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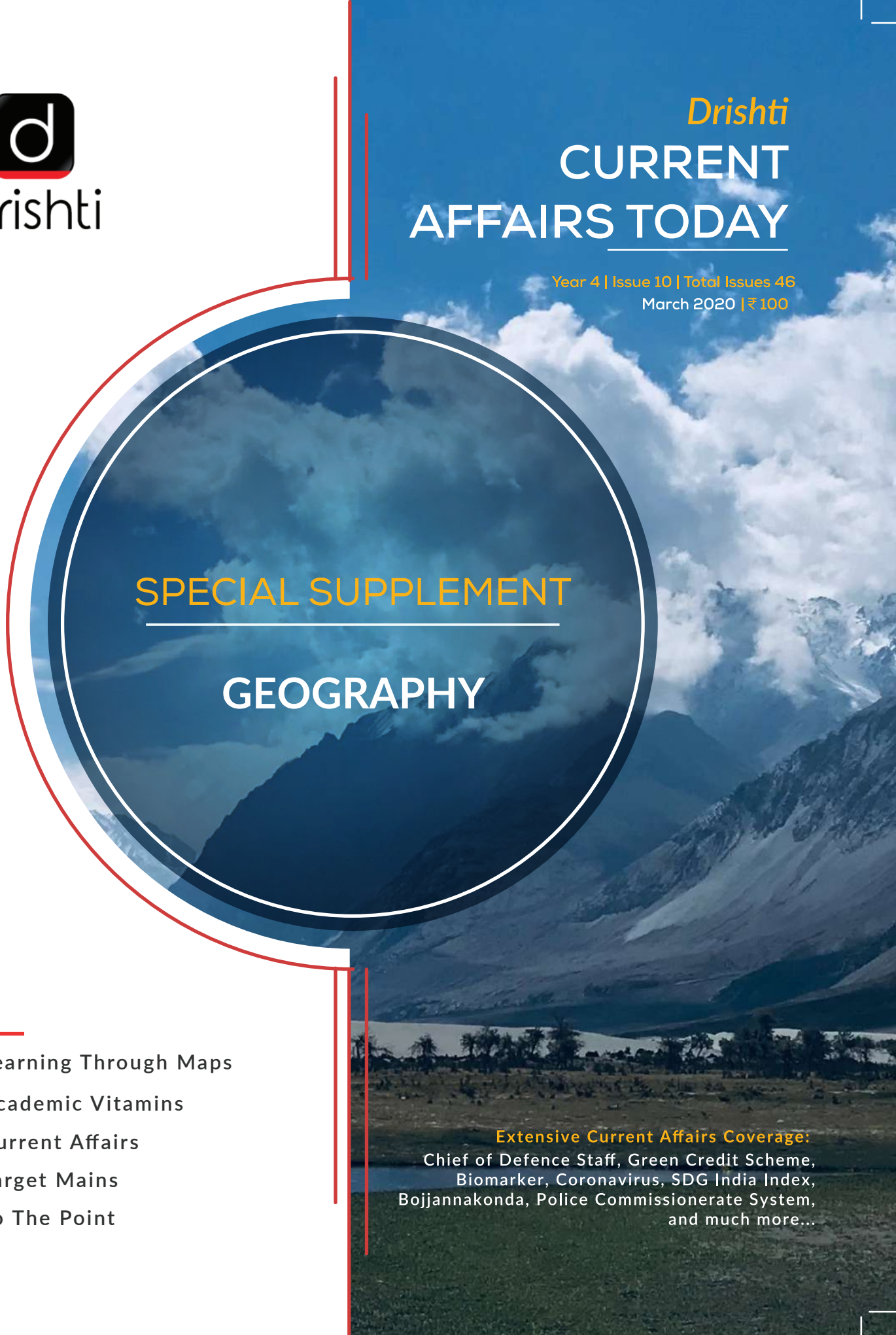
Drishti CURRENT AFFAIRS TODAY

Year 4 | Issue 10 | Total Issues 46
March 2020 | ₹ 100



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Printed by
M.P. Printers, B-220, Phase-2, Noida, Uttar Pradesh and Published for Owner, Printer & Publisher Vikas Divyakirti, H-203, Signature View Apartments, Mukherjee Nagar, Delhi-110009. Editor: Vikas Divyakirti

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THIS MAGAZINE IS A RESULT OF TEAM COLLABORATION. WE EXPRESS OUR GRATITUDE TO ALL OUR TEAM MEMBERS. APART FROM THE GIVEN NAMES, SEVERAL FREELANCE WRITERS HAVE ALSO MADE IMPORTANT CONTRIBUTIONS.

DEAR ASPIRANTS,

The Civil Services Main examination results were declared a few weeks ago. This year, the results came a little late but with the same burst of emotions as it used to be. Those entering the stage of Personality Test have all reasons to feel happy and joyous. But the crucial and last stage needs to be tendered and dealt with meticulously so that the confirmation in the final list can be sealed. It demands confidence in self, coherence in speech and propriety in expression. For those who could not make the Main stage, it is time to analyse their deeds and get the wrongs fixed. The moment should not be wasted in getting melancholic. There is a saying that both tears and sweat are salty, but they render a different result. Tears will get you sympathy; sweat will get you change. Moreover, success is the result of preparation, hard work, and learning from failure.

With this vision, we, at Drishti, endeavour to provide the aspirants updated study materials that meet the evolving demand of the Civil Services Examination. Cognisant of the requirements we bring the latest edition of Drishti Current Affairs Today. It comes with a special supplement on Geography which will be of immense use to our aspirants.

Wishing you all the best in your future endeavours.

We look forward to your feedback and suggestions.

With Best Wishes

(Dr. Vikas Divyakirti)

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CURRENT AFFAIRS

(Coverage from 24th December to 23rd January)

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The Test of Essential Religious Practices

Recently, a nine-judge Bench led by Chief Justice of India (CJI) said that it is not going to review the verdict in Sabarimala women entry case. Instead, the court will examine the legality and essentiality of religious beliefs which put various bars against women in religious matters.

Key points

- The Bench will look into the matters of religious beliefs which prohibit women from entering into mosques and temples; which allow genital mutilation by Dawoodi Bohra community and which ban Parsi women who married inter-faith to enter the fire temple.
- However, the Bench clarified that it would not go into the legality of practice of polygamy and 'nikah-halala' in Islam.
- The Court will give 'authoritative pronouncement' on its power to decide the essentiality of religious practices.
- The court will also examine whether 'essential religious practices' be afforded constitutional protection under Article 26 (freedom to manage religious affairs) of the Constitution.

Doctrine of essentiality test

- The **doctrine of 'essentiality'** was invented by a seven-judge Bench of the Supreme Court in the 'Shirur Mutt' case in 1954. The Court held that the term 'religion' will cover all rituals and practices 'integral' to a religion. The Court took upon itself the responsibility of determining the essential and non-essential practices of a religion.
- In simple terms, the essential religious practice test seeks to examine whether a religious practice is 'essential' to a religion and forms the basis of a religion to be given the protection of Article 25 and 26.
- According to this 62 year-old verdict, the essentiality of religious practices should be decided in accordance with the religious doctrines of each faith.
- The 1954 judgment held that any regulation could only extend to religious practices and activities which were economic, commercial or political in their character.
- Based on this doctrine the SC has examined several questions of religious practices:
  - ***First Ananda Margi case (1983)*:** The apex court relied on the **doctrine of precedent** to hold that **Tandava dance was not an essential practice of the Ananda Margi faith**.
  - ***Mohammed Fasi case (1985)*:** Based on empirical evidence that certain Muslim dignitaries do not sport beard, the Court ruled that **growing beard is not an essential Muslim practice**.
  - ***Indian Young Lawyers Association (2018):*** The Court concluded that untouchability was not an essential Hindu practice.

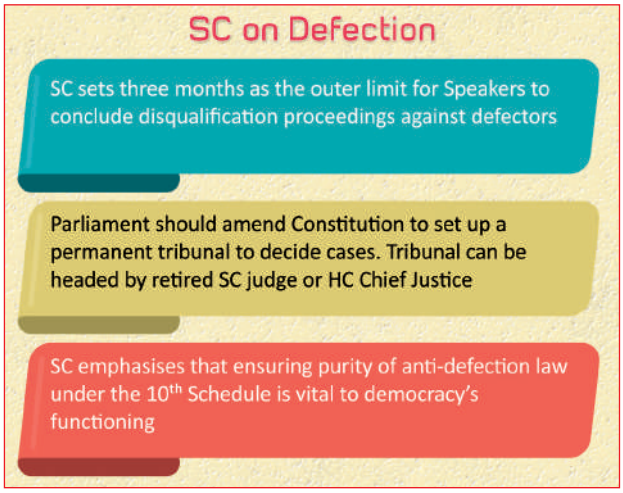
Challenges in determining essential practices

- Over the years courts have been inconsistent on the question of essentiality doctrine. In some cases they have relied on religious texts, in others on the empirical behaviour of followers, and in yet others based on whether the practice existed at the time the religion originated.
- The 'essentiality doctrine' has been criticised by several constitutional experts. The doctrine tends to lead the court into an area that is beyond its **competence**. It gives judges the power to decide purely religious questions which is akin to treading into the clergy's domain.
- The essentiality test assumes that one element or practice of religion is independent of other elements or practices. The test privileges certain practices over others when all practices taken together constitute a religion.
- The **freedom of religion** was meant to guarantee freedom to practice one's beliefs based on the concept of 'inward association' of man with God.

Way forward

- In its various judgments, the court has upheld ideas of freedom and equality and the constitutional promise of a pluralistic and inclusive society. This should be upheld as a beacon of hope for a just and equal society.
- The Supreme Court can consider evaluating each case on doctrine of essentiality rather than seeking a grand unified theory.

- The matter whether Speakers can be directed to dispose of defection questions within a time frame came to the SC in *S.A. Sampath Kumar case (2016)*. The Court referred the matter to a five member constitutional bench. This bench, however, is yet to be formed.
- In *Rajendra Singh Rana case (2007)*, the court held that the Constitution prohibits judicial intervention to protect the legislator from the Speaker's action before the petition is decided. This means that the court cannot issue an interim order protecting the MLA or MP from disqualification proceedings. However, it does not prohibit the court from enforcing disqualification proceedings, which are quasi-judicial in character, when they are unnecessarily delayed.
- In line with the above judgments, SC in the latest *Thounaojam Shyamkumar Singh case* held that disputes arising from disqualification should be decided swiftly and impartially. This would give real teeth to the Tenth Schedule, which is vital to the proper functioning of the democracy.
- The *Thounaojam Shyamkumar Singh case* propounded the following:
  - The SC set an outer limit of three months for Speakers to act on disqualification petitions.
  - SC recommended Parliament to amend the Tenth Schedule to substitute Speaker with a permanent tribunal or some independent mechanism to decide the cases of disqualification. The tribunal shall be headed by a retired SC judge or a retired Chief Justice of a High Court.
  - Courts have the powers to intervene if the proceedings are delayed.



What is Anti Defection Law?

- **Constitutional Provision:** The Tenth Schedule was inserted in the Constitution by 52nd Amendment Act, 1985. Also known as Anti-Defection law, it sought to check the trend of defection.
- **Grounds of Defection:** If a member voluntarily gives up the membership of his party or disobeys the directives of the party leadership on a vote. This implies that a legislator defying (abstaining or voting against) the party whip on any issue can lose his membership of the House. The law applies to both Parliament and state assemblies.
- **Exemption:** The law allows a party to merge with or into another party provided that at least two-thirds of its legislators are in favour of the merger. In such a scenario, neither the members who decide to merge, nor the ones who stay with the original party will face disqualification.
- **Role of Speaker:** Paragraph 6 of the Tenth Schedule provides that questions relating to disqualification of member of the house shall be referred to the Speaker whose decision on the same will be final. However, this does not set any time limit within which the Speaker has to decide.
- **Significance**
  - The anti-defection law seeks to provide a stable government by ensuring the legislators do not switch sides.
  - It put curb on *Aaya Ram and Gaya Ram* culture of Parliament and legislative members.
- **Criticism**
  - This law restricts a legislator from voting in line with his conscience, judgement and interests of his electorate.
  - Such a situation impedes the oversight function of the legislature over the government, by ensuring that members vote based on the decisions taken by the party leadership and not what their constituents would like them to vote for.

Issues involved

- The presiding officers invariably come from the ruling parties and act in a partisan manner. Several presiding officers have allowed defectors to bolster the strength of ruling parties. This is done by merely refraining from adjudicating on complaints against the defectors. Some States have seen en masse defections soon after the elections (e.g. Karnataka).
- Till now the courts have refrained from directing the presiding officers to decide on disqualification petitions within a time limit. The burning issue is whether courts have the power to direct Speakers to decide petitions seeking disqualification within a fixed time frame. With the latest judgment the court has opened a window for judicial intervention in cases in which Speakers refuse to act.

- Under the system, the overall charge of a district or region was with the District Collector and the Superintendent of Police reported to him.
- The powers of the executive magistrate, such as issuing orders for preventive arrests or imposition of Section 144 Criminal Procedure Code (CrPC) were vested in the District Collector.
- Superintendent of Police has to work with the District Magistrate/Collector for supervising police administration.

- The primary objective of the British was revenue collection. They needed a force that could support this objective and unleash oppression when needed to suit the objective. The worst of officers from the British police were sent to India. So there was a need to put them under the District Collector. That system continued post-independence.

NOTE: 'Police' is a State Subject as mentioned in the 7th Schedule of the Indian Constitution.

What is Police Commissionerate System?

- Under section 4 of the Indian Police Act of 1861, the District Magistrate has certain powers over the police. Additionally, Sections 20 and 21 of the Criminal Procedure Code (CrPC) give some powers to regulate law and order to the executive magistrates.
- In the Police Commissionerate System, these powers are exercised by the police officers and the **dual system** of control is ruled out. The Commissioner of Police (CP) becomes the head of a unified police command structure. The CP does not need to report to the District Magistrate.
- The CP is drawn from the Deputy Inspector General rank or above and is assisted by Special/Joint/ Additional/Deputy Commissioners.
- District magistrate will continue to do his job as usual and report to Chief Secretary except policing.
- The **National Police Commission**, in its **sixth report** submitted in March 1981, recommended that in major urban areas, crime and law and order situations develop rapidly, requiring a speedy and effective operational response from.
- At the metropolitan level, many states have replaced the dual system with the commissionerate system.
- Delhi was turned into a commissionerate in 1978 on the recommendations of the Khosla Commission of 1966.
- Almost all states barring Bihar, Madhya Pradesh, Union Territory of Jammu and Kashmir and some northeastern states have such a system.
- Around 70 large cities and suburban areas currently have this system. This includes Guwahati in Assam and Dimapur in Nagaland from the north-eastern part of the country.

Needs of Commissionerate System

- Rapid urbanisation has given birth to many large cities. Policing needs of such large areas are different from rural and semi-urban areas.
- Hi-tech nature and complexity of crimes, organised crime menaces like drugs and human trafficking and cybercrimes have been rampant in larger urban agglomerations.
- People expect immediate and coordinated response from the police under a unified command system.

Decoding the Police Commissionerate System

What is a police commissionerate system?

- Commissioner of Police (CP) is the supreme authority for the law and order situation in a city.
- District police officers are not under the supervision of District Magistrates.
- The police have their own hierarchy with single line accountability to the Commissioner of Police.
- The CPs usually report directly to the Director General of Police (DGP)

How is it different from the SSP system?

- In the police commissionerate system, all administrative powers related to law and order, crowd control, power of ordering the use of force under different sections of Criminal Procedure Code are with the CP.
- Even a decision on arms licences in the commissionerate system is taken by the CP and not the DM.
- In the commissionerate system, the police officers also get magistrate powers.

How does the commissionerate system help in better policing?

Police officers have powers to act under as many as 15 laws and can take quick decisions on law and order. For instance, the police would decided on the permissions for holding protests or rallies after examining the law and order situation and do not have to wait for the approval of the DM.

Is the commissionerate similar across jurisdictions?

The difference is about the size of commissioner system and level of officers posted as CPs across jurisdictions. DGP rank officer is posted as Commissioner of Police (CP) in Ahmedabad, Hyderabad, Delhi and Chennai while Additional DGP (ADGP) rank officer is CP in Mumbai, Bengaluru, Lucknow and Noida.

Nation & States

NATION

India Gets its First CDS

Recently, the Union Cabinet approved the creation of the post of Chief of Defence Staff (CDS). General Bipin Rawat has been chosen as the first CDS for India.

Stature and functions of CDS

- The landmark decision with tremendous reforms in higher defence management in the country created the post of Chief of Defence Staff (CDS) in the rank of a four-star General with salary and perquisites equivalent to a Service Chief.
- The CDS will also head the newly created Department of Military Affairs (DMA) within the Ministry of Defence (MoD). He is designated as **Secretary, DMA**. In this capacity, the CDS will wield control over issues governing promotions, travel, appointments to key posts, and overseas assignments.
- The CDS will also be the **Permanent Chairman of the Chiefs of Staff Committee (COSC)** which has the three Service Chiefs as members. The CDS will be 'first among equals' in that he will consult and solicit the views of the Services, but the final judgement will be of the CDS.
- He will act as the **Principal Military Adviser to the Defence Minister** on all tri-Services matters. The three Chiefs will continue to advise the Defence Minister on matters exclusively concerning their respective Services. CDS **will not exercise any military command**, including over the three Service Chiefs, so as to be able to provide impartial advice to the political leadership.
- He will also function as the Military Adviser in the **Nuclear Command Authority** (NCA) headed by Prime Minister. The CDS will also be a member of the **Defence Acquisition Council** chaired by the Defence Minister and **Defence Planning Committee** chaired by the National Security Advisor (NSA) .
- **Tenure** for the post of CDS will be 3 years (extendable by the Central Government) or up to 65 years of age. The appointment will be made on recommendations of the Cabinet Committee on Security (CCS).

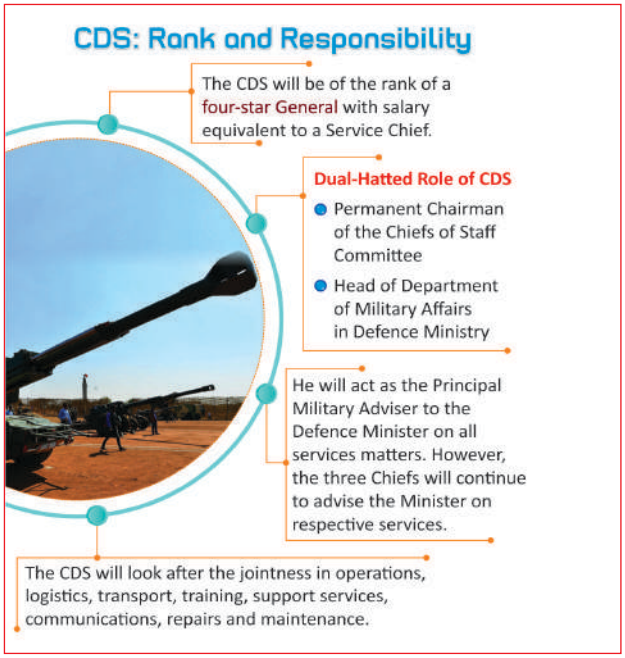
NOTE: Cabinet Committee on Security (**CCS**) is headed by the Prime Minister. Its members include the Minister of Defence, Minister of Home Affairs, Minister of Finance, and Minister of External Affairs.

