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- What are Induced Pluripotent Stem Cells?. Discuss the merits and demerits of Induced Pluripotent Stem Cells.
- The magnitude of smuggling and the consequent loss to the country's economy might become a roadblock in India's march towards a \$40 trillion economy. Examine the gravity of the issue and suggest few effective measures to counter the same.
- Has caste lost its relevance in understanding the multi-cultural Indian Society? Elaborate your answer with illustrations. (150 words) [UPSC MAINS 2020 - General Studies Paper 1]

1. What is the significance of MGNREGA scheme? Critically examine the shortcomings of MGNREGA scheme in addressing the issue of rural distress.

MGNREGA is a **poverty alleviation programme** of the Government of India, which provides the **legal Right to Work** in exchange for money to the citizens of the country. **Funding** is shared between the **Centre and the States**.

Significance

- It is a **social security scheme** to **generate employment** for the rural poor and ensure livelihood for people in rural areas.
- The scheme sees **large-scale participation of women, Scheduled Castes (SCs) and Scheduled Tribes (STs)** and other traditionally marginalised sections of society.
- It **increases the wage rate** in rural areas and strengthens the rural economy through the **creation of infrastructure assets**.
- **Migration has been reduced** by 40 per cent because of the extensive irrigation system created through small dams constructed under the programme
- It facilitates **sustainable development** which is very clear by its contribution in the direction of water conservation.
- Over the last **15 years, three crore assets** related to water conservation have been created through the rural jobs scheme with the potential to conserve more than 2,800 crore cubic metres of water.
- It also **provides rural India with vital safety**, the absence of which could push **labourers into distress and poverty**, something which data on the latest farm and farm labourers suicides reflects.

Challenges

- **Low Wage Rate:** These have resulted in a lack of interest among workers making way for contractors and middlemen to take control.
- **Insufficient Budget Allocation:** The funds have dried up in many States due to a lack of sanctions from the Central government which hampers the work in peak season.
- **Payment Delays:** Despite Supreme Court orders, various other initiatives and various government orders, no provisions have yet been worked out for calculation of full wage delays and payment of compensation for the same.
- **Corruption and Irregularities:** Funds that reach the beneficiaries are very little compared to the actual funds allocated for the welfare schemes.
- **Discrimination:** Frequent cases of discrimination against women and people from the backwards groups are reported from several regions of the country and a vast number goes unreported.

- **Non-payment of Unemployment Allowance:** There is a huge pendency in the number of unemployment allowances being shown in the Management Information System (MIS).
- **Lack of Awareness:** People, especially women, are not fully aware of this scheme and its provisions leading to uninformed choices or inability to get the benefits of the scheme.
- **Poor Infrastructure Building:** Improper surveillance and lack of timely resources result in poor quality assets.
- **Non Purposive Spending:** MGNREGA has increased the earning capacity of the rural people but the spending pattern of the workers assumes significance because there is hardly any saving out of the wages earned.

Looking forward

- There is a need to carry out **social audits as per rules and effective implementation of the delay compensation system.**
- Under the scheme's compensation clause, agencies responsible for the delay are expected to pay **0.05 per cent of wages per day** after the closure of the muster roll.
- The participation of **women and backwards classes** must be increased by raising awareness and making it more inclusive.
 - Also, the people **should be sensitised** to do away with the **discrimination against them.**
- **Reasons for poor utilisation** of funds should be analysed and steps must be taken to improve them. In addition, actions should be initiated against officers found guilty of misappropriating funds.
- **Villages must also be allowed to take control** of their own water security, noting that catchment areas for many villages are on land controlled and owned by the Forest Department.
- The frequency of monitoring by **National Level Monitors (NLMs)** should be increased and appropriate measures should be taken by States based on their recommendations.
 - The NLMs are deployed by the **Ministry of Rural Development** for regular and special monitoring of MGNREGA and to enquire into complaints regarding mis-utilisation of funds, etc.

2. List out the issues relevant to the debate around the UNSC reform. Represent India's Case of Permanent Seat in UNSC.

The UNSC (United Nations Security Council) is one of the 6 principal organs of the United Nations. Five sets of issues have been identified by the United Nations General Assembly w.r.t. UNSC Reforms. These are

1. Categories of membership
2. The question of the veto
3. Regional representation
4. Size of an enlarged Council and its working methods and
5. The Security Council-General Assembly

Why reforms are needed?

- **Changing geopolitical situation:** The Security Council's membership and working methods reflect a bygone era. Though geopolitics have changed drastically, the UNSC has changed relatively little since 1945, when wartime victors crafted a Charter in their interest and awarded "permanent" veto-wielding Council seats for the Allied victors.
- **Reforms Long Overdue:** The UNSC was expanded only once in 1963 to add 4 non-permanent members to the Council. Although the overall membership of the UN has increased from 113 to 193, there has been no change in the composition of the UNSC.
- **Inequitable economic and geographical representation:** While Europe is over-represented, Asia is underrepresented. Africa and South America have no representation at all.
- **Crisis of legitimacy and credibility:** Stalled reform agenda and various issues including its interventions in Libya and Syria in the name of responsibility have put questions on the credibility of the institution.
- **North-South Divide:** The permanent UNSC membership portrays the big North-South divide in the decision-making of security measures. For instance, there is no permanent member from Africa, despite the fact that 75% of its work is focused on that continent.
- **Emerging issues:** Issues such as deepening economic interdependence, worsening environmental degradation, transnational threats also call for effective multilateral negotiations among the countries based on consensus. Yet, all critical decisions of the UNSC are still being taken by the permanent members of the Security Council.

