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HISTORY, ART & CULTURE

BHAKTI & SUFI IDEAS ON COMPOSITE CULTURE

Manifest pedagogy: Bhakti and sufi movement, ideas like composite culture and emergent threats to this composite culture are areas of interest for UPSC in History and Society sections. These areas are the once which ever aspirant expects a question from but never prepares. So Manifest aims to convert this aspiration into reality and give sufficient content for this section.

Placing it in syllabus: Medieval India - Bhakti movement and Sufism

Dimensions:

- Definition of composite culture
- Examples of composite culture in medieval India
- Bhakti and Sufi contribution to building composite culture
- Threats to composite culture of India today

Content:

Definition of composite culture: Composite culture is a heterogeneous mixture of multiple cultures meeting and co-existing in one single region.

India has been the birth-land of a dozen of religions. The **teachings of each religion is based on the concept of dharma (moral duty) and karma (action)**. Another famously preached concept is that of **Ahimsa**, known as non-violence.

Religions are a part of Indian value system which provides direction to the way of living.

India provides the right to choose whichever religion its citizen wants to follow and change into other religions that suit themselves at that point of time.

This general **tolerant nature of the society** which finds its roots in the concept of **secularism** makes it easier to accept each other's religion and live in peace and stability.

Still prevalent Joint Family structure and the diversity in festivals, clothing, cuisine, dialects, traditions, customs, music and dance forms has made Indian composite culture even richer.

Examples of composite culture in medieval India:

Culturally medieval period marks the beginning of a new stage in the growth of India's composite culture.

- The establishment of the Delhi Sultanate which led to the assimilation of the Turkish, Arabic and Persian culture with Hinduism, Buddhism and Jainism led to the development of new Indo Islamic culture.
- Two new languages-Arabic and Persian became a part of India's linguistic heritage.
- Historical writings for the first time became an important component of Indian literature.
- Under the influence of Persian, new forms of literature such as the ghazal were introduced.
- Urdu language developed as a mixture of Persian, Arabic, Hindi and other regional languages.
- The growth of a composite culture reached its zenith under the Mughals (16th and 17th centuries).
- The Mughal painting developed into a distinct Indian style.
- Various dresses, social amenities and festivals which were introduced by the Mughals in India were accepted by the people and became a part of the composite culture.
- Islamic features introduced the concept of spaciousness, massiveness and width to the Indian architectural designs.
- Verses from Quran were also engraved on the walls of the structures built.
- The Turks and the Mughals borrowed Indian motifs like swastika, bell, lotus, etc.
- The period saw two great religious movements - Sufi and Bhakti movements.

Bhakti and Sufi contribution in building composite culture:

Bhakti movement, came to be defined as "devotion to a personal deity". It is a **mystical**

tradition, as the focus is “**devotion to god or the ultimate reality**” through different forms of practices. The Bhakti movement has also been interpreted as a **movement of dissent and of social reform**.

The focus is not only on a personal experience of the divine, but also on the **teachings of a personal guru**. Within such traditions **texts were transmitted orally**. The **chief exponents** of this cult were Ramanuja, Nimbarka, Ramananda, Vallabhacharya, Kabir, Nanak and Sri Chaitanya.

The development of Bhakti started in South India between the 7th and 12th century. During this period the **Shaiva Nayanars and the Vaishnavites** preached personal devotion to God as a means of Salvation. They also disregarded the **rigidities of the caste system and unnecessary rites and rituals of Hindu religion**.

The **Sufi movement** was a socio-religious movement of 14th-15th century whose exponents were **unorthodox Muslim saints** who had a deep study of vedantic philosophy and had come in contact with great sages and seers of India. They could **see the Indian religion from very near and realized its inner values**.

It therefore was the result of the Hindu influence on Islam and provided a common platform for both the religions. Sufis believed in inner purity. The union of the human soul with God through love and devotion was the essence of the teachings of the Sufi Saints.

They realized God by the renunciation of the world and worldly pleasures. The leading **sufi saints** like Khwaja Muinuddin Chisti, Fariuddin Ganj-i-Shakar, Nizam-ud-din Auliya etc.

Threats to composite culture of India today:

Though our perspective upon the composite culture of our country is of pride, there are many **factors**,

PARLIAMENT RENOVATION

Manifest pedagogy: Modern Indian Art and Architecture is an unexplored dimension in UPSC syllabus. This section of UPSC syllabus has been included in 2013 revamp. But this section was not picked up by UPSC till date. As UPSC tends to carry a surprise element with it we never know when it will pull this rabbit out of its hat. As Manifest aims to target areas usually neglected by aspirants and picked by UPSC we have selected this topic for this week.

In news: The Central government is considering either redeveloping Parliament House or building a new structure.

both intrinsic and extrinsic which constantly try to **undo the ‘unity’** in the diversity of our nation.

Communalism is on high in the country today. It is **blind loyalty to one’s own religious group**. It is used as a **tool** to mobilize people for or against by raising an appeal on communal lines. It is associated with **religious fundamentalism and dogmatism**.

Communal consciousness arose as a result of the transformation of Indian society under the **impact of colonialism** and the need to struggle against it.

In the long run, **political scenarios, socio economic conditions** like population, poverty, illiteracy and unemployment have created a lot of compulsions, especially before younger generation. **External elements (including non-state actors)** also have a role in worsening the problem of communalism and making it serious.

Starting from the demand for separate electorate followed by the Partition of India, 1947, Anti-Sikh riots, 1984, Ethnic cleansing of Kashmiri Hindu Pandits in 1989, Babri masjid demolition in Ayodhya, 1992, Godhra incident in 2002, Assam Communal violence, 2012, Muzaffarnagar violence, 2013 etc., are all **practical manifestations** of the thought of communalism in India.

The framers of our Constitution had the **objective of securing civic, political, economic, social and cultural rights** as essential ingredients of citizenship. Hence particular emphasis was placed on the rights of religious minorities.

Mould your thoughts: What do you mean by composite culture? Explain the role of Bhakti and Sufi movements in building composite culture of India.

Placing it in syllabus: Modern Indian architecture

Dimensions:

- Indian parliament foundation and stylistic features
- Influences of composite culture of India on parliament building
- Features of Delhi architecture of Herbert baker and Lutyens
- Other prominent examples of Delhi architecture
- Why is renovation required now?

Content:

Honourable PM Narendra Modi has said that the **government is considering suggestions to build a new Parliament House or renovate** the existing one with improved facilities **by 2022**, to celebrate 75 years of Independence.

Indian Parliament foundation and stylistic features:

- The Indian Parliament building was designed by Sir Edwin Lutyens and Sir Herbert Baker.
- The foundation stone of the Parliament House was laid on February 12, 1921 by the Duke of Connaught.
- Construction of the building was completed in 1927 and was inaugurated by the then Governor-General of India, Lord Irwin.
- The shape of the building is circular, which is based on the Chausath Yogini temple of Morena, Madhya Pradesh.
- The building has a Central Chamber which is surrounded by the semicircular halls that were constructed for the sessions of the Chamber of Princes (now used as the Library Hall), the State Council (now used for the Rajya Sabha), and the Central Legislative Assembly (now used for the Lok Sabha).
- The architectural design of the building is a perfect mix of ancient Indian tradition and modern amenities.
- The building hosts the Parliament House, the Reception Office Building, the Library Building, the Parliament House Annexe along with huge lawns and artificial ponds.
- The structure is enclosed by an ornamental red sandstone walls and 12 iron gates.
- The building was declared a Grade-I heritage property in 2009.

Influences of composite culture of India on parliament building:

- The Parliament House has a hybrid of Hindu, Saracenic and Roman architectural styles.
- It has drawn stylistic and decorative elements from native Indo-Islamic architecture.
- The layout of fountains both inside and outside the building, use of Indian symbols, the "Chhajjas", and the varied forms of "Jali" in marble remind the craftsmanship of ancient monuments.
- The Parliament corridor is adorned with 58 panels by renowned artists from across the country depicting the mystic, mythological, cultural and political history of India.
- There are as many as 30 statues and busts including the sculptures of Chandragupta Maurya, Motilal Nehru, Indira Gandhi and Pandit Ravi Shankar Shukla etc...
- The Central Hall has 23 portraits.
- Inscriptions from Upanishadas, Mahabharata, Manu Smriti, etc, are inscribed which indicate the spirit with which Parliamentarians should conduct their business.
- These serve as the guiding principles for deliberations.
- A dome over the passage to the Central Hall also has an Arabic inscription which means "God will not change the condition of the people unless they bring about a change themselves".
- Thus, the building represents the composite culture and social pluralism of India.

Features of Delhi architecture of Herbert baker and Lutyens:

- According to **Lutyens**, **Indian architectural interventions** reflected a **childish ignorance** of even the basic principle of architecture.
- **Baker was of the view that the Delhi architecture** was neither going to be Indian nor Roman or English but **purely imperial**.
- The then viceroy, **Lord Hardinge**, finally decided upon **western-style classical architecture** with details being filled up by Indian motifs.
- Baker's **twin secretariat buildings combine European-style columns and Renaissance-like dome with Indian architectural elements** like the use of red sandstone, jalis (perforated screens), chajja (eaves), chhatris (canopies) carved brackets as well as elephant-heads on pillar capitals.
- **Lutyens's Viceroy House looks more classical** with not so much of a conscious blending of the West and the East.
- **He insisted on a 'circular Colosseum design'**.
- The plan of Lutyens Delhi is purely geometrical.



- Tree lined streets radiate from the Central Vista and converge into hexagonal nodes.
- His plan is also remarkable in the sense that there are generous green spaces, lawns, watercourses, trees and their integration with the parks developed around the monuments.
- The road network consisted of diagonals and radials at 30/60 degree angles to the main axis, forming triangles and hexagons.

Other prominent examples of Delhi architecture:

India Gate:

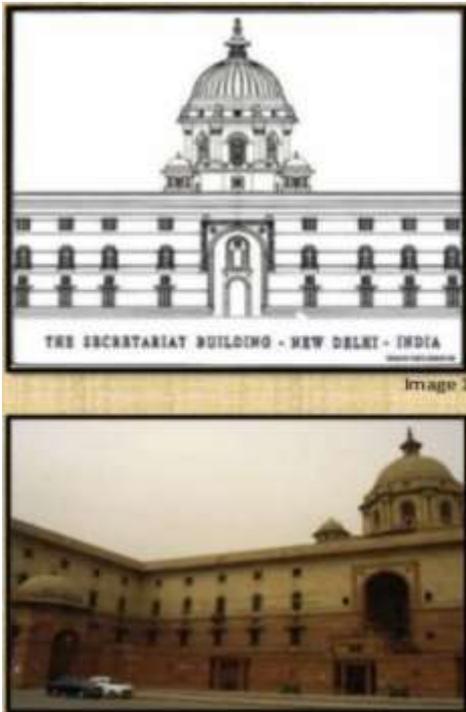
- The India Gate is a **war memorial** located astride the Rajpath, on the eastern edge of the "ceremonial axis" of New Delhi.
- It was designed by **Sir Edwin Lutyens**.
- It evokes the **architectural style of the triumphal arch** such as the Arch of Constantine, in Rome, and is often compared to the Arc de Triomphe in Paris, and the Gateway of India in Mumbai.
- The 42-metre tall India gate, stands on a **low base of red Bharatpur stone** and rises in stages to a huge moulding.

Rashtrapati Bhavan:

- It is the official residence of the President of India designed by Sir Edwin Lutyens, located on Raisina Hill in New Delhi.
- It has Indian elements including several circular stone basins on top of the building, chhajjas, several chuttris on the roofline.
- The front of the palace, on the east side, has twelve unevenly spaced massive columns with the Delhi Order capitals, which Lutyens invented for this building, with Ashokan details.
- In the main dome, where the drum below has decoration recalling the railings around early Buddhist stupas such as Sanchi.

The Secretariat:

- It was designed by Herbert Baker in Indo-Saracenic Revival architecture.
- It has incorporated Mughal and Rajasthani architecture style and motifs.
- These are visible in the use of Jali.



- Another feature is a dome-like structure known as **Chatri**.
- In front of the main gates on the buildings are the four “**dominion columns**”, given by Canada, Australia, New Zealand and South Africa.

Why is renovation required now?