Additional Information

- The Government amended the Rules pertaining to the Army Act, 1950, the Navy Act, 1957 and the Air Force Act, 1950.
- With the amendment in Rules the relevant provisions which earlier applied to the three Service Chiefs have now been applied to the CDS.
- The amendments also provide for expressions:
  - '**General**' for the CDS if he was the Chief of the Army Staff
  - '**Admiral**' for the CDS if he was the Chief of Naval Staff
  - '**Air Chief Marshal**' for the CDS if he was the Chief of Air Staff

Challenges

- **Dual-Hatted Role:** CDS will be the **Permanent Chairman** of the Chiefs of Staff Committee, which has three Service Chiefs as members. CDS will also **head** the newly created **Department of Military Affairs** in the Ministry of Defence. In the first case, he has a military role while in the second, he has a executive role.
- **Subordination of the Three Service Chiefs:** By heading the Chiefs of Staff Committee (COSC), the CDS would outrank the three Service Chiefs even though theoretically all four are four star. As Secretary, Department of Military Affairs (DMA) there is an implied superintendence of CDS over the Service Chiefs. Tasked with bringing about jointness in operations, the CDS may appear to be encroaching upon the domain of the Service Chiefs.
- **Erosion of Civilian Supremacy:** The defence establishment in the Ministry of Defence has been run by civilian officers. The fact that the defence of India is managed by the three Services who are now somewhat subordinated to the DMA may make the CDS the 'Supreme Commander of the Indian Armed Forces'.
- **Service Parochialism:** If the CDS from Army privileges support for the Army, he is likely to put himself on a collision course with the Naval and Air Force Chiefs.



Benefits

- **Apex Level Management of the Military:** Strengthening the apex level management of the military required reforms. These were primarily in terms of a tri-Service chief to coordinate between the three Services (army, navy and air force) and a single-point military adviser to the executive leadership. This has been implemented with appointment of India's first CDS.
- **Decision Making at Ministry:** With the creation of the DMA the military will, for the first time, be admitted into the central edifice of the Government of India and become a participant in policy-making. Designation of the CDS as Principal Military Adviser to the Defence Minister will enable unhindered access to Ministry of Defence, accelerating the process of decision-making and accord of approvals.
- **Jointness among Three Services:** The COSC, has been chaired by one of the three Chiefs on a rotational basis. It was practically dysfunctional as the chairman lacked the authority to tackle tri-Service issues. With the CDS now being designated as the Permanent Chairman of COSC, he will be able to devote undivided attention to the administration of tri-Service organisations and take measures to engender 'jointness' amongst three Services.
- **A Nodal Point:** The core function of CDS will be to foster greater operational synergy between the three Services and keep inter-Service frictions to a minimum. The role is equally about fostering better cooperation between the MoD bureaucracy and the Services and ensuring that projected and planned acquisitions of the Services do not exceed capital allocations.

Department of Military Affairs (DMA)

- In exercise of the powers conferred by **Article 77(3)** of the Constitution, the President amended the **Government of India (Allocation of Business) Rules, 1961** pertaining to the structure of the Ministry of Defence.
- A new department called Department of Military Affairs (DMA) has been created within the Ministry of Defence (MoD).
- The DMA will deal with the following:
  - The Armed Forces of the Union, namely, the Army, the Navy and the Air Force.
  - Integrated Headquarters of the Ministry of Defence comprising Headquarters of Army, Navy, Air force, and Defence Staff.
  - The Territorial Army.
  - Procurement exclusive to the Services, except capital acquisitions.
- **The DMA will seek to:**
  - Facilitate restructuring of Military Commands for optimal utilisation of resources by bringing about jointness in operations, including through establishment of joint/theatre commands.
  - Ensure jointness in procurement, training and staffing for the Services through joint planning and integration of their requirements.
  - Promote use of indigenous equipment by the Services.
- **The Ministry of Defence now has five departments:**
  - Department of Defence, headed by Defence secretary
  - Department of Military Affairs, headed by CDS
  - Department of Defence Production, headed by secretary of Defence production
  - Department of Research and Development, headed by DRDO chief
  - Department of Ex-Servicemen Welfare, headed by Secreatry Ex. Service Welfare
- The charter of duties of the DMA was so far looked after by the Department of Defence. The Secretary to the Department of Defence is also the secretary in-charge of the Defence Ministry. Work exclusively pertaining to military matters will now fall within the purview of the DMA, while the Department of Defence will deal with larger issues pertaining to defence of the country.
- **Service Headquarters are attached offices:**
  - The Service headquarters, and thereby the armed forces (the Army, the Navy and the Air Force), are not departments of the ministry. They are attached offices in the ministry. They used to come under the Department of Defence so far, but will now fall under the ambit of DMA.
  - Attached offices generally function as executive agencies with respect to the implementation of policies laid down by the respective department. They also advise the department on related technical aspects.

Economic Scenario

Report on Trend and Progress of Banking in India

Recently, Reserve Bank of India (RBI) released the Report on Trend and Progress of Banking in India. The Report highlights the trends pertaining to policy environment, commercial banks, non-banking financial institutions and asset quality for the year ending June 30, 2019.

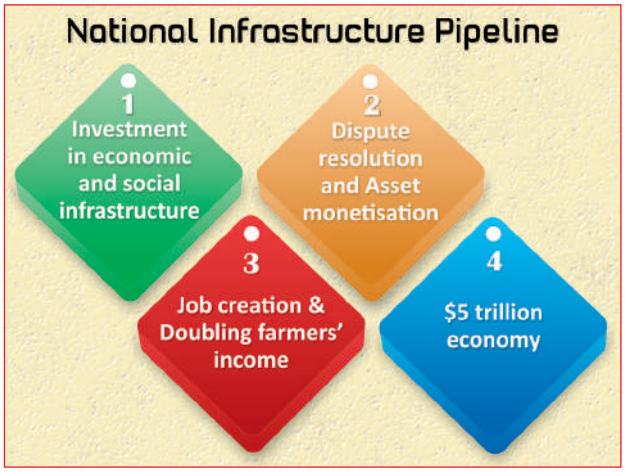
Key points

- India's credit to GDP ratio is lower than that of its emerging market peers. The incremental credit to GDP ratio has been increasing since 2016-17, though the credit-GDP gap remains negative that indicates the potential for further financial penetration.
- The slowdown in global and domestic growth impulses in the recent past impinged on credit demand.
- The asset quality, capital adequacy and profitability of scheduled commercial banks improved after a long period of stress, although challenges emerged from other areas like non-banking financial companies and co-operative banks.
- Going forward, issues such as resolution of stressed assets, weak corporate governance, and frauds need to be addressed to reaffirm a robust financial sector that minimises systemic risks.

Policy environment

- **Liquidity Management**
  - The monetary policy stance was altered in February 2019 from calibrated tightening to neutral and then to accommodative from June 2019 onwards.
  - The Reserve Bank expanded its liquidity management toolkit with the introduction of a foreign exchange buy-sell swap with Japan.
- **Lending Rates**
  - The RBI decided to link loans extended by banks from October 2019 to one of the specified **external benchmarks.**
  - These benchmarks include the policy repo rate, Government of India 3-months or 6-months Treasury Bill yields, or any other benchmark indicated by the Financial Benchmarks India Private Ltd (FBIL).
  - Banks have been given freedom of choosing their external benchmark. Earlier, the lending rates were decided according to the Marginal Cost of Funds Based Lending Rate.
- **Inter-Creditor Agreement (ICA)**
  - With a view to provide a pre- Insolvency and Bankruptcy Code (IBC) window for banks, the modified framework for resolution of stressed assets aims at providing early recognition, reporting and time bound resolution of stressed assets.
  - Under the modified framework, the lenders get 30 days review period to decide on resolution strategy once there is a default in the account.
  - In cases in which a Resolution Plan (RP) is to be implemented, an ICA is required to be executed by all lenders within the review period.
- **Capital Conservation Buffer (CCB)**
  - The CCB was designed by the Basel Committee on Banking Supervision to ensure that banks build up capital buffers during normal times, which can be drawn down as losses are incurred during a stressed period.
  - Currently, CCB stands at 1.875% of the risk-weighted assets.
- **Leverage Ratio (LR)**
  - Leverage Ratio is defined as the ratio of Tier 1 capital to the bank's exposure (risk-based capital of bank, i.e. the capital, which comes with a liability).
  - It was designed by the Basel Committee on Banking Supervision as a non-risk based measure to supplement existing risk-based capital adequacy requirements.
  - To harmonise with Basel III standards, the minimum LR has been set at 4% for Domestic Systematically Important Banks and 3.5% for other banks.
- **Banking Outlet (BO)**
  - Reserve Bank introduced the concept of Banking Outlet (BO) **for Regional Rural Banks** (RRBs) in May 2019.

- The **Centre**, **States** and the **private sector** will share the capital expenditure in a 39:39:22 ratio.
- The NIP is classified into **economic infrastructure** (roads, railways, power, telecom, etc.) and **social infrastructure** (drinking water, education, agriculture, sports, etc.).
- Further, the task force recommended **effective dispute resolution**, contract enforcement and asset monetisation which will help in achieving infra investment targets.
- The task force also recommended policy directions ranging from tapping overseas investors more aggressively and monetisation of existing railway, power and highway projects to raise money, which can then be redeployed for creating fresh infrastructure.
- NIP is expected to enable a forward outlook on infrastructure projects which will **create jobs**, improve **ease of living**, and provide **equitable access to infrastructure** for all, thereby **making growth more inclusive**.



Challenges

- **Private funding:** The NIP envisages 22% stake of the private sector. There are chances that the target set for the private sector might not be realised. As the banks and corporates are battling twin balance sheet problem, it would be difficult for the private sector to make new investments.
- **States' participation:** The failure to meet GST collection targets has resulted in delaying of transfer of GST compensation to the states, thus affecting the balance sheet of the state governments. The states are left with limited financial resources to contribute their part of the share.
- **Delays:** Project delays, due to land acquisition or controversies over pricing, have always been a major issue with large infrastructure projects resulting in cost overrun and losses. The NIP is likely to materially underperform unless there is a sharp focus on prioritisation, clearance, financing and delivery of projects.

Way forward

- Currently, 42% of the NIP consists of projects already under implementation. Assessing why past projects did not work out is important, before embarking on new ones.
- Given the limitations of the private sector and states, there is a need to tap new sources of investment. The monetisation of existing railways and power project is an initiative in a good direction. The long-pending task of expanding India's nascent bond market through wider retail and institutional participation is also a must.

Stagflation in Indian Economy

The steady rise in wider inflation figures over the last few months amidst falling economic growth has led to fears of stagflation in India.

Key points

- Stagflation is an economic scenario where an economy faces high inflation – low growth and high unemployment at the same time.
- The Indian economy has now faced six consecutive quarters of slowing growth since 2018.
- The recent data released by the Government on inflation indicate a rise in the figure, aggravating the stagflation fear.
- While the slowdown in growth could affect peoples' incomes, higher inflation could cause a reduction in people's standard of living as they can afford fewer things.
- Stagflation is in contrast with the Phillips Curve, an economic concept stating that inflation and unemployment have a stable and inverse relationship.

Declining growth rate

- According to the advanced estimates of the National Statistical Office (NSO), the **GDP growth rate** of the financial year 2019-20 is expected to be **around 5%**, as compared to 6.8% in the previous year.

International Relations

Restrictions on Palm Oil Import

Recently, India, the world's largest buyer of edible oils, restricted import of refined palm oil. Malaysian palm oil is the benchmark of global palm oil rates.

Key points

- India announced the curbs on import of refined palm oil in a bid to help domestic refiners raise their plant utilisation rates.
- The restrictions mean importers will need a licence to buy, a tool that could be used to deny or delay shipments.
- Following the announcement, the Solvent Extractors' Association of India (SEA) members of have curbed palm oil import from Malaysia. Indian traders are instead buying Indonesian crude palm oil at a premium of $10 tonne over Malaysian prices.
- Palm oil is Malaysia's biggest agricultural export and accounts for 2.8% of its Gross Domestic Product (GDP). India has been its biggest market for the last five years.
- The move is seen as retaliation for criticism by the Malaysian Prime Minister of India's policy towards Kashmir, and Citizenship (Amendment) Act 2019 and its reluctance to extradite religious preacher Zakir Naik.

(BOX) **NOTE:** SEA is an all India apex body to solvent extractions industry and premier vegetable oil association in the country.

India-Malaysia ties

- India and Malaysia signed the **Comprehensive Economic Cooperation Agreement (CECA)** in 2011 building upon the 2009 India-ASEAN Free Trade Agreement (FTA).
- Malaysia is India's **3rd largest trading partner in ASEAN**. India's exports and imports with Malaysia stood at $6.4 billion and $10.8 billion, respectively in FY19.
- Palm oil imports from Malaysia had jumped in recent months as it had a duty advantage over Indonesia under CECA. Malaysia had thus overtaken Indonesia as India's biggest palm oil supplier in 2019.
- There are 2 million Indian-origin people living in Malaysia. Ethnic Malaysian-Indians are the third-largest community in the Southeast Asian countries.
- There are around 1 lakh Indian national registered as foreign labour in Malaysia, accounting for nearly 6% of the total foreign workforce in the country.

Way forward

- India's relation with Malaysia dates back even before India's Look East Policy. India is also crucial for Malaysia's economic development. It is in the best interest of both the countries to resolve the issue and work collectively for developmental goals.
- Meanwhile, unless the matter is resolved, India can work for the upliftment of its palm oil industry in order to prepare it to face the global competition.

Blue Dot Network

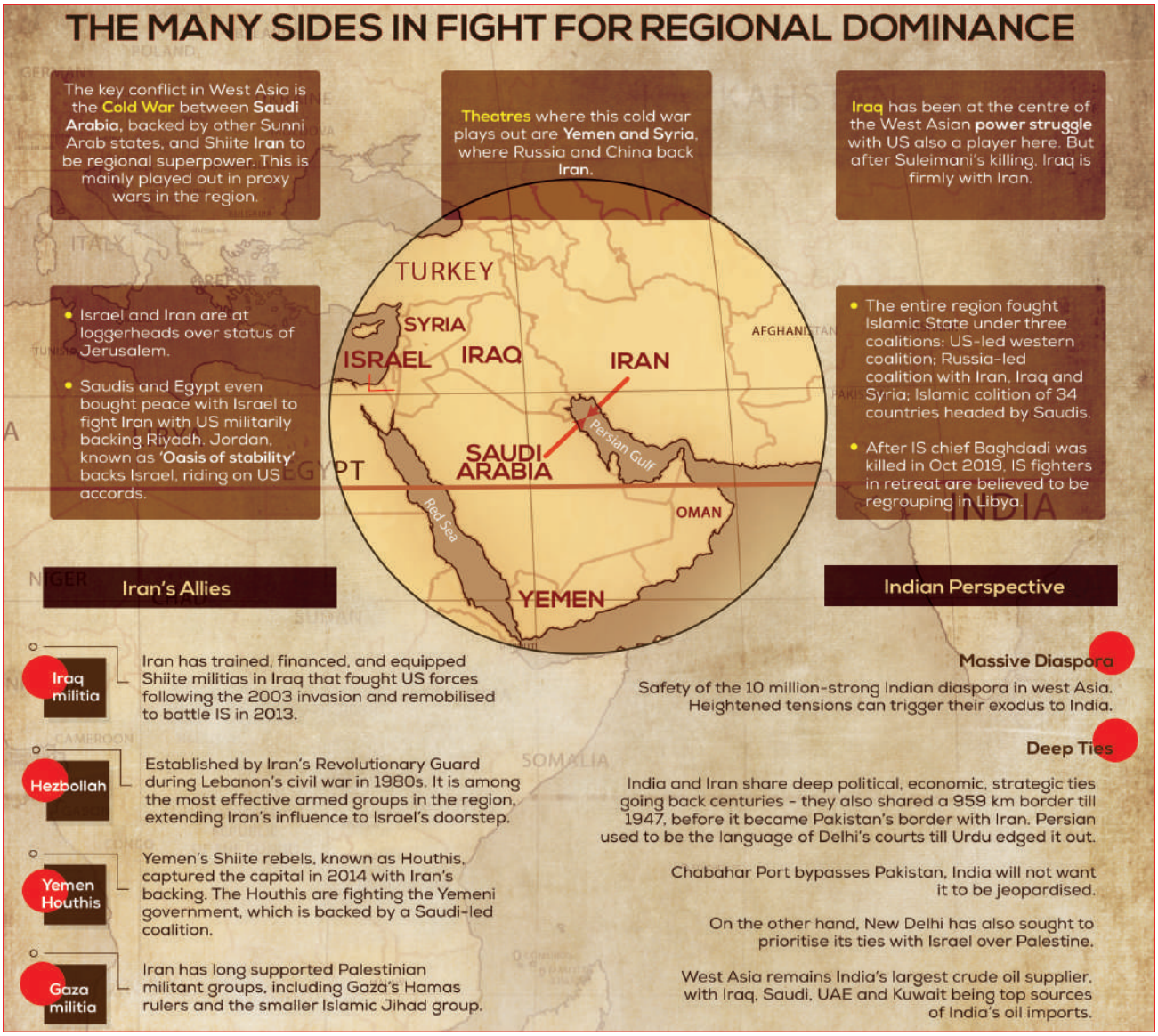
The Blue Dot Network (BDN) was recently launched by the United States of America (USA).

Key points

- The network is a **ratings mechanism** that would grade infrastructure projects in the Indo-Pacific region on different parameters to ensure transparency.
- It will bring together governments, the private sector and civil society to promote high-quality, trusted standards for global infrastructure development.
- The Network will classify the market-driven nominated infrastructure projects which will be based on the transparency and financial sustainability in the Indo-Pacific region and around the world.
- Through Blue Dot Network, transparent, sustainable, socially and environmentally responsible critical infrastructure has been envisaged for widespread economic empowerment.
- This endorsement of Blue Dot Network can create a solid foundation for infrastructure global trust standard.
- It is viewed as a direct counter to China's Belt and Road Initiative (BRI). The BRI has been criticised for debt trap problems in the most economically fragile countries like Sri Lanka, Maldives. The Blue Dot network seeks to address this issue.
- However, unlike the BRI, the BDN would not offer public funds or loans for the project. Blue Dot Network led project would be funded by private players. Japan and Australia have already become part of the Network.

India and Blue Dot Network

- India is a strategic player in Indo-Pacific region, joining this network can facilitate infrastructure development in the country.



- The instrument of Protecting Powers is provided for under the 1961 and 1963 Vienna Conventions on Diplomatic Relations.
- The 1963 Convention reiterates that a sending State (e.g., Switzerland) may with the prior consent of the receiving State (Iran), and at the request of a third State not represented in the receiving State, undertake the temporary protection of the interests of the third State (USA) and of its nationals.
- The Vienna Convention on Diplomatic Relations, 1961 provides a complete framework for the establishment, maintenance and termination of diplomatic relations on the basis of consent between independent sovereign States.

Implications on India

- From India's perspective, any such conflict would not only have an impact on energy supplies but it could affect the fortunes of the nearly 8 million Indian expatriates living in West Asia. Past conflicts in the region have triggered a huge exodus of expatriates.
- The conflict could also affect the gold price and Rupee exchange rate. The impact of the U.S. drone strike killing a top Iranian military commander was visible in India as gold prices spiked, while equities fell, and the rupee plunged to a one-and-a-half-month low.
- India imports close to 85% of its oil requirement. According to the latest government estimates, if crude oil prices change by $1 a barrel, India's import bill

Environment & Ecology

Community Resource under Article 21

The Supreme Court (SC) recently held that the Government does not have the right to transfer community resources like village water ponds to industrialists for commercialisation of the property.

Key points

- The Court held that protection of such village commons is essential to safeguard the **Right to Life** guaranteed by **Article 21** of the Constitution.
- Community resources areas are the lifeline of village communities, and often sustain various chores and provide the resources necessary for life.
- The State cannot divest villagers of their existing source of water even if it promises to provide them an alternative site where the water body can be replicated.