India's bid

India's bid for a permanent seat is multipronged. Over the last few years, India has extensively lobbied for this at the global stage. There is greater support for India to be a permanent member of the UN Security Council and also a broad global consensus over the need to reform the Council, said External Affairs Minister S Jaishankar. India has once again renewed its bid for permanent membership of UNSC.

- **India's Historic Association with the UN System:** India is the **founding member** of the UN.
- India, till now has been **elected for eight terms** for a two-year non-permanent member seat.
- Most significantly, **India has almost twice the number of peacekeepers** deployed on the ground than by P5 countries.
 - **India's Intrinsic Value:** India being the **largest democracy and second-most populous country** (soon to become most populous) in the world, are the primary reasons for it to be granted permanent membership in UNSC.
- Also, India is **one of the largest economies and fastest-growing economies** of the world.
 - **India's Geopolitical Footprint:** India's acquired status of a **Nuclear Weapons State (NWS)** in May 1998 also makes India a natural claimant as a permanent member similar to the existing permanent members who are all Nuclear Weapon States.
- Also, India has been inducted in various **export control regimes** like MTCR, Wassenaar arrangement, etc.
- India's international profile and capabilities rise due to its ever-expanding global footprint in diverse areas like politics, **sustainable development**, economics, and culture and science and technology.
 - **Representing the developing World:** India is the undisputed leader of the Third world countries, as reflected by its leadership role in the **Non-Aligned Movement**.

Road Blocks in India's Bid for Permanent Membership:

- **Elite club:** Most exclusive club in international relations. All other clubs have been breached. Until a quarter century ago, the nuclear weapon club had five members, the same five as the P-5. India, Pakistan, North Korea and Israel have since joined the club. But UNSC is unbreachable till date.
- **All are reluctant:** The inescapable fact is that none of the P-5 wants the UNSC's ranks to be increased. One or the other of them might make some noise about supporting one or more of the aspirants. Each is confident that someone among them will torpedo the enlargement of the club. Declarations of support for India's candidature need to be taken with a fistful of salt.
- **Veto issue:** Former UN Secretary-General Kofi Annan bluntly told India not to expect to get the veto power. Though India has said it will not accept a seat without veto power.
- **China-Pakistan axis:** China, which has historically blocked India's aspirations to become a permanent member of the UNSC. Beijing has an "all-weather ally" in Islamabad, another neighbour who also strongly opposes India's candidature to the UNSC.
- **Odd man out:** Four out of the five permanent members of the United Nations Security Council have bilaterally expressed official affirmations of

support for India's candidature to a permanent seat in an expanded UN Security Council.

- **Coffee club opposition:** Members like Italy, South Korea, Canada, Spain, Mexico, Turkey, Argentina, Pakistan, and others, who have together formed the Uniting for Consensus (UfC) movement. Also known as the Coffee Club, the movement argues that bids for permanent seats by India, Japan, Germany, and Brazil (G4 countries) must not be considered without first reaching an international consensus regarding the form and size of the new Security council.

Efforts taken by India

- **Text based negotiation:** External affairs minister is canvassing for the country's candidature, meeting his counterparts from several countries. He has repeated the call, made often in the past, for a text-based negotiation on what has been euphemistically referred to as the reform of the United Nations Security Council (UNSC), i.e., negotiation on a written document outlining the proposed reform instead of just holding forth verbally.
- **Working together with G-4:** INDIA, JAPAN, GEMANY, BRAZIL works together to get permanent UNSC seat however these efforts are opposed by coffee club.
- **Multilateral engagements:** By expanding its footprint in multilateral organisations, India is gearing up to become a global rule-maker.
- Distinguished group of experts suggested a few years ago that a new category of semi-permanent members should be created. Countries would be elected for a period of eight to 10 years and would be eligible for re-election. India ought to give serious consideration to this idea.
- **With or without veto:** According to former foreign secretary Chinmaya gharekhan, if by some miracle we are offered or manage to obtain permanent membership without veto, we must grab it. Even a permanent membership without veto will be tremendously helpful in protecting our interests.

Looking Forward

What is evident thus far is that India's yearning for a permanence in this game of thrones is mired in a web of complexities. Former Prime Minister Dr. Manmohan Singh highlighted that the way forward is for India to up its game to such a level that New Delhi is invited to overtake as a permanent member. He opined that instead of over-investing in diplomatic capital and simply launching a worldwide campaign, India must raise its military, economic, and geopolitical might to become a strategically important player.

3. Do you think Judicial Majoritarianism is the antithesis of democracy?.

Judicial Majoritarianism

- Numerical majorities are of particular importance to cases **which involve a substantial interpretation of constitutional provisions.**
- The requirement for a **majority consensus flows from Article 145(5) of the Constitution** which states that no judgment in such cases can be delivered except with the concurrence of a majority. It also provides for judges to freely deliver dissenting judgments or opinions.
- In important cases, **Constitutional Benches**, consisting of five or more judges, are set up in **consonance with Article 145(3) of the Constitution.** Such Benches usually consist of five, seven, nine, 11 or even 13 judges.