- There is a shortage of working and parking space, amenities and services.
- The building no longer supports added demands of space and security.
- There are no chambers for MPs and situation would further worsen if there is an increase in the number of seats.
- The buildings constructed over 100 years ago, such as the North and South blocks are not earthquake-resistant.

The Parliament House building has remarkable symbolic value. It embodies the spirit of Indian democracy. Hence, it would be advisable to reshape the Parliament building by imbibing the composite culture and rich architectural legacy of India.

Mould your thoughts: Explain the legacy of Parliament House of India. Is a new structure of Parliament House needed? Discuss.

GEOGRAPHY

ARCTIC COLD BLAST

Manifest pedagogy: Many parts of the temperate world are facing extreme winters. Weakening of the polar vortex and jet streams is responsible for such extremes. It is said, global warming as the key factor responsible for it. The probability of asking above article is higher in prelims.

In news: Arctic cold blast has hit North America and UK with Freezing temperatures and weather warnings

Placing it in syllabus: Important geophysical phenomena

Dimensions:

- Arctic cold blast and polar vortex
- Bomb cyclone
- Arctic cold blast and Indian winter

Content:

The polar vortex has collapsed plunging Europe and USA into deep freezing conditions. Cold weather is hitting large swaths of the continents and “record colds,” are being experienced by the countries.

Arctic cold blast and polar vortex:

A polar vortex is an **upper-level low-pressure area lying near one of the Earth's poles**. There are **two polar vortices** in the Earth's atmosphere, overlying the North and South Poles.

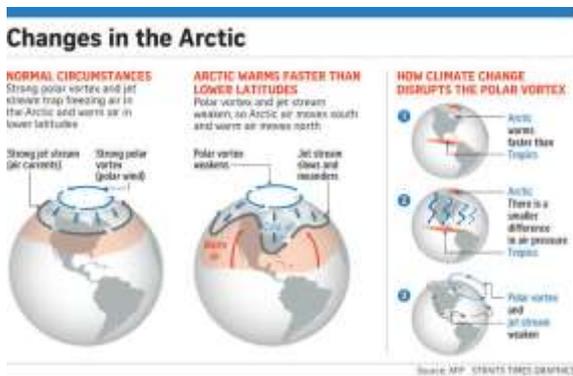
The **bases** of the two polar vortices are **located in the middle and upper troposphere** and extend into the stratosphere. Beneath that lies a large mass of cold, **dense Arctic air**.

A **polar vortex strengthens in the winter and weakens in the summer** because of its dependence on the temperature difference between the equator and the poles. When **the vortex of the Arctic is weaker**, the flow of Arctic air becomes more disorganized.

In Northern Hemisphere, jet **stream, the “river” of air that flows from west to east**, is hotter near the equator than near the North Pole.

The disruption in the polar vortex results in warm winds entering the upper atmosphere over the Arctic resulting in a warming of the stratosphere over the North Pole and this could cause the cold trapped in the Arctic to spill out.

Air generally flows from cold to warm, from high pressure to lower pressure areas. The spinning earth deflects the air as it flows southward from the high latitudes, so it ends up flowing from west toward the east in a **ribbon-like pattern**.



The masses of cold Arctic air can push equatorward, bringing with them a rapid and sharp temperature drop and causes Arctic cold blast. There have been increasing disruptions in the vortex in recent decades because of changes in the jet stream that some studies have attributed to global warming.

Bomb cyclone:

- A "bomb cyclone" is a weather phenomenon that entails a rapid drop in air pressure and a storm strengthening explosively.
- Generally, pressure must drop 24 millibars (a unit of pressure) within 24 hours.
- However, this benchmark is also based on the latitude of the storm and the millibar requirement can change depending on where the storm forms.
- All bomb cyclones are not hurricanes.

Difference between bomb cyclone and hurricanes:

Hurricanes tend to form in tropical areas but bomb cyclones arise in mid-latitudes, where fronts of warm and cold air might collide (this temperature difference fuels the drop in the pressure).

Hurricanes are powered by warm seas. Bomb cyclones don't need balmy ocean waters in order to form. While they sometimes arise over the **ocean**, they can **also appear over land** (e.g. cyclone that hit the northern Plains in the US in March 2019).

Hurricanes are most common in summer. Bomb cyclones form between late fall and early spring, when warm tropical air bumps up against frigid Arctic air.

Arctic cold blast and Indian winter:

- In recent years, temperatures have been on a **reducing note over few places in Northern India**, with parts of Rajasthan recording temperatures below the freezing point as well.
- According to the experts this **winter chill could be linked to the breaking up of the polar vortex**.
- The cold from the Arctic is being spilled into Europe and the US which has been **pushing Western disturbances more towards the South** than its normal position, thereby **transmitting the cold weather of Southern Europe into Northern parts of India**.
- **Western disturbances are low pressure winds that travel westwards from the Mediterranean region** bringing cold winds which impact the northern parts of India, particularly the Himalayas.
- Of late, Western disturbances have been more frequent in time and more in number as compared to other years.
- The **long and chilly winter in north India could be linked to arctic cold blasts** that have been spilling southwards.

Mould your thoughts: Explain the phenomenon of Arctic cold blast. How does it affect the Indian winter?

INDIAN POLITY

ELECTORAL BONDS

Manifest pedagogy: Electoral bonds are seen as a major policy change in election funding by the current government. It is seen as a policy reform which will help clean up the corruption in election funding. But the loopholes in the Bonds ranging from anonymity of the donor to the limit of Rs.2,000 are being questioned by RBI and Election Commission. This is an area of importance for both Prelims and Mains.

In news: The Election Commission (ECI) and the RBI has recently expressed reservations about the Electoral Bonds scheme.

Placing it in syllabus: Electoral reforms

Static dimensions: What are electoral bonds?

Current dimensions:

- Advantages
- Concerns
- Way forward

Content:

What are electoral bonds?

- An electoral bond is like a promissory note that can be bought by any Indian citizen or company incorporated in India from 29 specified SBI branches.
- The citizen or corporate can then donate the same to any eligible political party of his/her choice.
- They are similar to bank notes that are payable to the bearer on demand and are free of interest.
- An individual or party will be allowed to purchase these bonds digitally or through cheque.
- The electoral bonds were introduced with the Finance Bill (2017) and in January, 2018 the Electoral Bond Scheme was notified.
- The Security Printing & Minting Corporation of India (SPMCIL), has been authorised to print the electoral bonds.
- The range of a bond is between Rs 1,000 to Rs 1 crore.
- A donor with a KYC-compliant account can purchase the bonds and can then donate them to the party or individual of their choice.

- The receiver can encash the bonds through the party's verified account.
- The electoral bond will be valid only for fifteen days.
- The first 10 days of January, April, July and October has been specified by the government for purchase of electoral bonds.
- An additional period of 30 days shall be specified by the government in the year of Lok Sabha elections.
- A donor will get a tax deduction and the recipient, or the political party, will get tax exemption, provided returns are filed by the political party.
- In April, 2019 the Supreme Court asked all the political parties to submit details of donations received through electoral bonds to the ECI and asked the Finance Ministry to reduce window of purchasing electoral bonds from 10 days to five days.

Eligibility of party to get electoral bonds:

- Any party that is registered under **section 29A of the Representation of the People Act, 1951** and has secured at least one percent of the votes polled in the most recent General elections or Assembly elections is eligible to receive electoral bonds.

- The **party will be allotted a verified account** by the ECI and the electoral bond transactions can be made only through this account.

Advantages:

- The electoral bonds would keep a tab on the use of black money for funding elections and this brings about transparency.
- As the electoral bonds will not bear the name of the donor the political party might not be aware of the donor's identity.
- As the voter does not know who is funding whom through electoral bonds it is supposed to protect the donors from harassment from the authorities.

Concerns:

- The civil rights societies opine that the concept of donor "anonymity" threatens the very spirit of democracy.
- Indian, foreign and even shell companies can now donate to political parties without having to inform anyone of the contribution.
- Public will have no idea of how and through whom a political party has been funded.
- Since the identity of the donor has been kept anonymous, it could lead to an influx of black money.
- The mere reduction in donation limit from ₹20,000 to ₹2,000 is not effective as there are parties with hundreds of crores of declared

income who claim that all the funds were received from small cash donations of ₹100 or less.

- Since neither the purchaser of the bond nor the political party receiving the donation is required to disclose the donor's identity, the shareholders of a corporation will remain unaware of the company's contribution.

Way forward:

The **ECI in April, 2019 told the SC** that, while it was not against the Electoral Bonds Scheme, it **did not approve of anonymous donations** made to political parties and wanted full disclosure and transparency.

The RBI had warned the government that the bonds would "undermine the faith in Indian banknotes and encourage money laundering."

Hence complete transparency is needed in all funding. Political parties need to be under the Right to Information (RTI) Act. There must be spending limits as well as donation limits. The real extent of political expenditure can be known by modern data capture and analysis.

It is possible for **dedicated watchdogs, including voluntary groups** like the Association for Democratic Reform, to keep track of each and every item of political expenditure.

Mould your thoughts: What are electoral bonds? Are they effective in bringing transparency in political funding?

HUNG ASSEMBLY IN MAHARASHTRA

Manifest pedagogy: In a parliamentary system of governance a fractured mandate gives rise to a circus of alliances and a juggling in numbers. This crucial and sensitive period takes a further interesting turn with the political party at center being a contender. If we throw the anti-defection law and the supreme court judgement in the SR Bommai case into the mix it will make for interesting politics. Putting aside the politics of the issue, the constitutionality of the matter and various commissions recommendations on the issue forms interesting and important questions for UPSC.

In news: President's rule has been imposed in Maharashtra

Placing it in syllabus: Role of Governor and President's rule

Static dimensions: Governor and his role in case of Hung Assembly

Current dimensions:

- Issue of Presidential Rule in Maharashtra
- Judgement in S.R.Bommai case

Content:**Issue of Presidential Rule in Maharashtra:**

- President Ram Nath Kovind has recently approved a proclamation imposing **President's Rule (Article 356) in Maharashtra**, following a recommendation from the Governor.
- The **Assembly** has been kept under **suspended animation**.
- **Governor Bhagat Singh Koshyari in his report** to the President, had said that a situation had arisen in which it was **impossible to constitute or form a stable government** in the State.
- The report didn't mention any cases of horse-trading or unfair practices.
- Post election results, the **BJP-Shiv Sena declined to form a government** in alliance and the Shiv Sena could not get letters of support from the NCP and the Congress.
- The **governor invited** the third largest party in the Assembly, the **NCP**, to explore the possibility of forming a government in the State.
- As **no party submitted a conclusive letter of support**, Governor recommended President's Rule.

Governor and his role in case of Hung Assembly:

- **Article 163** of the constitution states that there shall be a **Council of Ministers headed by the Chief Minister** that should aid and advice the Governor in exercise of his functions.
- If any situation arises whereby the Governor is by or under the Constitution required to act in his **discretion**, the **decision taken by him shall be final** and that the validity of anything done by the Governor must not be called in question.
- Hence **in case of hung assembly the Governor has the discretion** to invite anyone to form the government and his decision can't be questioned in any court.

In the **Rameshwar Prasad Vs Union of India, 2006** case, a five-judge Constitution Bench, recommended the suggestions made by the **R S Sarkaria Commission** which had emphasized on the impartiality of Governors and their role in upholding the constitutional mandate.

Later, **M M Punchhi Commission** in case of hung assembly recommended that:

1. The **party or alliances which get the widest support** in the Legislative Assembly should be called upon to form the government.
2. **If there is a pre-poll coalition or alliance**, it should be treated as one political party. And in case, such coalition gets a majority, the leader of such alliances shall be called by the Governor to form the government.
3. **In case no pre-poll coalition or party** has a clear majority, the governor should select the Chief Minister in the order of priorities indicated here:
 - (i) The group of parties which had a pre-poll alliance of the largest number;
 - (ii) The largest single party which claims to form the government with the support of others;
 - (iii) A post-electoral alliance with all partners joining the government;
 - (iv) A post-electoral alliance where parties are not joining the government and the remaining including independents are supporting the government from outside.

In the **S R Bommai case**, a nine-judge Bench had **underlined the significance of a floor test** when there are claims by two political groups.

Judgement in S.R.Bommai case (1994):

In this historic judgement, **SC put an end to the arbitrary dismissal of State governments** under Article 356 by spelling out restrictions.

