—

Constitution of Britain : Law making procedures, Rule of law, Single citizenship, Bi-cameral Parliamentary system, office of CAG.

Constitution of USA : Independence of judiciary, judicial review, fundamental rights, removal of Supreme Court and High Court judges, Preamble and functions of President and Vice-president.

Constitution of Canada : Federation with strong Centre, to provide residuary powers to the Centre, Supreme Court's advisory jurisdiction.

Constitution of Ireland : Directive Principles of State policy, method of presidential elections, and the nomination of members to Rajya Sabha by the President.

Weimar Constitution of Germany : Provisions concerning the suspension of fundamental rights during emergency.

Constitution of Australia : Idea of the Concurrent List, Trade and Commerce provisions.

Constitution of South Africa : Amendment with 2/3rd majority in Parliament and election of the Members of Rajya Sabha on the basis of proportional representation.

Constitution of France : Republican System, Principles of Liberty, Equality and Fraternity.

Constitution of former USSR : Fundamental Duties, Ideals of justice in Preamble.

4. Important Articles of the Constitution

	Articles	Subject
Part I	Art. 1-4	The Union and its territory.
Part II	Art. 5-11	Citizenship

Part III Fundamental Rights

Art. 12 Definition

Art. 13 Laws inconsistent with or in derogation of the fundamental rights

Right to Equality

Art. 14 Equality before law

Art. 15 Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth

Art. 16 Equality of opportunity in matters of public employment

Art. 17 Abolition of untouchability

Art. 18 Abolition of titles

Right to Freedom

Art. 19 Protection of certain rights regarding freedom of speech etc.

Art. 20 Protection in respect of conviction for offences

Art. 21 Protection of life and personal liberty

21A. Right to education

Art. 22 Protection against arrest and detention in certain cases

Right against Exploitation

Art. 23 Prohibition of traffic in human beings and forced labour

Art. 24 Prohibition of employment of children in factories etc.

Right to Freedom of Religion

Art. 25 Freedom of conscience and free profession, practice and propagation of religion

Art. 26 Freedom to manage religious affairs

Art. 27 Freedom as to payment of taxes for promotion of any particular religion

Art. 28 Freedom as to attendance at religious instruction or religious worship in certain educational institutions

Cultural and Educational Rights

Art. 29 Protection of interests of minorities

Art. 30 Right of minorities to establish and administer educational institutions

Saving of certain Laws

Art. 31A Saving of laws providing for acquisition of estates etc.

Art. 31B Validation of certain Acts and Regulations

Art. 31C Saving of laws giving effect to certain directive principles

Right to Constitutional Remedies

Art. 32 Remedies for enforcement of rights conferred by this Part

Art. 33 Power of Parliament to modify the rights conferred by this Part in their application to Forces etc.

Art. 34 Restriction on rights conferred by this Part while martial law is in force in any area

Art. 35 Legislation to give effect to the provisions of this Part

Part IV Directive Principles of State Policy

Art. 36 Definition

Art. 37 Application of the principles contained in this Part

Art. 38 State to secure a social order for the promotion of welfare of the people

Art. 39 Certain principles of policy to be followed by the State

Art. 39A Equal justice and free legal aid

Art. 40 Organisation of village panchayats

Art. 41 Right to work, to education and to public assistance in certain cases

Art. 42 Provision for just and humane conditions of work and maternity relief

Art. 43 Living wage etc for workers

Art. 43A Participation of workers in management of industries

Art. 43B The State shall endeavour to promote voluntary formation, autonomous functioning, democratic control and professional management of co-operative societies.

Art. 44 Uniform civil code for the citizens

Art. 45 Provision for early childhood care and education to children below the age of six years

Art. 46 Promotion of educational and economic interest of Scheduled Castes, Scheduled Tribes and other weaker sections

Art. 47 Duty of the State to raise the level of nutrition and the standard of living and to improve public health

Art. 48 Organisation of agriculture and animal husbandry

Art. 48A Protection and improvement of environment and safeguarding of forests and wild life

Art. 49 Protection of monuments and places and objects of national importance

Art. 50 Separation of judiciary from executive

Art. 51 Promotion of international peace and security

Part IVA Art. 51A Fundamental Duties**Part V The Union****Chapter-I: The Executive**

Art. 52 The President of India

Art. 53 Executive power of the Union

Art. 54 Election of President

Art. 61 Procedure for impeachment of the President

Art. 63 The Vice-President of India

Art. 64 The Vice-President to be *ex-officio* Chairman of the Council of States

Art. 65 The Vice-President to act as President or to discharge his functions during casual vacancies in the office, or during the absence of President

Art. 66 Election of Vice-President

Art. 72 Power of President to grant pardons etc and to suspend, remit or commute sentences in certain cases

Art. 74 Council of Ministers to aid and advise President

Art. 76 Attorney General for India

Chapter-II : Parliament

- Art. 79 Constitution of Parliament
- Art. 80 Composition of the Council of States (Rajya Sabha)
- Art. 81 Composition of the House of the People (Lok Sabha)
- Art. 83 Duration of Houses of Parliament
- Art. 84 Qualification for membership of Parliament
- Art. 85 Sessions of Parliament, prorogation and dissolution
- Art. 86 Right of President to address and send messages to Houses
- Art. 87 Special address by the President
- Art. 88 Rights of Ministers and Attorney General as respects Houses
- Art. 89 The Chairman and Deputy Chairman of the Council of States
- Art. 90 Vacation and resignation of, and removal from, the office of Deputy Chairman
- Art. 93 The Speaker and Deputy Speaker of the House of the People
- Art. 94 Vacation and resignation of, and removal from, the offices of Speaker and Deputy Speaker
- Art. 95 Power of the Deputy Speaker or other person to perform the duties of the office of, or to act as, Speaker
- Art. 98 Secretariat of Parliament
- Art. 99 Oath or affirmation by members
- Art. 100 Voting in Houses, power of Houses to act notwithstanding vacancies and quorum
- Art. 105 Powers, privileges etc of the Houses of Parliament and of the members and committees thereof
- Art. 106 Salaries and allowances of members
- Art. 107 Provisions as to introduction and passing of Bills
- Art. 108 Joint sitting of both Houses in certain cases
- Art. 109 Special procedure in respect of Money Bills
- Art. 110 Definition of 'Money Bills'
- Art. 111 Assent to Bills
- Art. 112 Annual financial statement (Budget)
- Art. 113 Procedure in Parliament with respect to estimates
- Art. 114 Appropriation Bills
- Art. 115 Supplementary, additional or excess grants
- Art. 116 Votes on account, votes of credit and exceptional grants
- Art. 117 Special provisions as to financial Bills
- Art. 118 Rules of procedure
- Art. 119 Regulation by law of procedure in Parliament in relation to financial business
- Art. 120 Language to be used in Parliament
- Art. 121 Restriction on discussion in Parliament
- Art. 122 Courts not to inquire into proceedings of Parliament
- Chapter-III : Legislative Powers of the President**
- Art. 123 Power of President to promulgate Ordinances during recess of Parliament

Chapter-IV : The Union Judiciary

- Art. 124 Establishment and Constitution of Supreme Court
- Art. 125 Salaries etc. of Judges
- Art. 126 Appointment of acting Chief Justice
- Art. 127 Appointment of *ad hoc* Judges
- Art. 128 Attendance of retired Judge at sittings of the Supreme Court
- Art. 129 Supreme Court to be a Court of record
- Art. 130 Seat of Supreme Court
- Art. 131 Original jurisdiction of Supreme Court
- Art. 132 Appellate jurisdiction of Supreme Court in appeals from High Court in certain cases
- Art. 133 Appellate jurisdiction of Supreme Court in appeals from High Court in regard to civil matters
- Art. 134 Appellate jurisdiction of Supreme Court in regard to criminal matters
- Art. 134A Certificate for appeal to the Supreme Court
- Art. 135 Jurisdiction and powers of the Federal Court under existing law to be exercisable by the Supreme Court
- Art. 136 Special leave to appeal by the Supreme Court
- Art. 137 Review of judgements or orders by the Supreme Court
- Art. 138 Enlargement of the jurisdiction of the Supreme Court
- Art. 141 Law declared by Supreme Court to be binding on all Courts
- Art. 143 Power of President to consult Supreme Court
- Art. 144 Civil and judicial authorities to act in aid of the Supreme Court

Chapter-V : Comptroller and Auditor-General of India

- Art. 148 Comptroller and Auditor-General of India
- Art. 149 Duties and powers of the Comptroller and Auditor-General

Part VI The States

- Art. 152-237 The Government at the State level: The Executive, The State Legislature, The High Courts and Subordinate Courts

Part VIII Art. 239-241 The Union Territories**Part IX Art. 243 to 243-O The Panchayats****Part IXA Art. 243-P to 243-ZG The Municipalities****Part IXB Art. 243-ZH to 243-ZT The Co-operative Societies****Part X Art. 244-244A The Scheduled and Tribal Areas****Part XI Art. 245-263 Relations between The Union and the States****Lokpal**

A Lokpal is a proposed 'Ombudsman' in India. It has jurisdiction over all members of Parliament (MPs), the Prime Minister (with certain exceptions), ministers and all Civil servants etc in cases of corruption. Lokpal is empowered to sanction prosecution.

The amended 'Lokpal and Lokayukta Bill 2011' was passed on Rajya Sabha and Lok Sabha on 17th and 18th December, 2013 respectively. Samajwadi Party opposed the Bill.

The selection of the Lokpal will be held by a committee comprising the P.M., the Lok Sabha Speaker, the Leader of the opposition in Lok Sabha and the Chief Justice of India etc.

Lokpal is to have Chairperson and maximum 8 members, 50% of them judicial members and at least 50% members to be from SC/ST/women/minorities.

- Part XII** Art. 264-300 Finance, property, contracts and suits; Distribution of revenue between Union and States; Finance Commission; Borrowing Property, Contracts, Rights, Liabilities, Obligations and Suits
- Art. 300A Right to Property
- Part XIII** Art. 301-307 Trade, commerce and intercourse within India
- Part XIV** **Services Under The Union and The States**
- Art. 309 Recruitment and conditions of service of persons serving the Union or a State
- Art. 310 Tenure of office of persons serving the Union or a State
- Art. 311 Dismissal, removal or reduction in rank of persons employed in civil capacities under the Union or a State
- Art. 312 All-India Services
- Art. 315 Public Service Commissions for the Union and for the States
- Art. 316 Appointment and term of office of members
- Art. 317 Removal and suspension of a member of a Public Service Commission
- Art. 318 Power to make regulations as to conditions of service of members and staff of the Commission
- Art. 320 Functions of Public Service Commissions
- Art. 321 Power to extend functions of Public Service Commissions
- Art. 323 Reports of Public Service Commissions
- Part XIVA** Art. 323A-323B Tribunals
- Part XV** **Elections**
- Art. 324 Superintendence, direction and control of elections to be vested in an Election Commission
- Art. 325 No person to be ineligible for inclusion in, or to claim to be included in a special, electoral roll on grounds of religion, race, caste or sex
- Art. 326 Elections to the House of the People and to the Legislative Assemblies of States to be on the basis of adult suffrage
- Art. 327 Power of Parliament to make provision with respect to elections to legislatures
- Art. 328 Power of Legislature of a State to make provision with respect to elections to such Legislature
- Art. 329 Bar to interference by Courts in electoral matters
- Part XVI** Art. 330-342 Special provisions for certain classes
- Part XVII** Art. 343-351 Official languages
- Part XVIII** Art. 352-360 Emergency Provisions
- Part XIX** **Miscellaneous**
- Art. 361A Protection of publication of proceedings of Parliament and State Legislatures
- Art. 363 Bar to interference by courts in disputes arising out of certain treaties, agreements etc.
- Art. 363A Recognition granted to Rulers of Indian States to cease and purses to be abolished
- Art. 364 Special provisions as to major ports and aerodromes

- Art. 365 Effect of failure to comply with, or to give effect to, directions given by the Union
- Part XX** Art. 368 Amendment of the Constitution
- Part XXI** Art. 369-392 Temporary, Transitional and Special Provisions—Special status of States
- Part XXII** Art. 393-395 Short Title, Commencement, Authoritative text in Hindi and Repeals

Schedules of the Indian Constitution

The Constitution of India at the time of its adoption had only eight Schedules to which four more were added during the succeeding sixty-five years.

- 1st Schedule** 28 States and 7 Union Territories with Territorial demarcations
- 2nd Schedule**
- Part 'A' Salary and emoluments of the President and Governors of the States
- Part 'B' Omitted
- Part 'C' Salary and emoluments of the Speaker/Deputy Speaker or Chairman/Vice Chairman of the Lok Sabha, Rajya Sabha and State Legislative Assemblies or Councils.
- Part 'D' Salary and emoluments of the judge of the Supreme Court and High Courts
- Part 'E' Salary and emoluments of the Comptroller and Auditor General of India
- 3rd Schedule** Forms of oath and affirmations of members of legislatures, ministers and judges.
- 4th Schedule** Allocation of seats to States and Union Territories in the Rajya Sabha.
- 5th Schedule** Administration and control of Scheduled Areas and STs.
- 6th Schedule** Administration of Tribal Areas of North-Eastern States
- 7th Schedule** Distribution of power between the Union and the State Government. (Union List, State List and Concurrent List)
- 8th Schedule** Description of 22 languages recognised by the Constitution.
- 9th Schedule** Validation of certain Acts and Regulations
- 10th Schedule** Provisions as to disqualification on ground of defection (Anti-defection Law introduced by the 52nd Constitutional Amendment Act). This Schedule followed latest developments by 91st amendment to the constitution in 2003.
- 11th Schedule** Powers, authority and responsibilities of Panchayats, 29 subjects over which the Panchayats have jurisdiction (refer to the 73rd Constitutional Amendment Act).
- 12th Schedule** Powers, authority and responsibilities of Municipalities, 18 subjects over which the Municipalities have jurisdiction (refer to the 74th Constitutional Amendment Act).

5. Some important Amendments of the Constitution

1st Constitutional Amendment Act, 1951 : This amendment added Article, 15(4) and Article, 19(6) and brought changes in the right to private property in pursuance with the decision of Supreme Court concerning fundamental rights. Ninth schedule to the Constitution was also added by it.