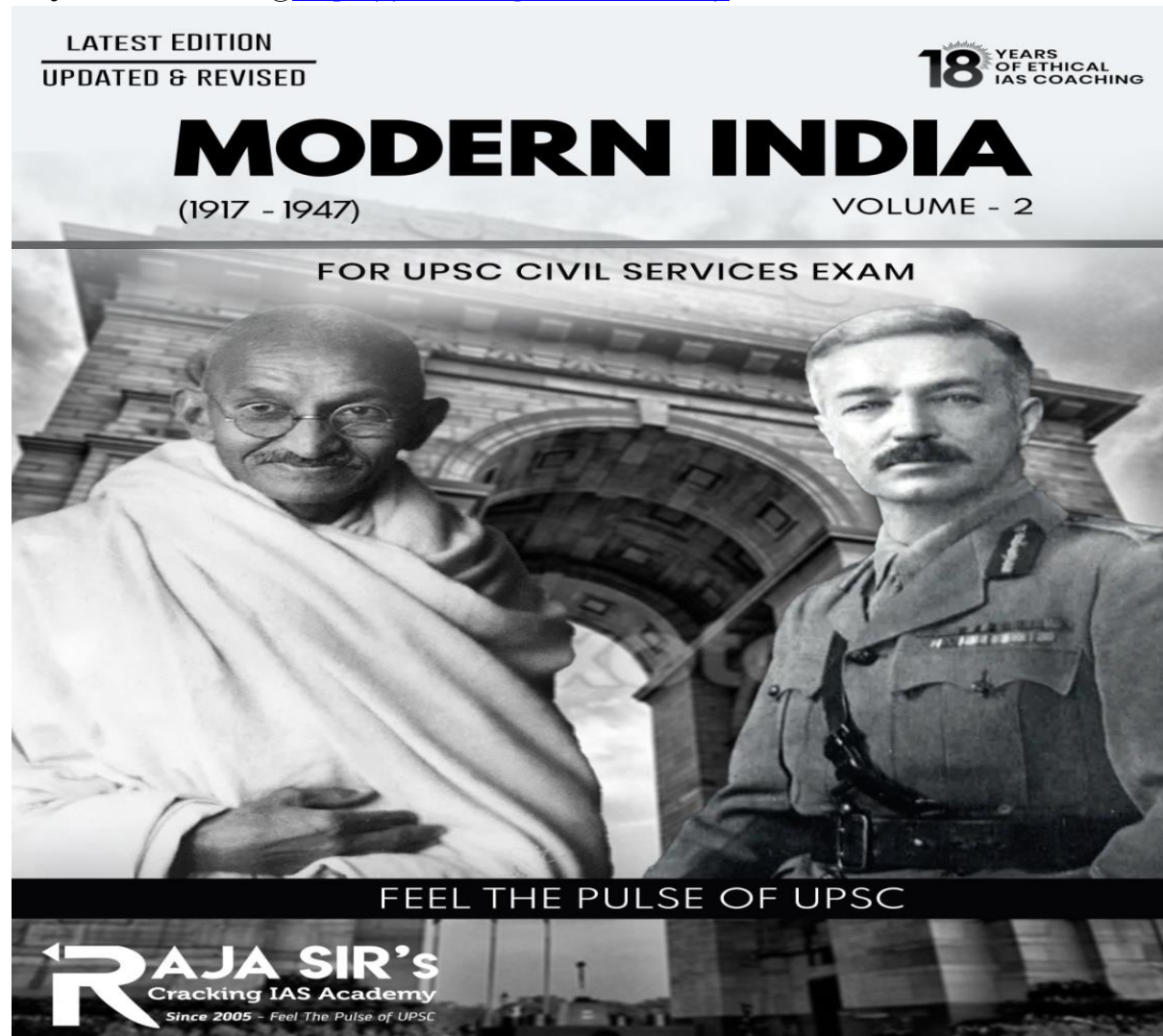
Concerns

- **Denial of Merit:**
 - A meritorious minority decision, irrespective of the impeccability of its reasoning, **receives little weightage in terms of its outcomes.**
 - An example is the dissenting opinion of Justice Subba Rao in the *Kharak Singh v. State of U.P.*(1962) case upholding the **Right To Privacy** which received the judicial stamp of approval in the *K.S. Puttaswamy v. UOI* (2017) case.
 - The dissenting opinion of **Justice H.R. Khanna in A.D.M. Jabalpur v. Shivkant Shukla (1976)** upholding the **right to life** and personal liberty even during situations of **constitutional exceptionalism is a prime example.**
 - It is argued that the **weightage given to numerical majorities** in judicial decisions by our Constitutional Courts is opposed to the merits in their reasoning.
- **Obscure Situations:**
 - All judges on a particular Bench give their rulings on the same set of facts, laws, arguments and written submissions. In light of the same, any differences in judicial decisions **can be attributed to a difference in either the methodology adopted and the logic applied by the judges in their interpretation.**
 - In such circumstances, it is entirely possible that the **majority may fall into either methodological fallacies and errors** or be limited by their 'judicial hunch' respectively.
- **Question on Head Counting Procedure:**
 - A study also found that the rate of **dissent where the Chief Justice was a part of the Bench was lower** than in those cases where the Chief Justice was not on the Bench.
 - Such situations call into **question the efficiency and desirability of head-counting procedures for a judicial determination** on questions of national and constitutional importance.

Looking forward

- A system (Ronald Dworkin) can be devised, which either gives **more weightage to the vote of senior judges** given that they have more experience or to the junior judges as they **may represent popular opinion better**. Such alternatives, however, can **only be explored once we identify and question the premises and rationales** which underlie head-counting in judicial decision-making.
- The absence of a critical discourse on judicial majoritarianism represents one of the **most fundamental gaps in our existing knowledge** regarding the functioning of our Supreme Court.
- As pending Constitutional Bench matters are listed for hearing and judgments are reserved, **we must reflect upon the arguments of judicial majoritarianism on the basis of which these cases are to be decided**.

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4. What are the obstacles that the India's solar industry faces?. How can India handle these obstacles?.