- The verdict concluded that the **power of the President** to dismiss a State government is **not absolute**.
- The President should exercise the power **only after his proclamation** (imposing his/her rule) is **approved by both Houses** of Parliament.
- **Till then, the President can only suspend the Legislative Assembly** by suspending the provisions of the Constitution relating to the Legislative Assembly.
- **If both Houses of Parliament disapprove or do not approve** the Proclamation, the

Proclamation **lapses** at the **end of the two-month period**.

- In such a case, the **government** which was **dismissed revives**.
- The Legislative **Assembly**, which may have been kept in **suspended animation gets reactivated**.
- Presidential Proclamation under Article 356 is **subject to judicial review**.

- The **Assembly is the only forum that should test the majority of the government** of the day, and not the subjective opinion of the Governor.

Mould your thoughts: Explain the role of Governor in case of hung assembly in a state? What is the importance of S.R.Bomma case in this regard?

CJI and RTI

Manifest pedagogy: In a major victory to the RTI Act, Supreme Court declared itself as a public authority under RTI. The case which has been sub-judice for the past 10 years has finally been resolved in favour of Transparency and Disclosure. There are many important dimensions to this judgement like the definition of Public authority in RTI act which is important for prelims and the provisions for disclosure of property will be important for Mains.

In news: Recently SC has ruled that the office of the Chief Justice of India (CJI) is a public authority under the Right to Information (RTI) Act.

Placing it in syllabus: Judiciary & RTI

Static dimensions:

- RTI and definition of public authority
- Genesis of the issue

Current dimensions:

- Recent judgment
- Its importance

Content:

RTI and definition of public authority:

- RTI Act is an act of the Parliament of India to provide for setting out the practical regime of right to information for citizens.
- Under the provisions of the Act, any citizen of India may request information from a "public authority" which is required to reply expeditiously or within thirty days.
- As defined in the Act, a "Public authority" is any authority or body or institution of self government established or constituted -
 - by or under the Constitution;
 - by any other law made by Parliament or a State Legislature;
 - by notification issued or order made by the Central Government or a State Government.

- Bodies owned, controlled or **substantially financed by** the Central Government substantially financed by the Central Government or State Government also fall within the definition of public authority.
- The **financing of** the body or the **NGO** by the Government **may be direct or indirect**.

Genesis of the issue:

- An activist Subhash Chandra Agrawal filed a petition in 2007 seeking "copy of the 1997 resolution" which required every judge to make a declaration of all assets.
- The SC refused to share the asset declaration resolution.
- Agrawal moved the Chief Information Commission (CIC), which ruled that the office of the SC falls under the ambit of the RTI Act and

the it cannot deny information sought under the RTI Act.

- In 2009, Agrawal had sought details of correspondence between the Collegium and the government on the appointment of three SC judges - Justices HL Dattu, AK Ganguly and RM Lodha who had superseded Justices AP Shah, AK Patnaik and VK Gupta.
- Though CIC directed the CJI's office to disclose the correspondence details, SC had refused to do so and moved the Delhi High Court challenging the CIC ruling.
- The SC argument was that declaration of assets to the CJI was "personal information" of the judges and hence not covered under the RTI Act.
- While the matter was being heard by the Delhi High Court, the SC had passed another resolution making declaration of assets by the judges in public "voluntary".
- In September 2009, the single-judge bench of the Delhi High Court upheld the CIC ruling pronouncing that the CJI came under the ambit of the RTI Act.
- The Supreme Court approached a bigger bench of the Delhi High Court against the single-judge verdict in the RTI case.
- The three-judge Delhi High Court bench in November 2009 ruled that the 1997 resolution of the Supreme Court judges was binding on all judges of the apex court.
- In January 2010, the bench ruled that the office of the CJI is a public authority and comes under the ambit of the RTI Act.
- The SC approached itself by filing a petition against the Delhi High Court ruling.
- A three-judge bench of the SC stayed the Delhi High Court judgment in the RTI case in 2010.
- In 2016 it referred the RTI case to a five-judge Constitution bench.

Recent judgment:

- The SC bench led by CJI Ranjan Gogoi rejected the contention of the SC that had challenged a Delhi High Court judgment bringing it under the ambit of the RTI Act.

- The bench has declared that "transparency doesn't undermine judicial independence".
- It ruled that the office of the CJI is a "public authority" under the RTI Act, as much as the SC itself.
- This judgement enables the disclosure of information such as the judges' personal assets.
- The Bench unanimously argued that the right to know under the RTI Act was not absolute and this had to be balanced with the right of privacy of judges.
- The information related to issues such as judicial appointments will also be subject to the test of public interest.
- However, RTI can't be used as a tool of surveillance.
- It said that only the names of judges recommended by the collegium can be disclosed, not the reasons.

Its importance:

- Transparency and the right to information are crucially linked to the rule of law itself.
- The RTI Act is a strong weapon that enhances accountability, citizen activism and participatory democracy.
- With the CJI's office coming under the RTI Act, the ordinary citizen can seek information regarding assets of the judges and also the reason for their appointment.
- Bringing accountability reforms in judiciary would increase people's trust in the courts' impartiality, aiding core judicial functions.
- It is a step in the right direction to curb corruption in public authorities.
- It could lead to better governance by curbing arbitrary and corrupt acts.

Mould your thoughts: Explain the importance of bringing Chief Justice of India (CJI) office under RTI Act.

ARTICLE 142 & AYODHYA VERDICT

Manifest pedagogy: Article 142 gives an extraordinary power to the Supreme Court to do complete justice. This power has been invoked many times by the court which forms an important aspect of Judicial activism. The current article provides info on the usage and provisions of Article 142 which are important for prelims and mains.

In news: SC invoked its power under Article 142 in Ayodhya verdict

Placing it in syllabus: Powers of the Supreme Court (SC)

Static dimensions:

- What is Article 142?
- Earlier instances of invoking it

Current dimensions: Importance of it under Ayodhya Verdict

Content:

While setting aside the judgment of the Allahabad High Court, the Supreme Court, in Ayodhya dispute, has exercised powers under Article 142 to pass various orders which had not been originally prayed for by the parties to the controversy.

What is Article 142?

- Article 142 of the Constitution empowers the Supreme Court to “pass such decree or make such order as **is necessary for doing complete justice** in any cause or matter pending before it”.
- Any decree so passed or orders so made shall be **enforceable throughout the territory of India**.
- The phrase *‘is necessary for doing complete justice’* encompasses a power of equity which is **employed when the strict application of the law is inadequate to produce a just outcome**.
- This wide power allows SC to mould any relief in a way that its orders become more effective and it would be in the **interest of justice and equity**.
- The **philosophy** behind Article 142 is that **justice should not only be done but it should also appear to be done**.
- Hence the power under Article 142 can be exercised when the SC has to decide difficult cases **where adequate laws may not exist, or existing laws may not be adequate**, in order to deliver complete justice.

- Supreme Court in **State of Punjab v Rafiq Masih (2014)** has opined that, “**Article 142** of the Constitution of India **is supplementary in nature** and cannot supersede the substantive provisions, though they are not limited by the substantive provisions in the statute”.

Earlier instances of invoking it:

- The Supreme Court had used Article 142 in **1989 to provide relief to the thousands of victims affected by the Bhopal gas tragedy** by awarding compensation of \$470 million to the victims.
- **In 2014**, it was used to **cancel allocation of coal blocks granted from 1993 onwards**, without any specific finding on wrongdoing by those who were allotted these blocks.
- For **banning the sale of alcohol** within a distance of 500 metres **on national and state highways** across the country to curb accidents due to drunken driving.
- In the **release of thousands of undertrials** who were in jails for periods **exceeding their sentences**.
- For **restoring the white marble of the Taj Mahal**.
- For constituting the Justice Mukul Mudgal Committee to probe the **2013 Indian Premier League (IPL) spot-fixing scandal**.
- Recent case where bureaucrats from the state of Punjab, Delhi and Uttar Pradesh were hauled up for not controlling stubble burning and a slew of directions were passed by SC which

would otherwise have been in the domain of the executive.

Importance of it under Ayodhya Verdict:

The SC in Ayodhya verdict has appropriately highlighted that as the final arbiter it must preserve the sense of balance that the beliefs of one citizen do not interfere with or dominate the freedoms and beliefs of another.

While granting the title over the disputed land to the deity, **SC refused to treat the two divisions of the disputed land** (i.e. inner and outer courtyards) **as separate** and held that the **entire land should devolve to Hindu parties**.

However, despite **dismissing the Waqf Board's claim** the court felt that great injustice had been suffered by **Muslim parties** due to the illegal demolition of the mosque in 1992.

Hence under Article 142 it directed the central government to grant an alternate site measuring five acres within the area acquired by the central government by way of the Acquisition of Certain Area at Ayodhya Act in 1993 or in any other prominent area in Ayodhya.

Even though the Supreme Court had dismissed Nirmohi Akhada's claim over the disputed land, it invoked its power under Article 142 **to direct the central government to include the Nirmohi Akhada in the body** which would be responsible for the management of the future temple land.

Hence the SC passed directions under Article 142 under a belief that **it was necessary to do so because of the complex story of the dispute which involved religion, history and law** and it felt that the current laws were inadequate to deal with such complexities.

Supreme Court verdict on Ayodhya dispute:

The **5-judge Constitution bench** of SC, **headed by Chief Justice Ranjan Gogoi** started final hearing on the Ayodhya dispute in August, 2019 after the panel of mediators appointed failed to explore an amicable solution to the issue. The bench which also included **Justices S.A.Bobde, D Y Chandrachud, Ashok Bhushan and S Abdul**

Nazeer has delivered the verdict on the dispute on **November 9, 2019**.

- The bench has ordered the Centre to set up a **board of trustees** for construction of a temple at the disputed place.
- It has allotted the **entire 2.77-acre disputed land for temple construction**.
- Has ordered the central government to allot **alternative five acres of land for constructing a mosque to Sunni Waqf Board** either in the surplus 67 acres acquired in and around the disputed structure by the central govt or any other prominent place within the city of Ayodhya.
- The SC held that the **Allahabad High Court 2010 judgement was wrong** to divide the land between the three main parties -- Ram Lalla Virajman, Nirmohi Akhara and the Sunni Waqf Board, as the complex was a composite whole.
- The SC ruled that the **Nirmohi Akhara suit was not maintainable** and it has no shebait rights (priestly rights).
- However, the court directed that in the Board of Trustees that will be set up, the Nirmohi Akhara should be given appropriate representation.
- The SC said that a **report by the Archaeological Survey of India (ASI) provided evidence of the remains of a building "that was not Islamic"** beneath the demolished mosque.
- The bench noted that the existence of structures like Sita Rasoi, Ram Chabutra and Bhandar Grah are testimony to the religious fact of the place.
- The **claim of Shia Waqf Board** against Sunni Board to Babri Masjid was **dismissed**.
- The SC's directive to set up a Trust to construct the Ram temple virtually ousts the VHP-backed Ram Janmsthan Nyas from temple construction activities.
- It said that the **destruction of the mosque in 1992** happened in **breach of SC orders**. The desecration of the mosque by placing idols in 1949 and its demolition was **against the rule of law**.

Mould your thoughts: Analyse the importance of Article 142 in upholding the interest of justice and equity. Bring out the instances when it was invoked.

INTERNATIONAL RELATIONS, ISSUES & INSTITUTIONS

RCEP-Regional Comprehensive Economic Partnership

Manifest pedagogy: Controversy with respect to India joining RCEP and concerns related to a surge in imports especially of dairy products prompted the government to withdraw temporarily from negotiations. However, India is hoping for a deal more suitable for its needs. Issues of RCEP are important both from prelims and mains perspective.

In news: India has declined to join RCEP

Placing it in syllabus: Regional Trade blocs

Static dimensions:

- Failure of World trade organisation (WTO)
- Stages of Economic Integration
- Trade Blocs

Current dimensions:

- Trade facilitation
- RCEP and its positives and negatives
- India's concerns

Content:

Failure of WTO:

The developing countries do not believe that the WTO works for their benefit. The general perception is that **dominant economic powers like the United States and Europe have hijacked the system**. Each of the 164 members has their own protectionist agendas. E.g. US protectionist policies.

WTO holds **conferences which usually have no outcomes**. Even if it is to achieve some sort of a breakthrough, the administrative cost of achieving this would far outweigh any benefits. It is **not accountable for the money it spends**.