What are the community resources?

- Community resources are assets in a community that help meet certain needs like drinking, sanitation, health, food, etc. These are also known as **commons**.
- These assets can be people, places or structures, and community services like water bodies, plants, animals, hospitals, schools, etc.
- They provide livelihood opportunities to locals and villagers. For example, a pasture land can be used by shepherds to feed their cattle.
- Basic amenities like water, food, shelter, health, education can be fulfilled at rural level by ponds, wells, etc.
- It helps to conserve biodiversity and protects the environment from urbanisation and industrialisation. India has a long tradition of protecting community resources by the people. For example, **sacred groves** are protected by the local communities and in return, they provide invaluable resources to the people.
- Hence, community resources are crucial for the social and economic wellbeing of the community.

Mandatory Re-grassing after Mining: SC

Recently, the **Supreme Court of India** ordered the government to **include re-grassing of mined areas** as a mandatory condition in every mining lease, environmental clearance and mining.

Key points

- The Court held that mining leaseholders should take responsibility for re-grassing mined areas so that biodiversity can flourish in such areas.
- The **cost of re-grassing** the mined area and wherever damage was caused, would be entirely **borne by the licence holder**.
- **Mine closure plan** imposes conditions on the licence holder to restore biodiversity. The mandatory re-grassing would be in addition to these conditions.
- The apex court held that mined areas result in the complete elimination of grass and denies fodder to herbivores.
- Re-grassing of such mined areas is the only solution so that grass and other vegetation, including trees, can grow in the mining area for the benefits of animals and the land is restored to a condition which is fit for the growth of fodder, flora, fauna, etc.

NOTE: Mine Closure Plan involves effective planning of the after-mining landscape of a mine after its operating life has ended. These activities include **Water Quality Management, Air Quality Management, Waste Management, Top Soil Management, Disaster Management and Risk Assessment, Safety and Security etc.**

Bushfires Ravage Australia

Recently, New South Wales and Queensland in south-east Australia witnessed one of the most raging bushfires which continued for more than three months.

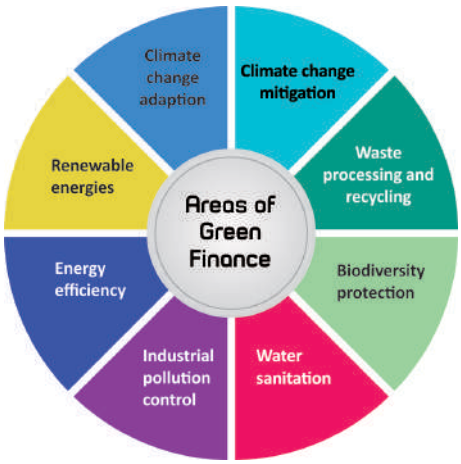
What are bushfires?

- A bushfire is a type of wildfire mostly evident in Australia, New Zealand, New Caledonia. Dry leaves, grass, shrubs or bushes, deadwood, etc. are easily combustible which becomes the reason for fires.
- Ignition may happen naturally (e.g. lightning strikes) or it can be man-made (e.g. stubble burning).
- Plants have evolved a variety of strategies to survive fires, like possessing reserve shoots that sprout after a fire, or developing fire-resistant or fire-triggered seeds.
- Plants even encourage fire (**eucalyptus** contain flammable oils in the leaves) as a way to eliminate competition from less fire-tolerant species.
- A minimum level of forest fires is considered useful as many plants depend on it to cycle nutrients and

- For such purposes, public finance alone may not suffice. Green finance is required to be harnessed for financing environment friendly mode of development.

What is green finance?

- Green Finance (GF) comprises all forms of investment or lending that take into account environmental impact and enhance environmental sustainability.
- The GF ecosystem seeks to raise financial flows from banking, micro-credit and insurance sectors as well as from the public, private and non-profit sectors.



Current state of green finance

- **Green bonds**, **carbon market** instruments, **sustainability bond** and FinTech-based green funds are now at the forefront of climate change financing.
- The market for green bonds has issuers from more than 50 countries, including multilateral institutions like the World Bank. India is the second largest issuer among Emerging Market Economies (EME).
- **Green loans** are another instrument, with issuances amounting to $60 billion in 2018.
- Green Climate Fund and Green Environment Facility are also the mechanisms set up for the purpose of green financing.
- Among such concerted efforts, advanced economies have formally agreed to **jointly mobilise $100 billion per year by 2020**, from a variety of sources, to address the pressing mitigation and adaptation needs of developing countries.

Global efforts for green financing

- European Central Bank has formally identified climate-related risks as one of the key risks facing the banking sector. It computes the impact of climate-related changes on banks' capital positions, and, ultimately, on the supply of funds to the economy.
- The People's Bank of China considers environmental factors in its monetary policy framework and financial stability assessments.
- The Central Bank of Brazil requires banks to factor in environmental risks while computing capital requirements.
- In 2019, the Bank for International Settlements (BIS) launched an open-ended US Dollar denominated fund for Central Bank investments in green bonds. It is aimed at the management of their forex reserves and to support the deepening of green-bond market.

Indian scenario

- India's ambition of generating 175 GW of renewable energy by 2022 requires huge financing.
- The preliminary studies conducted for the Paris Agreement suggest that an investment of at least $2.5 trillion is required to meet India's climate change actions between 2015 and 2030.
- In 2007, RBI emphasised the need for non-financial reporting and urged financial institutions to adhere to sustainable development practices.
- Banks in India have been sensitised to the various international initiatives including the **Equator Principles.**
- In 2015, the RBI included lending to social infrastructure and small renewable energy projects within priority sector lending targets thereby giving a fillip to green financing.

Science & Technology

New Strain of Coronavirus in Wuhan

Recently, Chinese health authorities have identified a new **coronavirus** related to an outbreak of the disease in Wuhan city, Hubei province.

Key points

- According to the World Health Organisation (WHO), the outbreak in Wuhan is caused by a new virus strain named novel coronavirus (2019-nCoV).
- The new strain is the **seventh** known type of coronavirus that humans can contract. The seven known strains are:
  - Human coronavirus 229E
  - Human coronavirus OC43
  - Human coronavirus NL63 (New Haven coronavirus)
  - Human coronavirus HKU1
  - Severe Acute Respiratory Syndrome (SARS)
  - Middle East Respiratory Syndrome (MERS)
  - Wuhan coronavirus (2019-nCoV), also known as *novel coronavirus 2019/2020* (Wuhan pneumonia)

NOTE: A strain is a genetic variant or subtype of a microorganism. For example, a "novel strain" is a certain biological form of the coronavirus. New viral strains can be created due to mutation or swapping of genetic components when two or more viruses infect the same cell.

What are Coronaviruses?

- Coronaviruses are a large family of viruses with some causing less severe common cold to more severe diseases such as SARS and MERS.
- These typically affect the respiratory tract of mammals, including humans.
- **History:** Coronaviruses were first described in the 1960s from the nasal cavities of patients with the common cold.
- **Transmission:** Coronaviruses are zoonotic, meaning they are transmitted between animals and humans. For example, SARS-CoV was transmitted from civet cats to humans. Coronaviruses most commonly spread from an infected person to others through:
  - human to human transmission,
  - air by coughing and sneezing,
  - personal contact, such as touching hands, and
  - touching an object or surface with the virus on it, then touching mouth, nose, or eyes before washing the hands

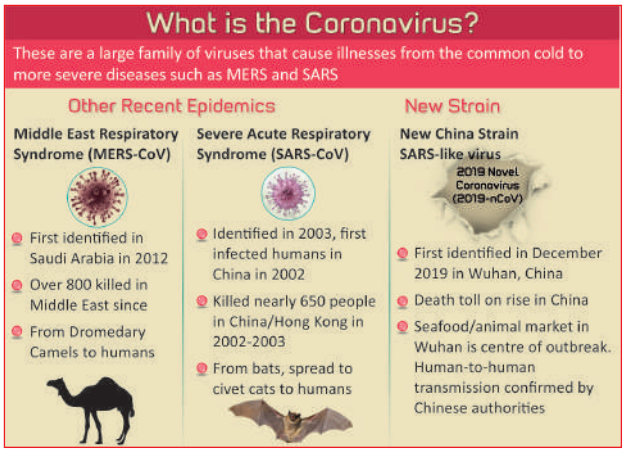
Symptoms associated with coronavirus infection

- The disease causing ability of an organism is known as **pathogenicity**. Virulence, a term often used interchangeably with pathogenicity, refers to the degree of pathology caused by the organism.
- Coronaviruses primarily infect the upper respiratory and gastrointestinal tract of mammals and birds.
- Common signs of infection include respiratory symptoms, fever, cough, shortness of breath and breathing difficulties.
- In more severe cases, infection can cause **pneumonia**, severe acute respiratory syndrome, kidney failure and even death.
- Among **pregnant** women, the more severe versions of MERS and SARS coronaviruses can be serious. There are cases in which women infected with MERS had a stillbirth.
- SARS-associated illnesses are linked to cases of spontaneous abortion, maternal death and critical maternal illness.

Treatment and prevention

- There is no specific treatment. Most of the time, symptoms go away on their own.
- Some of the steps that can be taken are:
  - Drinking enough water.
  - Avoiding contact with infected person.
  - Avoiding smoking and smoky areas.
  - Take acetaminophen, ibuprofen or naproxen to reduce pain and fever.
  - Using a clean humidifier or cool mist vaporizer.
- There is no vaccine to protect against this family of virus. Trials for a MERS vaccine are underway.
- Samples to be collected: swabs, bronchial fluid, tracheal aspirate, sputum, and blood.
- **Tests to be done**
  - **Reverse-Transcription Polymerase Chain Reaction (RT-PCR)**: A method to amplify the DNA of the virus to check against published 2019-nCoV sequence.

- **Whole Genome Sequencing** to match with the available gene sequence.
- **Serology:** The blood samples are tested for presence of antibodies against coronavirus.



HTBt Cotton: the Next Generation GM Seeds

Recently, farmers in Maharashtra decided to publicise their post-harvest success story after they have planted the banned genetically modified cotton crop HTBt (Herbicide Tolerant Bt).

What is Bt cotton?

- Bt cotton is a Genetically Modified (GM) cotton crop resistant to pests. It is created by adding genes from the soil bacterium *Bacillus thuringiensis* (Bt).
- In short, the transgene from the soil bacterium inserted into the plant's genome produces toxin crystals that lead to the death of pest.
- Pest-resistant crops do away with the need for broad-spectrum insecticides, which harm natural insect predators in the farm.
- Bt cotton was first approved for commercial use in the United States in 1995. In 2002, a joint venture between US-based Monsanto and the Maharashtra Hybrid Seeds Co Ltd (Mahyco) introduced Bt cotton to India.
- Bt cotton is the only GM crop allowed by the government to be cultivated in India. The use of Bt cotton in India has grown exponentially since its introduction in 2002.

What is HTBt cotton?

- The HTBt variety adds another genetic modification to Bt cotton crop which makes the crop resistant to a commonly-used herbicide.
- HTBt plants allow farmers to spray herbicides to get rid of parasitic weeds in the farm without harming the main crop.
- Farmers claim that using this variety saves them from pulling out extra weeds.
- However, the variety is not allowed to be cultivated in India but its illegal sowing has been found in a few states - Andhra Pradesh, Telangana, Gujarat and Maharashtra.
- The exact source of these seeds is not always known; they might have been smuggled from abroad.

Why is HTBt not approved in India?

- GM crops in India need to be approved by the Genetic Engineering Appraisal Committee (GEAC), the apex body under the Ministry of Environment, Forest and Climate Change for regulating the manufacture, use, import, export and storage of hazardous micro-organisms or Genetically Modified Organisms (GMOs) and cells in the country.
- In 2016, Mahyco, Monsanto's technology partner in India, withdrew an application seeking approval for its next generation of genetically-modified cotton seeds. The withdrawal of application has effectively made any cultivation of HTBt illegal.
- The withdrawal was done to protest against the government's proposal that would force Monsanto to share its technology with local seed companies.

Conclusion

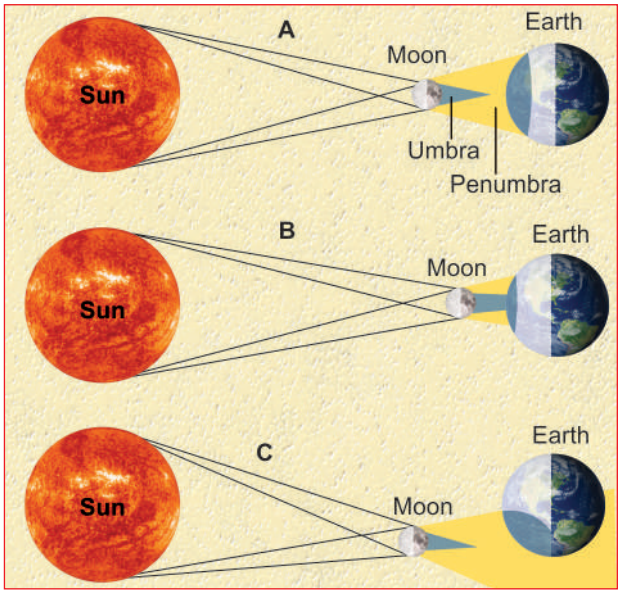
With the HTBt variety, there is a lurking threat that herbicide-tolerance can easily spread through pollination, and eventually give rise to a variety of 'superweeds' that are resistant to existing herbicides. This could create a situation similar to antibiotic resistance. More research and field investigation is required before allowing of this variety.

Biomarkers: the Health and Disease Predictors

A new study conducted by Indian researchers on biomarker helps in identification of tumor in blood at initial stage.

Key points

- Researchers have found potential gene biomarkers that can be used for prognosis and early diagnosis of the most aggressive form of primary brain tumour called Glioblastoma.
- The biomarkers can help in identifying if the tumour is at an initial stage (low-grade) or advanced stage (high-grade).



ISRO to Launch IDRSS

Indian Space Research Organisation (ISRO) has decided to launch a new satellite series called the **Indian Data Relay Satellite System (IDRSS).**

Key points

- IDRSS satellites of the 2,000 kg class would be launched by the **Geosynchronous Satellite Launch Vehicle (GSLV) to geostationary orbits** around 36,000 km away.
- A satellite in **Geosynchronous Equatorial Orbit (GEO)** covers a third of the earth. Thus, three of IDRSS satellites can provide total coverage.
- The IDRSS is planned to track and be constantly in touch with Indian satellites, mainly with those in **Low-Earth Orbits (LEO)** having limited coverage of earth.
- It will play a crucial role in **helping ISRO** with its advanced LEO missions such as space docking, space station and distant expeditions to the Moon, Mars, etc. It will also be useful in **monitoring launches.**
- The Indian Data Relay Satellite System (IDRSS) is a set of satellites that will track, send and receive information from other Indian Satellites
- Crew members of the **Gaganyaan Mission** of 2022 will be the first ones to benefit from the IDRSS by staying in contact with mission control fully and continuously throughout the travel.

Background

- At present, in the absence of a data relay satellite system, spacecraft are not visible all the time.
- The **first** IDRSS will be sent by the **end of 2020.** It will precede the pre-Gaganyaan experimental unmanned space flight. The **second** one will follow **in 2021.**
- Both satellites will offer near-total tracking, sending and receiving of information from the crew 24/7.

ISRO Launched GSAT-30

Recently, the Indian Space Research Organisation (ISRO) launched the telecommunication satellite **GSAT-30** into a **Geosynchronous Transfer Orbit (GTO)**. It was launched by the **Ariane-5** launch vehicle of the European Space Agency from **Kourou** launch base, **French Guiana.**

Key points

- GSAT-30, which weighs around 3,400 kg, will **replace INSAT-4A** which was launched in 2005.
- It will provide DTH television services, connectivity to Very-Small-Aperture Terminal (VSATs), stock exchange, television uplinking and teleport services, digital satellite news gathering and e-governance applications.
- The satellite will also be used for bulk data transfer for a host of emerging telecommunication applications.
- The satellite provides **Indian mainland and islands** coverage in **Ku-band** and extended coverage in **C-band** covering **Gulf countries, a large number of Asian countries and Australia.**

NOTE: VSAT terminals are used in military and naval applications to ensure communication even in remote locations. They are also used in narrowband financial applications like point-of-sale transactions, and broadband data like Voice over Internet Protocol (VoIP), and satellite internet.

C band and Ku band

- C-band is the first satellite band and its frequencies range from 4Ghz to 8Ghz.
- Signals in C-band are less focused compared to higher satellite frequencies such as Ku-Band. This is due to the longer wavelength in C Band.
- Less focused signals mean that these signals are less affected by rain, a phenomenon known as **rain fade of satellite signals**. Less focused signals can provide a wider range of coverage.
- However, these signals need a bigger dish size, so that they can be received from the satellite. Thus, C-band requires expensive equipment.

Living Robots - Xenobots

Recently, researchers in the United States have built the first ever "living robots" or Xenobots.

History, Art & Culture

Bojjannakonda: the Ancient Buddhist Site

Heritage lovers and officials succeeded in protecting an ancient Buddhist site at **Bojjannakonda** from a stone-pelting ritual of the villagers.

Key points

- The villagers celebrate Kanuma Day during Makar Sankranti and stone-pelting was part of it. **Kanuma** is the third day of Sankranti in the month of January and is dedicated to cattle.
- As a part of the ancient ritual, the villagers used to pelt stones at belly-shaped objects believing it to be part of a demon.
- Indian National Trust for Art and Cultural Heritage (**INTACH**) with the help of heritage lovers and officials sensitised the locals not to damage the Buddhist site.

About the site

- Bojjannakonda is a famous Buddhist site at Sankaram, a small village in Visakhapatnam (Andhra Pradesh). Other famous Buddhist sites near Visakhapatnam include Thotlakonda, Appikonda, and Bavikonda.
- The name Sankaram is derived from Sangharam (Boudha-arama, i.e. vihara) as these Buddhist establishments are generally known.
- Sankaram is famous for the whole lot of votive stupas, rock-cut caves, brick-built structural edifices, early historic pottery and Satavahana coins that date back to the 1st century AD.
- Lingalametta and Bojjannakonda form the twin Buddhist monasteries at Sankaram.
- Bojjannakonda dates back to the 3rd century AD. It was originally known as Buddhuni Konda (hill of the Buddha).
- The main stupa at Bojjannakonda was carved out of rock and then covered with bricks, where one can see a number of images of the Buddha sculpted on the rock face all over the hill. At the nearby Lingalametta, one can see hundreds of rock-cut monolithic stupas in rows.
- A statue of the Hindu goddess **Hariti**, who may have been absorbed into local Buddhism early on, graces an area at the foot of the hill. This indicates traditional mixing of cultures.
- As an interesting characteristic, this site contains all the features of all the three phases of Buddhism i.e. Hinayana, Mahayana and Vajrayana.