India has been **aggressively pushing towards a more sustainable future by investing heavily in renewable energy sources**, with solar energy at the forefront of its efforts. The Government of India has set the target to expand India's renewable energy installed capacity to 500 GW by 2030. India has promised to source **nearly half its energy from non-fossil fuel sources by 2030** and, in the shorter term, source at least 60% of its renewable energy from solar power.

Obstacles in Solar Energy sector in India

- **High Initial Costs:**
 - Despite recent reductions in the cost of solar panel technology, the **upfront cost of installation remains high**, which can be a barrier to adoption for many households and businesses.
- **Limited Access to Finance:**
 - Access to finance for renewable energy projects can be limited, **particularly for smaller and rural projects**, which can make it challenging for individuals and organizations to invest in solar energy.
- **Infrastructure and Grid Connectivity:**
 - **A lack of adequate infrastructure and grid connectivity in some areas of the country can make it difficult** to transmit the electricity generated from solar panels to where it is needed.
- **Land Availability:**
 - **Finding suitable land for large-scale solar projects can be a challenge in India**, particularly given competing demands for land for other purposes such as agriculture and urban development.
- **Maintenance and Operation Issues:**
 - Poor maintenance and operation of solar power systems can **reduce their efficiency and effectiveness**, which can impact the long-term viability of renewable energy projects in India.
 - Cleaning solar panels currently is estimated to use about **10 billion gallons of water per year** — enough to supply drinking water for up to 2 million people.
 - Attempts at waterless cleaning are labor intensive and tend to cause irreversible scratching of the surfaces, which also reduces efficiency.
 - Now, **a team of researchers at MIT has devised a way of automatically cleaning solar panels**, or the mirrors of solar thermal plants, in a waterless, no-contact system that could significantly reduce the dust problem.

Looking ahead

- **Utilising Large Hydro:**

- With large hydro, **India can produce more renewable energy** at the least cost and with the least carbon footprint.
 - India has **utilised only about 15% of its hydro potential** whereas the U.S. and Europe have utilised 90% and 98% of their potential, respectively.
 - The **extent of utilisation of hydro potential seems to be an index of civilisational development** and evolution.
- **Expanding Infrastructure and Investment:**
 - India needs to **increase investment in renewable energy infrastructure**, including transmission and distribution networks, as well as in research and development of new solar technologies.
- **Encouraging Private Sector Participation:**
 - The **private sector can play a crucial role in developing and deploying solar energy in India**, and the government should create favorable policies and incentives to encourage private sector involvement.
- **Improving Energy Storage Solutions:**
 - Energy storage systems are **essential for ensuring that solar energy** can be effectively used, even when the sun is not shining. The Indian government should support the development of advanced energy storage solutions to make solar energy more accessible and reliable.
- **Promoting Rooftop Solar:**
 - **Rooftop solar systems** can be a **cost-effective and convenient way for households and businesses to generate their own energy**. The Indian government should encourage the growth of rooftop solar by providing incentives, subsidies and tax credits.
- **Building a Skilled Workforce:**
 - The growth of the **solar energy sector in India will require a skilled workforce**. The government **should invest in training and education programs** to build a pipeline of skilled workers who can help deploy and maintain solar energy systems.

5. Examine the Challenges of CPEC for Pakistan and China. What are the Implications of CPEC for India?.

CPEC

- CPEC is a **3,000-km long route of infrastructure projects connecting China's northwest Xinjiang Uygur** Autonomous Region and the Gwadar Port in the western province of Balochistan in Pakistan.
- It is a bilateral project **between Pakistan and China**, intended to promote connectivity across Pakistan with a network of highways, railways, and pipelines accompanied by energy, industrial, and other infrastructure development projects.
- It will pave the way for **China to access the Middle East and Africa from Gwadar Port**, enabling China to access the Indian Ocean and in return China will support development projects in Pakistan to overcome the latter's energy crises and stabilising its faltering economy.
- CPEC is a part of the **Belt and Road Initiative**.
 - The BRI, launched in 2013, aims to link Southeast Asia, Central Asia, the Gulf region, Africa and Europe with a network of land and sea routes.

Challenges

- **Pakistan:**
 - **Regional Imbalances:** CPEC is focused on certain areas and provinces in Pakistan, leading to concerns about **regional imbalances** in development and investment.
 - **Debt Trap:** Pakistan's debt levels have become a concern **due to the large scale of projects financed by loans from China** and the ability to repay these loans. **China is now Pakistan's largest creditor**, with Pakistan owing 27.4% of its total external debt to China in 2021, according to the IMF.
 - **Environmental Impacts:** The large-scale infrastructure projects that make up **CPEC could have negative environmental impacts**, including deforestation, loss of biodiversity, and air and water pollution.
 - **Social Implications:** The development of the project has led to concerns about the displacement of local communities and the loss of their traditional livelihoods, as well as the **impact of increased migration and population pressures in the region**.
 - **Sovereignty Concerns:** Some have raised concerns about China's increasing influence in Pakistan and the potential for the project to **compromise the country's sovereignty and independence**.
- **China:**
 - **Security Concerns:** The security of Chinese workers and the stability of the region pose a major challenge for the success of CPEC.

- **Political Opposition:** There has been opposition from certain political parties and groups who are concerned about the perceived lack of transparency and the potential long-term implications of the project on Pakistan's sovereignty.

Looking ahead

- India should leverage its strategic location and further work with like-minded countries to participate in multilateral initiatives like,
 - The Asia-Africa Growth Corridor is an India-Japan economic cooperation agreement, it can provide India great strategic benefits and counter China.
 - **Blue Dot network, which is being promoted by the USA.**
 - It is a multi-stakeholder initiative to bring together governments, the private sector and civil society to promote high-quality, trusted standards for global infrastructure development.
 - It is expected to serve as a globally recognized evaluation and certification system for roads, ports and bridges with a focus on the **Indo-Pacific region**.