WTO has simply failed the interests of **developing nations** like India, Pakistan and African nations which are still largely dependent on agriculture. Their prices **would be competitive in the international market if it were not for subsidies provided by Western nations**. The common belief is that the WTO is merely a proxy for safeguarding Western interests.

WTO is often considered as being a forum which is used by nations to further their hidden agendas. **Governments use it as a forum to bestow economic benefits on their political allies.**

Stages of economic integration:



Preferential Trade Areas (PTA) exist when countries within a geographical region agree to reduce or eliminate tariff barriers on selected goods imported from other members of the area. Agreements may be bilateral or multilateral.

Free Trade Areas (FTA) are created when two or more countries in a region agree to reduce or eliminate barriers to trade on all goods coming from other members. E.g. The North Atlantic Free Trade Agreement (NAFTA).

Customs Union involves the removal of tariff barriers between members, together with the acceptance of a common (unified) external tariff against non-members. E.g. Gulf Cooperation Council

Common Market is the most significant step towards full economic integration. Here all barriers are eliminated to allow the free movement of goods, services, capital, and labour. In addition, non-tariff barriers are also reduced and eliminated. E.g. Mercosur

Monetary Union is the first major step towards macro-economic integration and involves scrapping individual currencies, and adopting a single shared currency, common exchange rate, a common monetary policy, including interest rates and the regulation of the quantity of money, and a single central bank. E.g. European Union

Fiscal Union is an agreement to harmonise tax rates, to establish common levels of public sector spending and borrowing, and jointly agree national budget deficits or surpluses.

Political union represents the potentially most advanced form of integration with a common government and the sovereignty of member country is significantly reduced. Only found within nation states, such as federations where there is a central government and regions having a level of autonomy. E.g. European Political Union

Trade blocs:

Trading blocs are a **formal agreement between two or more regional countries** that remove trade barriers between the countries in the agreement while keeping trade barriers for other countries. **Different types** of Trading Blocs are FTA, Customs Union, Common Market, Monetary Union.

Advantages:

- An **increase in foreign direct investment (FDI)** results from trade blocs and benefits the economies of participating nations.

- It **increases local investments** since the trading bloc increases the overall size of markets for firms.
- Open trade leads to **faster transfer of technology across borders**.
- **Increases economic leverage** for the trading bloc as a whole. The average cost of production is decreased because mass production is allowed.

Disadvantages:

- A trading bloc is likely to lead to at least **partial loss of sovereignty** for its participants.
- The **countries become increasingly dependent on each other**.

Trade facilitation:

- Trade facilitation is the simplification, modernization and harmonization of export and import processes.
- Trade Facilitation Agreement (TFA) entered into force on 22 February 2017 following its ratification by two-thirds of the WTO membership.
- Section I contains provisions for expediting the movement, release and clearance of goods, including goods in transit.
- Section II contains special and differential treatment (SDT) provisions that allow developing and least-developed countries (LDCs) to determine when they will implement individual provisions of the Agreement.
- Section III contains provisions that establish a permanent committee on trade facilitation at the WTO and require members to have a national committee to facilitate domestic coordination.

According to the estimates, full implementation of the **TFA could reduce trade costs by an average of 14.3%** and boost global trade by up to \$1 trillion per year, with the biggest gains in the poorest countries.

RCEP and its positives:

RCEP involves all 10 countries from the Association of Southeast Asian Nations (ASEAN) bloc and five of its major trading partners: Australia, China, Japan, New Zealand and South Korea.

Together, the **15 countries** make up close to one-third of the world population and global GDP. India recently decided not to join the trade pact over concerns that it would hurt the domestic producers. The **RCEP covers trade in goods and services, and investments, economic-technical cooperation, competition and intellectual property rights.**

Positives of RCEP

- RCEP would boost commerce across the group by lowering tariffs, and standardizing customs, rules and procedures.
- It widens market access especially among countries that don't have existing trade deals.
- RCEP would act as a solution to US-China trade war, which hurt many Asian exporters by reducing demand for their goods and slowing down growth.
- The deal will allow businesses to sell the same goods within the bloc but do away with the need to fill out separate paperwork for each export destination.
- For companies that export goods outside the bloc, there'll be incentives to build their supply chains across RCEP member countries.

Negatives of RCEP and India's concerns:

India pulled out of RCEP calling the now 15-nation pact **unsatisfactory.**

- RCEP, unlike Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) lacks the call for commitments from member countries to protect workers' rights and the environment.

- RCEP covers fewer service sectors, in which India has an upper hand.
- RCEP would have exposed the Indian businesses and agriculture to unequal competition from other exporting countries.
- In agriculture, domestic players dealing in dairy products, spices, rubber, and coconut would face dumping from the South Asian majors like Sri Lanka, Vietnam, Indonesia.
- Australia and New Zealand are waiting for a free access to India for their dairy products.
- Of the 15 RCEP countries, India has serious trade deficits with at least 11 countries. Given the export-import equation with the bloc, an FTA with the grouping would have increased it further.
- Widening trade deficit would empty foreign exchange reserve of India at a faster rate.
- The Niti Aayog report in 2017 showed that imports from FTA countries increased to India while exports to these destinations did not match up. The report found that FTA utilisation by India has been abysmally low between 5 and 25 percent.
- Several industries in India red-flagged the Chinese agenda of flooding the Indian market which cheap goods using the RCEP countries as a connecting network.
- India wanted a key clause to be included in the RCEP pact for auto-trigger mechanism as a shield against sudden and significant import surge from countries.

Mould your thoughts: What is the significance of RCEP? Why did India back out from the deal?

INDIA-GERMANY RELATIONS

Manifest pedagogy: Questions in IR on European region is not country specific. The article has been written keeping in mind that it would help students with some fodder material to include in answers even if a general question on Europe is asked

In news: Recently German Chancellor Angela Merkel visited India.

Placing it in syllabus: India-Germany bilateral relations

Static dimensions: Brief history of India-Germany relations

Current dimensions: Agreements signed during visit & Importance of agreements

Content:**Brief history of India-Germany relations:****Political relations:**

- After the Second World War, India was one of the first countries to establish diplomatic relations with the Federal Republic of Germany.
- Today relations are based on the **May 2000 Agenda for the Indo-German Partnership in the 21st Century**, which has since been updated by further joint declarations.
- **Indo-German intergovernmental consultations**, where the two countries' Cabinets have held joint sessions every two years since 2011, alternately in Germany and India (most recently in May 2017 in Berlin).
- Both nations are working along with Japan and Brazil in the **Group of Four (G4)** to reform the United Nations and the Security Council.

Economic relations:

- Germany is India's sixth most important trading partner worldwide.
- India was ranked 26th in Germany's global trade during 2017.
- Bilateral trade increased to US\$ 21.98 bn (2017-18), a growth of 17.15%.
- Germany's continuing trade surplus of around 2.9 billion euros (January to October 2018) is due to the strong Indian demand for German capital goods (machinery, electrical engineering products, metal goods, chemical products, motor vehicles and vehicle parts).
- Indian exports to Germany focus on the textile sector, followed by chemical products, electrical engineering products, metal and leather goods and foodstuffs.
- In December 2018, German foreign direct investment (FDI) totalled \$11.4 billion.

The principal bilateral economic agreements include:

- agreement on social security of 2011, in force since 5 April 2018
- double taxation agreement, which came into force on 19 December 1996
- trade agreement of 31 March 1955

- agreements on cooperation in scientific research and technological development dating from 1971 and 1974.

Education and culture:

- There are six branches of the Goethe-Institut in India which are called **Max Mueller Bhavans after the founder of Indian studies**, Max Mueller (1823-1900).
- The institutes carry out language and programme work.
- Under **Partners for the Future initiative (PASCH)**, 48 Indian schools at which German is taught as a foreign language are currently receiving support from the Goethe-Institut and the Central Agency for Schools Abroad.
- At the intergovernmental consultations in **October 2015, a joint declaration of intent was signed** to promote the teaching of German as a foreign language in India and instruction in modern Indian languages in Germany.

Sister States:

- Some States and Cities of India and Germany have entered into **twinning arrangements**.
- **Karnataka and Bavaria** have Sister States arrangement since 2007.
- **Mumbai and Stuttgart** are sister cities since 1968.
- In January 2015, **Maharashtra and Baden-Wurtemberg** signed an MoU to establish a Sister State relationship.

Defence Cooperation:

- **India-Germany Defence Cooperation Agreement (2006)** provides a framework for bilateral defence cooperation.
- The defence dialogue mechanisms include **High Defence Committee meetings** at the level of Defence Secretaries.
- **German companies export defence related equipment and machinery** parts to our Ministry of Defence.

Science & Technology:

- Inter-governmental Agreement on "Cooperation in Scientific Research and Technological Development" was signed on May 1974.

- India's scientific establishments have close partnerships with premier German R&D institutions, including the Max Planck Society, Fraunhofer Institutions and the Alexander von Humboldt Foundation.
- Through an agreement signed in 2010 the bilateral Indo- German Science and Technology Centre (IGSTC) was established as a flagship initiative of Government of India (DST) and Government of Germany (BMBF) to promote research partnership of industrial relevance.
- IGSTC started operating from Gurgaon in 2011.
- India has invested in major science projects in Germany such as the Facility for Antiproton and Ion Research (FAIR) at Darmstadt and the Deutsche Elektronen Synchrotron (DESY) for experiments in advanced materials and particle physics.
- Personnel Exchange Programme (PEP) launched in 1998 has enabled focused interaction through exchange of about 600 scientists/ research students from each side.

Agreements signed during visit:

- German Chancellor pledged to invest **1 billion euros** over the next five years on **environmentally-friendly urban mobility** in India.
- Germany would also put in **200 million euros to reform the bus sector in Tamil Nadu**.
- Both countries inked over **20 agreements**, including in the field of Artificial Intelligence (AI), agriculture, healthcare and resolved to jointly combat terrorism.
- The two countries have also agreed to **explore cooperation in new areas** like e-mobility, fuel cell technology, smart cities, inland waterways, coastal management, cleaning of rivers and climate change.
- Both countries agreed to deepen efforts to **resume stalled negotiations for a free trade agreement (FTA) between India and the European Union (EU)**. ((Launched in June 2007, the negotiations for the proposed pact have witnessed many hurdles with both sides

having major differences on key issues like intellectual property rights, duty cut in automobile and spirits, and liberal visa regime)).

- Both sides agreed to intensify efforts for an **early conclusion of an investment protection agreement** between the EU, the EU member states and India.
- Both sides signed **Joint Declaration of Intent (DoI) for cooperation in the field of skills development and vocational education**.
- It was signed between Ministry of Skill Development and Entrepreneurship and the Federal Ministry for Economic Cooperation and Development (BMZ), Germany.
- The second DoI was signed for **Dual VET initiative** marking Sustainable Growth of Skills with Siemens Limited, India.

Importance of the agreements;

- The expertise of a technological and economic powerhouse like Germany would be useful in the path of building a 'New India' by 2022.
- Merkel's visit coincided with one of the worst spells of air pollution in Delhi/NCR. This has emphasised on the need to replace diesel-run public transport with electric vehicles and promote green urban mobility.
- The cooperation between the two countries is very much needed to bring reforms in the UN.
- It is of great importance to build an efficient pool of skilled human resources for creating sustainable livelihoods and opportunities for the youth in India.
- The intended cooperation agreements will give special emphasis to enhance the quality of trainees and subsequently help them to find employment in innovative, sustainable sectors and technologies such as renewable energy, e-mobility and energy-efficiency.

Mould your thoughts: What are the recent agreements signed between India and Germany? How are these agreements important for India?

INDIAN ECONOMY

PROBLEMS IN TELECOM SECTOR

Manifest pedagogy: Telecom sector is facing various headwinds and a crisis of existence with mounting losses, AGR dues, spectrum charges, advent of 5g and a host of other issues. The space is keenly watched both by government and banks in terms of possible relief measures and a possible NPA problem hitting banks. Telecom sector issues will be important for important terms in prelims and mains for UPSC.

In news: The committee of secretaries (CoS) is mulling setting a minimum price for mobile calls and data in order to revive telecom sector.