Bodhisattvas

- **Avalokiteshvara Pdmapani:** Who looks down; Bodhisattvas of kindness; Lotus bearer
- **Manjushri:** Promotes understanding; Bears a sword and a book; Bodhisattva of Wisdom
- **Vajrapani:** Enemy of evil and sin; Bears thunderbolt; Bodhisattva of Power
- **Amitabh:** Divine Buddha; Bodhisattvas of infinite light
- **Kshitigriha:** Guardian of purgatories
- **Padmapani:** Lotus bearer (Standing Avalokiteshvara)
- **Maitreya:** Future Buddha; Pot carrier
- **Prajnaparamita:** Lord of mind: Female Deity, Mother of All Buddhas

Schism In Buddhism

Hinayana	Mahayana	Vajrayana
■ Believed in the original teachings of Buddha ■ Worshipped Buddha and his teachings in the form of symbols ■ **Tushita** is the heaven of Hinayana ■ Adopted Pali as the language for teaching and texts ■ Salvation through meditation and self-discipline ■ Popular in Sri Lanka, Myanmar, Thailand and Cambodia but lost prominence in India	■ Believed in the divinity of the Buddha ■ Worshipped the Images and idols of Buddha and Bodhisattvas ■ Arose out of **Mahsamghikas** school ■ **Sukhavati** is the Mahayana heaven ■ Sanskrit was their main language ■ Teaches salvation for all ■ Popular in many parts of India, spread to central Asia, China and then to Japan	■ Salvation attained through magical powers ■ The chief divinity was the Tara, ■ Came into existence in the 8th century under the patronage of the Palas ■ Its ideals are Siddhas, 84 in number, prominent among them are **Padmasambhava** and **Sarahpada** ■ **Santarakshita** popularised it in Tibet ■ Also known as the Diamond vehicle of adamantine way ■ Popular in Bengal, Bihar and later spread to Tibet, Kalmykia (Europe/Russia)

Social Issues

Social Mobility Index

The World Economic Forum at its 50th annual meeting launched a new **Global Social Mobility Index.**

What is social mobility?

- Social mobility can be understood as the movement in personal circumstances either **upwards** or **downwards** of an individual in relation to those of their parents. It can be understood in two ways:
  - **Absolute social mobility**: It is the ability of a child to experience a better life than their parents.
  - **Relative social mobility**: It is an assessment of the impact of socio-economic background on an individual's outcomes in life.

Key points

- The Index uses **10 pillars**, which in turn are broken down into **five determinants** of social mobility - **health**, **education**, **technology access**, **work opportunities**, **working conditions** and **fair wages,** and **social protection** and **inclusive institutions**.
- The Index reveals that there are only a handful of nations with the right conditions to foster social mobility.
- Achieving higher levels of social mobility needs to be perceived as an important element of a wider move towards a stakeholder-based model of capitalism.
- Looking at all economies and average income levels, those children who are born into less affluent families typically experience greater barriers to success than their more affluently born counterparts.

Country rankings

- The Nordic countries are the best performers. **Denmark** tops the rankings with a social mobility score of 85.2, followed by Finland, Norway, Sweden and Iceland.
- Among the **G7** economies, **Germany** is the most socially mobile, ranking 11th followed by France in 12th position.
- Among the **BRICS** nations, the **Russian Federation** is the most socially mobile ranking 39th followed by China (45th), Brazil (60th), India (76th), and South Africa (77th).

Way forward

- The government needs to use a mix of public spending and policy incentives to put greater emphasis on the factors of social spending.
- The business should take the lead in promoting a culture of meritocracy in hiring, providing vocational education, reskilling and upskilling as well as by paying fair wages.

Time to Care Report

Recently, Time to Care report was **released by Oxfam International** on global inequality crises.

Key highlights

- **In World**
  - The world's 2,153 billionaires have more wealth than the 4.6 billion people who make up 60% of the planet's population.
  - The rich and poor divide is based on a flawed and gender-based economic system. This broken economic model has accumulated vast wealth and power into the hands of a rich few, in part by exploiting the labour of women and girls.
  - The world's 22 richest men have more combined wealth than all 325 million women in Africa.
- **In India**
  - The top 1% of Indians hold more than 4 times the amount of wealth held by the bottom 70%.
  - Women and girls put in 3.26 billion hours of unpaid care work each and every day which would account for around ₹19 lakh crore a year. It is 20 times the entire education budget of India in 2019.
  - Direct public investments of 2% of the GDP in the care economy would create 11 million new jobs.

Way forward

- The gap between rich and poor can be resolved with deliberate inequality-busting policies like universal income, health for all, free education.
- Women's unpaid care work is taken for granted or perceived as an act of love, ignoring the physical, mental and emotional effort it requires. Investments in water and sanitation, electricity, childcare and healthcare could improve their quality of life.
- Governments must ensure corporations and wealthy individuals pay their fair share of tax and increase investment in public services and infrastructure.

ETHICS

SERVICE Scheme to Promote Philanthropist Activities

Recently, the Steel Authority of India (SAIL) launched a scheme to promote Voluntary Philanthropist Activities (VPA) by its employees.

Key points

- The scheme is called SAIL Employee Rendering Voluntarism and Initiatives for Community Engagement (SERVICE). It will promote and facilitate philanthropist activities by the employees in a structured manner.
- Through SERVICE, employees of SAIL will come forward to perform their social duties voluntarily and contribute towards social welfare and nation-building.
- Mass scale mobilisation of employees would be targeted towards achieving social good through voluntary activities, based on their interest areas.
- They will be encouraged to undertake Voluntary Philanthropist Activities preferably in the identified thrust areas under the Corporate Social Responsibility (CSR).
- These include education and health, women empowerment, sustainable income generation, assistance to Divyangjan, access to water and sanitation, village development, environment sustenance, sports coaching, and traditional arts and culture.
- For accomplishing the goals, SAIL shall provide logistic support to such employees or groups for undertaking the VPAs, subject to evaluation and assessment.

Civil Servants in Action

Smit Parmar, an IPS officer has been making efforts for connecting police to people and developing recreational facilities for children.

Key points

- The State Police in Odisha's Nuapada district adjoining Chhattisgarh has arranged a skating rink as a recreational facility for children in one of its panchayats.
- Dharambandha, a tiny panchayat bordering Chhattisgarh, has been receiving batches of children every day and there is an increased cooperation between them and the police.
- Setting up of a rink is special in context of this area as it lacks even the basic facilities and is a left-wing extremism affected area.
- Given the remote location, the children learn skating by a process of trial and error in the absence of trainers and coaches.
- It has been seen as a significant effort towards harmonisation and bridging the gap between the security forces and the locals, especially children.

Passive Euthanasia Knocking the Door Again

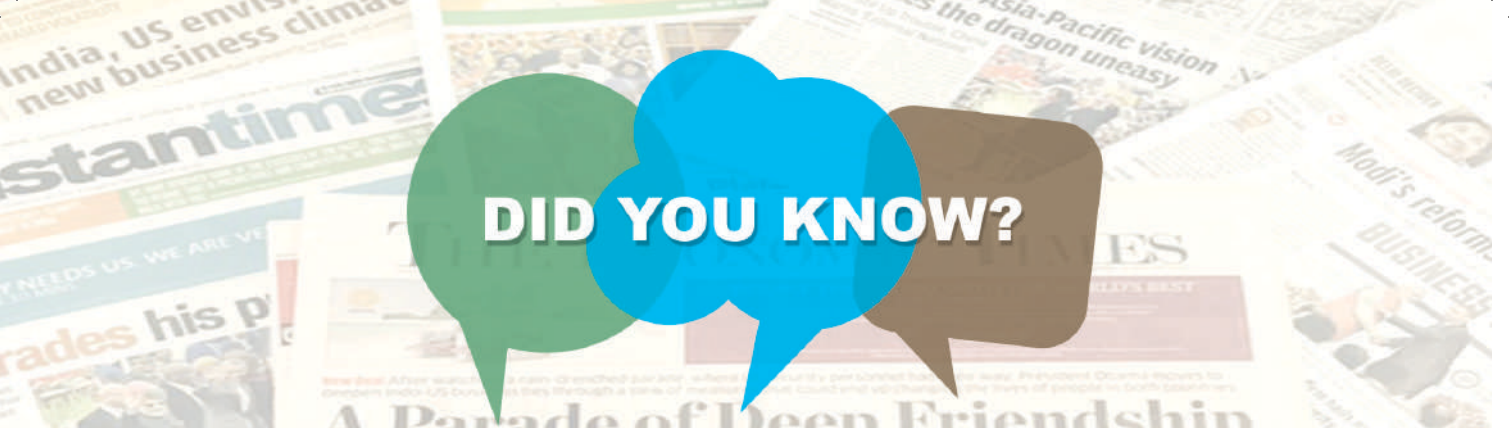
The long pending contention on euthanasia has created a quagmire of ethics and rights. The issue resurfaced owing to a case of rabies.

What is euthanasia?

- Euthanasia is an act or practice of killing or permitting the death of hopelessly sick or injured individuals in a relatively painless manner.
  - **Active euthanasia:** It involves deliberately doing something that causes the death of patient.
  - **Passive euthanasia:** It involves withdrawal of medical treatment with the intention to hasten the death of the terminally-ill patient.

Why euthanasia is not accepted?

- On humanitarian grounds actions leading to ultimate death could not be justified.
- The concept of living will can be misused as a greedy offspring can get forcefully signed living will documents.
- Euthanasia reduces the scope of having life after grieving disease. This leads to lethargy in medical sector to cure diseases.
- Person's right to life which is granted as Fundamental Right would barely remain intact.



Integrated Road Accident Database (IRAD)

- The government has launched the **Integrated Road Accident Database (IRAD)** with the financial assistance of the **World Bank.**
- IRAD is a comprehensive **web-based Information Technology (IT) solution** and will enable various agencies such as the police, Public Works Department (PWDs), etc. to enter details on a road accident.
- IRAD will help in **analysing causes of road crashes** and in **devising safety interventions** to reduce such accidents in the country.
- It has been **developed by the Indian Institute of Technology-Madras (IIT-M)** and will be **implemented by the National Informatics Centre (NIC).**
- The system will be first **piloted in the six States** with highest fatalities from road crashes viz., **Karnataka**, **Madhya Pradesh**, **Maharashtra**, **Rajasthan**, **Tamil Nadu** and **Uttar Pradesh**.

M.M. Salunkhe Committee

- Recently the University Grant Commission (UGC) released the report of M.M. Salunkhe Committee on evaluation reforms.
- The Committee has recommended the **establishment of a national board** to conduct on-demand examinations at the undergraduate degree level.
- It also recommended the development of question banks, relative grading, higher weightage to internal assessments and full choice-based credit transfer in all higher education institutions.

Annual Day of CARA

- The 5th Annual Day of Central Adoption Resource Authority (CARA) was celebrated on 15th January.
- CARA has been set up as a **statutory body** of the **Ministry of Women and Child Development.**
- CARA primarily deals with adoption of orphan, abandoned and surrendered children through its associated /recognised adoption agencies.
- It is an apex body of Government of India for promoting and facilitating **In-country adoption** and is the designated Central Authority for regulating **Inter-country adoption**, in accordance with the provisions of the **Hague Conventions** on Inter-Country Adoptions.

Hague Convention on the Civil Aspects of International Child Abduction

- Hague Convention is a multilateral treaty which came into existence on 1st December 1983.
- It is an international treaty to ensure the prompt return of the child who has been "abducted" from the country of their "habitual residence".
- The Convention **applies to children age under 16 years.**

First National Conference on Intersex Human Rights

- Recently, the first national conference on intersex human rights was organised by Srishti Madurai in partnership with Intersex Asia in New Delhi.
- The conference sought a national ban on unnecessary medical surgeries conducted on children with intersex traits.
- **Srishti Madurai** is India's first Genderqueer and Intersex led human rights group. It was established in 2011 in Madurai, Tamil Nadu.
- **Intersex Asia** is an autonomous regional network of intersex-led organizations and individuals from Asian countries that work to support, educate and advocate for the rights and lives of intersex individuals. It was established in February 2018 in Bangkok, Thailand.

National Consumer Day

- Every year, 24th of December is observed as National Consumer Day in India. The theme of 2019 was *"Alternate consumer grievance/dispute redressal".*
- On this day the **Consumer Protection Act, 1986 had received the assent of the President** and came into effect.
- It is observed to highlight the importance of the consumer movement and the need to make every consumer more aware of their rights and responsibilities.

India Needs a Bottom-up Growth Model

After making an exit from the Regional Comprehensive Economic Partnership (RCEP) India would be needing bottom-up growth model.

Problems associated with India's growth model?

- **Globalisation:** Government has focussed more on foreign investment and ease of doing business which resulted in a paradigm shift from creating job opportunities for citizens to foreigners.
- **Human Development:** India's growth model is not addressing the burgeoning job problems of its demographic dividend and leaving the bulk of a population jobless, security less and growth less.
- **Free Trade:** India is concentrating more on free trade with other countries which is creating imparities in native industries and institutions and resulting in domestic loss and less income.

What needs to be done?

- **People-centric policies**
  - Kerala model based on participative governance has raised Kerala's human development many fold.
  - Delhi's common man model includes more participation of citizens in education. Mohalla clinic for health, free water and electricity.
- **Increase in disposable incomes**
  - Improving the 'ease of living' of citizens by improving the quality and accessibility, and reducing costs, result in saving for households.
  - The increase in disposable incomes has resulted in additional consumer-buying power.
  - This proves that growth must be bottom-up to be equitable and sustainable.
- **More free trade not the answer**
  - Growth of incomes in India will make India more attractive for investors. A stronger industrial system will give India more headroom in trade negotiations too.
  - Growth of India's industrial and entrepreneurial ecosystem must be accompanied by an improvement in environment.

Way forward

- 'Ease of doing Business' gauges health from a business perspective, 'ease of living' should become the measure of the health of the whole system.
- Policy decisions invariably require compromises between competing interests. Mahatma Gandhi's talisman provides a good test, where government should be more focussed on poor first.

The Urgency to Simplify and Debug India's GST

In India, GST collections over April-September 2019 were under 7% of the gross value added in the economy.

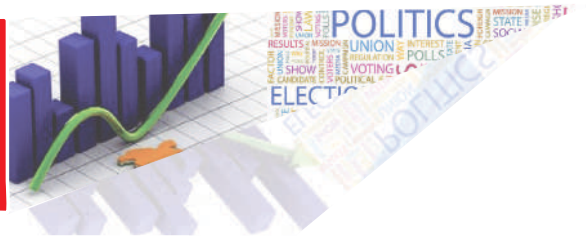
Reasons that have dampened GST

- Most consumed services like energy is exempted from GST.
- The GST still has four slabs. The plethora of rates also takes away some of the self-policing aspects of the tax. Multiple tax rates add to the administrative complexity.
- Rate structure has become more wobbly as items of mass consumption were pushed down to lower slabs.
- The redistributive aspects are typically reserved for direct taxes, like those on income and profit.
- Rate revisions have arguably reduced the overall GST intake and made it difficult for the Centre to honour its promise to the states that they will be compensated for revenue losses in the first five years.

Way forward

- The promised revenue projections would require the economy to grow at 10% annually if the central bank has to fulfil its mandate of containing inflation at 4%.
- As the economy slows, the states are naturally restive about compensation, and consensus becomes harder.
- The country should proceed with debugging the system. This is not just about rates and coverage, but also the processes that taxpayers must follow.

ECONOMIC AND POLITICAL WEEKLY



SUMMARY OF EDITORIALS AND ARTICLES: 2, 9, 16 AND 23 NOVEMBER

Sustainable Development Pathways in India

India's rise in average income, technological advancements, lifestyle changes, among others can be seen as evidence of development. But it is debatable if these are sustainable in a wider socio-economic and environmental dynamics.

Modernising Technologies and Human-Nature Dynamics

- The modernising technologies identify a specific mode of human-nature relations, in which resources are **extracted** from nature to meet the demands of humans, and the effluents and wastes produced in the process are **dumped** into nature.
- Thus, it means that the extraction of 'good' and the dumping of the 'bad' has been one of the methods of development as largely perceived.
- This extract-dump relation through modernising technologies depends on various factors:
  - The capitalist desire for short-term profit and growth which conceals the potential harms.
  - Scientific education systems enhanced by the control of nature.
  - Innovations considered within a narrow framework of economics.
  - High status attached to the ownership of resources and technologies.
  - Sense of freedom associated with individualisation which in turn may serve as a norm for social control in a competitive environment.
- Together these socio-political, economic and institutional forces when get aligned with modernities, constitute 'modernising development pathways'. There are multiple pathways possible but in the process of development, only one pathway becomes a dominant one.

What Makes a Pathway Dominant?

- A complex range of interacting pressures operate to diminish the diversity of possible pathways
  - Increasing returns of scale.
  - Techno specific expertise along with specific paradigms which makes other alternatives look unattractive.
  - Adoption of speed, efficiency and standardisation over sustainability and distribution.
  - Neo-liberal regimes that aim to configure people as individual consumers.
- Together, these pressures end up making a dominant pathway self-reinforcing. This gears the imagination of policymakers towards promoting solutions that fit within the dominant pathway.
- To illustrate, in India, a solution to decongest cities has been the building of flyovers. These flyovers have exacerbated the problem of environment pollution (cement and gravel), air pollution and further marginalising the non-motor vehicles as it is hard for them to access a flyover. Other examples are related to farming intensification (leading to extraction of huge amounts of water, pesticide usage, etc.) mining, electronics, packaging, pharmaceuticals etc.

Who Bears the Burden?

- Critically, the burden associated with the extract-dump modality is borne mostly by the poor and socially marginalised groups. The poor are most directly exposed to toxic air, water and soil pollution.
- For example, people associated with manual scavenging have been bearing the burden of cleaning the sewage, associated infections and caste-based discriminations. There has been very little investment in sustainable alternatives.

What can be Done?

- Further articulation of socio-ethical practices that are not underpinned by the extract-dump modality of human-nature relations are required to be strengthened.
- Using the path of sustainability. The pluralisation of pathways is crucial for meeting the UN SDGs (Sustainable Development Goals) by 2030.

GIST OF MAJOR ARTICLES FROM THE JANUARY 2020 ISSUE

Managing Electronic-Waste

Electronic industry has provided leverage to the socio-economic and technological growth of the developing society of India. But it also poses a new environmental challenge - the growing menace of electronic-waste or e-waste that consists of obsolete electronic devices. The mismanagement of e-waste has led to new problems of contamination and pollution.

e-waste Hazard

- Personal Computers (PCs) contains certain components which are highly toxic, such as chlorinated and brominated substances, toxic gases, toxic metals, biologically active materials, acids, plastics and plastic additives, posing environmental and health challenges.
- Long-term exposure to these substances can damage the nervous system, kidney and bones, and even the reproductive and endocrine systems. Some of them are highly carcinogenic.
- These waste, when improperly disposed of with domestic waste, without any controls, can contaminate the soil, water, and air.
- India's recycling sector is still underdeveloped and most of the people are unaware of the potential negative impact of the rapidly increasing use of computers, monitors, and televisions.
- The Global E-Waste Monitor, 2017 report published by the United Nations University estimated that India generates about 20 lakh ton of e-waste annually.

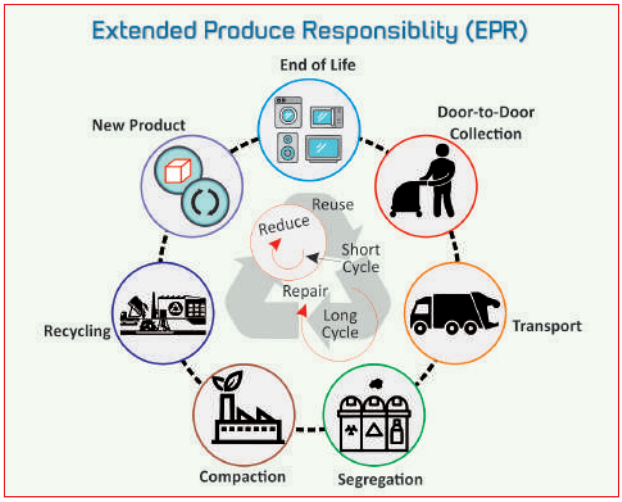
Electronic goods are classified under three major heads	
White Goods	Household appliances like freezer, washing machines
Brown Goods	Consumer electronics like TVs, cameras
Grey Goods	Computing equipment like Computers, printers
Waste from white and brown goods is less toxic than grey goods.	