7th Constitutional Amendment Act, 1956 : Through this amendment the implementation of State Reorganization Act, was made possible. The categorisation of States into Part A, Part B and Part C ceased henceforth. Part C states were redesignated as Union Territories. The seats in the Rajya Sabha and in the Union and State Legislatures were reallocated. It also effected changes regarding appointment of additional and acting judges, High Courts and their jurisdictions etc.

10th Constitutional Amendment Act, 1961 : Incorporated Dadra and Nagar Haveli as Union Territory.

12th Constitutional Amendment Act, 1962 : Inclusion of territories of Goa, Daman and Diu into the Indian Union.

13th Constitutional Amendment Act, 1962 : Insertion of Art. 371 A to make special provisions for the administration of the State of Nagaland.

14th Constitutional Amendment Act, 1962 : Pondicherry, Karaikal, Mahe and Yanam, the former French territories, were specified in the Constitution as the Union Territory of Pondicherry (now Puducherry). Enabled the UTs of Himachal Pradesh, Manipur, Tripura, Goa, Daman and Diu and Pondicherry to have Legislatures and Council of Ministers.

15th Constitutional Amendment Act, 1963 : It raised the age of retirement of a High Court Judge from 60 to 62. Extended the jurisdiction of a High Court to issue writs under Art. 226 to a Government or authority situated outside its territorial jurisdiction where the cause of action arises within such jurisdiction.

16th Constitutional Amendment Act, 1963 : Changes were effected in Art. 19 to enable the Parliament to make laws providing reasonable restrictions on the freedom of expression in the larger interests of sovereignty and integrity of India. Amendments were made in the form of oath contained in the third Schedule with emphasis on upholding the sovereignty and integrity of India.

19th Constitutional Amendment Act, 1966 : Art. 324 was amended to clarify the duties of the Election Commission. It deprived the Election Commission of the power to appoint election tribunals for deciding election disputes of members of Parliament and State Legislatures.

21st Constitutional Amendment Act, 1967 : Sindhi language was included as 15th regional language in the Eighth Schedule.

24th Constitutional Amendment Act, 1971 : It was a retaliatory act of the Parliament to neutralise the effect of the judgement in Golak Nath Case. It affirmed the parliament's power to amend any part of the Constitution, including Fundamental Rights by amending Arts. 368 and 13. It made obligatory for the President to give assent to Amendment Bills, when they are presented to him/her.

25th Constitutional Amendment Act, 1971 (came into force on 20.04.1972) : It restricted the jurisdiction of the Courts over acquisition laws with regard to adequacy of Compensation. This amendment came primarily in the wake of Bank Nationalisation case and the word 'amount' was substituted in place of 'compensation' in Article 31.

It also provided that no law passed by the State to give effect to Directive Principles specified under clauses (b) and (c) of Art. 39 can be declared void on the ground that it was inconsistent with Fundamental Rights conferred by Arts. 14, 19 and 31.

26th Constitutional Amendment Act, 1971 : This amendment withdrew the recognition to the rulers of Princely States and their privy purses were abolished.

30th Constitutional Amendment Act, 1972 (w.e.f. 27.02.1973) : It provided that only such appeals can be brought to the Supreme Court which involve a substantial question of law. The valuation aspect of Rs. 20,000 for appeals in civil cases to the Supreme Court was abolished.

31st Constitutional Amendment Act, 1973 : By this amendment, the seats of the Lok Sabha was increased from 525 to 545 but reduced the representation of UTs in Lok Sabha from 25 to 20.

35th Constitutional Amendment Act, 1974 (w.e.f. 01.03.1975) : Accorded status of Associate State to Sikkim by ending its protectorate kingdom status which was a novel concept introduced in the Constitution.

36th Constitutional Amendment Act, 1975 : Made Sikkim a full fledged State of the Union of India.

38th Constitutional Amendment Act, 1975 : Clarified that declaration of emergency by the President and promulgation of Ordinance by the President or Governor cannot be challenged in any Court on any ground.

39th Constitutional Amendment Act, 1975 : The disputes or questions regarding elections of President, Vice-President, Prime Minister and Speaker of Lok Sabha were taken out of the purview of judicial review of the Supreme Court or High Courts.

42nd Constitutional Amendment Act, 1976 (Mini Constitution) : The 42nd Amendment made fundamental changes in the constitutional structure and it incorporated the words '**SOCIALIST**', '**SECULAR**' and '**INTEGRITY**' in the Preamble. Fundamental Duties were added in Part IVA. Directive Principles were given precedence over Fundamental Rights and any law made to this effect by the Parliament was kept beyond the scope of judicial review by the Court. It made the power of Parliament supreme so far as amendment to the Constitution was concerned. It authorised the Supreme Court to transfer certain cases from one High Court to another and redefined the writ jurisdiction of the High Courts. It provided for Administrative Tribunals for speedy justice. It empowered the Centre to deploy armed forces in any State to deal with the grave law and order situation. It authorised the President to make Proclamation of Emergency for any part of the country or to whole of India. It made it obligatory for the President to act on the advice of the Council of Ministers. Tenure of the Lok Sabha and the State Assemblies was increased by one year.

43rd Constitutional Amendment Act, 1977 (w.e.f. 13.04.1978) : The 43rd Amendment omitted many articles inserted by 42nd Amendment. It restored the jurisdiction of the Supreme Court and the High Courts, which had been curtailed under the 42nd Amendment.

44th Constitutional Amendment Act, 1978 (w.e.f. June-September, 1979) : The amendment was brought by the Janata Party Government which repealed

some of the changes effected by 42nd Amendment, omitted a few and provided alterations. Right to property was taken away from the list of Fundamental Rights and placed in a new Art. 300A as an ordinary legal right. Constitutionality of the Proclamation of Emergency by the President could be questioned in a court on the ground of malafide (42nd Amendment had made it immune from judicial review). It brought the revocation of a Proclamation under Parliamentary control. In Article 352 regarding National Emergency, the words 'internal disturbance' were substituted by the words 'armed rebellion'. It authorised the President to refer back the advice to the Council of Ministers for reconsideration, but made it binding for the President to act on the reconsidered advice. The power of the Courts to decide disputes regarding election of Prime Minister and Speaker was restored. Constitutional protection on publication of proceedings of Parliament and State Legislatures was provided.

52nd Constitutional Amendment Act, 1985 : This amendment was brought about during Rajiv Gandhi regime with a view to put an end to political defections. It added Tenth Schedule to the Constitution containing the modes for disqualification in case of defection from the Parliament or State Legislature.

55th Constitutional Amendment Act, 1986 (w.e.f. 20.02.1987) : The formation of Arunachal Pradesh took place with special powers given to the Governor. It also provided for a 30-member State Assembly.

56th Constitutional Amendment Act, 1987 : Goa was made a full fledged State with a State Assembly but Daman and Diu stayed as UT.

57th Constitutional Amendment Act, 1987 : It provided for reservation of seats for Scheduled Tribes of Nagaland, Meghalaya, Mizoram and Arunachal Pradesh in Lok Sabha. Seats were also reserved for the Scheduled Tribes of Nagaland and Meghalaya in the State Assemblies of Nagaland and Meghalaya.

58th Constitutional Amendment Act, 1987 : An authoritative text of the Constitution in Hindi was provided to the people of India by the President.

59th Constitutional Amendment Act, 1988 : It amended Art. 356 to provide that the declaration of Emergency may remain in operation upto 3 years and also authorised the Government to proclaim emergency in Punjab on ground of 'internal disturbance'. The amendment made in Art. 352 thus provided that the emergency with respect to Punjab shall operate only in that State.

61st Constitutional Amendment Act, 1988 (w.e.f. 28.03.1989) : It brought about an amendment to Article 326 for the reduction of voting age from 21 to 18 years.

62nd Constitutional Amendment Act, 1989 : It increased the period of reservation of seats provided to the Scheduled Castes and Scheduled Tribes for another 10 years i.e. upto 2000 A.D. The reservation for Anglo-Indians through nomination in case of their inadequate representation, was also extended upto 2000 A.D.

65th Constitutional Amendment Act, 1990 (w.e.f. 12.03.1992) : A National Commission for Scheduled Castes and Scheduled Tribes with wide powers was provided to take care of the cause of SCs/STs.

66th Constitutional Amendment Act, 1990 : This amendment provided for the inclusion of 55 new land reform Acts passed by the States into the Ninth Schedule.

69th Constitutional Amendment Act, 1991 (w.e.f. 01.02.1992) : Arts. 239-AA and 239-AB were inserted in the Constitution to provide a National Capital

Territory designation to Union Territory of Delhi with a legislative Assembly and Council of Ministers.

70th Constitutional Amendment Act, 1992 : Altered Art. 54 and 368 to include members of legislative assemblies of Union Territories of Delhi and Pondicherry in the electoral college for the election of the President.

71st Constitutional Amendment Act, 1992 : It included Manipuri, Konkani and Nepalese languages in the 8th Schedule.

73rd Constitutional Amendment Act, 1992 (w.e.f. 24.04.1993) : The institution of Panchayati Raj received Constitutional guarantee, status and legitimacy. XIth Schedule was added to deal with it. It also inserted part IX, containing Arts. 243, 243A to 243O.

74th Constitutional Amendment Act, 1992 (w.e.f. 01.06.1993) : Provided for constitutional sanctity to Municipalities by inserting Part IX-A, containing Arts. 243P to 243ZG and the XIIth Schedule which deals with the items concerning Municipalities.

77th Constitutional Amendment Act, 1995 : By this amendment a new clause 4A was added to Art. 16 which authorised the State to make provisions for Scheduled Castes and Scheduled Tribes with regard to promotions in Government jobs.

78th Constitutional Amendment Act, 1995 : This amended the Ninth Schedule of the Constitution to insert 27 Land Reform Acts of various States. After this the total number of Acts included in the Ninth Schedule went upto 284.

79th Constitutional Amendment Act, 1999 : Amended Art. 334 to extend the reservation of seats for SCs/STs and Anglo-Indians in the Lok Sabha and in the State Legislative Assemblies upto 60 years from the commencement of the Constitution (i.e., till 2010).

80th Constitutional Amendment Act, 2000 : Amended Art. 269 and substituted a new Article for Art. 270 and abolished Art. 272 of the Constitution. This was based on the recommendation of the Tenth Finance Commission. This amendment was deemed to have come into operation from 1st April 1996. The Amendment widened the scope of the Central taxes and duties on the consignment of goods levied by the Government of India and distributed among States.

81st Constitutional Amendment Act, 2000 : Amended Art. 16(1) of the Constitution and added a new clause (4-B) after clause (4-A) to Art. 16(1) of the Constitution. The new clause (4-B) ends the 50% ceiling on reservation for Scheduled Caste and Scheduled Tribes and other Backward Classes in backlog vacancies.

82nd Constitutional Amendment Act, 2000 : This amendment restored the relaxation in qualifying marks and standards of evaluation in both job reservation and promotions to Scheduled Castes and Scheduled Tribes which was set aside by a Supreme Court's judgement in 1996.

84th Constitutional Amendment Act, 2001 (w.e.f. 21.02.2002) : This amendment provided that till the publication of the relevant figures of the first census after 2026 the ascertainment of the population of a State for following purposes shall be made on the basis of the census shown against each of them :

- > Election of the President under Art. 55—1971 census.
- > Allotment of seats to each State in Lok Sabha—1971 census.
- > Division of State into territorial Lok Sabha constituencies — 1991 census.

- > Composition of Legislative Assemblies under Art. 170—1991 census.
 - > Reservation of seats for SC/ST in the Lok Sabha under Art. 330—1991 census.
- 85th Constitutional Amendment Act, 2001** : It amended clause (4-A) of Art. 16 and substituted the words "in matters of promotion, with consequential seniority, to any class" for the words "in matter of promotion to any class".
- The amendment provided for 'consequential seniority' to the SCs/STs for promotion in government service.

86th Constitutional Amendment Act, 2002 : Added a new Art. 21A after Art. 21 which makes the right of education for children of the age of 6 to 14 years a Fundamental Right. Substitutes Article 45 to direct the State to endeavour to provide early childhood care and education for all children until they complete the age of six years. Added a new Fundamental Duty to Part IV (Art. 51A) of the Constitution.

87th Constitutional Amendment Act, 2003 (w.e.f. 19.02.2004) : Provided that the allocation of seats in the Lok Sabha and division of each State into territorial Constituencies will be done on the basis of population as ascertained by the '2001 census' and not by '1991' census.

88th Constitutional Amendment Act, 2003 (w.e.f. 15.01.2004) : This amendment inserted a new Article 268A after Article 268 which empowered the Union of India to levy 'service tax'.

This tax shall be collected and appropriated by the Union and States in the manner as formulated by Parliament.

89th Constitutional Amendment Act, 2003 : Provided for the establishment of a separate National Commission for Scheduled Tribes by bifurcating the existing National Commission for Scheduled Castes and Scheduled Tribes. The commission shall consist of a Chairman, Vice-Chairman and three other members. They shall be appointed by the President of India.

90th Constitutional Amendment Act, 2003 : This amendment was necessitated due to creation of Bodoland Territorial Areas District within the State of Assam by agreement reached between the Centre and Bodo representatives for solving Bodoland problem. It stated that the representation of Scheduled Tribes and non-Scheduled Tribes in the Constitution of the Bodoland Territorial Areas District shall be maintained. It meant that the representation of the above categories shall remain the same as existed prior to the creation of Bodoland Territorial Areas District.

91st Constitutional Amendment Act, 2003 (w.e.f. 01.01.2004) : This amendment limits the size of Ministries at the Centre and in States. According to new Clause (1-A) the total number of Ministers, including the Prime Minister in the Union Council of Ministers or Chief Minister in the State Legislative Assemblies shall not exceed 15 per cent of the total members of the Lok Sabha in the Centre or Vidhan Sabha in the states. The new Clause (1-B) of Article 75 provides that a member of either House of Parliament belonging to any political party who is disqualified for being member of that house on the ground of defection shall also be disqualified to be appointed as a minister under Clause (1) of Art. 75 and 164 until he is again elected. However, the number of Ministers, including the Chief Minister in a State shall not be less than 12 (in smaller States like Sikkim, Mizoram and Goa).

92nd Constitutional Amendment Act, 2003 (w.e.f. 07.01.2004) : It amended the Eighth Schedule of the Constitution and has inserted 4 new languages in

it namely—Bodo, Dogri, Maithili and Santhali. After this amendment the total number of constitutionally recognised official languages has become 22.