Placing it in syllabus: Telecom sector (explicitly mentioned)

Static dimensions:

- Spectrum scam
- Merger and acquisition in telecom

Current dimensions:

- Adjusted Gross Revenue (AGR) dues
- Minimum pricing
- Delayed spectrum fee
- 5G spectrum

Content:

Spectrum scam:

- In November 2010, the Comptroller and Auditor General of India (CAG), in its report on 2G, revealed that licenses had been issued to telecom operators at throwaway prices causing a loss of Rs 1.76 lakh crore to the exchequer.
- Licenses had been issued to ineligible applicants through fraudulent means.
- The licenses owners had in turn sold significant stakes to the Indian/foreign companies at high premium within a short period of time.
- The telecom ministry under A Raja changed rules and eligibility criteria several times in the run-up to auction to benefit a few and selective telecom players only.
- The ministry issued licenses on a distorted First Come First Served (FCFS) Policy at 2001 prices instead of 2008 prices.
- CBI filed charge sheet in 2011.
- The main accused were A.Raja, DMK Supremo K Karunanidhi's daughter Kanimozhi I, Unitech

chief Sanjay Chandra and DB Realty founder Vinod Goenka and three senior executives of Anil Ambani controlled DAG, Former telecom secretary Sidharth Behura and Raja's Personal Secretary RK Chandolia.

- Second charge sheet was filed in April, 2011.
- In November, 2011, the trial for 2G scam began.
- In December, 2011, CBI filed third charge sheet.
- In February, 2012, SC cancelled 122 licences granted during Raja's tenure and directed auctioning of licences in 4 months.
- In June, 2015, ED submitted that Kalaingar TV got Rs. 200 crores through 2G scam.
- In April, 2017, Special court concluded arguments.
- On 21 December 2017, a Special CBI Court acquitted all the persons accused in the case due to lack of evidence.

Merger and acquisition in telecom:

- The current mergers in Indian Telecom Sector got the momentum with "Digital India" project.

- In the 2G Scam case, various telecom operators closed down the operations.
- The first news of consolidation was seen in **September, 2016 when Reliance Communications Ltd (RCom), and Airtel Ltd, announced that they would merge** their mobile network operations.
- In the month of **November, 2016 RCom announced its merger with Sistema's Indian operation "MTS"** under which the Russian Company will hold a 10% stake in RCom.
- Following this, **Idea-Vodafone merger announcement, BhartiAirtel agreed to buy Tikona Digital Networks Pvt. Ltd's**, 4G business, including broadband wireless access spectrum and 350 mobile towers in 05 telecom circles.

Benefits:

- Consolidation would restore some pricing power and give better negotiation with vendors/suppliers.
- It potentially leads to lower network operational expenditure and improved margins, in addition to faster rollout of coverage potential.
- It is good for the industry, for employees' stable jobs and competitive remuneration, stable long-term realizations and significant improvement in capital formation.
- Subscribers can hope to benefit from service providers that are on a stronger footing to invest in network expansion and quality of service.

However, the wave of merger & acquisition in the telecom sector could be negative for O&M Vendor/tower companies as merged entities will cut down on overall cell sites.

AGR dues:

- The Supreme Court has instructed telecom companies to deposit the dues sought by the government in three months.
- Vodafone Idea and Bharti Airtel, the two telcos are affected most by the SC order with pending licence fee and spectrum usage charge (SUC) dues of Rs 39,000 crore and over Rs 41,000 crore, respectively.

- Tata Teleservices, faces dues worth nearly Rs 13,000 crore.
- The demand notices to telecom companies for additional licence fees and spectrum usage dues has been issued by the government.
- The DoT has given option to telecom operators to clear all the dues on self-assessment basis.
- The government is working out a broader relief package for the industry with options being considered include reducing the interest and penalty, besides long-term measures like lowering licence fees and spectrum usage charge, and fixing a floor for tariffs.
- Vodafone Idea has said that it would seek reprieve from the DoT, including waiver of interest and penalty.
- The SC has ruled that AGR for telcos should include all revenue accrued to the carriers, including from non-core activities.
- The order has paved the way for the DoT to seek more than Rs 1.3 lakh crore in dues, penalty and interest from the sector.

Minimum pricing:

- To promote the dormant telecom sector, the **Committee of Secretaries (CoS)** is planning to set up **minimum price for mobile calls and data**.
- The **committee has sought recommendations from** DoT on setting a minimum charge for all tariffs for telecom players, while also assessing the impact it will have on telecom operators.
- This move will be **beneficial for incumbents like Vodafone Idea and Bharti Airtel** who have reported a huge loss after the SC asked telecom companies to pay AGR dues.
- **DoT will seek to assess multiple points**, including the minimum charge that should be set, the rationale and the financial benefit it will have on telecom operators.

Delayed spectrum fee:

- The Centre has deferred spectrum auction payments due from the operators for the years 2020-2021 and 2021-22.

- These deferred amounts will be spread over the remaining installments to be paid by the telecom operators without any increase in the existing time period specified for making the instalment payments.
- A telecom operator, opting for a two-year deferment will have to provide a guarantee of the revised annual installment payable for 2022-23.
- The move to defer payments for 2020-22 will give Rs 42,000 crore relief to Bharti Airtel, Vodafone Idea and Reliance Jio.

5G spectrum:

- 5G is the fifth generation of cellular network technology.
- It is expected to support significantly faster mobile broadband speeds and lower latencies and also enabling the full potential of the Internet of Things (IoT) which will transform sectors such as agriculture, manufacturing, healthcare, and education.
- From autonomous vehicles to smart cities 5G will be at the heart of the future of communications.

- 5G introduces a new level of flexibility and agility so the network can deliver customisable services to meet the needs of a huge variety of users.
- The speed, reach and quality of 5G services depends on governments and regulators supporting timely access to the right amount and type of affordable spectrum, and under the right conditions.
- Union telecom minister Ravi Shankar Prasad has recently said the 5G spectrum auction will be conducted this year-end or early next year.
- Under the scheme, the government plans to auction around 8,293.95 MHz of airwaves at an estimated total base price of Rs 5.86 lakh crore.
- The DoT has suggested a base price for 5G airwaves at Rs 492 crore per MHz and proposed a sale of a minimum 20 MHz blocks.

Mould your thoughts: What are various problems faced by the telecom sector in India? Suggest some possible solutions.

INDUSTRIAL RELATIONS CODE BILL



Manifest pedagogy: In light of various steps taken by government to facilitate Ease of Doing Business, Labour reforms and revised labour codes are a step forward. They not only seek to streamline formal processes but also incentivise investments. These are important both for prelims and mains for their factual and governance norms and also their impact in broader policy design.

In news: Cabinet has approved Industrial Relations Code bill, 2019

Placing it in syllabus: Labour reforms

Static dimensions:

- Labour laws in India
- Maruti labour unrest

Current dimensions:

- Labour codes
- Industrial relations bill
- Rajasthan model of labour reforms

Content:

Labour laws in India:

- **Payment of Bonus Amendment Act** - eligibility limit for payment of bonus enhanced from Rs 10000/- to Rs. 21000/- per month
- **Payment of Wages (Amendment) Act, 2017** - enabling payment of Wages to employees by Cash or Cheque or crediting it to their bank account.
- **Child Labour (Prohibition and Regulation) Amendment Act, 2016** - provides for complete ban on employment of children below 14 years in any occupation or process.
- **Maternity Benefit Amendment Act, 2017** - increases the paid maternity leave from 12 weeks to 26 weeks.
- **The Employee Compensation (Amendment) Act** - seeks to rationalize penalties and strengthen the rights of the workers under the Act.
- **The Payment Of Gratuity (Amendment) Act, 2018** - under which the ceiling limit of gratuity has been increased from Rs. 10 Lakh to 20 Lakh.

Governance Reforms:

- **“Ease of Compliance to maintain Registers under various Labour Laws Rules, 2017”** has in effect replaced the 56 Registers/Forms under 9 Central Labour Laws and Rules.
- **A Model Shops and Establishments (RE&CS) Bill, 2016** provides for freedom to operate an Establishment for 365 days in a year without any restriction on opening/closing time and enables employment of women during night shifts if adequate safety provisions exist.
- Under **Industrial Employment (Standing Orders) Act, 1946**, Fixed Term Employment category, with all Statutory Benefits, has been extended to all sectors.

- **“Labour Identification Number (LIN)”**, a unique identification number issued to employers to simplify business regulations and bring in transparency in labor inspections is provided by Shram Suvidha Portal.

Maruti labour unrest:

- Maruti Udyog Limited or Maruti Suzuki India Limited (**MSIL**) was established in **February 1981** and was a largely government-owned company.
- Post liberalisation in 1991, the government started to reduce its stake in the company, and **by the year 2007 had completely disinvested.**
- The **labour unrest began in 2000** when the employees of MSIL went on an **indefinite strike, demanding revisions to their wages, incentives and pension.**
- MSIL in its **Manesar factory** had as of 2011, employed a total of 2,500 workmen, out of which 1,100 were permanent employees and the rest 1,400 consisted of workers on contract, apprentices and trainees.
- The **benefits provided to a permanent employee were not provided to workers on contract**, although on the ground, the nature of work remained the same for both categories of employees.
- The **process** for an individual to **become a permanent employee at MSIL was lengthy** and never guaranteed.
- Being an unskilled worker meant that there was little or no hope of being made permanent.
- The **general working conditions were told to be ‘difficult’** with little or no time for breaks, huge deductions in pay for leave and almost non-existent pay for working over time.

- The **MSIL Manesar Union made demands and none of these terms were acceptable to MSIL.**
- A stray incident involving the suspension of a worker triggered off **serious violence on the 18th of July 2012**, that ended with an HR manager being killed, several people in management and policemen being injured.
- The **plant was evacuated and sealed.**
- MSIL called a **lock-out** citing security issues and claimed that none of the workers would be paid for the duration of the lock-out.
- Over 90 workmen were arrested, in August 2012 and **MSIL dismissed 500 workers accused of participating in the violence and restarted operations.**
- **Since 2013**, MSIL has actively cut down on hiring workers as contract labourers and is said to be **engaging workers on a temporary basis** instead.
- As of 2015, MSIL has given permanent employees a 38 percent hike in wages and a 10 percent hike for the temporary workers.

Labour codes:

In line with recommendations of **Second National Commission on Labour**, the Ministry of Labour and Employment have formulated **four Labour Codes on**

- Wages
- Industrial Relations
- Social Security & Welfare
- Occupational Safety, Health and Working Conditions

by amalgamating, simplifying and rationalising the relevant provisions of the existing Central Labour Laws.

The **Code on Wages, 2019**, is an Act of the Parliament of India that **consolidates the provisions of four labour laws concerning wage and bonus payments** and makes universal the provisions for minimum wages and timely payment of wages for all workers in India.

Now **the code on Industrial relations has been tabled in Lok Sabha.** The remaining two codes – on social security and occupational safety, health

and working conditions are yet to be tabled and are currently being discussed by different panels set up by the Ministry of Labour and Employment.

Industrial relations code (IRC) bill:

Restrictive labor regulations in India is associated with a 35% increase in firms' labor costs, according to a study. **India ranks 103** out of 141 countries **on the competitiveness of its labor market**, according to the World Economic Forum.

Under these circumstances, IRC is one of the four labour codes which is pushed through to reform India's archaic labour laws and **amalgamate 44 central laws into four broad legislations.**

Dignity of Labour

Labour ministry pushes ahead with labour reforms | Labour code on industrial relation gets Cabinet nod

Fixed-term employment allowed across sectors

Workers to get same wages and benefits as others

Employee threshold retained at 100 for seeking govt approval for retrenchment

Two-member tribunal set up for disputes

Govt officials will have the power to resolve disputes

FOUR LABOUR CODES IN WORK

- Labour code on wages notified
- Labour code on occupational safety moved to standing committee
- Labour code on social security is under consultation

The **draft code on IR** has been prepared after **amalgamating** the relevant provisions of following **three Central Labour Acts:**

- The Trade Unions Act, 1926

- The Industrial Employment (Standing Orders) Act, 1946
- The Industrial Disputes Act, 1947

The bill has the following provisions:

- Setting up of **two-member tribunal** so that important cases will be adjudicated jointly and the rest by a single member resulting in speedier disposal of cases.
- To impart flexibility to the **employee exit provisions**, the threshold for prior approval of appropriate Government has been kept unchanged at **100 employees**.
- A provision for **changing 'such number of employees' through notification** has been added.
- Terminating a worker at the end of the fixed term would not be retrenchment.
- The **re-skilling fund** is to be utilised for crediting to workers in a manner to be prescribed.
- Vesting of powers with the **government officers for adjudication of disputes involving penalty as fines** thereby lessening the burden on tribunal.
- The **definition of a strike is being amended** to include 'mass casual leave' in case of a sudden protest and makes it mandatory for a **notice of 14 days for strikes and lockouts** in any establishment.
- The bill includes **fixed-term employment as a category of employment** in classification of workers.
- It introduces a feature of '**recognition of negotiating union**' under which a trade union will be recognized as sole 'negotiating union' if it has the **support of 75% or more of the workers** on the rolls of an establishment.
- If it will be tough for any one group to manage 75% support, a **negotiating council** will be constituted.