Effects on Air, Water, and Soil

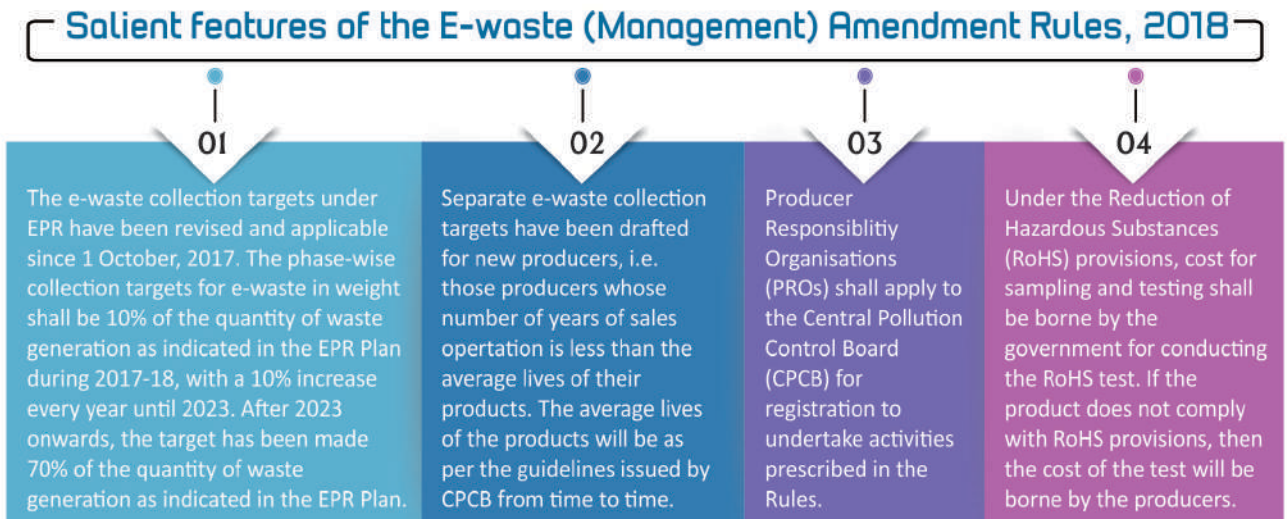
- One of the most common effects of e-waste is air pollution. Combustion from the burning of e-waste creates fine particulate matter, which is linked to pulmonary and cardiovascular disease.
- The wind carries toxic particles and they enter the soil-crop-food pathway affecting both human and animals as they enter the food chain.
- When e-waste is improperly disposed, heavy metal leach through the soil to reach groundwater channels which eventually run to the surface. Intake of the contaminated water results in lead poisoning.

Some Solutions Addressing the Issue

- e-waste can be contained by minimising its generation and ensuring the longevity of electronic products through their reuse, repair, and upgradability features.
- Stress should be laid on the use of less toxic, easily recoverable, and recyclable materials which can be refurbished, disassembled and remanufactured. These options have the potential to conserve energy and keep the environment free of toxic materials.



- Further, policymakers need to address all related issues ranging from production and trade to final disposal, including technology transfers for the recycling of electronic waste.
  - Clear regulatory instruments are adequate to control both exports and imports of e-wastes and ensuring their environmentally sound management should be in place.



- There is also a need to address the loopholes in the prevailing legal framework to ensure that e-waste from developed countries is not dumped in our country for disposal.

- Through Extended Producer's Responsibility (EPR), all vendors of electronic devices shall provide take-back and management services for their products at the end of life of those products. The old electronic products should then be sent back and carefully dismantled for its parts to be either recycled or reused.

Kayakalp: Transforming Public Health Facilities

Taking inspiration from Gandhi's idea of hygiene, the Government launched Swachh Bharat Abhiyan (SBA) on his 145th birth anniversary.

Mahatma Gandhi and Sanitation

- For Mahatma Gandhi public and private sanitation was also a part of his *Satyagraha* campaign.
- He reiterated that making cleanliness a personal responsibility is the key to removing untouchability.
- Gandhiji laid down the need for having clean water and air and the precise method of dealing with open defecation.
- The Abhiyan has been categorised into two sub-missions, **Swachh Bharat Abhiyan (Urban)** under the Ministry of Housing and Urban Affairs and **Swachh Bharat Abhiyan (Rural)** under the Ministry of Jal Shakti.
- The Abhiyan is directly linked with the economic health of the nation and it is expected to contribute to the GDP growth of the country, and reduce the associated health cost.

Kayakalp Scheme

- To contribute to this national movement and address the growing challenges of sanitation and hygiene, the Ministry of Health and Family Welfare (MoHFW) launched Kayakalp initiative in 2015.
- The scheme aims to improve **infrastructure upkeep**, **waste management, support services, hygiene and sanitation**, and **infection control practices** in Central Government institutions and public health facilities in all the States and Union Territories (UTs).
- Kayakalp Awards are presented under the initiative every year to highest - scoring facilities at each level. Best two district hospitals in each state (Best district hospital in small states), best two community health centres/sub-district hospitals (limited to one in small states) and one primary health centre in every district.
- The scheme has been further extended to the private sector health facilities. Quality Council of India through its constituent National Accreditation Board for Hospitals and Healthcare Providers conducts Kayakalp assessment in the private hospitals.
- The MoHFW has also used the platforms of Village Health Sanitation and Nutrition Committees (VHSNCs) under the National Health Mission and Mahila Arogya Samitis (MAS) under the National Urban Health Mission (NUHM) to promote sanitation in vulnerable communities.

Implications

- Due to the efforts made under Kayakalp and SBA, nearly 97% district hospitals have some form of proper waste management.

GIST OF MAJOR ARTICLES FROM THE JANUARY 2020 ISSUE

Health and Nutrition
Prime Movers of Nation's Development

Article 21 of the Constitution guarantees every citizen the right to life with dignity and protection of personal liberty which also includes protection of health. The United Nations Universal Declaration of Human Rights also speaks of right to standard of living adequate for health and well being of individuals.

National Health Policy

- The National Health Policy (NHP), approved by the Union Cabinet in 2017, recognised health and nutrition as the primary requirement of national development. The NHP aims to ensure government medical facilities and also insurance of the patients.
- This policy does not mandate the states to comply with it. The NHP seeks to increase spending on health from the current 1.15% of GDP to 2.5% of GDP.
- **Key objectives of the NHP include:**
  - Increase life expectancy from 67.5% years at present to 70 years by 2025.
  - To reduce total fertility rate at the national and sub-national levels to 2.1 by 2025.
  - To reduce mortality rate of under-five children to 23 per thousand births by 2025.
  - To reduce infant mortality rate to 28 by 2019 and reduction of maternal mortality rates (MMR) to 100 by 2020.
  - To reduce neo-mortality rate to 16 and still birth rate to a single digit by 2025.
- Besides, the other goals of the Policy relate to tackling non-communicable diseases, full immunization of more than 90% of newborns, meeting the needs of family planning, reducing the use of tobacco and ensure access to safe water and sanitation.
- To achieve universal health coverage, two schemes have been initiated by the Centre under Ayushman Bharat - opening of health and wellness centre and National Health Protection Mission (NHPM).

Ayushman Bharat

- **Ayushman Bharat Scheme (ABS)** seeks to address inequalities related to access to health and medical care in hospitals in public and private sector, it also seeks to reduce huge medical expenses on families.
- ABS aims to provide health care facilities to the poor and the underprivileged. It emphasises on holistic health care facilities, which include treatment of non-communicable diseases, maternal and child health services, free availability of essential medicines and diagnostic services. It aims to open one and half lakh Health and Wellness Centres by 2022.

Other Schemes

- **Pradhan Mantri Swathya Suraksha Yojana (PMSSY)** has an objective to remove imbalance in the availability of reliable and affordable health care facilities in the country.
- It focuses on spreading medical education in the states where there is no or less facilities of medical education. Under the second part of PMSSY the existing medical colleges and institutions of the state government are upgraded.
- Under **Jan Aushadhi Yojana** quality generic medicines are provided in collaboration with State governments. **Amrit Stores** have been opened in the hospitals where life saving drugs are provided at huge discount rate.
- To eradicate tuberculosis i.e. TB, the campaign **TB Harega Desh Jeetega** was launched in 2019 along with **National TB Prevalence Survey.** The Government has also partnered with the Global Fund to launch **JEET (Joint Effort for Elimination of TB)**. The Government also launched the **Nikshay Poshan Yojana** a Direct Benefit Transfer (DBT) scheme to provide nutritional support to the TB Patients.
- Through the **India Newborn Action Plan (INAP),** efforts are being made to reduce the mortality rate of unborn and newborns.
- Under **Mission Indradhanush**, children up to the age of 2 years have been brought under the immunization

GIST OF MAJOR ARTICLES FROM 31 DECEMBER AND 15 JANUARY ISSUES

Developments of the Decade that Shaped the World

Free Fall for Free Market

- **Free Market Model:** Championed by the developed world, the free market economy has been under scrutiny since 1990. But developments in the aftermath of the recession of 2008 show that countries are increasingly losing interest in this model of economy.
- **Ultra Localism** is replacing globalisation with policies like America first, protectionism. It is said that free trade was not benefitting people on large.
- **Inequality in Wealth Distribution:** The first onslaught on globalisation was the widening inequality in wealth distribution, more in developed countries. Developing countries were basking in the glory of high economic growth ignoring their long-standing problem of inequality.

Scarred Generation

- The world was never so young and also restless. **The International Labour Organisation** has warned of a "scarred generation" that may become easy fodder for religious or political groups like the ISIS in West Asia and the Taliban in Afghanistan. Or it may take to a life of crime, like peddling narcotics, rioting, or joining the ranks of the lynch mobs.
- **Youth Bulge:** A phrase first coined by the German social scientist Gunnar Heinsohn in the 1990s to describe a phase in a country's demographic transition when even as fewer kids die at birth, women continue to be as fertile as before. Over the next two to three decades, this translates into a youth bulge in the population curve. When harnessed it leads to higher growth and peace but if squandered, it incurs diminishing growth and social strife.

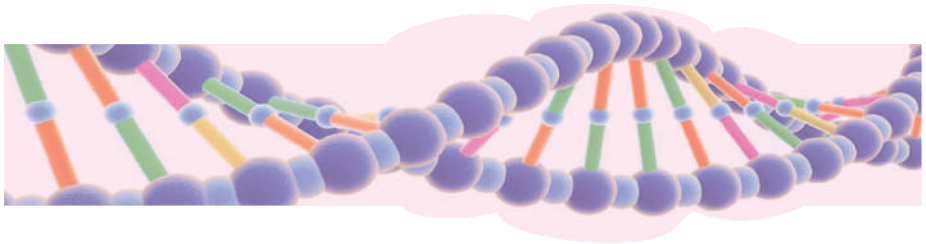
Which Way the Wind Blows

- *Western Disturbances* are low-pressure areas embedded in the Westerlies, the planetary winds that flow from west to east between 30° and 60° latitude. They usually bring mild rain in India during January-February, which is beneficial to the rabi crop. But last year March marked more winter rainfall due to various reasons:
- Easterly wave, or Easterlies, blows throughout the year from east to west. The confluence of the two winds happens throughout the year, but the results vary. They generally bring rain only to the northern part of the country but this year states in central and southern India also witnessed it.
- The west to east flow of jet streams in the northern hemisphere is maintained by the "gradient of heat" between the cool Arctic and warmer areas near the equator. But the Arctic has been warming since the past 20 years due to which the jet streams have become weaker. Rather than circling in a relatively straight path, jet streams now meander. This is making the South colder and the North warmer.
- Pronounced warming over the Tibetan plateau in recent decades has increased the instability of the Westerlies and this has increased the variability of the western disturbances.
- Temperatures have risen in the middle- and upper-tropospheric levels over the subtropics (area between the Tropic of Cancer and the Tropic of Capricorn) and the middle latitudes resulted in more precipitation in Western Himalayas.

Climate Collapse

- **Cancun Agreement:** In 2010, the developing countries wrote off the historical carbon debt of the developed countries. With this, despite being the worst victims of climate change, the developing countries made negotiations on global emission reduction an effectively voluntary effort, without any sense of urgency that the crisis demanded.

SCIENCE REPORTER



GIST OF MAJOR ARTICLES FROM THE JANUARY 2020 ISSUE

Major Scientific Highlights of 2019

The year 2019 witnessed several significant breakthroughs in the field of science and technology.

Space Exploration

- **Messier 87 (M87):** Giant galaxy in the constellation of Virgo, first ever image of **Black Hole** captured by Event Horizon Telescope.
- **Ultima Thule:** Kuiper belt object, New Horizon mission first Kuiper belt flyby.
- **New Planetary System:** Transiting Exoplanet Survey Satellite (TESS) discovered a new planetary system comprising three new planets orbiting dwarf star TESS Object of Interest (TOI) 270.
- **Plant sprouts on Moon:** Cotton is the first ever plant to sprout on the Moon, as a part of the biosphere experiment of Chang'e-4 mission (China) which landed on far side of the Moon.
- **Forbidden planet:** Newly discovered planet formally named as NGTS-4b orbiting its host star in the **Neptunian Desert** (an area where no Neptune-sized exoplanets found).
- **Bedin 1:** A new dwarf galaxy found by NASA/ESA Hubble telescope.

Nature and Environment

- **Greater Adria:** A continent discovered beneath southern Europe which broke off from North Africa.
- **First commercial land based coral farm:** In **Grand Bahamas** (Atlantic Sea); using micro-fragmenting technology; to help in coral restoration.
- **Prevent wildfires:** Cellulose based gel like fluid can be coated over vegetation by spraying to prevent wildfires.
- **New plastic eating bacteria:** *Exiguobacterium sibricum* strain DR11 and *Exiguobacterium undae* strain DR14 discovered by Shiv Nadar University, Greater Noida; capable of decomposing polystyrene - single use plastic.
- **New mineral in diamond:** Goldschmidtite has been discovered in South Africa.

Artificial Intelligence and Computers

- **Skybot F850/ Fedor:** First humanoid life sized robot "Fedor" was launched by Russia to the International Space Station (ISS).
- **Wafer Scale Engine**: World's largest processor; silicon based single chip for AI (Artificial Intelligence) tasks.

Physical Sciences

- **SI Units:** The SI units (kilogram, candela, mole, meter, second, Kelvin, and Ampere) will be defined in terms of constant that describe the natural world. Kilogram, Kelvin, mole and Ampere have undergone change.
- **Chain-melted State of Matter:** A new state of matter which can exist as both solid and liquid at the same time when subjected to extreme conditions.

Technology

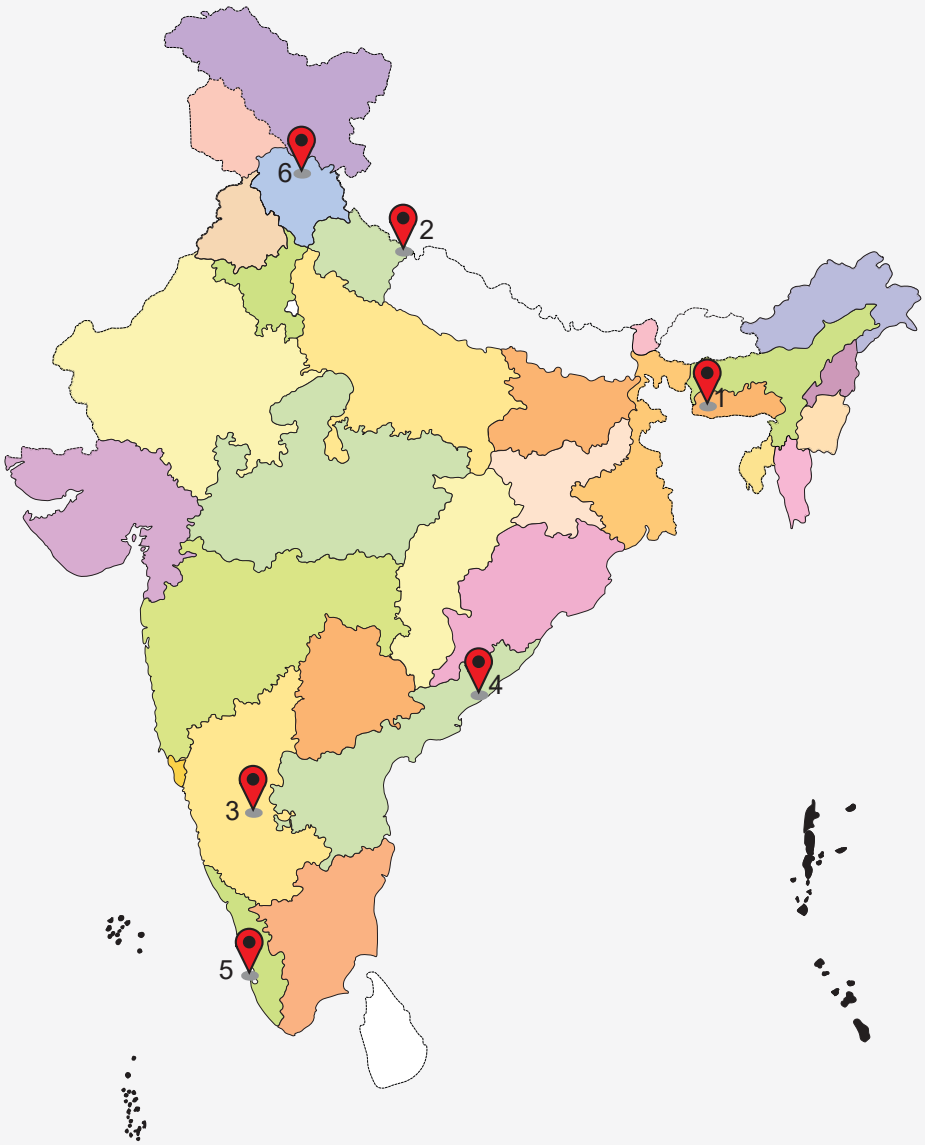
- **Artificial leaf- producing synthetic gas:** Powered by sunlight, water and carbon dioxide.
- **Nanoseaweed:** Thinnest Gold developed by scientists.
- **Marine Lizard:** World's first armed amphibious drone boat developed by China.

Indian Specific

- **Mission Shakti:** India's first Anti-Satellite Missile Programme (ASAT); fourth nation in the world to successfully test an anti-satellite missile by destroying a Low Earth Orbit (LEO) satellite Microsat-R.
- **Black Gold:** Tata Institute of Fundamental Research (TIFR), Mumbai, has created a new material called Black Gold with unique qualities like the capacity to absorb light and carbon dioxide.
- **GraspMan:** A multimodal robotic system developed by IIT, Madras, for field and industrial applications as it possesses very good grasping.
- **AJIT:** A microprocessor developed by IIT, Bombay.
- **KP-BOT:** First humanoid police robot in Kerala, of rank of Sub-inspector (SI).
- ***Smithophis atemporalis***: Rain loving snake found in Mizoram.