93rd Constitutional Amendment Act, 2005 (w.e.f. 20.01.2006) : Provided reservation in admissions in private unaided educational institutions for students belonging to scheduled castes/tribes and other backward classes.

94th Constitutional Amendment Act, 2006 : Excluded Bihar from the provision to Clause (1) of Art. 164 of the constitution which provides that there shall be a minister in charge of tribal welfare who may in addition be in charge of the welfare of the Scheduled Castes and backward classes in Bihar, Madhya Pradesh and Orissa (now Odisha). It extends the provisions of clause (1) of Art. 164 to the newly formed States of Chhattisgarh and Jharkhand.

95th Constitutional Amendment Act, 2009 : Extended the reservation of seats for SCs and STs in the Lok Sabha and State assemblies by another 10 years (beyond January 25, 2010). The time period of 60 years under Art. 334 of the constitution was to lapse on January 25, 2010. Through this amendment in Art. 334 the words 'sixty years' has been substituted by 'seventy years'.

96th Constitutional Amendment Act, 2011 (DoA* : 23.09.2011) : Substituted the word 'Oriya' by the word 'Odia' in the entry 15 in the Eighth schedule.

97th Constitutional Amendment Act, 2011 (DoA* : 12.01.2012) : Amendment of article 19 [In Part-III, in article 19, in clause (1), in sub-clause (c), after the words 'or unions', the words 'or co-operative societies' shall be inserted.]; Insertion of new article 43B in Part IV ("43B. The State shall endeavour to promote voluntary formation, autonomous functioning, democratic control and professional management of co-operative societies.")

98th Constitutional Amendment Act, 2012 (DoA* : 01.01.2013) : Insertion of article 371J (Special provisions with respect to State of Karnataka)

*DoA (Date of Assent of the President)

6. Some Special Features of the Indian Constitution

- > The Constitution of India is the lengthiest and the most comprehensive of all the written Constitutions of the world.
- > Originally the Constitution consisted of 395 Articles divided into 22 parts and 8 Schedules.
- > Now it consists of about 442 Articles divided into 22 parts and 12 Schedules.
- > Unlike the federal Constitutions of the USA and Australia the Indian Constitution lays down provisions relating to the Governmental machinery not only in the Centre but also in the States.
- > The Indian Constitution provides for matters of administrative detail.
- > The Constitution contains detailed provisions relating to **Centre-State relations** including the emergency provisions.
- > Special status has been given to Jammu & Kashmir and some other states such as Nagaland, Mizoram, Assam, Gujarat etc.
- > Under the Constitution **the people of India are the ultimate sovereign**.
- > The Constitution of India establishes a **parliamentary form of Government** both at the Centre and in the States.

- > The Indian Constitution, though written, is **sufficiently flexible**.
- > The Constitution declares certain **Fundamental Rights** of the individual.
- > It is a unique feature of the Indian Constitution that it makes the citizens' duties a part of the basic law of the land.
- > One of the most important and unique features of the Indian Constitution is the provisions of **Directive Principles of State Policy** to secure a truly welfare State.
- > The Indian Constitution, distributes the legislative subjects on which the Parliament and State Legislature can enact laws under three lists viz. Union List, State List and Concurrent List.
- > The Indian Constitution unlike other federal Constitutions provides for a **single unified judiciary** with the Supreme Court at the apex, the High Courts in the middle and the Subordinate Courts at the bottom.
- > There are provisions in the Constitution to ensure **independence of judiciary**.
- > The Constitution of India has adopted a balance between the American system of Judicial Supremacy and the British principle of Parliamentary Supremacy.
- > The most remarkable feature of the Indian Constitution is that being a federal Constitution it **acquires a unitary character during the time of emergency**.
- > Under the Indian Constitution every adult above 18 years of age has been given the right to elect representatives for the legislature without prescribing any qualification based either on sex, property, education or the like.
- > A distinctive feature of the Indian Constitution is that it provides for the establishment of a **Secular State**. Regardless of their religious beliefs, all Indian citizens enjoy equal rights.
- > The State can not discriminate against anyone on the ground of religion or caste, nor can it compel anybody to pay taxes for the support of any particular religion.
- > The Indian Constitution has special **reservation of seats** for the Scheduled Castes and Tribes in public appointments and in educational institutions and in the Union and State Legislatures.
- > An outstanding feature of the Constitution is **Panchayati Raj**. The idea for organising village Panchayats was provided in the Constitution under Article 40 of Part IV which received Constitutional legitimacy through the 73rd Amendment to the Indian Constitution.

7. Federal and Unitary Features of the Indian Union

- > India is different from the United States of America because in United States the federation is based on an agreement between different States, and the States have the right to secede from the Union.
- > The Indian Constitution has the features both of a federal and unitary forms of Government.

Federal features

- ★ Distribution of powers between Union and the States has been made as per the three lists.
- ★ The Union Government as well as the State Governments have to function

- strictly in accordance with the Constitution. They can neither alter the distribution of powers nor override the dictates of the Constitution.
- ★ Indian Constitution is entirely written. An amendment to it must be passed by the Parliament and if an amendment affects the federal structure it must be ratified by at least half the State Legislatures.
- ★ Like other federal states our country also has an independent Judiciary as an essential feature.

Unitary features of the Indian Constitution

- ★ In a federation, people enjoy dual citizenship, that of the Centre and of the State to which they belong. But the Indian Constitution provides every Indian with single citizenship.
- ★ The most important subjects are included in the Union List which has been allocated to the centre.
- ★ The centre can legislate on the subjects in the concurrent list.
- ★ Residuary powers belong to the Centre.
- ★ Single Constitutional Framework has been provided for the Centre as well as for the State.
- ★ The proclamation of National emergency can immediately turn the federal system of India into a Unitary one.
- ★ In a federation, each State should get equal representation irrespective of its size or population. But in the Rajya Sabha in India, States are represented on the basis of population. Besides, the President has the power to nominate twelve members to the Rajya Sabha.
- ★ The Governors of the States are appointed by the President and they continue to hold office only during his pleasure.
- ★ The Indian Constitution provides for single judiciary, a single system of civil and criminal law and command All India Services.
- ★ The authority of the Comptroller and Auditor-General and the Chief Election Commissioner uniformly prevails over the Union as well as States.

8. The Preamble

- > The Preamble to the Constitution states the object which the Constitution seeks to establish and promote, and also aids the legal interpretation of the Constitution where the language is found ambiguous.
- > The ideals embodied in the Objectives Resolution is faithfully reflected in the Preamble to the Constitution, which, as amended in 1976, summaries the aims and objects of the Constitution.
- > **Text of the Preamble**: "We, the People of India having solemnly resolved to constitute India into a **Sovereign Socialist Secular Democratic Republic** and to secure to all citizens **Justice**, social, economic and political; **Liberty** of thought, expression, belief, faith and worship **Equality** of status and of opportunity; and to promote among them all **Fraternity** assuring the dignity of the individual and the unity and integrity of the Nation in our Constituent Assembly on this twenty sixth day of November, 1949, do hereby adopt, enact and give to ourselves this constitution."

- > The Preamble specifies the source of authority, i.e. people of India, the system of Government, the objectives to be attained by the political system and the date of adaptation and enactment of the Constitution.
- > Though, the Preamble is **not enforceable in a court of law**, it provides a key to the understanding and interpretation of the Constitution.
- > In case of doubt, the Supreme Court has referred to the Preamble to elucidate vague aspects of the Constitution.
- > In the *Berubari* case, the Supreme Court held that the Preamble was not part of the Constitution, but later, in the *Keshavananda Bharti* case, it declared that it was part of the Constitution.

9. Lapse of Paramountcy

- > When the Indian Independence Act 1947, was passed, it declared the lapse of suzerainty (paramountcy) of the crown, in sec. 7(i)(b) of the Act.
- > As from the appointed day—the suzerainty of His Majesty over the Indian States lapses, and with it, all treaties and agreements in force at the date of the passing of this Act between His Majesty and the rulers of Indian States, all functions exercisable by His Majesty at the date with respect to Indian States, all obligations of His Majesty existing at that date towards Indian States or the rulers thereof, and all powers, rights, authority, or jurisdiction exercisable by His Majesty at that date in or in relation to Indian States by treaty, grant, usage, sufferance or otherwise
- > Of the states situated within the geographical boundaries of the Dominion of India, all (numbering 552) save Hyderabad, Kashmir, Bahawalpur, Junagarh and the N.W.F. (North-West Frontier) states (Chitral, Phulra, Dir, Swat and Amb) had acceded to the Dominion of India by the 15th August, 1947, i.e. before the 'appointed day' itself.

10. Integration and Merger of Indian States

- > The main objective of shaping the Indian States into sizeable or viable administrative units was sought to be achieved by a three-fold process of integration (known as the 'Patel Scheme' after Sardar Vallabhbhai Patel, Minister-in-charge of Home Affairs)—
 1. 216 states were merged into respective Provinces, geographically contiguous (connected) to them.
 - ★ These merged states were included in the territories of the states in Part B in the First Schedule of the constitution.
 - ★ The process of merger started with the merger of Orissa and Chhattisgarh States with the then Province of Orissa on January 1, 1948.
 2. 61 states were converted into Centrally administered areas and included in Part C of the First Schedule of the Constitution.
 3. The third form of integration was the consolidation of groups of states into new viable units, known as Union of States.
 - ★ As many as 275 states were integrated into 5 Unions — Madhya Bharat, Patiala and East Punjab States Union, Rajasthan, Saurashtra

and Travancore-Cochin. These were included in the States in Part B of the First Schedule.

- ★ The other three States included in Part B were—Hyderabad, Jammu and Kashmir and Mysore.
 - ★ Jammu and Kashmir acceded to India on October 26, 1947, and so it was included as a state in Part B, but the Government of India agreed to take the accession subject to confirmation by the people of the state, and a constituent Assembly subsequently confirmed it, in November, 1956.
 - ★ Hyderabad did not formally accede to India, but the Nizam issued a Proclamation recognising the necessity of entering into a constitutional relationship with the Union of India and accepting the Constitution of India subject to ratification by the Constituent Assembly of the State, and the Constituent Assembly of that state ratified this.
- > It is noteworthy here that the Rajpramukhs of the five Unions as well as the Rulers of Hyderabad, Mysore, Jammu and Kashmir all adopted the Constitution of India, by Proclamations.
 - > The process of integration culminated in the Constitution (7th Amendment) Act, 1956, which abolished Part B states as a class and included all the states in Part A and B in one list.
 - > The special provisions in the constitution relating to Part B states were, consequently omitted. The Indian States thus lost their identity and become on uniform political organisation embodied in the Constitution of India.

11. The Union and its Territories

- > **Article 1** lays-down that India, i.e. Bharat, shall be a Union of States. The Territory of India shall consist of 1. the Territories of the States, 2. the Union Territories and 3. any Territories that may be acquired.
- > **Article 1** of the Constitution describes India as a Union of States not as a federation of states. Union of India is not the result of an agreement, nor has any State the right to secede from it.
- > The Federation is called a Union of States, because it is indestructible.
- > The Union Territories are not included in the 'Union of States'. Whereas the expression 'Territory of India' includes the States, the Union Territories and such other territories as may be acquired by India.
- > The States and their territories are specified in the **First Schedule** to the Constitution. The Constitution empowers the Parliament for the admission or establishment of new States.
- > **Article 2** provides that Parliament may by law admit new States into the Union of India or establish new States on such terms and conditions as it deems fit.
- > The Parliament has admitted the French settlements of Pondicherry, Karaikal, Mahe and Yanam, the Portuguese settlements of Goa, Diu and Daman and Sikkim, etc. into India after independence.
- > **Article 3** of the Constitution empowers the Parliament to form a new State by altering boundaries of existing States.

12. Reorganization of States

- > A Bill seeking to create a new State or alter boundaries of existing States can be introduced in either House of the Parliament, only on the recommendation of the President.
- > President refers the State Reorganization Bill to the State Legislature concerned for its opinion, fixing a time limit.
- > Parliament is not bound to accept or act upon the views of the State Legislature on a state Reorganization Bill. The State Reorganization Bill requires simple majority in both Houses of the Parliament.
- > It is not necessary to obtain the views of legislatures of Union territories before a bill affecting their boundaries or names is introduced.
- > The States Reorganization Act, 1956 reorganised the boundaries of different States to establish a new State of Kerala and merge the former States of Madhya Bharat, Pepsu, Saurashtra, Travancore, Cochin, Ajmer, Bhopal, Coorg, Kutch and Vindhya Pradesh in other adjoining States and thus 14 states and 6 Union Territories were established in India.
- > The Bombay Reorganization Act, 1960, divided the State of Bombay to establish two States of Gujarat and Maharashtra.
- > In 1962 Nagaland was created as a separate State.
- > In 1966, Punjab was divided into Punjab and Haryana.
- > Union Territory of Himachal Pradesh was made the State of Himachal Pradesh by an Act of 1970.
- > States of Manipur, Tripura, Meghalaya and Union Territories of Mizoram and Arunachal Pradesh were established in 1971. Later Mizoram and Arunachal Pradesh achieved statehood in 1986.
- > Sikkim was made part of India by 36th Amendment of the Constitution.
- > In 1987 Goa was made a separate State of the Union.
- > Chhattisgarh came into existence on 1st November, 2000.
- > Uttaranchal (now Uttarakhand) came into existence on 8th November, 2000.
- > The State of Jharkhand, which was established on 15th November, 2000 is the newest (28th) State of India.
- > The Union Government (on 30 July, 2013) gave a go ahead to create 'Telangana' (the proposed 29th State) bifurcating Andhra Pradesh.
- > Telangana came into being on the 2nd June, 2014 and is the outcome of 15th Lok Sabha.

13. Citizenship

- > The Constitution of India provides for a single and uniform citizenship for whole of India.
- > Citizenship of India was granted to every person who domiciled in the territory of India at the commencement of the constitution and who was born in the territory of India or—
 - ★ Either of whose parents was born in the territory of India or
 - ★ Who had been ordinarily residing in the territory of India for not less than five years immediately preceding commencement of the Constitution.