- The **fixed-term employees will get all statutory benefits on a par with the regular employees** who are doing the work of **similar nature**.
- The **amendments** to the labor law would be **limited to new hires** in order to defuse opposition from the unions.

Rajasthan model of labour reforms:

- In 2014, Rajasthan was the first state that introduced labour reforms in the major Acts.
- The major reforms undertaken by Rajasthan included the amendments to the Industrial Dispute Act, 1947, the Factories Act, 1948, the Contract Labour (Regulation & Abolition) Act, 1970 and the Apprentices Act, 1961.
- To reduce trade union influence, the state has amended laws to increase the minimum membership requirement to form a union as 30% of total workmen at an establishment from 15% earlier.
- No prior government nod is required for companies employing up to 300 people for firing and laying off workers or shutting down units (earlier limit was 100 workers).
- A worker can raise an objection about wrongful termination only within three years (there was no deadline earlier).

As per 2014-15 Economic Survey, Rajasthan performed much better in terms of factory output, growth in the number of large factories and jobs creation than the rest of India.

At present, the growth rate in Rajasthan is a little less than double for the rest of India.

Mould your thoughts: What are the provisions of newly introduced Industrial Relations Code (IRC) bill? Brief about the Rajasthan model of labour reforms.

FUND FOR HOUSING

Manifest pedagogy: The government's target for housing for all by 2022 has put into motion various schemes, policies and programmes for the housing sector in India. Financing such schemes and affordability of houses remains the key concern. In this light Fund for housing is critical for the success of these initiatives.

In news: Recently Government of India announced the establishment of Rs 25,000 crore fund for home buyers whose money is stuck in stalled projects.

Placing it in syllabus: Housing sector

Static dimensions:

- Affordable housing in India
- Subsidies for housing
- Role of National Housing Bank (NHB)

Current dimensions:

- Affordable housing fund

Content:

The proposed fund is to be set up as **Category II Alternative Investment Fund (AIF)**. ₹10,000 crore is to be provided by GoI towards the fund. Other firms like LIC and SBI along with sovereign wealth funds and pension funds will contribute Rs 15,000 crore.

The fund is to be registered with SEBI as an escrow account. Under the special window, the projects that have been declared as NPAs (Non Performing Assets) and other projects that are undergoing insolvency at NCLT are also allowed to be kick started.

Affordable housing in India:

- Affordable housing refers to housing units that are affordable for those with income below the average household income.
- In India, affordable housing is provided for low income people, middle income people and economically weaker sections.
- With the current progress of urbanisation, around 40% of the country's population is expected to live in urban areas by 2030.
- High land costs, delays in project approvals, increasing raw material costs and low profit margins have made low-cost housing projects less attractive to private developers.

The following are some of the **policies and initiatives undertaken by the GoI** in Affordable Housing sector:

Pradhan Mantri Awas Yojana (PMAY): Was launched in June 2015 to build 20 million houses for individuals who fall under Economically Weaker

sections (EWS) and Lower Income Groups (LIG) categories.

External Commercial Borrowing (ECB) has been allowed for affordable housing projects from 2012 to enable lower interest cost for developers and ensured better capital availability for developers of low-cost housing.

Opening up of **Foreign Direct Investment (FDI)** for development of townships, housing, built-up infrastructure and construction-development.

The **Credit Risk Guarantee Fund with a corpus of Rs 1200 crore** in collaboration with NHB was set up in 2012 to facilitate credit availability to low income customers without any collateral for **loan amount up to Rs. 8 lakhs**.

Urban Housing Fund Refinancing Scheme with a corpus of Rs 2000 crores in the year 2013-14 has been created.

The **GST Council has reduced tax rates for affordable housing from 8% to just 1%** and has also enhanced the ceiling value of affordable housing to Rs 45 lakh.

As per the RBI incentive measures, the cost of affordable residential property should be less than Rs 65 lakh in metro cities and Rs 50 lakh in non-metros. The RBI also gives loans to affordable housing under priority sector lending.

Subsidies for housing:

- Through PMAY the GoI aims to provide affordable housing to the urban poor population in India by 2022.
- Under the tagline "Housing for all", this scheme focuses on slum rehabilitation, Credit Linked Subsidy Scheme (CLSS), making housing affordable for all and offer a subsidy for survey-

led independent house construction or renovation.

- Among the four focus areas, CLSS is the only central sector scheme and the remaining schemes are sponsored schemes.

Credit Linked Subsidy Scheme (CLSS):

- It is implemented by HUDCO and NHB.
- It is effective from 1 January 2017.
- The prime objective is to help the urban poor population by increasing the institutional credit flow to meet their housing needs.
- This interest rate subsidy will be credited during the initial stage of the loan to the beneficiary's loan account through the lending institute.
- To be eligible to avail a housing loan under CLSS, the beneficiary family should not own a pucca house in his/her or in the name of any member of his/her family in any part of India.
- The funds borrowed by Economically Weaker Sections can be used to construct a new house or to add a room, kitchen, or balcony to their existing house.
- When it comes to EWS and LIG, preference will be given to women, Scheduled Tribes, Scheduled Castes, backward classes, minorities, people with disabilities, and transgenders.

Particulars	EWS	LIG
Annual Income	Up to Rs.3 lakh	Rs.3 lakh to Rs.6 lakh
Maximum Loan Tenure	20 years	20 years
Revised Carpet Area	30 square metres	60 square metres
Interest Subsidy	6.5%	6.5%

- Under the Middle Income Group (MIG), there are two sets of beneficiaries.

Particulars	MIG-I	MIG-II
Annual Income	Rs.6 lakh to Rs.12 lakh	Rs.12 lakh to Rs.18 lakh
Maximum Loan Tenure	20 years	20 years
Housing Loan Amount Eligible For Interest Subsidy	Up to Rs.9 lakh	Up to Rs.12 lakh
Revised Carpet Area	120 square metres	150 square metres
Interest Subsidy	4%	3%

Role of NHB:

The **National Housing Bank (NHB)**, was set up on 9 July 1988 under the National Housing Bank Act, 1987. It is an apex financial institution for housing.

Its **role** in the growth of housing finance institutions in India are:

- It promotes, establishes and supports housing finance institutions.
- It grants loans and advances.
- It purchases stocks shares, bonds, and other securities of companies involved in housing finance.
- It guarantees for the loan taken by housing finance companies from the open market.
- It underwrites for the issue of securities of housing finance institutions.
- It draws, accepts, discounts and re-discounts bills of exchange for housing finance.
- It buys or sells or deals in mortgage of immovable properties belonging to housing finance institutions.
- It promotes mutual funds for undertaking housing finance.
- It promotes mortgage banks or societies for providing housing finance.
- It plays an important role in formulating housing schemes for EWS (economically weaker sections) – single tenement and radial houses.

- It coordinates with LIC, UTI, GIC and other financial institutions.

Affordable housing fund (AHF):

- It was established in NHB as announced in the General Budget for 2018-19.
- The objective of the fund is to improve the affordability of the target group to own their homes.
- The corpus of the Fund will be 10,000 crores and will be contributed by Scheduled Commercial Banks as allocated by the Reserve Bank of India (RBI).
- The AHF shall be utilized for refinancing the individual housing loans sanctioned and disbursed on or after 01-04-2017 falling under rural and urban category.
- Those institutions eligible for refinance under AHF are:
 - Housing Finance Companies (HFCs)
 - Scheduled Commercial Banks (SCBs)

- Scheduled Urban Cooperative Banks (UCBs)
- Regional Rural Banks (RRBs)
- Scheduled Cooperative Banks (SCoBs)
- Small Finance Banks (SFBs)
- Apex Cooperative Housing Finance Societies (ACHFS)
- Agricultural & Rural Development Banks (ARDBs)
- Eligible individual housing loans
 - Urban - Annual household income not exceeding Rs. 6 lakh.
 - Rural - (i) Weaker Sections as defined in the RBI's priority sector guidelines (ii) Annual household income not exceeding Rs. 3 lakh (iii) Women.

Mould your thoughts: What is Affordable housing fund (AHF)? Bring out the salient features of Credit Linked Subsidy Scheme (CLSS) provided for affordable housing in India.

SCIENCE & TECHNOLOGY

INDIGEN PROJECT

Manifest pedagogy: Genetics and biotechnology are such areas from which we can expect decent number of conceptual questions in Prelims and generalist questions in Mains. This is area would fetch sure shot marks with little preparation. Hence, we advice aspirants to prepare this section well.

In news: The Council of Scientific and Industrial Research (CSIR) recently announced the conclusion of a six-month exercise of conducting a "whole-genome sequence" of 1,008 Indians.

Placing it in syllabus: S&T developments

Static dimensions:

- What is Gene Sequencing?
- Gene Sequencing projects across world

Current dimensions:

- India's Indigen project and other projects
- Prospects of gene Sequencing
- Issues with gene sequencing

Content:

What is Gene Sequencing?

- A genome is the DNA or sequence of genes in a cell.

- Most of the DNA is in the nucleus and intricately coiled into a structure called the chromosome.
- Every human cell contains a pair of chromosomes, each of which has three billion

base pairs or one of four molecules that pair in precise ways.

- The order of base pairs and varying lengths of these sequences constitute the “genes”.
- Sequencing a genome means deciphering the exact order of base pairs in an individual.
- It has been known that the portion of the genes responsible for making proteins called the exome occupies about 1% of the actual gene.
- The genome has to be mapped in its entirety to know which genes of a person’s DNA are “mutated”.

Gene Sequencing projects across world:

- The UK was the first to launch a program called **Genomics England** which aims to sequence up to **100,000 whole genomes from patients with rare diseases**, their families, and cancer patients.
- **Australia** is working on the **4-year 100,000 Genomes Project**, sequencing patients with rare diseases and cancer to create a massive database for R&D.
- **Estonian Genome Project Foundation** collected data from 52,000 adult donors by February 2014 and in March, 2019 has offered a further 100,000 people free genetic testing.
- In the **USA**, the **Precision Medicine Initiative (PMI)**, with its 1-million-volunteer health study, is gathering a large database of health data including genetics and lifestyle factors. The **Mayo Clinic** (American non-profit academic medical center) will **analyze and store one million blood and DNA samples**.
- In 2016, France announced the “**France Médecine Génomique 2025**” program, aiming to open 12 sequencing centers and ensure 235,000 whole genome sequencing (WGS) a year which can be used as diagnostics tool.
- The **non-profit consortium GenomeAsia 100K** decided to generate **genomic data for Asian populations**. **Supporters** of the initiative include genomics companies **Macrogen in Korea and MedGenome in India**, as well as **Illumina**.
- The **Qatar Genome Program** aims to establish the **Qatari Reference Genome Map** by

sequencing 3,000 whole genomes, which accounts for around 1% of the Qatari population.

- In 2010, the **BGI genomics institute in Shenzhen**, China hosted a higher sequencing program which aims at sequencing one million human genomes and will include subgroups of 50,000 people, each with specific conditions such as cancer or metabolic disease.