LEARNING

MAP-1

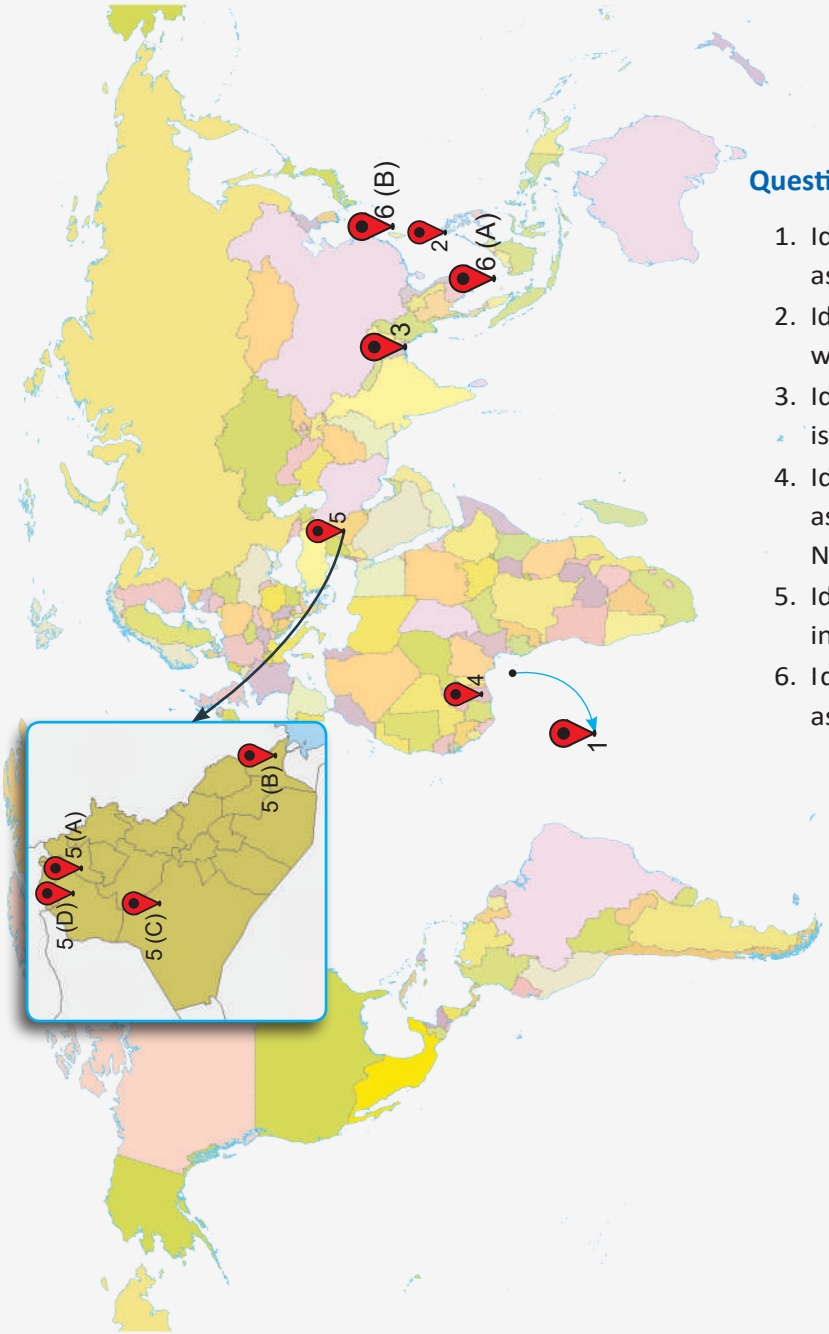


Questions

1. Identify the Biosphere Reserve located in Meghalaya.
2. Identify the pass which connects India and China?
3. Identify the site which has been selected by ISRO for its Human Space Flight Centre (HSFC)?
4. Identify the city which will hold Milan 2020 exercise?
5. Identify India's largest artificial island.
6. Identify the pass under which the Atal Bihari Vajpayee Tunnel is being constructed?

(Answers : Refer to Page No. 162)

THROUGH MAPS

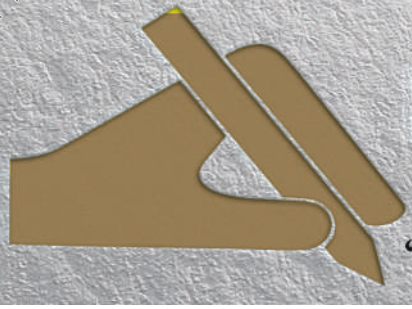


Questions

1. Identify the Gulf which has emerged as a global hotspot of piracy?
2. Identify the volcano located near Manila which recently erupted?
3. Identify the island where Bangladesh is settling Rohingyas?
4. Identify the country which has sought assistance from India to implement its National LPG Promotion Policy?
5. Identify the places in Iraq which appear in news frequently .
6. Identify the disputed to islands associated with China.

(Answers : Refer to Page No. 162)

MAP-2



ESSAY WRITING
COMPETITION
"A drop of ink may make a million think."

- PAPER-I (250 Marks, UPSC CS Main Examination): "Essay: Candidates may be required to write essays on multiple topics. They will be expected to keep closely to the subject of the essay to arrange their ideas in orderly fashion and to write concisely. Credit will be given for effective and exact expression." That is what the UPSC says about the Essay paper in the CSE notification. Through an essay, the commission wants to know if you will make the right civil servant who has balance of judgement, variety and depth of interest, logical exposition and other such bureaucratic qualities.
- Keeping this in mind, we present a forum where you are asked to practice your writing skills by writing essays on the given topics. The topics are decided keeping in view the thematic trends in CS (Mains) examination.
- If that is not all, the best essays shall be rewarded and published. We'll judge the essay based upon four parameters viz. Structure of the essay, Content, Flow and Language.
- The prize details are as follows:

First Prize: 6 Months Subscription **Second Prize:** 4 Months Subscription **Third Prize:** 2 Months Subscription

Essay Writing Competition—46

Topic:

'Good laws make good societies.'

Terms and Conditions—

1. The essay shall be of length between 1000-1200 words.
2. It should be neatly written or printed on A4 sheets.
3. Only one entry per participant is allowed.
4. Entries are to be sent by Registered/speed post only on following address: EXECUTIVE EDITOR, DRISHTI CURRENT AFFAIRS TODAY, 641, FIRST FLOOR, DR. MUKHERJEE NAGAR, DELHI-110009. Please mention 'For Essay Competition' in capital letters on the envelope.
5. Remember to submit your personal details on the form printed on this page after neatly tearing it off the marked pointers. Submissions without this form shall not be entertained.
6. Your essay must reach the given address before **20th February, 2020**. Entries reaching us after the given date will not be accepted.
7. Essays should be original and not plagiarized or copied except for properly quoted references. Prior published or awarded essays will not be accepted.
8. All rights related to the results of the competition are secure with 'Drishti Current Affairs Today'. The winners shall be announced in the subsequent issue of the magazine and the winners shall be contacted by email and telephone.
9. Copyrights of the rewarded essays will lie with the magazine which may be used in any way by 'Drishti Publications'.

Form for Essay Competition–46

(Kindly cut and attach this form along with your essay. Use original form and not photocopy.)

Name of participant: ..... Mobile no. .....

Address: .....

.....

Pin code: ..... Email ID: .....

TO THE POINT

Designed to hit the bull's eye: Point wise, short, crisp material in an easy-to-understand format.

CARNATIC MUSIC

Why in News?

Recently, S. Sowmya was conferred with **Sangita Kalanidhi Award** for her contribution to **Carnatic music.**

Origin of Carnatic Music

- Carnatic music owes its name to the Sanskrit term *Karnâtaka Sangîtam* which denotes "traditional" or "codified" music.
- Composed of a system of *Ragam (Raga)* and *Thalam (Tala),* it has a rich history and tradition.
- Carnatic Sangeet has developed in the south Indian states of Tamil Nadu, Kerala, Andhra Pradesh and Karnataka. These states are known for their strong presentation of Dravidian culture.

Renaissance of Carnatic Music

- The course of the evolution of Indian music saw the emergence of two different subsystems as Hindustani and Carnatic music. Both the terms emerged for the first time in **Haripala's "Sangeeta Sudhakara"**, written in the 14th century A.D.
- The two distinct styles, Hindustani and Carnatic came into vogue after the advent of the Muslims, particularly during the reign of the Mughal Emperors.
- **Purandardas** (1484-1564), a prolific poet-composer and mystic of Vijayanagar, is considered to be the **father of Carnatic music** (Carnatic Sangeeta Pitamaha).
- **Venkatamakhi** is regarded as the grand theorist of Carnatic music. In 17th century AD, he developed *"***Melakarta***"*, the system for classifying south Indian ragas. There are 72 Melakartas at present.
- **Tyagaraja** (1767-1847), his contemporaries **Syama Sastri** and **Muttusvami Dikshitar** are together known as the **"Trinity" of Carnatic music**.

Musical forms of Carnatic Music

- **Gitam:** It is the simplest type of composition with an easy and melodious flow of raga.
- **Suladi:** The Suladi is a talamalika, the sections being in different talas.
- **Svarajati:** It consists of three sections, called Pallavi, Anupallavi and Charanam. The theme is either devotional, heroic or amorous.
- **Jatisavaram:** It is noted for the use of rhythmical excellence and the Jati pattern.
- **Varnam:** It is the only form which does not find a counterpart in Hindustani music. This form is called a Varnam because many of the Svara group patterns called 'Varnas' in ancient music are interwoven in its texture.
- **Kirtanam:** It is valued for the devotional content or Bhakti Bhava of the Sahitya.
- **Kriti:** It developed from the Kirtanam. It is a highly evolved musical form.
- **Pallavi:** This is the most important branch of creative music. It allows improvisation.

Difference between Carnatic and Hindustani Music

- Carnatic music originated in South India whereas Hindustani music in North India.
- It is believed that music of India was more or less uniform before 13th century. Hindustani synthesises with Vedic, Islamic and Persian traditions. Carnatic is comparatively untouched and developed on the original lines.
- Carnatic music has a homogenous and Hindustani music has a heterogeneous Indian tradition.
- Carnatic music has a restrained and intellectual character as compared with the more secular Hindustani traditions.
- The major vocal forms of Hindustani music are Dhrupad, Khayal, Tarana, Thumri, Dadra and Gazals. While Carnatic music has several varieties of improvisation such as Alapana, Niraval, Kalpnaswaram and Ragam Thana Pallavi.
- Hindustani music has various *gharanas* like Lucknow, Jaipur, Kirana, Agra etc., wherein Carnatic music no such *gharanas* found.

D C A T

TARGET MAINS

PAPER-I

Question 1. *Dr. Bhim Rao Ambedkar is thought to be the person with a forward vision. Substantiate the statement in terms of his contribution to economic development.*

Answer: Dr. BR Ambedkar is known to be the man who was ahead of his time in terms of his ideology and vision. Beyond politics, he gave valuable thoughts on economy pertaining to agriculture and land reforms, currency problem, labour issues and democratic state socialism.

- **Agriculture and land reforms:** Dr. Ambedkar favoured consolidation of land holdings but according to him it should be state owned. State should acquire all the agricultural land and after consolidating the acquired land it should allocate this land in a standard size to the original cultivators. For him, every factor responsible for low productivity like capital and labour should rightly mix with the land for better productivity.
- **India's currency problem:** Dr. Ambedkar wrote 'The Problem of Rupee: Its Origin and Its Solution' and favoured gold standards against gold exchange standards because the latter increased the risk of inflation and price rise. It is also evident that the Reserve Bank of India was based on the ideas presented by Ambedkar to Hilton Young Commission.
- **Labour laws:** He wanted participation of labourers in industrial management. He supported trade union movement and the right to strike against capitalism. Besides, India was the first nation to think about the employees insurance and the credit goes to the great visionary Dr. Ambedkar.
- **Economics of caste system:** According to Dr. Ambedkar, due to caste hierarchy, employment in India is fixed by birth which leads to reduction in the mobility of labour. This had created unemployment, segregation of market and had lowered competition. This impacts the economic development of India.
- **Democratic state socialism:** Dr. Ambedkar vouched for ownership of all basic industries by the state, whereby the government provides the basic amenities to the citizens. The addition of Directive Principles of State Policy in the Constitution assures economic as well as political justice to the citizens of India.
- **Canons of Public Expenditure:** Ambedkar pointed out that government should responsibly spend the public funds. The revenue which is collected from the public should be spent according to rules and regulations and due respect should be given to faithfulness, wisdom and economy.

Dr. B. R. Ambedkar was a highly trained economist. After India got independence, he devoted most of his time in politics and law. Therefore, he was more popular as a political leader rather than an economist. But whatever he has contributed to the field of economics is remarkable.

Question 2. *What is Madden-Julian Oscillation? Discuss its impact over the globe with Indian subcontinent as the focus.*

Answer: Discovered in 1971 by Dr. Roland Madden and Dr. Paul Julian, Madden Julian Oscillation (MJO) refers to a band of rain-bearing clouds moving eastward over the tropics (between 30°N and 30° S of the Equator). It goes around the globe in 30-60 days on average and is mainly observed over the Indian and Pacific Ocean. MJO comprises two phases:

- **Enhanced rainfall:** When air is pushed up due to surface convergence of winds, condensation and rainfall increases. At the top, the wind diverges.
- **Suppressed rainfall:** Winds converge at the top of the atmosphere, forcing air to sink and, later, to diverge at the surface.

Impact over the globe

- MJO creates favourable conditions for tropical cyclone activity, which makes MJO important to be monitored during the Atlantic hurricane season.
- The enhanced rainfall phase of the MJO causes the onset of Monsoon around the globe.
- MJO influences the El Nino Southern Oscillation (ENSO) cycle. It does not cause El Nino or La Niña, but it can contribute to the speed of development and intensity of El Nino and La Niña episodes.

PAPER-II

Question 4. *Identify the reasons behind extra-judicial killings and discuss the measures that are required to be taken.*

Answer: Extra-judicial killing involves extinguishing the life of a person by government authorities or personnel without the sanction of any judicial authority. These are also known as fake encounters.

Such a killing highlights the limitations of our criminal justice system. There are several factors that attribute to extra-judicial killings:

- **Lengthy judicial process:** The complex and slow paced judicial system and the rising number of pending cases lead to delay in the delivery of justice. As justice delayed is justice denied, it causes frustration in society and makes the formal judicial system the least preferred form of conflict redressal.
- **Security concerns:** Insurgencies like Naxalism and those in the northeast have raised the issue of internal security where judiciary usually prolongs the process. Encounter serves as reprisal measure.
- **Usurpation of power:** In areas under the Armed Forces Special Power Act, such killings are justified on the basis of self-defence and internal security. There is also a lack of proper procedure to investigate fake encounters, which gives a free hand to security forces.
- **Popular support:** Crowd support for such acts in several cases leads to no further questioning. Under nationwide public outrage (e.g. Hyderabad case), police encounter becomes favourable tool to bring normalcy.

However, such killings cannot be justified as they run against the Constitutional rights.

Measures that can be taken to avoid such killings

- **Judicial reforms:** India has less than 30% conviction rate in criminal cases. Speedy trials and conviction coupled with limiting the time frame for hearing and conviction in heinous crimes would help.
- **Police reforms:** As per the Justice JS Verma Committee, State Security Commissions shall be established to ensure that state governments do not exercise influence on the state police and that the Police acts according to the law.
- **Guidelines:** In People's Union for Civil Liberties (PUCL) case, the Supreme Court issued certain guidelines like magisterial probe in investigation of police encounters. The guidelines by National Human Rights Commission (NHRC) asks the superintendent of police to inform the Commission within 48hrs of death. These need to be followed in letter and spirit.
- **Legislation:** The Prevention of Torture Bill is still pending inspite of India's ratification to the Convention against Torture. The passage of the Bill needs to be speeded up.
- **Deterrence:** Stringent punishments for perpetrators of extra-judicial killings, making involvement of human rights commissions mandatory can also help in curbing such incidents.

At the end, the Constitutional morality should prevail. An accused shall be brought to trial through a robust, stringent and competent criminal system. Structural reforms are needed to uplift the notion of accessing justice.

Question 5. *Despite the ideal principle of peaceful coexistence of the Panchsheel Agreement, India and China have failed to settle their border dispute. Discuss.*

Answer: India and China signed the Panchsheel Agreement in 1954 for peaceful co-existence. It marked the apogee of the Hindi-Chini-Bhai-Bhai policy. Provisions like non-aggression, non-interference and mutualism were the highlights of the agreement along the nearly 3500 km long border.

Reasons for non-resolution of the border-dispute:

- In 1962 war resulted in China acquiring control of Aksai Chin. The war created mistrust in the minds of Indians against China which is still present. Besides, Chinese claims of Arunachal Pradesh and Aksai Chin undermines India's sovereignty.
- China's intrusion near the borders in the eastern sector can hamper the Chicken Neck Corridor, which is a narrow passage between the North-East and the rest of India.
- The competing territorial claims by the two countries have been internalised by the public in both countries. The two countries are also gripped by a strong nationalism. All these make give and take, vital in the resolution of such vexatious disputes, extremely difficult.
- Further, the expansionist policies of China like String of Pearls, CPEC passing through PoK as part of Belt and Road Initiative, the Doklam standoff, etc. have made the situation more difficult for India.

- According to a recent report in the Rajya Sabha, GST frauds are estimated to be ₹45,682 crores since the implementation of GST.
- Some frauds include raising fake invoices, claiming excess Input Tax Credit (ITC) fraudulently, not passing on the benefit of reduced GST rates to recipients, etc.
- Government has not been able to effectively compensate states through compensation cess as was promised.
- Business owners, particularly the smaller ones complain about a cumbersome process of tax filing, making the biggest indirect tax reform an impediment in business.

Despite its benefits, the government has been trying to smoothen the road to GST. It is important to take a leaf from global economies that have implemented GST before us, and who overcame the teething troubles.

PAPER-IV

Question 10. *What does this quote mean to you? 'A great man is different from an eminent one in that he is ready to be the servant of the society.' - Dr. B. R. Ambedkar*

Answer: In literal terms, anyone highly regarded or prominent is called an eminent person. He/She is well-known and respected, especially because he/she is good at his/her profession. However, a person is known by his/her deeds in the society. It is not necessary that an eminent person is great too.

The genesis of a great man depends on the long series of complex influences and the social state into which he has grown. A person is adjudged to be great if he/she is devoted to the real life issues creating havoc in the society. Their efforts and initiatives for ground level issues like hunger, poverty, shelter, education, manual scavenging, etc. help in upliftment of the society. An eminent person may also work for the society but that may not always be based on his/her ideology or intent but rather capabilities and compulsion.

To illustrate, Kailash Satyarthi is known for the upliftment of the poor by campaigning against child labour. He vouched for the universal right to education. He can be considered a great person.

D C A T

Geography

The number of questions asked in the CSE Preliminary Examination from the subject Geography has dropped from 20 in 2014 to only 6 in 2019. This trend of declining importance of Geography in the CSE Prelims should be viewed with certain considerations.

The first consideration is the fact that the importance of Geography cannot be easily underestimated as the weightage given to this subject in the CSE Mains Examination has not changed. Second, Geography is crucial to our understanding of various national and international issues and lastly, trends in Prelims cannot be taken for granted because UPSC is known for being unpredictable with their question setting.

This last bit of information is important because the static portions of Geography form one of the backbone areas of CSE preparation and because of this, the lack of importance in the subject cannot be permanent. Instead, it would be a safe bet to assume that from 6 questions in CSE 2019, the number of questions to be asked from Geography would only increase. This Geography supplement has been prepared keeping in view this trend analysis.

We think that our readers will benefit greatly from this supplement. We have prepared it with great care and patience. Moreover, since the subject and the list of topics are vast, we picked only the most UPSC relevant material. This made the supplement 'short and crisp' along with being relevant for the upcoming Prelims. Combined with a good standard text, this supplement should boost any aspirant's preparation for the subject of Geography.