6. How can we bring Inclusive learning for Children with disabilities?

- Many normal tasks by most schoolchildren are difficult for **children with disability/disabilities (CWD)** due to the higher care needed to complete the actions.
- These actions become tougher in schools as they **do not have accessible spaces** and other guiding infrastructure to get there safely.
- **Nearly 240 million children in the world** today have some form of disability.
- According to UNESCO, **India is home to 8 million children with disabilities.**
 - 45% of them fail to attain literacy.

Issues with CWD education system

- **Physical, institutional, socioeconomic and communication barriers** from an early age.
 - **More than 70% of five-year-olds** with disabilities in India have never attended any educational institution.
 - Many CWD tends to **drop out of school as they grow older.**
- **Inaccessible school buses;**
- Inaccessible **facilities in schools** such as drinking water facilities, canteens and toilets;
- Inappropriate **infrastructure in classrooms** such as uncomfortable seating, slippery flooring, and low illumination;
- **Misinformed attitudes and perceptions** among parents, teachers, staff, and communities further **influence the child's emotional development;**
- **Lack of teaching and learning practices** such as assistive devices that integrate inclusive technologies and digital equipment to engage the child.

Indian government efforts towards CWD

- According to, **Article 21A** of the Constitution and the **Right of Children to Free and Compulsory Education Act, 2009**, each child has the fundamental right to education and the right to have free and compulsory education for children aged 6-14 years.
- **Samagra Shiksha scheme** has been aligned with the **recommendations of National Education Policy 2020** to ensure that all children have access to quality education with an equitable and inclusive classroom environment.
- Every child with benchmark disabilities (disability of 40% or more) has access to **free education** in an appropriate environment till he attains the age of 18 years.
- **5% reservation in seats** in Government and Government aided higher educational institutions for persons with benchmark disabilities
- **Many supportive schemes** are beneficial for CWD such as **Schemes like DISHA, VIKAS, etc.**

- **Sarva Shiksha Abhiyan** adopted a '**zero rejection policy**', emphasizing that "every child with special needs, irrespective of the kind, category and degree of disability, is provided meaningful and quality education".
- India ratified the **UN Convention on the Rights of Persons with Disabilities**.
 - Aligning with this commitment, the government launched the **Accessible India Campaign (Sugamya Bharat Abhiyan) in 2015**.
- **Leave No One Behind (LNOB)**: It is a project by **UN-Habitat**.
 - **LNOB** is the central promise of the 2030 Agenda for Sustainable Development.
 - **Under this, pilot training programs on enhancing accessibility and inclusion** were implemented in two schools in Delhi.

Looking ahead

- Government should **develop inclusive and accessible schools**
- With help of advertisements, movies, and social media, the government should **try to change people's perspective on CWD**.
- Spread awareness and sensitization programmes for CWD
- **Training trainers** for upskilling of school faculty
- Providing **access to updated teaching** toolkits and materials

Five principles — equitability, usability and durability, affordability, cultural adaptability, and aesthetic appeal — should be embedded from the planning to implementation to evaluation stages of providing infrastructure services in schools. With the realization of such an approach, removing the barriers to accessibility in schools will be an uphill battle, but not an insurmountable one.

7. Throw light on the significance of thoughts of Mahatma Gandhi in the present times. (UPSC 2018 Mains - GS-1)

Mahatma Gandhi was an enlightened writer, philosopher, freedom fighter, advocate by profession, and a social worker by nature. Gandhi was a man of spiritual truthfulness and democratic action, both at the public and personal levels, with a unique method of struggle that combined political pragmatism with ethical integrity.

Gandhian ideas	Significance now
Non-violence	Today we see increasingly more and more groups are taking to violence for political assertion. What world requires in politics of peace, reconciliation and trust.
Satyagraha	The moral framework of resistance which marked satyagraha is especially pertinent in the times when to be quiet or to collaborate seems to be the only dominant choice in face of any injustice.
Swaraj	For empowerment of individuals in the face of the rising power of Corporations and Governments
Eliminating Untouchability	Caste discrimination has still not ceased to be a feature of Indian-public life. The Gandhian idea of social consciousness to eliminate it needs to be taken forward.
Women Emancipation	With glass-ceiling still far from being shattered in the public sphere, the Gandhian thought of women emancipation continues to hold relevance.
Trusteeship Model	Inspired Corporate Social Responsibility. The best companies in the world invest heavily in social projects.

8. Discuss the Delimitation paradox of India's north-south divide.

- A delimitation commission was set up in India shortly after Article 370 was repealed and Jammu and Kashmir's special status revoked in August 2019.
- Delimitation is a process by which there are changes effected to boundaries of parliamentary/electoral constituencies, typically a long-drawn exercise, extending up to five years, done usually after the Census since the population is counted at that time. The goal of such an exercise is to ensure approximately equal number of voters in each constituency. Now as we are preparing for the next Census, and the delimitation exercise has led to several protests, it is time to revisit this debate in the context of regional disparities in the country.