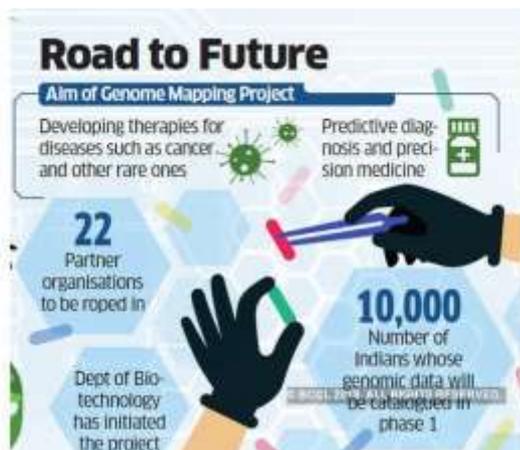
India's Indigen project and other projects:

- The CSIR project is part of a programme called “**IndiGen**”.
- Though **CSIR first sequenced** an Indian genome **in 2009**, only now it has been able to scale up whole-genome sequencing and offer them to the public.
- The driving **motive** of the project is to **understand the extent of genetic variation in Indians**, and **learn why some genes linked to certain diseases** based on publications in international literature **does not always translate into disease**.
- Under “IndiGen”, the CSIR drafted about **1,000 youth** from a pool of about 5,000 and included **representatives from every State and diverse ethnicities**.
- Every person whose genomes are sequenced would be **given a report**.
- The **participants would be informed if they carry gene variants that make them less responsive** to certain classes of medicines.
- The project involved the Hyderabad-based **Centre for Cellular and Molecular Biology (CCMB)**, the **CSIR-Institute of Genomics and Integrative Biology (IGIB)**.
- The project **ties in with** a much larger programme **Genome India project**.

Genome India project:

- It is **funded by the Department of Biotechnology (DBT)** to sequence at least 10,000 Indian genomes.
- **22 partner organisations including public health institutions will be roped in** that have obtained regulatory ethical clearances.

- Investigators in hospitals will lead the **data collection through a simple blood test** from participants and the **information** will be **added to bio banks**.



- The project will aim to make predictive diagnostic markers available for some priority diseases such as cancer and other rare and genetic disorders.
- The department has also initiated an outreach programme to provide genetic diagnosis and counselling to families affected by common genetic disorders in certain districts.

Medgenome project:

- **Sequoia-backed MedGenome, a start-up** is planning to fund its own research in the area of **DNA sequencing and precision medicine**, with an aim to licence the findings to biotechnology firms and drug makers.
- Launched in 2013, **San Francisco- and Bengaluru-based MedGenome Labs Pvt. Ltd** has a network of Next Generation Sequencing (NGS) laboratories in India, Singapore and the US.
- Its **research is in four main areas:** cancer immunotherapy, inherited diseases, diabetes and ophthalmology.
- About **70% of the company's revenue** is earned from **project-based research** mainly for US-based pharmaceutical clients, while the **rest is from consumer diagnostic tests in Asia**.
- Its labs combine **state-of-the-art testing equipments and powerful computers to perform DNA sequencing** that is used for a wide variety of **purposes such as biomarker**

discovery, drug research and new market discovery.

Prospects of gene Sequencing:

- Determining unique genetic traits, susceptibility and resilience to diseases.
- For new advancements in medical science like predictive diagnosis and precision medicine, genomic information is the backbone.
- The technique has allowed drug makers to come up with medicines that work on a select group of individuals based on similar genetic makeup, as against generic drugs used with little success so far.
- With the help of DNA sequencing, healthcare practitioners are using the new technique called cancer immunotherapy to treat cancer where the patient's genes are altered to help his or her immune system fight cancer cells.
- The common early onset disorders with "complex" inheritance like asthma, type-1 diabetes mellitus, and the epilepsies and behavioural phenotypes of autism and attention deficit hyperactivity disorder can be understood.

Issues with gene sequencing:

- Synthetic human genome could be created which will be against the law of nature.
- Morality of eugenics, which is the theory and practice of improving the genetic quality of the human population.
- Danger of genetic misuse.
- Biosafety and biosecurity concerns related to implications of technology.
- Selection of genes for specific traits might change the dynamics of genes and alter the ecological balance.
- Agencies that fund large genomic initiatives have tended to treat the data these projects produce as a community resource to be made publicly available before thorough analysis by the consortia that generate them which violates privacy.
- The inability to anticipate the types of benefits and risks associated with future research using

donated biological materials raises major ethical worries.

- By its very nature, a fully or partially sequenced individual genome can reveal information about genetically based or -contributed characteristics that is unknown to the participant.
- Where targeted populations comprise organized cultural entities like different tribes consultation demonstrates respect for the

moral authority of those communities. Community consultation or engagement, however, should not be mistaken for community consent nor does every medical-sequencing project or every population warrant advance consultation.

Mould your thoughts: What do you understand by Indigen project? Analyse the pros and cons of genome sequencing.

ENVIRONMENT & DISASTER MANAGEMENT

STUBBLE BURNING

Manifest pedagogy: Along with industrial and vehicular pollution, Delhi is choking because of stubble burning. The pollution is not restricted to the capital city but threatens large parts of northern plains. The issue of stubble burning can be addressed through economic incentives and political will. The topic can be asked from mains perspective especially consequences and the ways of addressing it.

In news: Pollution in Delhi has hit record-breaking levels and stubble burning is a major contributor.

Placing it in syllabus: Air pollution

Dimensions:

- What is stubble burning?
- Stubble burning and western disturbances
- Stubble burning and air pollution
- Legislative and administrative measures to control stubble burning
- Way ahead

Content:

What is stubble burning?

Stubble burning is **intentionally setting fire to the straw stubble** that remains after grains, like paddy, wheat have been harvested. Unlike manual harvesting techniques however, combine harvesters leave behind rice stubble.

It is practised in **Punjab, Haryana and Uttar Pradesh to clear the fields for the sowing of Rabi Crop from the last week of September to November**. There is only a two to three weeks' time window between the harvesting of paddy crop and the sowing of the next crop.

Burning crop residue is a crime under Section 188 of the IPC and under the Air and Pollution Control Act of 1981. On December 10, 2015, the National Green Tribunal (NGT) had banned crop residue

burning in the states of Rajasthan, Uttar Pradesh, Haryana and Punjab where the practice is prevalent.

Stubble burning makes both the **soil and air poisonous**. Microorganisms present in the upper layer of the soil as well as its organic quality gets affected. Due to the **loss of 'friendly' pests**, the wrath of 'enemy' pests has increased and as a result, **crops are more prone to disease**.

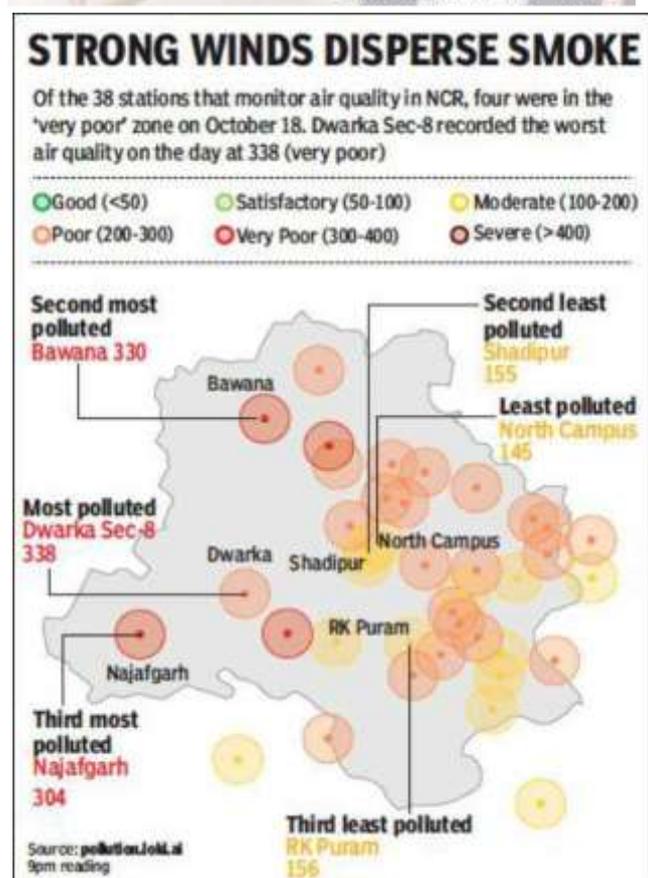
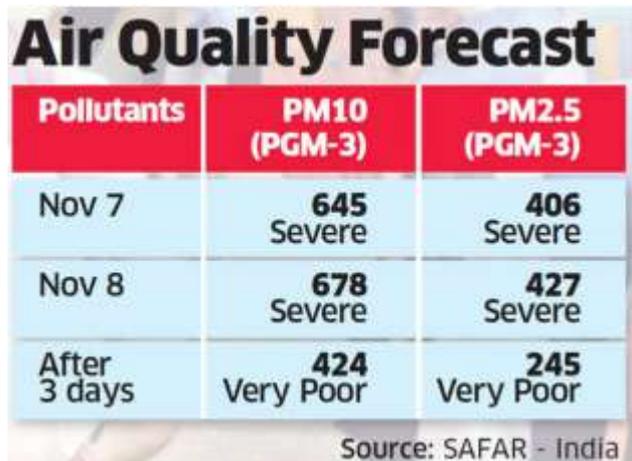
According to a **study by the Institute for Social and Economic Change, Bengaluru**, estimated that people in rural Punjab spend Rs 7.6 crore every year on treatment for ailments caused by stubble burning.

Stubble burning and western disturbances:

According to the Ministry of Earth Sciences' air quality monitor, SAFAR, an increase in stubble

burning in Haryana and Punjab and calm surface winds have increased Delhi's air pollution. The calm surface wind that prevailed led to strong surface nocturnal inversion and accumulation of pollutants.

However, a **fresh western disturbance as a trough ran roughly along the Afghanistan-Pakistan border** and approached northwest India by November, 2019. This helped Delhi and cleaned up the city air substantially. The National Capital's **air quality index (AQI) improved from 'severe plus' to 'poor' at 249.**



The western disturbance **caused rainfall in Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana and Uttarakhand.** In NCR, dusty winds along with thunderstorm were witnessed. The **very**

strong winds helped with the pollution as it resulted in the smoke getting dispersed.

According to **recent CPCB updates**, Delhi's average PM 2.5 levels has been improving and settling just above the safe standards of 60 micrograms per cubic metre.

Stubble burning and air pollution:

A study estimates that crop residue burning released 149.24 million tonnes of **carbon dioxide (CO₂)**, over 9 million tonnes of **carbon monoxide (CO)**, 0.25 million tonnes of **oxides of sulphur (SOX)**, 1.28 million tonnes of **particulate matter** and 0.07 million tonnes of **black carbon.**

These directly contribute to environmental pollution, and are also responsible for the haze in Delhi and melting of Himalayan glaciers. **Delhi** has seen the worst pollution since 2016 in October, 2019 with some parts of the city experiencing over **150 times the concentration of toxic particles** recommended by the World Health Organization.

This prompted for a public health emergency to be declared. According to **Safar**, the Indian government air quality regulator, **46% of Delhi's pollution this year was caused by stubble burning** in Delhi's neighbouring regions of Punjab and Haryana.

After a petition was submitted by environmental activists, Supreme court ordered a complete halt to the practice of stubble burning.

Much of the blame for the worsening pollution problem has been laid on the farmers of Punjab because, in the first week of November, the fire cases have risen in terms of absolute numbers. The **total paddy area cultivation in Punjab is almost double that of Haryana.**

But as the **machinery to manually clear the fields is expensive**, burning the excess crops is the only affordable approach for many poverty stricken farmers and they are likely to ignore the court's ruling. However, the Punjab government said they would step up efforts in the next few days to tackle the fires.

Legislative and administrative measures to control stubble burning:

- The Supreme Court has asked the governments of Punjab, Haryana and Uttar Pradesh to

immediately stop their farmers from stubble burning.

- It has warned that their **entire administrative and police hierarchy**, from the Chief Secretary to the sarpanch to the local policeman, **will be held responsible** even if one instance of stubble burning occurs in the future.
- SC held **state governments responsible** for stubble burning.
- The court said that instance of stubble burning from now on would be **penalised**.
- It has made the **local and civic bodies as "personally responsible"** as the errant farmer who puts fire to his crop residue.
- The court said the **'Polluter Pays Principle' does apply to the State and the local bodies**.
- It recently ordered that **all farmers be given a Rs 100 per quintal incentive** to prevent them from burning stubble and provide them free machines to get rid of the agriculture residue.

Along with these, the court passed a **slew of directions** meant to **immediately reduce pollution** in Delhi National Capital Region (NCR).

- ban on construction and demolition activities, any violation would cost Rs. 1 lakh in fine).
- banned the burning of garbage in open dumps, non-compliance would mean Rs. 5000 in penalty.
- banned the use of diesel generators in Delhi NCR for the time being, violation by any industry in Delhi NCR would be hauled up for contempt of court.