CONTENTS

Physical Geography

Solar System			
Types	**Subtypes/Facts**		
Sun	Sun is star at the centre of the solar system Primarily made up of hot gases. Important sources of energy for life on Earth which is produced from nuclear fusion of hydrogen nuclei. When magnetic energy is released by the Sun during magnetic storms, solar flares occur which we see on Earth as sunspots (dark areas on the Sun's surface caused by magnetic variations). Solar Winds: Ejections of plasma (extremely hot charged particles) that originate in the layer of the Sun known as the corona (outer most layer, hidden due to sun's light, visible in solar eclipse). The Aurora Borealis and Aurora Australis are caused by the interaction of solar winds with Earth's atmosphere.		
Planets	**Inner/Terrestrial** ■ Crust: thin rocky ■ Mantle: rich in iron and magnesium ■ Core: molten metals ■ Atmosphere: thin	Mercury	Smallest planet in the solar system Second densest planet No moons or rings Second hottest planet (Venus hottest) Lack of seasons on its surface due to the smallest tilt than all other planets Spacecraft: Mariner, Messenger
		Venus	Sister of Earth due to proximity, mass and size. Surface of Venus is hidden by an opaque layer of clouds which are formed from sulphuric acid. Referred as: "morning star", "evening star" (due to brightness). Rotation: clockwise (other planets - counter clockwise). Named after a female figure.
		Earth	Largest of all the terrestrial planets Most dense planet in the solar system. Ozone Layer protects it from harmful solar radiation The moon (no atmosphere, only one face is ever seen from earth and this condition is known as **Tidal Locking**)
		Mars	Red Planet No magnetic field. **Olympus Mons:** The tallest mountain known in the terrestrial planets system Mars is the only other planet besides Earth that has polar ice caps. Seasons like Earth, but they last twice as long. **Notable Moons:** Phobos and Deimos
	Outer/Jovian ■ Gaseous bodies. ■ They have rings, which comprises belts of small debris around them. ■ They have large number of Moons (natural satellites).	Jupiter	Shortest day and highest gravity among the eight planets . **Missions:** Pioneer 10 and 11, Voyager 1 and 2, Galileo, and the Juno. **The Great Red Spot:** Jupiter's southern hemisphere (one storm). **Atmosphere:** 90% hydrogen and 10% helium, nearly the same as the Sun's. Notable moons: Europa, Ganyemede (largest moon in the solar system), Callisto
		Saturn	"The Ringed Planet" Second largest planet (diameter and mass). Gives off more energy than it receives from the Sun.

INTERIOR OF THE EARTH

Sources of information about the interior of the earth.

Direct Sources

- Deep earth mining and drilling reveals the nature of rocks deep down the surface.
- Volcanic eruption forms another source of obtaining direct information.

Indirect Sources

- Seismic Waves
- Meteors
- Gravitation
- Magnetic field

Earth's Layers

Earth's layers are identified by studying various direct and indirect sources. The structure of the earth's interior is made up of several concentric layers – crust, mantle and the core.

1. The Crust

- Crust is the outer thin layer with a total thickness normally between 30-50 km.
- Oceanic crust is thinner (5-30 km thick) as compared to the continental crust (50-70 km thick).
- The outer crust is made up of sedimentary material (granitic rocks) which makes it acidic in nature.
- The lower crust is made up of basaltic and ultra-basic rocks.
- The continents are composed of lighter silicates – silica + aluminium (also called '**sial**') while the oceans have the heavier silicates – silica + magnesium (also called '**sima**').

Asthenosphere

- Upper portion of the mantle below lithosphere is called asthenosphere.
- It is considered to be extending up to 400 km.
- It is a hot fluid zone and main source of magma.

- **Isostasy**
  - It describes the physical, chemical and mechanical differences between the mantle and the crust that allow the crust to "float" on a more malleable mantle. It depends on density and thickness of the crust etc.

2. Mantle

- From Moho's discontinuity (35 km) to a depth of 2,900 km.
- The crust and the uppermost part of the mantle are called lithosphere. Its thickness ranges from 10-200 km.
- The lower mantle extends beyond the asthenosphere. It is in solid state.
- It is composed of solid rock and magma.

3. Core

- Ranges form 2900 km to 6400 km.
- Core has the heaviest mineral materials of highest density.
- Nickel and iron [**nife**].
- The outer core is liquid while the inner core is solid.

Seismic Discontinuities

- Mohorovicic Discontinuity (Moho) – It separates the crust from the mantle, its average depth being about 35 km.
- Gutenberg Discontinuity – It lies between the mantle and the outer core, below 2900 km from earth's surface.
- Conrad Discontinuity: The transition zone between the oceanic crust and the continental crust.
- Repiti Discontinuity: Zone between outer mantle and core
- Lehman Discontinuity: Zone between outer core and inner core.

Major Elements of the Earth's Crust

Sl. No.	Elements	By Weight (%)
1.	Oxygen	46.60
2.	Silicon	27.72
3.	Aluminium	8.13
4.	Iron	5.00
5.	Calcium	3.63
6.	Sodium	2.83
7.	Potassium	2.59
8.	Magnesium	2.09
9.	Others	1.41

EARTH MOVEMENTS

- Our earth is undergoing deformations imperceptibly but continuously.
- These deformations are caused by the movements generated by various factors like:
  - The heat generated by the radioactive elements in earth's interior.
  - Movement of the crustal plates due to tectogenesis.
  - Forces generated by rotation of the earth.
  - Climatic factors like winds, precipitation, pressure belts etc.
- There are two types of earth movements.

Residual Mountains

- Evolved by denudation.
- Also evolve from plateaus which have been dissected by rivers into hills and valleys.
- Examples of dissected plateaux, where the down-utting streams have eroded the uplands into mountains of denudation, are the Highlands of Scotland, Scandinavia and the Deccan Plateau.

EARTHQUAKES

Terms associated with earthquake	
Focus (Hypocentre)	■ The place of origin of an earthquake inside the earth.
Epicentre	■ Point on the earth's surface vertically above the focus. ■ Maximum damage is caused at the epicenter.
Wave Velocity	■ 5 to 8 km per second through the outer part of the crust but travel faster with depth.
Isoseismic Line	■ A line connecting all points on the surface of the earth where the intensity is the same.

Causes of Earthquake

Abrupt release of energy along a fault causes earthquake waves. The energy waves travelling in different directions reach the surface. The point on the surface, nearest to the focus, is called **epicentre**. It is the first one to experience the waves. It is a point directly above the focus.

Earthquake Waves

Primary Waves (P waves)/ Longitudinal/Compressional waves

- Particles of the medium vibrate along the direction of propagation of the wave.
- P-waves move faster and are the first to arrive at the surface.
- Velocity of P waves in Solids > Liquids > Gases
- Their velocity depends on shear strength or elasticity of the material.
- This gives clues about Solid inner core

Secondary Waves (S waves)/ Transverse/Distortional waves

- Arrive at the surface with some time lag.
- It cannot pass through liquids or gases.
- Observation led to the discovery of liquid outer core. Since S waves cannot travel through liquid, they do not pass through the liquid outer core.

Surface Waves (L waves)/Long period waves

- They are low frequency, long wavelength, and transverse vibration.
- Generally, affect the surface of the Earth only and die out at smaller depth.
- Develop in the immediate neighbourhood of the epicentre.
- Cause displacement of rocks, and hence, the collapse of structures occurs.

Human Induced Earthquakes

Some earthquakes are induced by human activities:

- Deep mining
- Underground nuclear tests
- Reservoir Induced Seismicity (RIS)
- Extraction of fossil fuels
- Groundwater extraction
- Artificial induction
- In fluid injection, the slip is thought to be induced by premature release of elastic strain, as in the case of tectonic earthquakes, after fault surfaces are lubricated by the liquid.

VOLCANOES

- A volcano is a vent in the earth's crust from which molten rock material (magma), explosive bursts of gases and volcanic ashes erupt.
- A mountain or hill having a crater or vent through which lava, rock fragments, hot vapour, and gas are or have been erupted from the earth's crust.

Causes of Volcanism

- The chemical reactions of radioactive substances deep within the interior of the earth.
- Huge temperature difference between the inner layers and the outer layers of the earth This temperature difference gives rise to convectional currents in the outer core as well as the mantle. The convectional currents in the mantle create convergent and divergent boundaries.
- As a source of crushed rock for concrete aggregate or railroad ballast, and other engineering purposes, lava rock is often extensively used.

Geyser	Hot Water Spring
■ Steam or water at high pressure, along its path, gets accumulated in small reservoirs, fissures and fractures. Once the pressure exceeds the threshold limit, the steam bursts out to the surface disrupting the water at the mouth. Hence the name geyser. ■ Usually a crater like structure is created at the mouth. ■ Silicate deposits at mouth gives them their distinct colours. ■ Found in very few regions. Iceland is famous for its geysers. ■ **Example:** Old faithful (USA)	■ Steam or water at high pressure smoothly flows to the top through the vent and condense at the surface giving rise to a spring. ■ Usually a crater like structure is created at the mouth of the spring. ■ Very colourful because of the presence of cyanobacteria of different colours. ■ Found all across the world ■ **Example:** Tattapani (Himachal Pradesh)

Pacific Ring of Fire

- Circum-Pacific region, popularly termed the 'Pacific Ring of Fire', has the greatest concentration of active volcanoes. Volcanic belt and earthquake belt closely overlap along the 'Pacific Ring of Fire'.
- 'Pacific Ring of Fire' is estimated to include two-thirds of the world's volcanoes.

Types of volcano on the basis of eruption

Active	Dormant	Extinct
Erupt frequently	Eruption is not regular, long interval of repose	Eruption recorded in historic times
Mount St. Helens in US	Vesuvius (Italy), Fujiyama (Japan)	Kilimanjaro (2 peaks) in Eastern Africa

Volcanic Landforms: Based on whether magma cools within the crust or above the crust.

Extrusive	Intrusive
■ Formed from material thrown out during volcanic activity. ■ Conical vent – a narrow cylindrical vent through which magma flows out violently. ■ Mid-oceanic ridge occurs in the oceanic areas. ■ After the eruption of magma has ceased, the crater frequently turns into a lake at a later time. This lake is called a 'caldera'. Example: Krakatoa in Indonesia. ■ Cinder Cone – a steep conical hill of loose pyroclastic fragments, such as either volcanic clinkers, cinders, volcanic ash, or scoria that has been built around a volcanic vent.	■ Intrusive landforms are formed when magma cools within the crust [Plutonic rocks (intrusive igneous rock)]. ■ The intrusive activity of volcanoes gives rise to various forms. ■ Batholith: cooling down and solidification of hot magma inside the magma chamber. ■ Laccolith large dome-shaped intrusive bodies connected by a pipe-like conduit from below. ■ **Lapolith:** In case it develops into a saucer shape, concave to the sky body, it is called Lapolith. ■ **Phacolith:** A wavy mass of intrusive rocks, at times, is found at the base of synclines or at the top of anticline in folded igneous country. ■ **Sill:** Solidified horizontal lava layers inside the earth. ■ **Dykes:** Solidified vertical lava layers inside the earth.

Composite type volcano	■ Conical or central type volcanic landforms. ■ Along with lava, large quantities of pyroclastic material and ashes find their way to the ground. ■ The highest and most common volcanoes have composite cones. ■ Often called strato – volcanoes [because they are made up of many layers (stratas) of hardened lava, pumice, ash, etc.]. ■ Stromboli 'Lighthouse of the Mediterranean', Mt. Vesuvius, Mt. Fuji etc. are examples.
Shield type volcano	■ Mostly made up of basalt. These volcanoes are not steep. ■ They become explosive if somehow water gets into the vent; otherwise, they are less explosive. For example: Mauna Loa (Hawaii).
Basalt type volcano	■ A very thin magma escapes through cracks and fissures in the earth's surface and flows after intervals for a long time, spreading over a vast area, finally producing a layered, undulating (wave like), flat surface. ■ **Example:** Deccan traps (peninsular India), Snake Basin, USA, Icelandic Shield, Canadian Shield etc.

Hotspot Volcanism

- This type of volcanism occurs not at the margins but at the interior parts of the lithospheric plates. It occurs due to abnormally hot centres in the mantle known as mantle plumes.
- Mantle plumes is convection of abnormally hot rock (magma) with in the Earth surface.
- Well known examples include Hawaiian Hotspot Volcanism, Yellowstone Hotspot Volcanism and Reunion Hotspot Volcanism.

SUPPLEMENT

- The Reunion hotspot is a volcanic hotspot which currently lies under the Island of Reunion in the Indian Ocean.
- The Chagos-Laccadive Ridge (Lakshadweep is a part of this ridge) and the southern part of the Mascarene Plateau are volcanic traces of the Reunion hotspot.

ROCKS

Igneous Rocks (Primary Rocks)

- Formed out of magma and lava.
- Molten material – cooled slowly at great depths, results in very large grains.
- Sudden cooling (at the surface) results in small and smooth grains.
- Granite, gabbro, pegmatite, basalt, etc. are some of the examples of igneous rocks.
- There are two types of igneous rocks: intrusive rocks (Granite) and extrusive rocks (Basalt-Deccan Traps)
- Acid igneous rocks, such as granite, are less dense and are lighter in colour than basic rocks.

Types of Igneous Rock	
Plutonic Igneous Rocks	**Volcanic Rocks**
Intrusive rocks	Extrusive rocks
Slow cooling allows big-sized crystals (large grains)	Rapid cooling prevents crystallization, as a result such rocks are fine-grained
Less dense and are lighter in colour than basic rocks	Denser and Darker in colour
Granite	Basalt

- Since magma is the chief source of metal ores, many of them are associated with igneous rocks.
- **Minerals:** iron, nickel, copper, lead, zinc, chromite, manganese, gold, diamond and platinum.

Sedimentary Rocks

- Consist of a number of layers or strata.
- Characterized by marks left behind by water currents and waves etc.
- Fossils of plants and animals are found.
- Generally porous.
- Spread of Sedimentary Rocks in India:
  - Alluvial deposits in the Indo-Gangetic plain and coastal plains,sandstones, shales, limestones.
  - Coal deposits occur in river basins of the Damodar, Mahanadi, Godavari in the Gondwana sedimentary deposits.
- These rocks also yield some of the richest soils in terms of minerals biological detritus etc.

Metamorphic Rocks

- Metamorphic means 'change of form'.
- Form under the action of pressure, volume and temperature (PVT) changes.
- Metamorphism occurs when rocks are forced down to lower levels by tectonic processes or when molten magma rising through the crust comes in contact with the crustal rocks.
- Rocks undergo recrystallization and reorganization of materials within original rocks.
- **Foliation or lineation:** An arrangement when some rocks grains or minerals get arranged in layers or lines.
- **Banding:** A structure when materials of different groups are arranged into alternating thin to thick layers.
- Gneissoid, slate, schist, marble, quartzite etc. are some examples of metamorphic rocks.

PLATEAU

- A flat-topped table land.
- Area: third of the Earths land.
- They are one of the four major landforms, along with mountains, plains, and hills.
- Plateaus, like mountains may be young or old. The Deccan plateau in India is one of the oldest plateaus.
- Valleys form when river water cuts through the plateau. The Columbia Plateau, between the Cascade and Rocky Mountains in the north-western United States, is cut through by the Columbia River.
- Sometimes, a plateau is so eroded that it is broken up into smaller raised sections. Many outlier plateaus are composed of very old, dense rock formations. Iron ore and coal often are found in plateau outliers.
- Plateaus are very useful because they are rich in mineral deposits. As a result, many of the mining areas in the world are located in the plateau areas.

Types of Plateaus

Dissected	Volcanic	Intermontane	Continental Plateau	Oceanic Plateau	Piedmont Plateau
Forms as a result of upward movement in the Earth's crust. The uplift is caused by the slow collision of tectonic plates. **Example:** The Colorado Plateau, in the western United States, Tibetan plateau etc. are examples.	Formed by numerous small volcanic eruptions. **Example:** The Columbia Plateau in the United States of America and Deccan Traps are two such plateaus.	The highest in the world, bordered by mountains. **Example:** The Tibetan Plateau and the Mongolian plateau	These are bordered on all sides by the plains or seas, forming away from mountains. **Example:** Antarctic Plateau in East Antarctica.	Bordered by ocean or sea on all sides **Example:** Caribbean, Mid-Pacific Mountain	These are bordered by a mountain on one side and a plain or ocean on the other side **Example:** Pantagonian Plateau (South America)

Major Plateaus of the World

Name	Facts
Tibetan Plateau	■ Highest and largest plateau in the world. ■ Called the 'roof of the world'. ■ Surrounded by mountains: South Himalayan Range, Northeast Kunlun Range, West Karakoram Range.
Columbia-Snake Plateau	■ River Columbia and its tributary Snake meet in this plateau. ■ Bordered by the Cascade Range and Rocky Mountains and divided by the Columbia River. ■ Formed as the result of volcanic eruptions with a consequent coating of basalt lava (Flood Basalt Plateau).
Colarado Plateau	■ The largest plateau in America. ■ Divided by the Colorado River and the Grand Canyon. ■ An example of intermontane plateau. ■ Known for the groundwater which is under positive pressure and causes the emergence of springs called Artesian wells.
Deccan Plateau	■ Bordered by the Western Ghats and the Eastern Ghats. ■ Includes the Deccan Traps (largest volcanic feature on Earth).
Kimberley Plateau	■ Lies in the northern part of Australia. ■ made of volcanic eruption. ■ **Minerals:** iron, gold, lead, zinc, silver and diamond are found here.
Katanga Plateau	■ Lies in Congo. ■ Famous for copper production. ■ **Other minerals:** Cobalt, Uranium, Zinc, Silver, Gold and Tin
Mascarenes Plateau	■ Formed in the Indian Ocean. ■ It extends between the Seychelles and Mauritius Islands.

Name	Facts
Laurentian Plateau	■ Part of Canadian Shield. ■ Fine quality of iron-ore is found here.
Mexican Plateau	■ Called as 'Mineral Store'. ■ World's biggest silver mine Chihuahua is situated in the plateau.
Patagonia Plateau	■ A Piedmont plateau (Arid Landforms) lying in southern part of Argentina ■ Rain shadow desert plateau and an important region for sheep rearing.
Altiplano Plateau or Bolivian Plateau	■ An intermontane plateau ■ Located between two ranges of Andes Mountain. ■ Major area of Tin reserves.
Massif Central	■ This plateau lies in the central France. ■ It is famous for Grapes cultivation.
Anatolian Plateau	■ Known as Asia Minor, most of Turkey lies on this plateau. ■ An intermontane plateau lying between Pontiac and Taurus Mountain ranges. ■ Tigris-Euphrates Rivers flow through this plateau. ■ Precious wool producing Angora goats are found here.
Spanish Plateau or Iberian Plateau	A lava plateau, situated in the middle of Spain. It is rich in minerals like Iron.
Loess Plateau	■ It is in China. ■ Soil here is made of fine particles brought by the wind. ■ Extremely productive. Crops grown in this soil along the Yellow River give great yields.
Potwar Plateau	Situated in northern plateau (Punjab) region of Pakistan. Its average 'Salt Range' is located to the south-west of the plateau.
Ahaggar Plateau	A small plateau located in Algeria, Sahara.
Bavarian Plateau	Southern part of Germany.

Indian Geography

Some Important Facts About India
Area: 32,87,264 square kilometers, with 2.4 % of world area it is the seventh largest country of world.
Location: Latitudes 8°4' N and 37°6' N; Longitudes 68°7' E and 97°25' E.
Points: Southernmost Point: Indira Point (Great Nicobar Island).
Westernmost Point: Guhar Moti (Kutch, Gujarat).
Northernmost Point: Indira Col (Ladakh).
Easternmost Point: Dong village (Arunachal Pradesh).
Lowest Point: Kuttanad (-2.2 M) (Kerala).
Highest Point: K2 (Pakistan Occupied Kashmir, 8,611 m); Kanchenjunga (8,856 mt) (Sikkim).
Neighbouring Countries: In the North – China, Bhutan, Nepal
In the East – Myanmar (Burma), Bangladesh
In South – Sri Lanka, Maldives
In North West – Afghanistan, Pakistan
Tropic of Cancer (23°30' N) passes: Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura and Mizoram (8).
Standard Meridian: 82°30' E longitude passing through Mirzapur in Uttar Pradesh along with Madhya Pradesh, Chhattisgarh, Odisha and Andhra Pradesh.
Coastline: 7,516.6 km encompassing the mainland, Lakshadweep Islands, and the Andaman & Nicobar Islands.