- > Indian citizens have the following rights under the Constitution which aliens do not possess:

- ★ Some of the Fundamental Rights enumerated in part III of the Constitution. e.g. Articles 15, 16, 19, 29, 30.
- ★ Only citizens are eligible for offices of the President, Vice-President, Judge of the Supreme Court or a High Court, Attorney-General, Governor of a State, Member of a legislature etc.
- ★ Only citizens have the right to vote.
- > Enemy aliens are not entitled to the benefit of the procedural provisions in clauses (1)-(2) of Article 22 relating to arrest and detention.
- > The Citizenship Act, 1955, provides for the acquisition of Indian citizenship in the following ways :
 - ★ Generally, every person born in India on or after January, 1950, shall be a citizen of India if either of his parents was a citizen of India at the time of his birth.
 - ★ A person who was outside India on or after 26 January, 1950, shall be a citizen of India by descent, if his father was a citizen of India at the time of that person's birth.
 - ★ A person can apply for and get registered as a citizen of India by the competent authority if he satisfies the conditions laid down.
 - ★ A person residing in India for more than 7 years and having adequate knowledge of a constitutionally recognised Indian language can seek citizenship by naturalisation, provided he is not a citizen of a country where Indian citizens are prevented from becoming citizens by naturalisation.
 - ★ If any new territory becomes a part of India, the persons of the territory become citizens of India.
- > Citizenship of India may be lost by :
 - ★ Renunciation of citizenship.
 - ★ Termination of citizenship, if a citizen of India voluntarily acquires the citizenship of another country.
 - ★ Deprivation of citizenship by the Government of India.

14. Fundamental Rights

- > Six Fundamental Rights have been provided by the Constitution :

1. Right to equality	2. Right to liberty
3. Right against exploitation	4. Right to freedom of religion
5. Cultural and educational rights	6. Right to constitutional remedy
- > Article 14 of the constitution provides that the State shall not deny any person equality before the law or equal protection of the laws within the territory of India.
- > Exceptions to the provision of equality before law, allowed by the Indian Constitution are :
 - ★ The President or the Governor of a State is not answerable to any Court for the exercise and performance of the powers and duties of his office. ★ No

criminal proceeding can be instituted or continued against the President or a Governor in any Court during his term of office. ★ No civil proceeding in which relief is claimed against the President or the Governor of a State can be instituted during his term of office in any Court in respect of any act done by him in his personal capacity, without a prior notice of two months. ★ The above immunities do not bar Impeachment proceeding against the President and Suits or other appropriate proceeding against the Government of India or the Government of a State. ★ Exceptions acknowledged by the comity of nations in every civilized country, in favour of foreign Sovereigns and ambassadors. ★ The guarantee of 'equal protection' is a guarantee of equal treatment of persons in 'equal circumstances', permitting differentiation in different circumstances.

➤ **Article 15 of the Constitution states that:** The State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them.

★ No citizen shall, on grounds only of religion, race, caste, sex, place of birth or any of them be subjected to any disability, liability restriction or condition with regard to access to shops, public restaurants, hotels and places of public entertainment or the use of wells, tanks, bathing ghats, roads and places of public resort maintained wholly or partly out of State funds or dedicated to the use of general public.

★ Nothing in this article shall prevent the State from making any special provisions for women, children or any socially and educationally backward classes.

➤ **Article 16 guarantees Equality of opportunity** in matters of public employment. It says that :

★ There shall be equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State.

★ No citizen shall, on grounds only of religion, race, caste, sex, descent, place of birth or any of them, be ineligible for any employment under the State.

The Mandal Commission Case

A nine-Judge Bench of the Supreme Court has laid down in *Indra Sawhney's Case* (popularly known as the Mandal Commission Case) regarding reservation in Government employment that :

★ Under Article 16(4) provisions can be made in favour of the backward classes in the matter of employment by Executive orders also. ★ Backward class of citizens is not defined in the Constitution. A caste may also constitute a class. ★ The backwardness contemplated by Art. 16(4) is mainly social. It need not be both social and educational. ★ Income or the extent of property can be taken as a measure of social advancement and on that basis the 'creamy layer' of a given caste can be excluded. ★ The reservations contemplated in Art. 16(4) should not exceed 50%. ★ Reservation of posts under Art. 16(4) is confined to initial appointment only and cannot extend to providing reservation in promotion.

Note : Mandal Commission was set up in 1979 under the Chairmanship of B.N. Madal, M.P. (Former Chief Minister of Bihar).

➤ The 77th Amendment has provided to continue reservation in promotion for the S.C. and S.T.

➤ Identification of backward classes is subject to judicial review.

➤ **Article 17 ensures Abolition of Untouchability.** The word 'untouchability' has not been defined either in the Constitution or in the relevant Act of Parliament. It has been assumed that the word has a well known connotation.

➤ **Article 18 ensures Abolition of titles.** It prevents the State from conferring any title.

➤ This ban is only against the State and not against other public institutions, such as Universities.

➤ The State is not debarred from awarding military or academic distinctions, even though they may be used as titles.

➤ The State is not prevented from conferring any distinction or award which can not be used as a title. *Bharat Ratna* or *Padma Vibhushan* can not be used by the recipient as a title and therefore does not come within the Constitutional prohibition.

➤ **Article 19 provides the six freedoms of :**

★ Speech and expression; ★ Assemble peacefully and without arms; ★ Form associations or unions; ★ Move freely throughout the territory of India; ★ Reside and settle in any part of the territory of India; and ★ Practise any profession, or to carry on any occupation, trade or business.

➤ State can impose restrictions on the freedom of speech in the interest of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality, or in relation to contempt of Court, defamation or incitement to an offence.

➤ Restrictions can be imposed on the right to form associations in the interests of the sovereignty and integrity of India or public order or morality. Restrictions can also be imposed on freedom of movement and reside and settle in the interests of the general public or for the protection of the interests of any Scheduled Tribe.

➤ State can prescribe the professional or technical qualifications necessary for practising any profession or carrying on any occupation, trade or business. State can exclude any citizen from a business or industry run by the Government or a body of Government.

➤ There is no specific provision in the Constitution guaranteeing the freedom of the press because freedom of the press is included in the wider freedom of 'expression' which is guaranteed by freedom of expression under Art. 19.

➤ **Article 20 guarantees certain protection in respect of conviction for offences.** It prohibits :

★ Restrospective criminal legislation, commonly known as ex post facto legislation. ★ Double jeopardy or punishment for the same offence more than once. ★ Compulsion to give self-incriminating evidence.

➤ **Article 21 (A) makes the right of education** for children of the age of 6 to 14 years a fundamental right. {Ref. : 86th Amendment Act, 2002}

➤ **Article 21 of Constitution provides that no person shall be deprived of his life or personal liberty** except according to the procedure established by law.

➤ Under the 'Due Process' Clause of the American Constitution, the Court has assumed the power of declaring unconstitutional any law which deprives a person of his liberty without reasonableness and fairness.

➤ In England courts have no power to invalidate a law made by Parliament.

➤ In the case of *Gopalan* Supreme Court held that our Constitution had embodied the English concept.

- > In *Maneka's* case the Supreme Court held that a law made by the State which seeks to deprive a person of his personal liberty must prescribe a procedure for such deprivation which must not be arbitrary, unfair or unreasonable. It follows that such law shall be invalid if it violates the principle of natural justice.
- > **Article 22** provides that no person who is arrested shall be detained in custody without being informed of the grounds for such arrest.
- > No arrested person can be denied the right to consult, and to be defended by a legal practitioner of his choice.
- > Every person who is arrested and detained in custody is to be produced before the nearest magistrate within a period of twenty-four hours of arrest excluding the time necessary for the journey from the place of arrest to the court of the magistrate and no such person can be detained in custody beyond that period without the authority of a magistrate.
- > The above safeguard is not available to an enemy alien and a person arrested or detained under a law providing for preventive detention.
- > The Constitution authorises the Legislature to make laws for **preventive detention** for the security of State, the maintenance of public order, or the maintenance of supplies and services essential to the community, or for reasons connected with Defence and Foreign Affairs [Ref.: Art. 22]
- > **Article 23** provides **Right against Exploitation** in following respects:
 - > Traffic in human beings and beggar and other similar forms of forced labour are prohibited.
 - > The State can impose compulsory service for public purposes, and in imposing such service the State can not make any discrimination on grounds only of religion, race, caste or class or any of them.
 - > Special provision for the protection of children is made in Art. 24 which provides that no child below the age of fourteen years can be employed to work in any factory or mine or engaged in any other hazardous employment.
- > **Article 25-28** provides **Right to Freedom of Religion**.
- > **Article 25** provides freedom of conscience and free profession, practice and propagation of religion subject to public order, morality and health.
- > Under Art. 25 State can regulate religious activities and provide for social reforms and throw open Hindu religious institutions of public character to all sections of Hindus.
- > **Article 26** guarantees following rights to all religious groups subject to public order, morality and health:
 - ★ Establish and maintain institution for religious and charitable purposes; ★ Manage its own affairs in matters of religion; ★ Own and acquire movable and immovable property; ★ Administer such property in accordance with law.
- > The State can not compel any citizen to pay any taxes for the promotion or maintenance of any particular religion or religious institution [Ref.: Art. 27]
- > No religious instruction can be provided in any educational institution wholly maintained out of State funds [Ref.: Art. 28]
- > Where a religious community is in the minority, the Constitution enables it to preserve its culture and religious interests by providing that the State shall

- not impose upon it any culture other than the community's own culture [Ref.: Art. 29(1)]
- > Such community shall have the right to establish and administer educational institutions of its choice and the State shall not, in granting aid to educational institutions, discriminate against such an educational institution maintained by a minority community on the ground that it is under the management of a religious community [Ref.: Art. 30].
- > Full compensation has to be paid if the State seeks to acquire the property of a minority educational institution [Ref.: Art. 30 (1A)].
- > The Fundamental Rights are guaranteed by the Constitution not only against the action of the Executive but also against that of the Legislature.
- > Right to constitutional remedy, which was termed '**soul of the constitution**' by Dr. B.R. Ambedkar, has been guaranteed by Art. 32 of the Constitution.

The Writs

- > For enforcement of fundamental rights, the judiciary has been armed with the power to issue the writs.
- > The power to issue these writs for the enforcement of the Fundamental Rights is given by the Constitution to the Supreme Court [Ref.: Art. 32] and High Courts [Ref.: Art. 226].
- > Supreme Court has the power to issue writs only for the purpose of enforcement of the Fundamental Rights whereas under Art. 226 a High Court can issue writs for the purpose of enforcement of Fundamental Rights and/or for the redress of any other injury or illegality.
- > Supreme Court can issue a writ against any person or Government within the territory of India, while High Court can issue a writ against a person, Government or other authority only if they are located within the territorial jurisdiction of the High Court.
- > A writ of **Habeas Corpus** calls upon the person who has detained another to produce the latter before the court, in order to let the court know on what ground he has been confined and to set him free if there is no legal justification for the imprisonment. The words 'habeas corpus' literally mean 'to have a body'. This writ may be addressed to an official or a private person, who has another person in his custody.
- > **Mandamus** literally means a command. It commands the person to whom it is addressed to perform some public or quasi-public legal duty which he has refused to perform and the performance of which can not be enforced by any other adequate legal remedy. Mandamus can not be granted against the President, or the Governor of a state, for the exercise and performance of the powers and duties of his office.
- > The writ of **prohibition** is a writ issued by the Supreme Court or a High Court to an inferior court forbidding the latter to continue proceeding therein in excess of its jurisdiction or to usurp a jurisdiction with which it is not legally vested.
- > While mandamus is available not only against judicial authorities but also against administrative authorities, prohibition and certiorari are issued only against judicial or quasi-judicial authorities.

- > Though prohibition and certiorari are both issued against Courts or Tribunals exercising judicial or quasi-judicial powers, **certiorari** is issued to quash order or decision of the Court or Tribunal while **prohibition** is issued to prohibit the Court or Tribunal from making the ultra vires order or decision. Prohibition is available during the pendency of the proceedings and before the order is made, certiorari can be issued only after the order has been made.
- > **Quo warranto** is a proceeding whereby the court enquires into the legality of the claim which a party asserts to a public office, and to oust him from its enjoyment if the claim is not well founded.
- > The conditions necessary for the issue of a writ of quo warranto are as follows:
 - ★ The office must be public and it must be created by a statute or by the constitution itself.
 - ★ The office must be a substantive one and not merely the function or employment of a servant at the will and during the pleasure of another.
 - ★ There has been a contravention of the Constitution or a statute or statutory instrument, in appointing such person to that office.
- > The **limitations on the enforcement of the fundamental rights** are as follows:
 - Parliament has the power to modify the application of the Fundamental Rights to the members of the Armed Forces, Police Forces or intelligence organisations so as to ensure proper discharge of their duties and maintenance of discipline amongst them [Ref.: Art. 33].
 - ★ When martial law is in force, Parliament may indemnify any person in the service of the Union or a State for any act done by him [Ref.: Art. 34].
 - ★ Certain fundamental rights guaranteed by the Constitution may remain suspended, while a Proclamation of Emergency is made by the President under Art. 352.

Right to Information

- > Right to information has been granted to every citizen of India under Right to information Act, 2005 which came into force on 12th October, 2005.
- > It is not a Fundamental Right but it entails a clause for penalty in case of delay in giving information to the applicant.
- > Information Commission has been set-up at central and state levels to oversee implementation of the Act.

15. Directive Principles of State Policy

The Directive Principles are contained in Part IV of the Constitution. They aim at providing the social and economic base of a genuine democracy.

Important Directive Principles

Broadly speaking, there are three types of Directive Principles aimed at providing social and economic justice and ushering in a welfare state.

1. **Socio-Economic Principles**: They require the State :
 - (a) to provide adequate means of livelihood to all citizens; (b) to prevent concentration of wealth and means of production and ensure equitable distribution of wealth and material resources; (c) to secure equal pay for equal work of men as well as women; (d) to ensure a decent standard of living and leisure for all workers; (e) to provide necessary opportunities and facilities to children and youth to prevent their exploitation; and (f) to make efforts to secure

the right to work, education and public assistance in case of unemployment, sickness, old age etc.

2. **Gandhian Principles**: These are the embodiment of the Gandhian programme for reconstruction. These include :
 - (a) the establishment of village panchayats to function as units of self government; (b) the promotion of educational and economic interests of weaker sections of society; (c) the promotion of cottage industries; (d) the prohibition of intoxicating drugs and drinks; and (e) prevention of the slaughter of cows, calves and other milch cattle etc.