Way ahead:

- Stubble can be **used in different ways** like cattle feed, compost manure, roofing in rural areas, biomass energy, mushroom cultivation, packing materials, fuel, paper, bio-ethanol and industrial production, etc.
- Farmers can also manage crop residues effectively by **employing agricultural machines like**:
 - Happy Seeder(used for sowing of crop in standing stubble),
 - Rotavator (used for land preparation and incorporation of crop stubble in the soil),

- Zero till seed drill (used for land preparations directly sowing of seeds in the previous crop stubble),
- Reaper Binder (used for harvesting paddy stubble and making into bundles)
- The central government with the aim of reducing crop residue burning **provides subsidies to farmers buying the machines**.
- An India born NRI businessman Chiranjeev Kathuria has proposed to set up **1,000 MW biomass energy generating plants in Punjab from the stubble** of both paddy and wheat crops.
- The crop residue would be purchased from the farmers and this would help counter environmental pollution and the **power produced by the plants set up would be fed directly into the main grid**.
- Eminent agricultural scientist **M.S. Swaminathan** has suggested that the Delhi, Haryana and Uttar Pradesh governments could set up **'Rice Bio Parks'**, where farmers could convert stubble into products including paper, cardboard and animal feed. (*Recently, the Chennai-based M.S. Swaminathan Research Foundation (MSSRF) established a Rice BioPark at Nay Pyi Taw, Myanmar, funded by the Union Ministry of External Affairs, which was inaugurated by the President of India*)).
- **Naandi Foundation**, an NGO that works with farmers and rural India to eradicate poverty has adopted an **initiative in Delhi's Palla village** where 800MT of paddy residue was purchased from farmers to **turn it into manure**.
- The **odd-even scheme** has been implemented in New Delhi from November 4 to November 15, 2019.

Central Sector Scheme on Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue:

- It is implemented in the State of Punjab, Haryana, Uttar Pradesh & NCT of Delhi which aims to address air pollution by subsidizing machinery required for in-situ management of crop residue for the period 2018-19 to 2019-20.
- Components of the Scheme:

- Establish Farm Machinery Banks for custom hiring of in-situ crop residue management machinery.
- Financial Assistance to the farmers for Procurement of Agriculture Machinery and Equipment.
- Information, Education and Communication for awareness on in-situ crop residue management.

- In-situ Crop Residue Management: The harvested crop stalks/ stubbles are chopped into small pieces and incorporated in-situ into the soil with varying efficiencies depending upon the left over residue.

Mould your thoughts: Explain the legislative and administrative measures taken so far to control stubble burning issue in North India? What can be done in the future to reduce the effects of stubble burning?

SNOW LEOPARDS

Manifest pedagogy: Under IUCN list of vulnerable animals Snow Leopard is one. All such animals/birds which are news are of importance for Prelims.

In news: State of Snow leopards

Placing it in syllabus: Wildlife conservation

Dimensions:

- Facts about snow leopard
- Threats
- Conservation efforts in India and across world

Content:

Facts about Snow Leopard:

- The snow leopard (also called ounce) is found in high mountains of **12 countries of Central Asia**.
- It usually solitary and highly elusive.
- In September 2017, International Union for Conservation of Nature (IUCN) had downgraded conservation status of snow leopard to “vulnerable” from “endangered”.
- Some snow leopards have home ranges of up to 1,000 square kilometers.
- Snow leopards are not known to be aggressive toward humans.
- It is National Heritage Animal of Pakistan and Afghanistan.



Threats to Snow leopard:

- **Poaching:** According to 2016 data, one 220 to 450 cats are killed and traded per year.
- Its **main prey species**, Wild sheep and goat are also **threatened by illegal or unsustainable hunting** in many parts of the snow leopard range. If their populations decline, so do the snow leopard's.
- As more and more **domestic animals** find their way into the snow leopard's habitat, the cat occasionally preys on them and kills them. To protect their herds and livelihoods, **herders sometimes kill snow leopards in retribution**.
- **Mining and other large-scale development** in mountain ranges pose a threat to its habitat.
- **Temperatures are on the rise** across the mountains of Central Asia and this **climate change** threatens to make up to a third of the snow leopard's habitat unusable.

Conservation efforts in India and the world:

The conservation of snow leopards is complex and involves various stakeholders such as governments, tourism departments and local communities.

- World Wildlife fund (WWF) focuses on reducing human-leopard conflict and rural development, stopping mining in fragile snow leopard habitat.
- It supports mobile anti poaching activities.
- It works together with TRAFFIC, to eliminate the illegal trade of snow leopard fur, bones and other body parts.
- It works with local communities to monitor snow leopards and reduce retaliatory killing of them through innovative local insurance plans.
- WWF has developed and launched Third Pole GeoLab, an interactive web-based tool and database for snow leopard conservation, climate change, and water security issues in Asia's high mountains.
- The USAID-funded, \$7.3 million Conservation and Adaptation in Asia's High Mountain Landscapes and Communities project will conduct field activities in and build alliances among six of the snow leopard's 12 range countries - Bhutan, India, Nepal, Mongolia, Kyrgyzstan, and Pakistan.

Snow Leopard Trust is a non-profit organisation in Washington which is working towards Snow Leopard conservation.

- It has constituted **Snow Leopard Enterprises, a conservation-focused handicrafts brand** that helps create sustainable economic opportunities for families in snow leopard habitat and reduce the motivation behind poaching.
- Their **livestock insurance program** helps rural communities reduce the financial impact of snow leopard predation.
- The **livestock vaccination and ecosystem health program** helps offers vaccines and

animal husbandry trainings in snow leopard communities.

- It **runs environmental education programs** for children and adults in the outdoor eco-camps and Nature Clubs.

India:

Project Snow Leopard:

- It was **launched in 2009** to safeguard and conserve India's unique natural heritage of high altitude wildlife populations and their habitats by promoting conservation through participatory policies and actions.
- It has been catalyzed by **Nature Conservation Foundation (NCF)** and **involves government and non-governmental stakeholders from the states.**
- The **strategy document** stresses on knowledge based, landscape level and participatory management of wildlife in the region.
- Each of the **five range states** - Jammu & Kashmir, Himachal Pradesh, Uttaranchal, Sikkim, and Arunachal Pradesh will **identify one landscape** under the project.
- Surveys will be conducted to **identify multiple 'cores' where human use will be minimized**, harmonized or completely stopped in a consultative process with the community.
- The project will include **representation from the village cluster-level up to a steering committee at the central-level.**

Mould your thoughts:

1. What are the conservation strategies undertaken for the protection of Snow Leopard in India and the world?

SCIENCE & TECHNOLOGY

JELLYFISH GALAXIES

Manifest pedagogy: Amusements in the space and new discoveries or observations are of importance especially for Prelims. The evolution of universe, phenomena in the space and the new theories have to be learnt from the Mains perspective.

In news: Astrosat views star formation in jellyfish galaxies

Placing it in syllabus: Inventions in S&T

Static dimensions: Types of galaxies

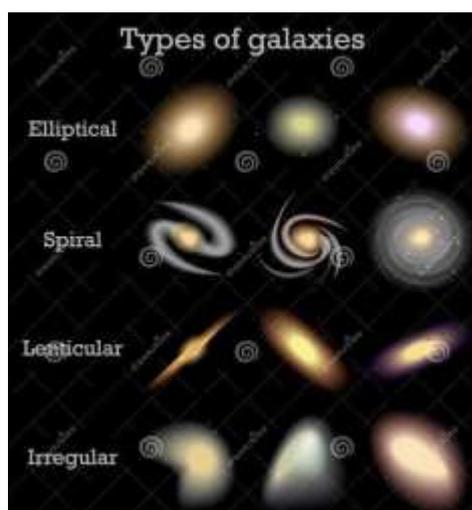
Current dimensions:

- What is jellyfish galaxy?
- Comparison with other galaxies
- How tail is formed?
- Webb telescope

Content:

Types of galaxies:

In 1936, Hubble classified galaxies into **four main types**.



Spiral galaxies: More than two-thirds of all observed galaxies are spiral galaxies. A spiral galaxy **has a flat, spinning disk with a central bulge surrounded by spiral arms**. That spinning motion, at speeds of hundreds of kilometers a second, may cause matter in the disk to take on a distinctive spiral shape. E.g. Our Milky Way galaxy

Elliptical galaxies: They are generally round but can stretch longer along one axis than along the other, so much so that some take on a cigar-like appearance.

Elliptical galaxies may be very small, in which case they are called dwarf elliptical galaxies. They **contain many older stars, but little dust and other interstellar matter**. Their stars orbit the galactic center in more random directions. E.g. **Andromeda galaxy**.

Lenticular galaxies: They're called "lenticular" because they **resemble lenses**. Like spiral galaxies, they have a **thin, rotating disk of stars and a central bulge**, but they **don't have spiral arms**.

They seem to form more often in densely populated regions of space. E.g. **Sombrero Galaxy**.

Irregular galaxies: These are galaxies that are not spiral, lenticular, or elliptical and **lack a distinct form**, often because they **are within the gravitational influence of other galaxies close by**. They are full of gas and dust, which makes them great nurseries for forming new stars. E.g. **Large and Small Magellanic Clouds**.

What is jellyfish galaxy?

- Recently Astrosat has observed a **jellyfish galaxy, JW100**, by using its Ultraviolet Imaging Telescope (UVIT).
- JW100 is located far away in the **galaxy cluster Abell 2626**.
- The star formation in JW100 was gauged using **observations of the visible (H-alpha) spectrum** using the **MUSE instrument of the Very Large Telescope in Chile and the UVIT**.
- Jellyfish galaxies are called so because they are **shaped like discs that have many tentacle-like arms streaming away from the disc**.

Astrosat is a part of an international programme called GASP (Gas Stripping Phenomena in galaxies with MUSE), which is meant to observe gas-stripping jellyfish galaxies using the MUSE Integral Field Spectrograph, Chile. This programme is led by Bianca Poggianti of Padova Observatory, Italy.

Comparison with other galaxies:

- Unlike usual galaxies that have stars forming in the disc, the jellyfish galaxies **have star formation in the tentacles** also.
- They are **different because of their orientation** as they are seen edge-on so that the **gas stripping can be seen perpendicular to one's field of vision**.

JW100 is different from other jellyfish galaxies such that star formation in other galaxies as estimated by the H-alpha observations matches with that calculated from ultraviolet observations. **In JW100, there is higher contribution from H-alpha but much less from ultraviolet in the tail.**

This could mean that other mechanisms such as shocks or thermal conduction from the hot plasma of the galaxy cluster is contributing to H-alpha emission from these regions.

How a tail is formed?

- They are **formed when a disc-shaped galaxy rams into a galaxy cluster** due to gravitational attraction of the cluster.
- Then the x-ray emitting **hot plasma in the cluster strips away the cold molecular gas of the disc**, causing it to stream behind like tentacles.

What triggers star formation in these environments is yet to be found out because in galaxy clusters the realm between the galaxies is filled with hot, tenuous gas which acts like a headwind and can remove gas and dust from the hapless galaxy. This process is known as **“ram pressure stripping.”**

As galaxies run out of gas star formation stops. Thus galaxies in clusters stop forming new stars sooner than their relatives outside of clusters.

Once the **Webb telescope** is launched, it will **target sites of star formation** at different points along the tail and study those sites to learn more about conditions there.

Webb telescope:

- The **James Webb Space Telescope (JWST)** will be the world's premier space science observatory which will be launched on an Ariane 5 rocket from French Guiana in **2021**.
- Webb is an international project led by **NASA** with its partners, **ESA** (European Space Agency) and the **Canadian Space Agency**.
- Webb was **formerly** known as the **"Next Generation Space Telescope (NGST)"** and was renamed in September, 2002 after a former NASA administrator James Webb.
- The JWST's primary scientific mission has **four key goals**:
 - search for light from the first stars and galaxies that formed in the Universe after the Big Bang,
 - study the formation and evolution of galaxies,
 - understand the formation of stars and planetary systems,
 - study planetary systems and the origins of life.

These goals can be accomplished more effectively by observation in near-infrared light rather than light in the visible part of the spectrum. Hence **JWST's instruments will not measure visible or UV light** like the Hubble Telescope, but will have a much greater capacity to **perform infrared astronomy using Mid-Infrared Instrument (MIRI)**.

Mould your thoughts: What is a Jellyfish galaxy and how is it different from other types of galaxies? What is the special feature of a jellyfish galaxy tail?