PHYSIOGRAPHY OF INDIA

Himalayas

- The great mountains of the North
- 2400 km long
- **Extends:** Kashmir to Arunachal Pradesh.
- **Consists:** Three parallel ranges in its longitudinal extent.
- Affects climate of Asia greatly. Reason for the heavy rainfall in Terai region.
- It had a great role behind the creation of Gobi Desert.
- Mountain range covers: Bhutan, Nepal, Pakistan, India and China.

1. Kashmir/North Western Himalayas

- Consist of Lesser Himalayas, Middle Himalayas and Greater Himalayas.
- Northern most ranges.
- **Consists:** Zaskar Range, Pir Panjal Range and Valley of Kashmir.
- **Origin of River:** Jhelum, Chenab etc.
- Famous for Karewa formations, which are thick glacial deposits used for saffron cultivation.

2. Himachal and Uttarakhand Himalayas

- Consist of Greater to Lesser Himalayas.
- **Consist:** Dhaula Dhar, Mahabharat Ranges.
- Distinguishing Features are Duns formation like Dehradun and Chandigarh-Kalka Dun.
- **Bhotia Tribe:** Nomadic tribes associated with Bugyals (High altitude summer grasslands in the Himalayas).

3. Sikkim Himalayas

- Between Nepal and Bhutan Himalayas.
- Inhabited by Lepcha tribe
- Distinguishing feature is Duar formation which is used for Tea plantation.
- **Origin of River:** Tista river (tributary of Brahmaputra)

4. Arunachal Himalayas

- Between Bhutan Himalayas and Diphu Pass.
- Namcha Barwa Peak
- **Origin of Rivers:** Dibang, Lohit, Kameng
- Inhabited by Monpa, Abor, Mishmi, Nyishi tribes.
- Famous for orchids and various flora and fauna.

SUPPLEMENT

Passes In India

1. **Banihal:** Between Jammu and Kashmir Valley, located in Pir Panjal range, Jawahar tunnel passes through it
2. **Zoji La:** Between Kashmir Valley and Kargil, connects Srinagar with Leh via NH 1
3. **Burzail:** Connects Gilgit with Srinagar through Deosai Plateau
4. **Pensi La:** Situated in Greater Himalayas, connects Zaskar Valley to Suru valley
5. **Pir Panjal:** Connects Jammu to Srinagar
6. **Khardung La:** In Leh of Ladakh, gateway to Shyok and Nubra Valleys, highest motorable pass, which carries supplies to Siachen
7. **Chang La:** In Great Himalayas, connects Ladakh with Tibet
8. **Bara-Lacha:** In Jammu and Kashmir, connects Manali and Leh
9. **Fotu-La:** In Zaskar range of Himalayas, Srinagar-Leh highway passes through it
10. **Shipki La:** In Himachal Pradesh which connects to Tibet (China)
11. **Kunzum Pass:** In Lahul and Spiti Valley of Himachal
12. **Rohtang Pass:** In Himachal, connects Kullu to Lahul and Spiti
13. **Niti Pass:** In Uttarakhand joins to Tibet (China)
14. **Mana Pass:** In Uttarakhand connects Tibet (China); Passes through Nanda Devi Biosphere Reserve
15. **Traill's Pass:** In Uttarakhand , situated at the end of Pindari Glacier
16. **Lipulekh Pass:** In Uttarakhand, connects India with Tibet (China), on trijunction of India China and Nepal, pass to Kailash Mansarovar
17. **Bhor Ghat:** In Maharashtra, situated in crest of Western Ghat
18. **Thal Ghat:** In Maharashtra, connects Mumbai and Nashik
19. **Pal Ghat:** In Kerala and Tamil Nadu, passes through Nilgiri and Anaimalai hills
20. **Haldi Ghati:** In Rajasthan
21. **Asirgarh:** In Satpura range of Madhya Pradesh
22. **Nathu-La:** In Sikkim, part of Ancient Silk route connecting India and China
23. **Jelep La:** In Sikkim, connects Lhasa (Tibet) to India
24. **Bomdila:** In Arunachal Pradesh, connects Lhasa (Tibet) to Tawang area
25. **Diphu:** In Arunachal, tri Junction of India China and Myanmar
26. **Sela Pass:** In Arunachal, connects Tawang with Bomdila via NH 13

5. The Eastern Hills and Mountains

- Arranged in north to south direction.
- Patkai Bum, Naga Hills, Mizo or Lushai Hills.
- Distinguishing features are Loktak lake (Manipur), Molassis basin (Mizoram).
- **River:** Barak and Brahmaputra river system

Northern Plains

- **Location:** Between Himalaya and Peninsular plateau.
- **Formed by:** Ganges, Indus, Brahmaputra and their tributaries.
- **Covers:** Punjab, Uttar Pradesh, Bihar, Haryana, West Bengal, Assam

INDIAN AGRICULTURE

Crop Classification Based on Climate	
Tropical	**Temperate**
Crops grow well in warm & hot climate	Crops grow well in cool climate
Example: rice, sugarcane, jowar etc.	**Example:** wheat, oats, gram, potato, apple etc.

Crop Classification Based on Growing Season		
Kharif/Rainy/Monsoon crops	**Rabi/winter/cold seasons crops**	**Summer/Zaid crops**
The crops grown in monsoon months	The crops grown in winter season	Crops grown in summer
Sown before monsoon and harvested at the end of the monsoon	Sown before retreating monsoon and harvested before summer.	Sown and harvested in summer
June to Oct-Nov	Oct to March	March to June
Require warm, wet weather at major period of crop growth	Crops grow well in cold and dry weather	Require warm dry weather for major growth period
E.g. rice, maize, sorghum, pearl millet/bajra, finger millet/ragi (cereals), arhar (pulses), soyabean, ground-nut (oilseeds), cotton etc.	E.g. wheat, barley, oats (cereals), chickpea/ gram (pulses), linseed, mustard (oilseeds) etc.	E.g. groundnuts, watermelon, pumpkins, gourds etc.

Crops in India

Name	Climatic Conditions	Additional Information
Rice	■ High Heat and High humidity ■ **Rainfall:** 100 – 200 cm ■ **Soil:** variety of soils – acidic/alkaline (fields must retain water)	■ Cultivated throughout India, except higher parts of Himalayas and desert areas ■ **Worldwide:** China > India; **Domestic:** West Bengal > UP > Andhra Pradesh ■ Central Rice Research Institute, Cuttack, Odisha
Wheat	■ Cool Climate with moderate rainfall ■ **Rainfall:** 50 cm – 100 cm; ■ Well drained fertile soils	■ Mainly in north-western parts. ■ Frost at flowering time, hail storm at the time of ripening causes heavy damage ■ **Worldwide:** China > India; **Domestic:** UP > MP > Punjab
Maize	■ Mainly rainfed, 50 cm – 100 cm ■ **Soil:** Fertile well drained alluvial or red loams	■ Almost in all areas – Important crop in arid lands ■ **Worldwide:** USA > China > Brazil (India 8th); **Domestic:** Karnataka > AP > Maharashtra
Jowar	■ Hot and humid areas ■ **Rainfall:** 30 cm – 100 cm	■ Mainly in Southern States, North Western India ■ **Worldwide:** USA > India > Nigeria; **Domestic:** Maharashtra > Karnataka > MP
Bajra	■ Dry and warm climate, rain fed crop ■ **Rainfall:** 40 cm – 50 cm ■ **Soil:** sandy soils, black and red soils	■ Mainly in North Western Parts ■ Widely used as fodder ■ **Worldwide:** India > Nigeria > China; **Domestic:** Rajasthan > Gujarat > Mahrasthra
Ragi	■ **Rainfall:** 50 cm – 100 cm ■ **Soil:** Red, light black and sandy	■ Drier parts of South India. ■ **Worldwide:** India 1st; **Domestic:** Karnataka > TN > Uttarakhand
Barley	■ Does not tolerate high heat and high humidity ■ **Rainfall:** 75 cm – 100 cm	■ Cold drier parts – Great plains and valleys of western Himalayas ■ **Worldwide:** Russia > Germany > France (India 22nd); **Domestic:** UP > Rajasthan > MP
Gram	■ Wide range of climate, preferably mild climate	■ Throughout India ■ **Worldwide:** India 1st; **Domestic:** MP > Maharashtra > Rajasthan
Tur/ Arhar	■ Dry crop generally mixed with other kharif crops	■ Drier areas ■ **Worldwide:** India 1st; **Domestic:** Maharashtra > MP > Karnataka

PINK REVOLUTION

A rapid increase in the production of meat with high export-growth and better domestic production is known as the period of "Pink Revolution".

WHITE REVOLUTION

- Also known as **Operation Flood**.
- India is leading producer of milk in the world.
- Under 'Operation Flood' programme good breeds of cows and buffaloes, which yield more milk were introduced.
- Co-operative societies in this field were encouraged.
- For the milk point of view, buffaloes are important as they account for about 53% of total milk production in India.
- In 1965, the National Dairy Development Board (NDDB) was set up to promote, plan and organise dairy development through cooperatives.

NOTE: Eco-Farming or Organic Farming farming avoids the use of synthetic fertilizers, pesticides, growth regulator and Livestock feed additives. It relies on crop rotation, crop residues, animal manure, off-farm organic wastes and biological pest control to maintain soil productivity.

Types of Agriculture

Apiculture	Bee-keeping
Aquaculture	Aquatic animals or plants
Arboriculture	Ornamental trees and shrubs
Aviculture	Birds
Floriculture	Flowers
Horticulture	Gardening
Mariculture	Sea fish or other marine life
Monoculture	Cultivation of only one sort of crop
Permaculture	Development of sustainable agriculture
Sericulture	Silk and silkworms
Silviculture	Trees
Vermiculture	Earthworms
Viticulture	Grapevines

Colour Revolutions in India

Revolution	Significance
Blue Revolution	Fish production
Brown Revolution	Leather/non-conventional/Cocoa production
Golden Fiber Revolution	Jute production
Golden Revolution	Fruits/Overall Horticulture development/Honey production
Green Revolution	Food grains
Grey Revolution	Fertilizer
Pink Revolution	Onion production/Pharmaceutical/Prawn production
Red Revolution	Meat & Tomato production
Round Revolution	Potato
Silver Fiber Revolution	Cotton
Silver Revolution	Egg/Poultry production
White Revolution	Milk/Dairy production
Yellow Revolution	Oil Seeds production
Evergreen Revolution	Overall development of Agriculture

Types of Indian Forest

Types	Climatic Conditions	Location in India	Examples	Special Facts
Tropical Evergreen	**Average Temperature:** 25°C **Rainfall:** 200 cm	Western Ghats, North Eastern Regions and in Andaman and Nicobar	Rosewood, Gurjan, Mahogany, Ebony	■ Sun rays unable to reach earth ■ Trees compete & rise high to get sunlight; they don't shed leaves
Himalayan Vegetation	**Rainfall:** 150-300 cm **Average Temperature:** 11°C-14°C	High altitude of Himalaya	At 1000-1500 m (Sal, Teak, Bamboo); At 3000-3500 m (Pine, Oak, Deodar, Cedar grows)	At higher altitude only tundra vegetation - Mosses, Lichens are found.
Mangrove (Tidal Forest)	Wet coastal areas (Saline and Swampy area)	At the mouths of Ganges, Brahmaputra, Mahanadi, Godavari, Krishna	Sundari, Keora, Garan, Hogla. In West Bengal known as Sundarbans	Major features: stilt roots (grows to support the trees) growth is dependent on tides.
Tropical Deciduous (Monsoon)	**Rainfall:** 100-200 cm **Average Temperature:** 27°C	Ganga valley, Western Ghats, NE India, West Bengal, Odisha, MP, etc.	Teak, Sal, Deodar, Sheesham, Mahua, Palash, Bamboo, Arjun, Ebony	Largest type of forest in India. The trees shed their leaves during dry summer or dry winter season
Tropical Thorn & Shrubs	**Average Temp:** 25-30 °C **Average rainfall:** 50cm	Rajasthan, Gujarat, Punjab, Haryana	Major trees found in this forest are – Neem, Date, Cacti, Palm, Acacia	The trees of this forest have lesser leaves and have features of Xerophyte

SUPPLEMENT

List of Important Indian Lakes

Lakes	States	Facts
Kolleru	Andhra Pradesh	Between the Krishna and Godavari Delta; one of the largest fresh water lake of India
Pulicat	Andhra Pradesh/ Tamil Nadu	Second largest Brackish water lake of India Sriharikota island separates this lake from Bay of Bengal. Sriharikota is the home of Satish Dhawan Space Centre
Kanwar	Bihar	Asia's largest fresh water oxbow lake
Chilika	Odisha	World's second and India's largest coastal lagoon.
Dhebar	Rajasthan	India's second largest artificial lake
Sambhar	Rajasthan	It is India's largest inland salt water lake It is the most saline lake of India
Vembanad	Kerala	The longest and largest lake of India The largest lake of Kerala
Lonar	Maharashtra	The impact of a Meteor created it
Wular	Jammu and Kashmir	The largest fresh water lake of India Created by Tectonic activity and fed by river Jhelum
Dal lake	Jammu and Kashmir	Asia's largest tulip garden is situated by the banks of this lake. This lake is also known as Srinagar's Jewel.
Loktak	Manipur	The largest fresh water lake of North East India. Keibul Lamjao, the only floating National Park of World, floats over it.
Nal Sarovar	Gujarat	It is the home of largest bird sanctuary of India
Roopkund	Uttarakhand	It holds a very special place for the Hindu devotees. It is also known as Skeleton Lake

Types of Soils Found in India

Type	Subtypes/formation	Characteristics	Cultivation	Regions
Alluvial Soil	■ Formed by depositional work of rivers ■ Khadar: Fresh silt; non-porous; clayey and loamy ■ Bhangar: Above flood level; well drained & drier; coarse, contain kankar (lime nodules), gravels	■ Highly fertile Riverine soils ■ Rich in Potash but deficient in Nitrogen & Humus content	■ Good for rabi and kharif crops ■ In delta region, they are ideal for jute cultivation ■ Best for cereals & Pulses	■ Largest Tract → Satluj Ganga Plains
Red & Yellow Soil	■ Formed by weathering of Igneous (crystalline) & metamorphic rocks	■ Less fertile than Alluvial & Black soils ■ Lacks water retention capacity; are porous, aerated & friable in nature ■ Reddish in color due to presence of ferrous oxide, looks yellow in hydrated form ■ Deficient in nitrogen, lime, magnesia, humus and phosphate; rich in potash and become fertile with the proper use of fertilizers and irrigation	■ Suitable for the cultivation of millets, pulses, linseed, tobacco etc.	■ Periphery areas of Deccan Plateau viz. Chhotanagpur plateau, Telangana, Nilgiris, Tamil Nadu, Karnataka, Andhra Pradesh
Black Soil or Regur soil	■ Formed by solidification of Lava ■ Black colour is due to its iron content, derived from plutonic lava materials ■ Ploughed in dry season as on evaporation cracks develop for better seed penetration	■ Highly fertile (< Alluvial) ■ Deficient in organic content, phosphorus, nitrogen ■ Rich in lime and iron, magnesia and alumina; also contains Potash ■ Highly clayey and impermeable → Highly moisture retentive	Cotton, sugarcane	■ Mainly found in Deccan Plateau ■ Regions: Maharashtra, Gujarat, MP, Andhra Pradesh, Parts of Tamil Nadu
Laterite Soil	■ Coarse texture with soft & friable nature ■ Formed under conditions of high temperature and heavy rainfall with alternate wet and dry periods	■ With rain, Lime & Silica leaches away, leaving insoluble FeO & Alumina compounds → Desilication ■ Humus content of soil is fast removed by bacteria which thrive well in high temp. ■ Poor in Lime, Nitrogen, Magnesium & Humus; Rich in FeO & Alumina	■ Useful for plantation crops like Tea, Rubber, Coffee ■ Used as building material & brick making	■ Meghalaya, Karnataka, Tamil Nadu, hilly areas of Assam, Rajmahal hills, Chhotanagpur plateau, etc.

Previous Years' UPSC Questions on Geography (2018-2010)

1. On 21st June, the sun
   (a) does not set below the horizon at the Arctic Circle
   (b) does not set below the horizon at Antarctic Circle
   (c) shines vertically overhead at noon on the Equator
   (d) shine vertically overhead at the Tropic of Capricorn

2. Consider the following pairs:

Famous place		River
1. Pandharpur	:	Chandrabhaga
2. Tiruchirappalli	:	Cauvery
3. Hampi	:	Malaprabha

   Which of the pairs given above are correctly matched?
   (a) 1 and 2 only (b) 2 and 3 only
   (c) 1 and 3 only (d) 1, 2 and 3

3. Which of the following statements are correct about the deposits of 'methane hydrate'?
   1. Global warming might trigger the release of methane gas from these deposits.
   2. Large deposits of 'methane hydrate' are found in Arotic Tundra and under the seafloor.
   3. Methane in atmosphere oxidizes to carbon dioxide after a decade or two.

   Select the correct answer using the code given below.
   (a) 1 and 2 only (b) 2 and 3 only
   (c) 1 and 3 only (d) 1, 2 and 3

4. Consider the following pairs:

Glacier		River
1. Bandarpunch	:	Yamuna
2. Bara Shigri	:	Chenab
3. Milam	:	Mandakini
4. Siachen	:	Nubra
5. Zemu	:	Manas

   Which of the pairs given above are correctly matched?
   (a) 1, 2 and 4 (b) 1, 3 and 4
   (c) 2 and 5 only (d) 3 and 5 only

5. Why are dewdrops **not** formed on a cloudy night?
   (a) Clouds absorb the radiation released from the Earth's surface.
   (b) Clouds reflect back the Earth's radiation.
   (c) The Earth's surface would have low temperature on cloudy nights.
   (d) Clouds deflect the blowing wind to ground level.

6. With reference to the management of minor minerals in India, consider the following statements:
   1. Sand is a 'minor minerals' according to the prevailing law in the country.
   2. State Governments have the power to grant mining leases of minor minerals, but the powers regarding the formation of rules related to the grant of minor minerals live with the Central Government.
   3. State Governments have the power to frame rules to prevent illegal mining of minor minerals.

   Which of the statements given above is/are correct?
   (a) 1 and 3 only (b) 2 and 3 only
   (c) 3 only (d) 1, 2 and 3

7. With reference to the cultivation of Kharif crops in India in the last five years, consider the following statements:
   1. Area under rice cultivation is the highest.
   2. Area under the cultivation of jowar is more than that of oilseeds.
   3. Area of cotton cultivation is more than that of sugarcane.
   4. Area under sugarcane cultivation has steadily decreased.

   Which of the statements given above are correct?
   (a) 1 and 3 only
   (b) 2, 3 and 4 only
   (c) 2 and 4 only
   (d) 1, 2, 3 and 4

8. Among the following cities, which one lies on a longitude closest to that of Delhi?
   (a) Bengaluru (b) Hyderabad
   (c) Nagpur (d) Pune

9. Consider the following statements:
   (1) The Barren Island volcano is an active volcano located in the Indian territory.
   (2) Barren Island lies about 140 km east of Great Nicobar.
   (3) The last time the Barren Island volcano erupted was in 1991 and it has remained inactive since then.

   Which of the statements given above is/are correct?
   (a) 1 only (b) 2 and 3
   (c) 3 only (d) 1 and 3

RNI: DELENG/2016/68821
ISSN: 2581-706X
Publishing Date: 5th February, 2020
Postal Regn. No.: DN/363/2020-22
Posted at New Subzi Mandi
PO Delhi, 9-10 February 2020