3. **Liberal Principles**: The principles are based on liberal thinking and emphasise the need for:
 - (a) a uniform civil code for the country; (b) free and compulsory education for all children up to the age of 14 years; (c) separation of the judiciary and executive; (d) organisation of agriculture and animal husbandry along scientific lines; (e) securing the participation of workers in the management of industries; (f) safeguarding the forests and wildlife of the country; and (g) protecting monuments and places of artistic or historical importance.

The real significance of the directive principles lies in the fact that they intend to provide social and economic democracy in the country without which political democracy is a farce.

Difference Between Fundamental Rights and Directive Principles

- > Fundamental rights constitute limitations upon State action, while the Directive Principles are instruments of instruction to the Government.
- > The directives require to be implemented by legislation while fundamental rights are already provided in the Constitution.
- > The Directives are not enforceable in the Courts and do not create any Justiciable rights in favour of the individuals, while the Fundamental Rights are enforceable by the Courts [Ref.: Arts. 32, 37, 226(1)].
- > In case of any conflict between fundamental rights and directive principles the former should prevail in the Courts.
- > **42nd Amendment Act** ensured that though the directives themselves are not directly enforceable it would be totally immune from unconstitutionality on the ground of contravention of the fundamental rights conferred by Arts. 14 and 19.
- > This attempt to confer a primacy upon the directives against the fundamental rights was foiled by the decision of the Supreme Court in **Minerva Mills Case** to the effect that a law would be protected by Art. 31C only if it has been made to implement the directive in Art. 39(b)-(c) and not any of the other Directives included in Part IV.

Directives Provided outside Part IV of the Constitution

- > State and every local authority within the state to provide adequate facilities for instruction in the mother-tongue at the primary stage of education to children belonging to linguistic minority groups. [Ref. : Art 350 A]
- > Union to promote spread of Hindi language and to develop it as a medium of expression of all the elements of the composite culture of India. [Ref.: Art. 351]

- The claims of the members of the Scheduled Castes and the Scheduled Tribes shall be taken into consideration, consistently with the maintenance of efficiency of administration, in the making of appointments to services and posts in connection with the affairs of the union or a state. [Ref.: Art. 335]
- Though the Directives contained in Arts. 335, 350A and 351 are not included in Part IV, Courts have given similar attention to them meaning that all parts of the Constitution should be read together.

16. Fundamental Duties

- The Fundamental Duties are eleven in number, incorporated in Art. 51A [Part IVA], which has been incorporated by the 42nd Amendment Act, 1976.
- Under this Article, it is the duty of every citizen of India:

1. to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
2. to cherish and follow the noble ideals which inspired our National Struggle for freedom;
3. to uphold and protect the sovereignty, unity and integrity of India;
4. to defend the country;
5. to promote harmony and the spirit of common brotherhood amongst all the people of India;
6. to value and preserve the rich heritage of our composite culture;
7. to protect and improve the natural environment;
8. to develop the scientific temper and spirit of inquiry;
9. to safeguard public property;
10. to strive towards excellence in all spheres of individual and collective activity;
11. to provide opportunities for education to his child or ward as the case may be between the age of six and fourteen years.

Note : The 11th Fundamental Duty was added by the 86th Constitutional Amendment Act, 2002.

- There is no provision in the Constitution for direct enforcement of any of the Fundamental Duties nor for any sanction to prevent their violation.

17. Procedure for Amending the Constitution

- The alteration of certain provisions of the Constitution are not considered amendment of the constitution. Such provisions can be altered by the Parliament by a simple majority.
- Other provisions of the Constitution can be changed only by the process of 'amendment' prescribed in Art. 368.
- In the case of provisions which affect the federal structure, a ratification by the Legislatures of at least half of the states, is required before the Bill is presented to the President for his assent. Such provisions are :
 - ★ The manner of election of the President [Ref.: Arts. 54, 55]
 - ★ Extent of the executive power of the Union and the States [Ref.: Arts. 73, 162]
 - ★ The Supreme Court and the High Courts [Art. 241, Chap. IV of part V, Chap. V of part VI]
 - ★ Distribution of legislative power between the Union and the States [Chap. I

- of Part XI]; ★ Any of the Lists in the 7th Schedule; ★ Representation of the States in Parliament [Arts. 80-81, 4th Schedule]; ★ Provisions of Art. 368 itself.
- There is no separate Constituent body provided for by our Constitution for the amending process.
- An amendment of the Constitution can be initiated only by the introduction of a Bill for the purpose in either House of Parliament.
- The Amendment Bill should be passed by each House by a **special majority** i.e., more than 50% of the total membership of that House and by a majority of not less than two-thirds of the members of that House present and voting.
- Constitution stands amended in accordance with the terms of the Amendment Bill after President's assent is accorded to it.

The blend of rigidity and flexibility in the procedure for amendment

- The procedure for amendment is 'rigid' in so far as it requires a **special majority** and a special procedure.
- There is no separate body for amending the Constitution, as exists in some other countries (e.g., a Constitutional convention)
- The State Legislatures cannot initiate any Bill or proposal for amendment of the Constitution.
- Subject to the provisions of Art. 368, Constitution Amendment Bills are to be passed by the Parliament in the same way as Ordinary Bills.
- The procedure for joint session is not applicable to Bills for amendment of the Constitution.
- The **previous sanction of the President is not required** for introducing any Bill for amendment of the Constitution.
- The requirement relating to ratification by which the state Legislatures is more liberal than the corresponding provisions in the American constitution. The latter requires ratification by three fourths of the states.
- The amendment of Art. 368 in 1971 has made it obligatory for the President to give his assent to a Bill for amendment of the Constitution, when it is presented to him after its passage by the Legislature [Ref.: 24th Amendment 1971].

Whether Fundamental Rights are Amendable

- Until the case of Golak Nath, Supreme Court held that no part of our Constitution was unamendable.
- In Golak Nath's case (1967) a majority of six judges, in a special bench of eleven, overruled the previous decisions and held that if any of such rights is to be amended, a new Constituent Assembly must be convened for making a new Constitution or radically changing it.
- Constitution (24th Amendment) Act, 1971, held that an amendment of the Constitution passed in accordance with Art. 368, will not be law within the meaning of Art. 13 and the validity of a Constitution Amendment Act shall not be questioned on the ground that it takes away or affects a fundamental right [Ref.: Art. 368(3)]
- Validity of the 24th Constitution Amendment Act itself was challenged in the case of Keshavananda Bharati.

- > In the case of Keshvananda Bharati the Supreme court overruled its own decision given in the case of Golak Nath and held that the Parliament could amend any provision of the constitution including fundamental rights in accordance with.

The Doctrine of Basic Features

- > The Supreme court held in the case of Keshavananda Bharati that there are certain **basic features** of the Constitution of India, which can not be altered by an amendment under Art. 368.
- > Article 31C, introduced by 25th Amendment Act provided that if any law seeks to implement the directive principles contained in Art. 39(b)-(c) i.e. regarding *socialistic control and distribution of the material resources of the country*, such law shall not be void on the ground of contravention of Art. 14 or 19. The Supreme Court later held that Art. 368 did not empower the Parliament to take away judicial review, in the name of 'amending' the Constitution.
- > The 42nd Amendment 1976 inserted two clauses in Art. 368 to the effect that Constitution Amendment Act "shall be called in Question in any court on any ground". These clauses were nullified by the Supreme Court in the Minerva Mills Case.
- > There are three implications of the decision in Keshavananda Bharati's Case.
 - ★ Any part of the Constitution may be amended as per the procedure laid down in Art. 368.
 - ★ No referendum or reference to Constituent Assembly is required to amend any provision of the Constitution.
 - ★ Basic features of the Constitution can not be amended.
- > There is no limited list of basic features. In so many decisions the Supreme Court has declared different things a basic features. Prominent among them are the following :
 - ★ Supremacy of the Constitution.
 - ★ Rule of law.
 - ★ The principle of separation of powers.
 - ★ The objectives specified in the Preamble to the Constitution.
- > Judicial review; Art. 32.
- > Federalism.
- ★ Secularism.
- ★ The Sovereign, Democratic, Republican structure.
- > Freedom and dignity of the individual.
- > Unity and integrity of the Nation.
- > The Principle of equality, not every feature of equality, but the quintessence of equal justice.
- > The 'essence' of fundamental rights in Part III.
- > The concept of social and economic justice to build a Welfare State.
- > The balance between fundamental rights and directive principles.
- > The Parliamentary system of Government.
- > The principle of free and fair elections.
- > Limitations upon the amending power conferred by Art. 368.
- > Independence of the Judiciary.
- > Effective access to justice.
- > Powers of the Supreme Court under Arts. 32, 136, 141, 142.

18. Executive of the Union

The President

- > President is the head of the Union Executive.
- > The President of India is indirectly elected by an electoral college, in accordance with the system of proportional representation by means of the single transferable vote.
- > The electoral college for the President consists of :
 - ★ The elected members of both Houses of Parliament;
 - ★ The elected members of the Legislative Assemblies of the states; and
 - ★ The elected members of the Legislative Assemblies of Union Territories of Delhi and Pondicherry (now Puducherry) (Ref. : Art. 54).
- > In the President's election vote value of an

$$\text{MLA} = \frac{\text{Total population of the state}}{\text{Total number of elected members of state}} \div 1000$$
- > In the President's election vote value of an

$$\text{MP} = \frac{\text{The sum of vote value of elected members of all the Legislative Assemblies}}{\text{The sum of elected members of both the houses of Parliament}}$$
- > **Indirect election of the President is supported on two grounds :**
 - ★ Direct election by a large electorate of people would be very costly.
 - ★ Real power is vested in the Ministry, so, it would be anomalous to elect the President directly without giving him real powers.
- > **Qualifications for election as President are :**
 - ★ Be a **citizen** of India;
 - ★ Have completed the age of **thirty-five years**;
 - ★ Be qualified for election as a member of the House of the People; and
 - ★ Must not hold any office of profit under the Government of India or the Government of any State or under any local or other authority subject to the Control of any of the said Governments (Art. 58)
- > A sitting President or Vice-President of the Union or the Governor of any state or a Minister either for the Union or for any state is not disqualified for election as President (Ref.: Art. 58)
- > The President's term of office is **five years** from the date on which he enters upon his office.
- > President can submit **resignation** in writing under his hand addressed to the **Vice-President** of India.
- > The only ground for impeachment of President specified in Art 61(1) is 'violation' of the Constitution.
- > An impeachment is a quasi-judicial procedure in Parliament.
- > Either House may prefer the charge of violation of the Constitution by the President provided that :
 - ★ A resolution containing the proposal is moved after a 14 days' notice in writing signed by not less than 1/4 of the total number of members of that House; and
 - ★ The resolution is then passed by a majority of not less than 2/3 of the total membership of the House.
 - ★ Charge preferred by one House is investigated by the other House.

- > The President has a right to appear and to be represented at such investigation.
- > If a resolution is passed by not less than 2/3 of the total membership of the investigating House declaring that the charge had sustained, the President shall be removed from office [Ref.: Art. 61].
- > The President shall not be a member of either House of Parliament or of a House of the Legislature of any State.
- > If a member of either House of Parliament or a House of the Legislature of any State is elected President, he shall be deemed to have vacated his seat in that House.
- > A vacancy in the office of the President can be caused in any of the following ways:
 - ★ On the expiry of his term of five years.
 - ★ By his death.
 - ★ By his resignation.
 - ★ On his removal by impeachment.
 - ★ Otherwise, e. g. on the setting aside of his election as President.
- > An election to the office of the President must be completed before the expiration of the term.
- > The outgoing President continues to hold office, notwithstanding that his term has expired, until his successor enters upon the office [Ref.: Art 56 (1) (c)]. There is no scope for the Vice-President getting a chance to act as President in this case.
- > If vacancy arises other than by expiry of the term an election to fill the vacancy must be held within **six months** from the date of occurrence of the vacancy.
- > If a mid-term vacancy arises in the office of the President, Vice-President acts as President until a new President is elected.

Presidents of India

S.	Name	Tenure
1.	Dr. Rajendra Prasad (1884-1963)	26 Jan., 1950-13 May, 1962
2.	Dr. S. Radhakrishnan (1888-1975)	13 May, 1962-13 May, 1967
3.	Dr. Zakir Hussain (1897-1969)	13 May, 1967-03 May, 1969
4.	Sri V. V. Giri (1894-1980)	24 Aug., 1969-24 Aug., 1974
5.	Dr. Fakhruddin Ali Ahmed (1905-1977)	24 Aug., 1974-11 Feb., 1977
6.	Sri N. Sanjeeva Reddy (1913-1996)	25 July, 1977-25 July, 1982
7.	Giani Zail Singh (1916-1994)	25 July, 1982-25 July, 1987
8.	Sri R. Venkataraman (1910-2009)	25 July, 1987-25 July, 1992
9.	Dr. Shankar Dayal Sharma (1918-1999)	25 July, 1992-25 July, 1997
10.	Sri K. R. Narayanan (1920-2005)	25 July, 1997-25 July, 2002
11.	Dr. A.P.J. Abdul Kalam (b. 1931)	25 July, 2002-25 July, 2007
12.	Smt. Pratibha Devi Singh Patil (b. 1934)	25 July, 2007-25 July, 2012
13.	Sri Pranab Mukherjee (b. 1935)	25 July, 2012- —

Powers of President

Administrative power

- > The President is the formal head of the administration. All executive actions of the Union are expressed to be taken in the name of the President. [Ref.: Art. 77]
- > All officers of the Union are the President's subordinates and he or she has a right to be informed of the affairs of the Union [Art. 78, 53(1)].

- > The President shall have the power to appoint and remove high dignitaries including : The chairman and Members of the UPSC

Oath and Resignation		
Post	Oath	Resignation
President	Chief Justice of SC	Vice President
V. President	President	President
Governor	Chief Justice of High Court	President
Chief Justice of India	President	President
P. Minister	President	President
Speaker, Lok Sabha	no oath	Deputy Speaker

- ★ The Prime Minister of India
 - ★ Other Ministers of the Union
 - ★ The Attorney-General for India
 - ★ The Comptroller and Auditor General of India*
 - ★ The Chief Justice and Judges of the Supreme Court*
 - ★ The Chief Justice and Judges of the High Courts of the states*
 - ★ The Governors of states*
 - ★ The Chief Election Commissioner and other Election Commissioners of India*
 - ★ Members of Inter State Council
 - ★ Chief Commissioners of Union Territories
 - ★ Members of Finance Commission
 - ★ Members of Language Commissions
 - ★ Members of Backward Class Commission
 - ★ Members of Minorities Commission
 - ★ Indian Ambassadors and other diplomats
- + can be removed from office through special constitutional provisions (by impeachment).