Unfair to the Southern States

- **Development:**
 - The economic situation of Southern states **has improved dramatically since the turn of the 21st century**. Prior to the 1990s, **Northern states were outperforming Southern states in terms of income and poverty levels**.
 - However, the Southern states have **seen a significant increase in their economic performance** in recent years, which has led to a significant reduction in poverty and an increase in income levels.
 - This economic turnaround has **had a significant impact on the region and has helped to drive growth and development** in the Southern states.
 - The combined **Gross Domestic Product (GDP)** of just three States — Karnataka, Kerala and Tamil Nadu is **greater than 13 States in the East**.
- **Educational and Health Outcomes:**
 - The previous **Annual Status of Education Reports (ASER)** data suggests that southern regions have performed better in terms of children being enrolled in schools and having **better learning outcomes compared to their northern counterparts**.
 - Further, a **higher proportion of graduates in the southern States indicates the greater prevalence of a specific set of skills**.
 - For instance, in 2011, **only 5% of Uttar Pradesh's population was graduated, while in Tamil Nadu, nearly 8% of its population was graduated**.
 - During the **Covid-19 pandemic**, Tamil Nadu has 314 testing centres for a population of 78.8 million as of December 2021 and Uttar Pradesh has only 305 Covid testing centres for a population of 235 million, **which is clearly inadequate**.
- **Governance Factor:**

- If the educational and health outcomes are better in the southern States, **this also implies that the ability to discern and the quality of decision-making must be significantly better there.**
- The expectation for better public services and high civic activism in southern states suggests that **the electorate there is more likely to vote for better governance compared to the north.**
- **Advantages for the North:**
 - Based on the population patterns, the existing distribution of **parliamentary constituencies across the States is tilted in favour of populous States** such as Uttar Pradesh, Bihar, while southern States like Tamil Nadu, Andhra Pradesh, and Karnataka have a lesser number of seats.
 - If delimitation occurs, **Southern states will face a decrease in the number of seats allocated to them, compared to the northern states**, during the next delimitation process.
 - **Hence, during the electoral representation, it should be kept in mind that it is not the number of people, but their quality that should be the deciding factor.**

Major Concerns

- **Inadequate Representation:** According to the 2019 research paper India's Emerging Crisis of Representation, if the delimitation is carried out according to the 2031 Census (the earliest scheduled after 2026), **Bihar and Uttar Pradesh alone would gain as many as 21 seats in total, while Tamil Nadu and Kerala together will lose 16 seats.**
- **Affecting the Reservations for SCs/ STs:** The scheduled delimitation and reallocation of seats may result in not only a loss of seats for southern states but **also an increase in power for political parties with their base of support in the north.** This could potentially lead to a shift of power toward the north and away from the south.
 - The exercise will also **affect the division of seats reserved for the Scheduled Castes and Scheduled Tribes (SC/ST)** in each state.
- **Inadequate Funding:** After the **15th Finance Commission** used the 2011 Census as a basis for its recommendation, concerns were raised about **southern states losing funding and representation in parliament.**
 - Previously, the 1971 Census was used as the base for funding and tax devolution recommendations to states.
- **Demographic Dividend:** In 1976, Prime Minister Indira Gandhi, during the Emergency, suspended the revision of seats until after the 2001 Census. In 2001, the Parliament extended this freeze until the next decennial census after 2026, scheduled for 2031 as per the **Constitution (84th Amendment) Act, 2002.**
 - Therefore, if Lok Sabha seats are reallocated after 2031, **legislators and policy makers will have to factor in demographic and political changes in the country over the past 60 years.**

Suggestions

- **Establishment of a Robust Plan:** Making a firm commitment to reallocating resources after 2031 without any further delays due to political or policy challenges. It would provide certainty and stability for southern states in terms of funding and representation.
- **Increase in Number of Seats:** The advantage of increasing the number of seats in the Lok Sabha is that **Members of Parliament (MPs)** would represent smaller constituencies. This **would lead to more efficient governance as administrative agencies would not be burdened by a large population**, allowing for faster and more effective decision making.
 - Increasing the number of seats is seen as a **more politically feasible option** as it is easier for politicians to agree to adding seats in certain areas or states, **rather than giving up seats in areas where they have more power.**
- **To Maintain Existing Position:** Increasing the total number of seats in Parliament could be considered to ensure that no state loses the seats it currently has. This proposal may be under consideration by the Union government.
- **Adequate Representation:** Reports suggest that the architects of the new Lok Sabha, being built as part of the Central Vista project, have been asked to plan for at least 888 seats in the lower house.
 - This would **allow for adequate representation for all states and prevent any state from losing its current number of seats.**

9. Rural development needs a robust MGNREGS and interconnected schemes to bring about a difference. Comment.

According to the **Global Multidimensional Poverty Index 2022**, around 415 million people in India climbed out of poverty between 2005-06 and 2019-21, with the incidence of **poverty falling from 55 per cent to just over 16 per cent** over this period.

Highlights of MDPI

- **The pro-poor thrust of the last 15 years seen** in terms of rural housing, education, primary health, bank accounts, women's collectives, tele-connectivity, technology, employment, skills, social assistance and rural roads **seems to have contributed to India bringing 415 million persons out of multidimensional poverty** over the last 15 years.
- Deprivations in **sanitation, cooking fuel and housing fell** the most from 2015-16 to 2019-21.

Concerns with the Report

- Despite tremendous gains, **the ongoing task of ending poverty for the 228.9 million poor people in 2019-21 is daunting** - especially as the number has certainly risen since the data were collected.
 - The report **doesn't fully assess the effects of the COVID-19 pandemic on poverty in India** as 71% of the data from the National Family Health Survey-5 (2019-2021) relied upon for MPI were collected before the pandemic.
- The World Bank study on slipping back into poverty (2022) also **alluded to similar challenges**.
- While poverty levels have not worsened, **levels of under-nutrition are still very high**.

Approach for Rural Upliftment

1. *Real Decentralization of Power*

- The **85 million women in over eight million self-help groups of the Livelihood Mission** offer unprecedented social capital, providing opportunities for human development, credit access, enterprise, and sustainable poverty reduction through diversified livelihoods.
 - Their working together with the **3.3 million elected leaders of the local government**, 43 per cent of whom are also women, will be transformational if funds, functions and functionaries from the 29 sectors assigned to panchayats as per the Eleventh Schedule of the Constitution are transferred to them by State Legislatures.
 - The Central Government can make it mandatory that no funds will be released for these **29 sectors to States that do not comply with the Constitutional** mandate for decentralized governance.

2. *Effective and Better Governance*

- To take responsibility for the 29 sectors, **local governments will require skill sets** that facilitate better governance outcomes at the cutting edge for citizens.
 - Human resources, technology as a means, hand-holding and partnerships will all have to be thrust areas for effectiveness.
 - Community cadres like the **ASHA** Community Health Worker and the Community Resource Persons of the Livelihood Mission could be thought of as possible pathways.
3. *MGNREGS as a Decentralized Resource*
- **MGNREGS should be seen as a decentralized resource** for poverty reduction, mitigating global warming, and aiding human well-being.
 - Studies have established its efficacy in water conservation, basic infrastructure, and income from animal resources through convergence.
 - The studies have also **identified areas for improvement** — timely wage payment, multi-year watershed plan, timely work provision, better wage rates, pro-poor priority in individual works, etc.
 - While it is true that MGNREGS has been getting additional financial resources in Supplementary Budgets, **reduction at the BE stage could have been avoided.**
 - MGNREGS is the **only programme where women comprise more than 50 per cent** of the wage earners even at the national level.
 - **Some efforts at containing open-ended demand** by giving weightage for deprivation to gram panchayats/backward blocks along with governance improvements in them could be a possibility.
 - **Convergent resources for productive assets** in rural areas, along with **diversified livelihoods thrust** through women's collectives, is the best way towards a poverty-free India.

Looking ahead

- In such a situation, it is but natural that the government has to assume the **role of a welfare state but the focus has to be on job creation.**
 - Agriculture in particular should be **commercialized** - the farm laws sought to do so.
 - State governments have a **big role to play** here.
 - **Manufacturing has to be revived** to create meaningful jobs.
- It is only through a **co-ordinated and convergent action** on education, livelihoods, nutrition, health, employment, and skills that a **breakthrough is possible.**
- If resources are available to panchayats, the '**real rural**' can reverse poverty and disease.

The **Sustainable Development Goal target 1.2** is for countries to reduce at least by half the proportion of men, women, and children of all ages living in poverty in

all its dimensions by 2030. India's progress shows that this **goal is feasible, even at scale.**

Additional Info

Multidimensional Poverty Index

- The global MPI constructs a **deprivation profile** of each household and person through **10 indicators spanning health, education and standard of living.**
 - All indicators are **equally weighted** within each dimension.
 - It identifies people as multidimensionally **poor if their deprivation score is 1/3 or higher.**
 - It ranges from 0 to 1, and higher values imply higher poverty.
- It is released by the **United Nations Development Programme (UNDP)** and the **Oxford Poverty and Human Development Initiative (OPHI)** at the University of Oxford.
- A means to capture the complexity of poverty that considers multiple dimensions of well-being beyond just monetary poverty.
- **MPI 2022:**
 - India has by far the **largest number of poor people worldwide at 22.8 crore, followed by Nigeria at 9.6 crore.**
 - Bihar, the poorest State in 2015/2016, saw the fastest reduction in MPI value in absolute terms.
 - In India, **Rural areas saw the fastest reduction** in the Multidimensional Poverty Index 2022.

10. A major investment push in infrastructure development will likely advance its regional economic integration through functional coordination between the trading partners, reductions in transaction costs and seamless movement of goods and services within India as well as across countries. Critically examine the statement.

Infrastructure is universally acknowledged as a key driver of growth. The term infrastructure, however, is **usually associated with physical assets**, such as roads, ports, power transmission lines, etc. However, in recent years, **India's growth story has been closely associated with a strong focus on not only physical**, but also social and digital infrastructure.

India's Infrastructure Push Challenging

- **Physical Infrastructure:**
 - **Land acquisition:** One of the biggest challenges in building physical infrastructure is acquiring land, as it often involves resettlement of people and compensation issues.
 - **Funding:** Funding large-scale infrastructure projects is also a major challenge, as the government **may not have sufficient resources and private investment** may be limited due to economic and regulatory hurdles.
 - **Lack of Technology:** India faces **challenges in terms of the availability of technology and expertise necessary** for complex infrastructure projects.
- **Social Infrastructure:**
 - **Inadequate Human Resources:** The **shortage of skilled workers, engineers, and managers can be a hindrance to the development** of social infrastructure projects.
 - **Lack of Public Support:** Social infrastructure projects, such as **healthcare and education, require public support and buy-in, which can be difficult to secure** in a complex political environment.
 - **Inadequate Planning and Implementation:** Poor planning and implementation can result in substandard facilities and a lack of sustainability, ultimately reducing the impact of the infrastructure push.
- **Digital Infrastructure:**
 - **Digital Divide:** There is a **digital divide in India**, with limited access to technology and the internet in rural areas, which can hinder the development of digital infrastructure.
 - **Cybersecurity Concerns:** The increasing **use of technology also raises concerns about cybersecurity and privacy**, making it necessary to have strong regulations and infrastructure in place.
 - **Lack of standardization:** The **lack of standardization and coordination among different players in the digital infrastructure**

sector can create problems for users and limit the potential for growth and innovation.