Military power

- > The Supreme command of the Defence Forces is vested in the President of India, but the Parliament can regulate or control the exercise of such powers [Ref.: Art. 53(2)].
- > Certain acts cannot be done by the President without approaching Parliament for sanction, e.g. acts which involved the expenditure of money [Ref.: Art. 114(3)], such as the raising, training and maintenance of the Defence Forces.

Diplomatic power :

- > The President is empowered to negotiate treaties and agreements with other countries on the advice of his Ministers, subject to ratification by Parliament.
- > President of India represents India in International affairs, appoints Indian representatives to other countries and receives diplomatic representatives of other States.

Legislative power :

- > President has the power to summon or prorogue the Houses of Parliament and to dissolve the Lok Sabha. [Ref.: Art. 85]
- > He also has the power to summon a joint sitting of both Houses of Parliament in case of a deadlock between them [Ref.: Art. 108].
- > The President addresses both Houses of Parliament assembled together, at the first session after each general election to the Lok Sabha and at the commencement of the first session of each year.

- > The President has the right to address either Houses or their joint sitting, at any time and to require the attendance of members for this purpose [Ref.: Art. 86(1)].
- > In the Rajya Sabha 12 members are nominated by the President from persons having special knowledge or practical experience of literature, science, art and social service [Ref.: Art. 80(1)].
- > The President is empowered to nominate not more than two Anglo-Indian members to the Lok Sabha, if that community is not adequately represented in that House [Ref.: Art. 331].
- > Previous sanction or recommendation of the President is required for introducing legislation on following matters :
 - ★ A Bill for the formation of new states or the alteration of boundaries, of existing states [Ref.: Art. 3].
 - ★ A Bill providing for any of the matters specified in art 31A (1)
 - ★ A money Bill [Ref.: Art. 117(1)].
 - ★ A Bill involving expenditure from the Consolidated Fund of India [Ref.: Art. 117(3)].
 - ★ A Bill affecting taxation in which States are interested.
 - ★ State Bills imposing restrictions upon the freedom of trade [Ref.: Art. 304].
- > A Bill becomes an Act of the Indian Parliament only after it receives the assent of the President.
- > When a Bill is presented to the President for assent :
 - ★ He may declare his assent to the Bill; or
 - ★ He may withhold his assent to the Bill; or
 - ★ He may, in the case of Bills other than Money Bills return the Bill for reconsideration of the Houses, with or without a message suggesting amendments. If the Bill is passed again by both Houses of Parliament with or without amendment and again presented to the President it would be obligatory upon him to declare his assent to it [Ref.: Art. 111].
- > The veto power of the Indian President is a **combination of the absolute, suspensive and pocket vetos**.
- > President of India has the power of disallowance or return for reconsideration of a Bill of the state legislature, which are reserved for his consideration by the Governor of the State [Ref.: Art. 201]. A Money Bill so reserved, can not be returned by the President.
- > It is not obligatory upon the President to give his assent even to the Bills reconsidered by the state legislature [Ref.: Art. 201].
- > The President can legislate by Ordinances at a time when it is not possible to have a Parliamentary enactment on the subject, immediately [Ref.: Art. 123].

Pardoning Power :

- > President as well as the Governors possess power to grant pardon [Ref.: Arts. 72, 161]
- > **Pardon** rescinds (abrogates or revokes) both the sentence and the conviction and absolve the offender from all punishment and disqualifications.
- > **Commutation** merely substitutes one form of punishment for another of a lighter character.
- > **Remission** reduces the amount of sentence without changing its character.

- > **Respite** means awarding a lesser sentence instead of the penalty prescribed in view of pregnancy of a woman offender etc.
- > **Reprieve** means a stay of execution of a sentence, e.g. pending a proceeding for pardon or commutation.

Comparison Between Pardoning Powers of the President and a Governor

- > President has the power to grant pardon, reprieve, respite, suspension, remission or commutation, in respect of punishment or sentence by court-martial. Governor has no such power.
- > President's powers extend up to the executive power of the union. Governor's powers extend up to the executive power of the state.
- > Governor has no power to pardon in case of sentence of death, but he can suspend, remit or commute a sentence of death. Only President can pardon a death sentence.

Emergency power :

- > The President has extraordinary powers to deal with a situation of emergency.

Miscellaneous powers :

- > The President has the Constitutional authority to make rules and regulations relating to various matters.
- > He/she has the power to give instruction to a Governor to promulgate an Ordinance if a Bill containing the same provisions requires previous sanction of the President.
- > President has the power to refer any question of Public importance for the opinion of the Supreme Court.
- > President has the power to appoint certain commissions for the purpose of reporting on specific matters, such as, Commissions to report on the administration of Scheduled Areas and welfare of Scheduled Tribes and backward classes; the Finance Commission; Commission on Official Language; an Inter-State Council.
- > President has some special powers relating to Union Territories or territories which are directly administered by the Union.
- > The President shall have certain special powers in respect of the administration of Scheduled Area and Tribes, and Tribal Area in Assam.
- > The President has certain special powers and responsibilities regarding the administration of the Scheduled Caste.

The Vice-President

- > Vice-President is indirectly elected by means of single transferable vote.
- > State Legislatures do not take part in the election of Vice-President.
- > The electoral college for Vice-President consists of the members of both Houses of Parliament [Ref.: Art. 66(1)].
- > **To be elected as Vice-President of India a person must be :**
 - ★ A citizen of India.
 - ★ Over 35 years of Age.
 - ★ Must not hold an office of profit save that of President, Vice-President, Governor or Minister for the Union or a state [Ref.: Art. 66].
 - ★ Qualified for election as a member of the Rajya Sabha.
- > In case a member of the Legislature is elected Vice-President, he shall be deemed to have vacated his seat in the House to which he belongs.

- > Term of the office of Vice-President is five years from the date on which he enters upon his office. Office of Vice-President may terminate earlier than the fixed term either by resignation or by removal.
- > A formal impeachment is not required for Vice-President's removal.
- > Vice-President can be removed by a resolution of the Rajya Sabha passed by a majority of its members and agreed to by the Lok Sabha [Ref.: Art 67].
- > A sitting Vice-President is eligible for re-election. **Dr. S. Radhakrishnan** was elected as the Vice-President of India for a second term in 1957.
- > No functions are attached to the office of the Vice-President. The normal function of the Vice-President is to act as the ex-officio Chairman of the Rajya Sabha.
- > If any vacancy occurs in the office of the President, Vice-President acts as President until a new President is elected and enters upon his office [Ref.: Art. 65(1)].
- > **For the first time** during the 15-day visit of Dr. Rajendra Prasad to the Soviet Union in June 1960, the then Vice-President **Dr. S. Radhakrishnan** acted as the President owing to the 'inability' of the President to discharge his duties.
- > The power to determine when the President is unable to discharge his duties or when he should resume his duties is understood to belong to the President himself.
- > If the offices of both the President and the Vice-President fall vacant by reason of death, resignation, removal etc. the Chief Justice of India or in his absence the senior most Judge of the Supreme Court acts as President.
- > **For the first time** in 1969 when the President Dr. Zakir Hussain died and the Vice-President Shri V. V. Giri resigned, the Chief Justice **Md. Hidayatullah** acted as President.
- > When the Vice-President acts as President, he gets the emoluments of the President; otherwise, he gets the salary of the Chairman of the Rajya Sabha. When the Vice-President acts as President, the Deputy Chairman of the Rajya Sabha acts as its Chairman [Art. 91].
- > Determination of doubts and disputes relating to the election of a President or Vice-President is described in Art. 71. Main provisions are as follows :
 - ★ Such disputes are decided by the Supreme Court whose jurisdiction is exclusive and final.
 - ★ No such dispute can be raised on the ground of any vacancy in the electoral college.
 - ★ If the election of the President or the Vice-President is declared void by the Supreme Court, acts done by him prior to the date of such decision of the Supreme Court is not invalidated.
 - ★ Matters other than the decision of such disputes are regulated by law made by Parliament.

The Prime Minister and The Union Council of Ministers

- > In a parliamentary system of Government, the **Prime Minister** occupies a unique position as the most powerful functionary who controls both the Parliament and the Executive.
- > **Prime Minister** is appointed by the President. Other ministers are appointed and/or dismissed by the President on the advice of the Prime Minister.
- > Prime Minister must be the leader of the party in majority in the Lok Sabha or a person who can win the confidence of the majority in that House.

- > As the head of the Council of Ministers, the Prime Minister (PM) is the head of the Government. Also, he/she is the leader of his/her party or/and of a coalition of parties in Parliament and usually the Leader of the Popular House.
- > The PM enjoys large powers of patronage. All the ministers are appointed at his/her recommendation and stand dismissed at his/her demand.
- > The PM allots work among the ministers. Also, he/she can change their portfolios at will.
- > The PM is the channel of communication between the Council of Ministers and the President.
- > Ministers get the salaries and allowances etc as payable to members of parliament. In addition they get a sumptuary allowance at a varying scale and a residence, free of rent. Cabinet Ministers attend meeting of the Cabinet.
- > Ministers of State are not members of the Cabinet and they can attend a Cabinet Meeting only if invited to attend any particular meeting.
- > A Deputy Minister assists the Minister in discharge of his duties and takes no part in Cabinet meetings.
- > There is no bar to the appointment of a non-MP as Minister, but he cannot continue as Minister for more than 6 months unless he secures a seat in either House of Parliament.
- > Though the ministers are collectively responsible to the legislature, they are individually responsible to the President.
- > A Minister can take part in the proceedings of both Lok Sabha and Rajya Sabha, but he/she can vote only if he/she is a member of that House.

The Attorney-General for India

- > The Attorney-General is the first Law Officer of the Government of India, who gives advice on legal matters and performs other duties of a legal character as assigned to him by the President.
- > The Attorney-General for India is appointed by the President and holds office during the pleasure of the President. He must have the same qualifications as are required to be a judge of the Supreme Court.
- > He discharges the functions conferred on him by the Constitution or any other law [Ref.: Art. 76].
- > The Attorney-General for India is not a member of the Cabinet. But he has the right to speak in the Houses of Parliament or in any Committee thereof, but he has no right to vote [Ref.: Art 88].
- > He is entitled to the privileges of a member of Parliament [Art. 105(4)]. In the performance of his official duties, the Attorney-General has the right of audience in all Courts in the territory of India.
- > He is not a whole-time counsel for the Government nor a Government servant.

The Comptroller & Auditor-General of India

- > The CAG controls the entire financial system of the Union as well as the States [Ref.: Art. 148].
- > Though appointed by the President, the Comptroller and Auditor-General can be removed only on an address from both Houses of Parliament on the ground of proved misbehaviour or incapacity.

- > His salary and conditions of service are laid down by Parliament and can not be varied to his disadvantage during his term of office.
- > The term of office of the Comptroller and Auditor-General (CAG) is 6 years from the date on which he assumes office.
- > CAG vacates office on attaining the age of 65 years even without completing the 6-year term. He can resign by writing under his hand, addressed to the President of India. He can be removed by impeachment (Ref.: Arts. 148(1); 124(4)).
- > His salary is equal to that of a Judge of the Supreme Court.
- > Other conditions of his service are similar to an I. A. S. of the rank of Secretary to the Government of India.
- > He is disqualified for any further Government office after retirement.
- > The salaries etc of the Comptroller and Auditor-General and his staff and the administrative expenses of his office are charged upon the Consolidated Fund of India and thus non-votable (Ref.: Art. 148 (6)).
- > The main duties of the Comptroller and Auditor-General are :
 - ★ To audit and report on all expenditure from the Consolidated Fund of India and of each state and each Union Territory having a Legislative Assembly as to whether such expenditure has been in accordance with the law.
 - ★ To audit and report on all expenditure from the Contingency Funds and Public Accounts of the Union and of the states.
 - ★ To audit and report on all trading manufacturing profit and loss accounts etc kept by any department of the Union or a state.
 - ★ To see that rules and procedures in that behalf are designed to secure an effective check on the assessment, collection and proper allocation of revenue.
 - ★ To audit and report on the receipts and expenditure of all bodies and authorities substantially financed from the Union or State revenues, Government companies; and other corporations or bodies, if so required by the laws relating to such corporations or bodies.

19. The Parliament of India

- > The Parliament of India consists of the President, the Lok Sabha and the Rajya Sabha. (Ref.: Art. 79).
- > The President is a part of the Legislature, even though he or she does not sit in Parliament.
- > The main functions of Parliament are :
 - ★ Providing the cabinet.
 - ★ Control of the Cabinet.
 - ★ Criticism of the Cabinet and of individual Minister.
 - ★ Parliament secures the information authoritatively.
 - ★ Legislation i.e. making laws (Ref.: Arts. 107; 108; 245)
 - ★ Financial control.
- > Bill passed by the House of Parliament can not become law without the President's assent.

Rajya Sabha and Lok Sabha

- > The Rajya Sabha is composed of not more than 250 members of whom 12 are nominated by the President and 238 are representatives of the states and the Union Territories elected by the method of indirect election (Ref.: Art. 80).
- > The 12 nominated members are chosen by the President from amongst persons specialised in science, art, literature and social service.

- > Representatives of each State are elected by the elected members of the Legislative Assembly of the state in accordance with the system of proportional representation by means of the single transferable vote.
 - > Prescribed composition of the Lok Sabha is :
 - ★ Not more than 530 representatives of the States;
 - ★ Not more than 20 representatives of Union Territories.
 - ★ Not more than 2 members of the Anglo-Indian community, nominated by the President.
 - > The Lok Sabha at present consists of 543 members (530 members are directly elected from the States and 13 from UTs).
 - > The representatives of the States are directly elected by the people of the States on the basis of adult suffrage.
 - > Every citizen who is not less than 18 years of age and is not otherwise disqualified is entitled to vote at such election (Ref.: Art. 326).
 - > There is no reservation for any minority community other than the Scheduled Castes and the Scheduled Tribes (Ref.: Arts. 330, 341, 342).
 - > The Council of State is not subject to dissolution. It is a permanent body. 1/3 of its members retire on the expiration of every second year.
 - > The normal term of the Lok Sabha is 5 years, but it may be dissolved earlier by the President.
 - > The normal term of Lok Sabha can be extended by an Act passed by Parliament itself during Emergency.
 - > The extension can not be made for a period exceeding one year at a time.
 - > Such extension can not continue beyond a period of six months after the proclamation of Emergency ceases to operate.
 - > Parliament must meet at least twice a year and not more than six months shall elapse between two sessions of Parliament.
 - > A session is the period of time between the first meeting of Parliament and prorogation of Parliament.
 - > The period between prorogation of Parliament and its re-assembly in a new session is called recess. Within a session, there are a number of daily sittings separated by adjournments which postpone the further consideration of a business for a specified time.
- The sitting of a House can be terminated by dissolution, prorogation or adjournment :
- ★ While the powers of dissolution and prorogation are exercised by the President on the advice of the Council of Ministers. The power to adjourn the daily sittings of Lok Sabha and Rajya Sabha belongs to the Speaker and the Chairman, respectively.
 - ★ A dissolution brings Lok Sabha to an end so that there must be a fresh election while prorogation merely terminates a session. Adjournment does not put an end to the session of Parliament but merely postpones the further transaction of business for a specified time, hours, days or weeks.
 - ★ On dissolution of the Lok Sabha all matters pending before the House lapse. If these matters have to be pursued, they must be re-introduced in the next House after fresh election.

- ★ But a Bill pending in the Rajya Sabha which has not yet been passed by the Lok Sabha shall not lapse on dissolution.
- ★ A dissolution does not affect a joint sitting of the two Houses, if the President has notified his intention to hold a joint sitting before the dissolution (Ref.: Art. 108(5)).
- Adjournment has no such effect on pending business.
- Qualifications for becoming a member of Parliament are : ★ Must be a citizen of India. ★ Must not be less than 25 years of age in the case of Lok Sabha and 30 years in the case of Rajya Sabha. ★ Additional qualifications may be prescribed by Parliament by law (Ref.: Art. 84).
- A person can be disqualified for being a member of either House of Parliament, if :
 - ★ He holds any office of profit under the Government of India or the Government of any State;
 - ★ He is of unsound mind and stands so declared by a competent Court;
 - ★ He is not a citizen of India or has voluntarily acquired citizenship of a foreign State or is under acknowledgment or allegiance or adherence to a foreign power;
 - ★ He is so disqualified by or under any law made by Parliament (Ref.: Art. 102).
 - ★ In a dispute regarding qualification the President's decision in accordance with the opinion of the Election Commission, is final (Ref.: Art. 103).
 - ★ The House can declare a seat vacant if the member absents himself from all meetings of the House for a period of 60 days without permission of the house.

Speaker and Deputy Speaker of The Lok Sabha

- Speaker presides over the Lok Sabha.
- The Speaker or the Deputy Speaker, normally holds office during the life of the House, but his office may terminate earlier in any of the following ways:
 - ★ By his ceasing to be a member of the House.
 - ★ By resignation in writing, addressed to the Deputy Speaker, and vice-versa.
 - ★ By removal from office by a resolution, passed by a majority of all the then members of the House (Ref.: Art. 94).
- A resolution to remove the speaker can not be moved unless at least 14 days notice has been given of the intention to move the resolution.
- While a resolution for his removal is under consideration, the Speaker can not preside but he can speak in, take part in the proceedings of the House and vote except in the case of equality of votes (Ref.: Art. 96).
- At other meetings of the House the Speaker can not vote in the first instance, but can exercise a casting vote in case of equality of votes.
- The Speaker has the final power to maintain order within the Lok Sabha and to interpret its Rules of Procedures.
- In the absence of a quorum the Speaker adjourns the House or suspends the meeting until there is a quorum.
- The Speaker's conduct in regulating the procedure or maintaining order in the House can not be questioned in a Court (Ref.: Art. 122).
- The Speaker presides over a joint sitting of the two Houses of Parliament (Ref.: Art. 118(4)).

- When a Money Bill is transmitted from the Lok Sabha to the Rajya Sabha the Speaker may certify that it is a Money Bill (Ref.: Art. 110(4)).
- The decision of the Speaker on whether a Bill is Money Bill is final.
- While the office of Speaker is vacant or the Speaker is absent from a sitting of the House, the Deputy Speaker presides, except when a resolution for his own removal is under consideration.

Chairman and Deputy Chairman of the Rajya Sabha

- Vice-President of India is *ex-officio* Chairman of the Rajya Sabha and functions as the Presiding Officer of that House so long as he does not officiate as the President.
- When the Chairman acts as the President of India, the duties of the Chairman are performed by the Deputy Chairman.
- The Chairman may be removed from his office only if he is removed from the office of the Vice-President.
- The powers of Chairman in the Rajya Sabha are similar to those of the Speaker in the Lok Sabha except that the Speaker has certain special powers like certifying a Money Bill, or presiding over a joint sitting of the two Houses.

Privileges of Parliament

- The privileges of each House can be divided into two groups :
 - ★ Those which are enjoyed by the members individually.
 - ★ Those which belong to each House of Parliament, as a collective body.
- The privileges enjoyed by the members individually are :
 - ★ *Freedom from Arrest* exempts a member from arrest during the continuance of a meeting of the House or Committee thereof of which he is a member and during a period of 40 days before and after such meeting or sitting.
 - ◆ This immunity is confined to arrest in civil cases and not in criminal cases or under the law of Preventive Detention.
 - ◆ A member cannot be summoned, without the leave of the House to give evidence as a witness while Parliament is in session.
 - ★ There is *Freedom of Speech* within the walls of each House.
 - ◆ The limitation on freedom of speech is that no discussion can take place in Parliament with respect to the conduct of any judge of the Supreme Court or of a High Court in the discharge of his duties except upon a motion for removal of the judge (Ref.: Art. 121).
- The privileges of the House *collectively* are :
 - ★ The right to publish debates and proceedings and to restrain publication by others.
 - ★ The right to exclude others.
 - ★ The right to regulate internal affairs of the House.
 - ★ The right to punish Parliamentary misbehaviour.
 - ★ The right to punish members and outsiders for breach of its privileges.

The Legislative Procedures in Parliament

- > The different stages in the legislative procedure in Parliament relating to Bills other than Money Bills are as follows :
 1. Introduction of a Bill in either House of Parliament
 2. Motions after introduction
 3. Report by Select Committee
 4. Passing of the Bill in the House where it was introduced
 5. Passage in the other House
 6. President's Assent

Money Bills and Financial Bills

- > A Bill is called Money Bill if it contains only provisions dealing with all or any of the following matters :
 - ★ The imposition, abolition, remission, alteration or regulation of any tax.
 - ★ The regulation of the borrowing of money by the Government.
 - ★ The custody of or the withdrawal of moneys from the Consolidated Fund of India.
 - ★ The appropriation of moneys out of the Consolidated Fund of India.
 - ★ The declaring of any expenditure to be expenditure charged on the Consolidated fund of India.
 - ★ The receipt of money on account of the Consolidated Fund of India or the public account of India or the custody or issue of such money or the audit of the accounts of the Union or of a State.
- > The procedure for passing of Money Bills in Parliament is :
- > A Money Bill can not be introduced in the Rajya Sabha.
 - ★ After a Money Bill has been passed by the Lok Sabha, it is transmitted to the Rajya Sabha (with the Speaker's certificate that it is a Money Bill).
 - ★ The Rajya Sabha can neither reject a Money Bill nor amend it. It must, within a period of fourteen days from the date of receipt of the Bill, return the Bill to the Lok Sabha with its recommendations. Lok Sabha may accept or reject all or any of the recommendations of the Rajya Sabha.
 - ★ It is upto the Lok Sabha to accept or reject the recommendations of the Rajya Sabha. If the Lok Sabha accepts any of the recommendations the Money Bill is deemed to have been passed by both Houses with the amendment recommended by the Rajya Sabha and accepted by the Lok Sabha.
 - ★ If a Money Bill is not returned by the Rajya Sabha within fourteen days, it shall be deemed to have been passed by both Houses in the form in which it was passed by the Lok Sabha [Ref.: Art. 109].
- > Only those Financial Bills are Money Bills which bear the certificate of the Speaker as such.
- > Financial Bills which do not receive the Speaker's certificate are of two classes (Art. 117):
 - (a) A Bill which contains any of the matters specified in Art. 110 but does not consist solely of those matters. It can be introduced in Lok Sabha only on the recommendation of President. Rajya Sabha can amend or reject such Bills.
 - (b) Any Ordinary Bill which contains provisions involving expenditure from the Consolidated Fund [Ref.: Art. 117(3)].

Joint Sitzings

- > The President can summon Lok Sabha and Rajya Sabha for a joint sitting in case of disagreement between the two Houses in following ways :

If, after a Bill has been passed by one House and transmitted to the other House—

 - ★ the Bill is rejected by the other House;

- ★ the Houses have finally disagreed about the amendments to be made in the Bill; or
- ★ more than six months have elapsed from the date of the reception of the Bill by the other House without the Bill being passed by it.
- > The Speaker presides the joint sitting. In the absence of the Speaker, Deputy Speaker or Chairman of Rajya Sabha or Deputy Chairman of Rajya Sabha or a person chosen by the MPs may preside [Art. 118(4)] in the same order.

Financial legislation in Parliament

- > At the beginning of every financial year, on behalf of the President of India, a statement of the estimated receipts and expenditure of the Government of India for that year is laid before both the Houses of Parliament.
- > This is known as the 'annual financial statement' (i.e., the 'Budget') [Ref. Art. 112]
- > It also states the ways and means of meeting the estimated expenditure.
- > The Annual Financial Statement or the Budget contains :
 - ★ Estimates of expenditure.
 - ★ Ways and means to raise the revenue.
 - ★ An analysis of the actual receipts and expenditures of the closing year and the causes of any surplus or deficit in relation to such year.
 - ★ An explanation of the economic policy and spending programme of the Government in the coming year and the prospects of revenue.
 - ★ Estimates relating to expenditure charged upon the Consolidated Fund of India are not put to vote of Parliament but each House can discuss any of these estimates.
 - ★ Estimates of other expenditure are submitted in the form of demands for grants to the Lok Sabha and it has the power to assent, or to refuse to assent to any demand.
- > No demand for a grant can be made except on the recommendation of the President. [Ref. Art. 113]
- > The scrutiny of budget proposals is done by the Parliament's **Committee on Estimates** in order to :
 - ★ Report to the House about the effect on economy, improvements in organisation, administrative reform etc.
 - ★ Suggest alternative policies.
 - ★ Examine whether the money is well laid out.
 - ★ Suggest the form in which estimates are to be presented to Parliament.
 - ★ The report of the Estimates Committee is not debated in the House.
- > The Comptroller and Auditor General is the **guardian of the public purse** and it is his function to see that not a paisa is spent without the authority of Parliament.
 - ★ The report of the Comptroller and Auditor General laid before the Parliament, is examined by the Public Accounts Committee.
 - ★ **Public Accounts Committee** is a committee of the Lok Sabha (having 15 members from that House), but seven members of the Rajya Sabha are also associated with this Committee, in order to strengthen it.
- > Public Accounts Committee examines that :
 - ★ The money disbursed was legally available and used for the right purpose.
 - ★ The expenditure conforms to the authority which governs it.
 - ★ Every re-appropriation has been made in accordance with the rules framed by competent authority.

Representation of States and Union Territories in the Rajya Sabha

State	No.	State / UT	No.
Uttar Pradesh	31	Chhattisgarh	5
Maharashtra	19	Haryana	5
Tamil Nadu	18	Jammu & Kashmir	4
West Bengal	16	Himachal Pradesh	3
Bihar	16	Uttarakhand	3
Karnataka	12	Goa	3
Andhra Pradesh	11	Manipur	1
Gujarat	11	Nagaland	1
Madhya Pradesh	11	Sikkim	1
Rajasthan	10	Tripura	1
Odisha (Orissa)	10	Arunachal Pradesh	1
Kerala	9	Mizoram	1
Assam	7	Meghalaya	1
Punjab	7	Union Territories	1
Telangana	7	Delhi	3
Jharkhand	6	Puducherry	1

Representation of States and Union Territories in the Lok Sabha

State	No.	State / UT	No.
Uttar Pradesh	80	Uttarakhand	5
Maharashtra	48	Himachal Pradesh	4
West Bengal	42	Tripura	2
Bihar	40	Manipur	2
Tamil Nadu	39	Meghalaya	2
Madhya Pradesh	29	Goa	2
Karnataka	28	Arunachal Pradesh	2
Gujarat	26	Nagaland	1
Rajasthan	25	Sikkim	1
Andhra Pradesh	25	Mizoram	1
Odisha (Orissa)	21	Union Territories	1
Kerala	20	Delhi	7
Telangana	17	Puducherry	1
Jharkhand	14	Chandigarh	1
Assam	14	Lakshadweep	1
Punjab	13	Dadra & Nagar Haveli	1
Chhattisgarh	11	Daman & Diu	1
Haryana	10	Andaman & Nicobar	1
Jammu & Kashmir	6		

Parliamentary Terms

Question Hour: The day's business normally begins with the Question Hour during which questions asked by the members are answered by the Ministers. The different types of question are:

1. **Starred Question** is one for which an oral answer is required to be given by the Minister on the floor of the House. Supplementary decides if a question should be answered orally or otherwise. One member can ask only one starred question in a day.

2. **Unstarred Question** is one for which the Minister lays on the table a written answer. A 10-day notice has to be given to ask such questions and no supplementary questions can be asked with regard to such questions.

3. **Short Notice Question** is one for which can be asked by members on matters of public importance of an urgent nature. It is for the Speaker to decide whether the matter is of urgent nature or not. The member has also to State reasons for asking the question while serving notice.

Zero Hour: This period follows the Question Hour and it generally begins at noon. Usually the time used by the members to raise various issues for discussion.

Cut Motion: A motion that seeks reduction in the amount of a demand presented by the Government is known as a cut motion. Such motion are admitted at the Speaker's discretion. It is a device through which members (generally of the Opposition) can draw the attention of the Government to a specific grievance or problem. There are three types of cut motions:

1. **Disapproval of policy cut** which is to express disapproval of the policy underlying a particular demand, says that 'the amount of the demand be reduced by Re. 1'.

2. **Economy cut** asks for a reduction of the amount of the demand by a specific amount. The aim is to affect economy in the expenditure.

3. **Token cut** is a device to ventilate specific grievances within the sphere of the Government's responsibility. The grievance has to be specified. Usually the motion in the form, "the amount of the demand be reduced by Rs. 100".

Adjournment Motion: It is a motion to adjourn the proceedings of the House so as to take up for discussion some matter of urgent public importance. Any member can move the motion and, if more than fifty members support the demand, the Speaker grants permission for the motion. The notice for such a motion has to be given before the commencement of the sitting on the day.

Calling Attention Motion: A member may, with prior permission of the Speaker, call the attention of a Minister to any matter of urgent public interest or ask for time to make a Statement.

Privilege Motion: It is a motion moved by a member if he feels that a Minister has committed a breach of privilege of the House or of any one or more of its members by withholding facts of a case or by giving a distorted version of facts.

Point of Order: A member may raise a point of order if the proceedings of the House do not follow the normal rules. The presiding officer decides whether the point of order raised by the member should be allowed.

Vote on Account : As there is usually a gap between the presentation of the Budget and its approval, the vote on account enables the Government to draw some amount from the Consolidated Fund of India to meet the expenses in the intervening period.

Guillotine : On the last of the allotted days at the appointed time the Speaker puts every question necessary to dispose of all the outstanding matters in connection with demands for grants. This is known as guillotine. The guillotine concludes the discussion on demands for grants.

Quorum : It is the minimum number of members whose presence is essential to transact the business of the House. Article 100 provides that the quorum of either House shall be one-tenth of the total number of members of the House.

No-Confidence Motion : According to the Constitution, the Council of Ministers stays in office only so long as it enjoys the confidence of the Lok Sabha; once the confidence is withdrawn the Government is bound to resign. The rules of parliamentary procedure accordingly provide for moving a motion to ascertain this confidence. The motion is generally known as the 'no-confidence motion'.

Censure Motion : A censure motion differs from a no-confidence motion in that the latter does not specify any ground on which it is based, while the former has to mention the charges against the Government for which it is being moved. A censure motion can be moved against the Council of Ministers or against an individual Minister for failing to act or for some policy. Reasons for the censure must be precisely enumerated. The Speaker decides whether or not the motion is in order, and no leave of the House is required for moving it.

Lame-duck Session : Session held when a new parliament has been elected but the old Parliament meets for the last time before it is dissolved. The lame-ducks are the members of the parliament who have not got re-elected.

Shadow Cabinet : A Parliament practice prevalent in the UK where senior members of the Opposition cover the areas of responsibility of the actual cabinet. They will form the cabinet if their party is elected to the government.

Leader of the Opposition

- > Government has given statutory recognition to the leaders of the Opposition in the Lok Sabha and Rajya Sabha.
- > Necessary legislation to this effect was passed by parliament in 1977 and the Rules framed thereunder were brought into effect on November 1, 1977.
- > For the first time Y.B. Chavan of the Congress (I) was given the official status of Leader of the Opposition in the Lok Sabha with the rank of a Cabinet Minister.

The Funds

- > All money received by or on behalf of the Government of India is credited to either the Consolidated Fund of India, or the Public account of India.
- > **The consolidated Fund of India consists of :**
 - ★ All revenues received by the Government of India
 - ★ All loans raised by the Government of India
 - ★ All money received by Government in repayment of loans [Ref.: Art 266(1)]
 - ★ All other public money received by or on behalf of the Government of India is credited to the Public Accounts of India.
- > Art. 267 of the Constitution empowers Parliament and the Legislature of a state to create a '**Contingency Fund**' for India or for a State, as the case may be for meeting unforeseen expenditure.

Extents of the Powers of Rajya Sabha

- > A money Bill can not be introduced in Rajya Sabha.
- > The Rajya Sabha has no power to reject or amend a Money Bill.
- > The Speaker of the Lok Sabha has sole and final power of deciding whether a Bill is a Money Bill.
- > Though the Rajya Sabha can discuss, it cannot vote for the public expenditure and demands for grants are not submitted for the vote of the Rajya Sabha.
- > The Council of Ministers is responsible to the Lok Sabha and not to the Rajya Sabha [Ref.: Art. 75(3)].
- > Rajya Sabha suffers by reason of its numerical minority, in case of a joint session to resolve a deadlock between the two Houses [Art. 108(4)].
- > Parliament can legislate on a State subject only if Rajya Sabha resolves for this by a 2/3 majority. [Ref. : Art. 249]
- > New All-India services can be created only after Rajya Sabha resolves for this with a 2/3 majority. [Ref. : Art. 312]

20. Executive of the States

The Governor

- > The Governor of a state is appointed by the President and holds his office at the pleasure of the President.
- > Qualifications for the post of Governor are :
 - ★ Should be a citizen of India.
 - ★ Should be over 35 years of age.
 - ★ Must not hold other office of profit and should not be a Member of the Legislature of the Union or of any State [Ref. : Art. 158].
- > If a Member of a Legislature is appointed Governor, he ceases to be a Member immediately upon such appointment.
- > The normal term of a Governor's office is five years, but it may be terminated earlier by :
 - ★ Dismissal by the President [Ref. : Art. 156 (1)];
 - ★ Resignation [Art. 156(2)].
- > There is no bar to a person being appointed Governor more than once.

Why an appointed Governor

- > Because it would save the country from the evil consequences of still another election, run on personal issues.
- > If the Governor is elected by direct vote, then he might consider himself superior to the Chief Minister, leading to *friction* between the two.
- > The expenses involved and the elaborate machinery of election would not match the powers of Governor.
- > A second rate man of the party may get elected as Governor.
- > Through an appointed Governor the Union Government can maintain its control over the states.
- > The method of election may encourage separatist tendencies.

Powers of Governor

The Governor has no diplomatic or military powers like the President, but he has executive, legislative and judicial powers analogous to those of the President.

Executive : Governor has the power to appoint Council of Ministers, Advocate General and the members of the State Public Service Commission.

- > The Ministers as well as Advocate General hold office during the pleasure of the Governor but the Members of the State Public Service Commission can be removed only by the President on the report of the Supreme Court and in some cases on the happening of certain disqualifications [Ref.: Art. 317].
 - > The Governor has no power to appoint Judges of the State High Court but he is entitled to be consulted by the President in the matter [Ref.: Art. 217(1)].
 - > Like the President the Governor has the power to nominate members of the Anglo-Indian community to the Legislative Assembly of his State.
 - > To the Legislative Council, the Governor can nominate persons having special knowledge or practical experience of literature, science, art, co-operative movement and social service [Ref.: Art. 171(5)].
- ★ 'Co-operative movement' is not included in the corresponding list for Rajya Sabha.

Legislative : Governor is a part of the State Legislature and he has the right of addressing and sending messages, and of summoning, proroguing and dissolving the State Assembly.

Judicial : The Governor has the power to grant pardons, reprieves, respites, or remission etc. of punishments [Ref.: Art. 161].

Emergency : The Governor has no emergency powers to counter external aggression or armed rebellion.

- > He has the power to report to the President if Government of the State cannot be carried on in accordance with the Constitution [Ref.: Art. 356].

Chief Minister and The State Council of Ministers

- > Chief Minister is the head of the State Council of Ministers.
- > The Chief Minister is appointed by the Governor.
- > The other Ministers are appointed by the Governor on the advice of Chief Minister.
- > Any person may be appointed a Minister but he must become member of the legislature within six months of such appointment.
- > The Council of Ministers is collectively responsible to the Legislative Assembly of the state but individually responsible to the Governor.
- > The relation between the Governor and his Ministers is similar to that between the President and his Ministers.

Discretionary functions of the Governor

- > The functions which are specially required by the Constitution to be exercised by the Governor in his discretion are :
 - ★ The Governor of Assam can determine the amount payable by the State of Assam to the District Council, as royalty accruing from licences for minerals.
 - ★ Where a Governor is appointed administrator of an adjoining Union Territory, he can function as such administrator independently of his Council of Ministers.
 - ★ The President may direct that the Governor of Maharashtra or Gujarat shall have a special responsibility for taking steps for the development of Vidarbha

and Saurashtra. ★ The Governor of Nagaland has similar special responsibility with respect to law and order in that State. ★ Governor of Manipur has special responsibility to secure the proper functioning of the Committee of the Legislative Assembly consisting of the members elected from the Hill Areas of that State. ★ Governor of Sikkim has special responsibility for peace and equitable arrangement for ensuring the social and economic advancement. ★ The Governor has the power to dismiss an individual Minister at any time. ★ Governor can dismiss a Council of Ministers or the Chief Minister, only when the Council of Ministers has lost confidence of the Legislative Assembly and the Governor does not think fit to dissolve the Assembly.

The Advocate-General

- > Each state has an Advocate-General, an official corresponding to the Attorney-General of India and having similar functions for the State.
- > He is appointed by the Governor of the state and holds office during the pleasure of the Governor.
- > Only a person who is qualified to be a judge of a High Court can be appointed Advocate-General. He receives such remuneration as the Governor may determine.
- > He has the right to speak and to take part in the proceedings of, but no right to vote in, the Houses of the Legislature of the state [Ref.: Art. 177].

The State Legislature

- > Some states have bi-cameral Legislature (having two Houses). The Seven States having two Houses are Andhra Pradesh, Telangana, Bihar, Karnataka, Maharashtra, Uttar Pradesh and Jammu & Kashmir.
- > In the remaining States, the Legislature is uni-cameral and has the Legislative Assembly only.
- > For creation or abolition of Legislative Council, the Legislative Assembly of the State should pass a resolution by a special majority followed by an Act of Parliament [Ref.: Art. 169].
- > The size of the Legislative Council may vary, but its membership should not be more than 1/3 of the membership of the Legislative Assembly but not less than 40.
- > Legislative Council is a partly nominated and partly elected body.
- > Election to the Legislative Council is indirect and in accordance with proportional representation by single transferable vote.
- > 5/6 of the total number of members of the Council is indirectly elected and 1/6 is nominated by the Governor.
- > 1/3 of the total members of the Council is elected by *local bodies* such as municipalities, district boards.
- > 1/12 is elected by *graduates* of three years' standing residing in the State.
- > 1/12 is elected by *teachers* of secondary schools or higher educational institutions.

The Strength of Legislative Councils

State	Total Seats
Andhra Pradesh	50
Telangana	40
Bihar	75
Jammu & Kashmir	36
Karnataka	75
Maharashtra	78
Uttar Pradesh	99

- > 1/3 is elected by members of the Legislative Assembly from amongst persons who are not members of the Assembly.
- > The remainder is nominated by the Governor from persons specialised in literature, science, art, co-operative movement and social service.
- > The Court cannot question the *bona fides* or propriety of the Governor's nomination in any case.
- > The Legislative Assembly of each State is directly elected on the basis of adult suffrage from territorial constituencies.
- > The Number of members of the Assembly can not be more than 500 nor less than 60.
- > The Assembly in Mizoram and Goa have only 40 members each. While the Assembly in Sikkim has only 32 members.
- > Governor can nominate one member of the Anglo-Indian community in the Assembly [Ref.: Art. 333].
- > The duration of the Legislative Assembly is five years. It may be dissolved sooner than five years, by the Governor.
- > The term of five years may be extended by the Parliament in case of a Proclamation of Emergency by the President for not more than one year at a time [Ref.: Art. 172(1).]
- > Legislative Council (Vidhan Parishad) is a permanent body like the Council of State (Rajya Sabha).
- > The Legislative Council is not dissolved. One-third of the members of Legislative Council retire on the expiry of every second year [Ref.: Art. 172(2)].
- > A Legislative Assembly has its Speaker and Deputy Speaker and a Legislative Council has its Chairman and Deputy Chairman, and the provisions relating to them are analogous to those relating to the corresponding officers of the Union Parliament.
- > Qualifications for membership of State Legislature are :
 - ★ Should be a citizen of India;
 - ★ For Legislative Assembly, not less than twenty-five years of age and for Legislative Council not less than thirty years of age;
 - ★ Should possess other qualifications prescribed in that behalf by or under any law made by Parliament [Ref.: Art. 173].

The Strength of Legislative Assembly in States/U Ts

State/U.T.	Strength	State/U T	Strength
Uttar Pradesh	403	Haryana	90
West Bengal	294	Jammu-Kashmir	87*
Maharashtra	288	Jharkhand	81
Bihar	243	Uttarakhand	70
Tamil Nadu	234	Delhi (NCT)	70
Madhya Pradesh	230	Himachal Pradesh	68

State/U.T.	Strength	State/U T	Strength
Karnataka	224	Arunachal Pradesh	60
Rajasthan	200	Manipur	60
Gujarat	182	Meghalaya	60
Andhra Pradesh	175	Nagaland	60
Odisha	147	Tripura	60
Kerala	140	Goa	40
Assam	126	Mizoram	40
Telangana	119	Sikkim	32
Punjab	117	Puducherry	30
Chhattisgarh	90	★7 seats are reserved for SC	
N.B. : 24 seats (Out of 111 seats) are in PoK			

Comparison of Legislative Procedures between Bi-cameral State Legislature and the Parliament

- > For Money Bills, the position is the same.
- > For other Bills the only power of the Council is to interpose a *delay* of 3 months. In case of disagreement, the Bill is second time referred to the Legislative Council and this time the Council has no power to withhold the Bill for more than a month [Ref.: Art. 197(2)(b)].

Governor's Power of Veto

- > When a Bill is presented before the Governor after its approval by the Houses of the Legislature, the Governor can :
 - ★ Declare his *assent* to the Bill, in that case it would become law at once.
 - ★ Declare that he withholds his assent to the Bill, such a Bill fails to become a law.
 - ★ Declare that he withholds his assent to the Bill (other than a Money Bill) and the Bill is returned with a message.
 - ★ Reserve a Bill for the consideration of the President. Such reserving is compulsory where the law in question would derogate the powers of the High Court.

Power of Governor to Promulgate Ordinances

- > The Governor can promulgate Ordinance only when the Legislature, or both Houses thereof, are not in session.
- > It must be exercised with the aid and advice of the Council of Ministers.
- > The Ordinance must be laid before the State Legislature when it reassembles.
- > An Ordinance ceases to have effect after 6 weeks from the date of re-assembly, unless disapproved earlier by that Legislature.
- > The Governor himself is competent to withdraw the Ordinance at any time.
- > The scope of the Ordinance-promulgating power of the Governor is confined to the subjects in Lists II and III of the Seventh Schedule.