Looking ahead

- **Investment in social infrastructure:**
 - Investment in social infrastructure can lead to a **more productive and proficient workforce**, reduced mortality, wasting and stunting, increased social mobility and a higher quality of life.
 - Social infrastructure includes education and skilling, public health and nutrition, drinking water and sanitation.
 - These **factors contribute to a stronger and more inclusive economy** and holistic development.
- **Increased Public-Private Partnerships (PPPs):**
 - The government can partner with the private sector to finance, design, construct, and operate infrastructure projects.
- **Improved Project Planning and Implementation:**
 - The government can streamline project planning and implementation processes to ensure that projects are completed on time and within budget.
- **Implementation of Innovative Financing Solutions:**
 - The government can **explore innovative financing solutions, such as infrastructure bonds**, to mobilize additional funds for infrastructure development.
- **Encouraging Foreign Direct Investment (FDI):**
 - The government can **ease regulations and create a favorable environment for foreign direct investment** in infrastructure development.
- **Building Human Capital:**
 - The government can **focus on building human capital in the form of skilled labour and technical expertise** to support infrastructure development.
 - Some ways to build human capital to support infrastructure development:
 - Investing in workforce development programs that provide job training, apprenticeships.
 - Providing access to quality education and training programs
 - Supporting research and innovation in infrastructure-related fields
 - Fostering partnerships between the public and private sectors to encourage investment in human capital development
 - Schemes to build human capital and support infrastructure development include: **Skill India, National Skill Development**

Corporation (NSDC), Pradhan Mantri Kaushal Vikas Yojana (PMKVY).

- **Effective Regulation:**
 - The government can establish and enforce effective regulations to ensure the quality and safety of infrastructure projects.
 - Some ways regulations can help:
 - Regulations can set standards for the quality of materials, workmanship
 - Regulations can also specify safety requirements, such as fire safety, evacuation plans, and accessibility standards, which must be met to ensure the safety of the public and the workers involved in the project.
 - Independent inspection and testing which will help to identify any issues or problems that need to be addressed before the infrastructure is put into use.

11. Anger and intolerance are the enemies of correct understanding.” – Mahatma Gandhi. Elucidate.

Correct understanding is a disposition to appreciate or share the feelings and thoughts of others. The quote above speaks to the importance of understanding in our relationships, including the relationship we have with ourselves and the world around us. Understanding anger and intolerance mean that we can channel them into constructive, not destructive, actions. It also means that we can more effectively empathize with people who are angry or intolerant and help them find constructive solutions instead of destructive ones. Learning to understand others may take time and effort, but it can certainly pay off in the long run,

Anger affect understanding

1. **Biasness:** Anger is a negative emotion that often leads to bias and clouds moral judgement. For eg. Under provocation people resort to violence and fail to understand the repercussions their actions may cause.
2. **Loss of calmness:** Anger makes a person lose calmness and forces them to take hasty decisions which may not be correct. Anger makes a person lose patience which drives him towards intolerance. Angry person is a constantly stressed person, such a person cannot think with clarity.
3. **Emotional decisions:** Anger leads to an influenced, non-objective and emotional decision, which is not based on well thought outcomes and understanding of consequences of such decisions, which could be dangerous. E.g. In anger, mobs may lynch an innocent without knowing or verifying his crime.
4. **Contiguous:** Anger affects the person who is angry as well as all the people who are touched by that person's anger. An angry person is likely to speak harshly. Sometimes angry people hurt themselves if they are unable or out of reach of the people at whom they want to direct their anger.
5. **Prevent rational thinking:** Evils like honour killing, acid attack by spurned lovers is because of anger at the moment. Anger does not allow rational thinking and people take up extreme steps and kill their own children/loved ones due to uncontrolled emotions.

Intolerance affects understanding

1. **Ignorance:** An intolerant person will remain ignorant to diverse opinions and belief and thus act according to narrow ideals. For example, generally politicians with religious background are ignorant towards issues like LGBT rights.
2. **Contagious:** Intolerance is contagious just like anger and can encourage others to be blind for diverse views too.
3. **Cloud thinking:** Intolerance makes a person blind to other opinions and narrow down a person's thinking and judgement marred by biased views.
4. **Prevent correct understanding:** Intolerance in society prevents correct understanding as people only see one side of the coin. For example, not all

Muslim are terrorists as are branded by some individuals which lead to development of intolerance against them and may lead to violence.

Looking forward

1. **Emotional intelligence:** It is very necessary for a person in a position of authority and responsible for decision making to keep their negative emotions in check. It requires development of emotional intelligence.
2. **Sensitivity training:** To manage emotions sensitivity training can be given to the individuals.
3. **Interaction:** Encouraging sarva dharma sambhava by making people of diverse cultures to interact with each other.
4. **Meditation:** Yoga and meditation techniques to control anger is a must in a way it gives one control over one's own mind.
5. **Acceptance:** It is important to accept other views and thoughts so as to develop as a rational human being. For this education and awareness about other's rights also plays an important role.

It is common to find people and leaders losing steadiness of mind when faced with stress. Thus, in today's world administrators need to be emotionally intelligent to act in a fair and unbiased manner. Balanced decision making for social progress and development can only be made with an objective and unbiased mind, which can be achieved by controlling anger and being tolerant and open.

12. Examine the Major Challenges in producing green hydrogen

- Green hydrogen is hydrogen that is produced using **renewable energy through electrolysis**.
- Green hydrogen has significantly **lower carbon emissions** than grey hydrogen.

Challenges in producing green hydrogen

1. **Electrolyser challenge**

- Electrolyser is a system that uses electricity to break water into hydrogen and oxygen in a process called electrolysis.
- According to **International Energy Agency**, as of 2021 the global manufacturing capacity of electrolysers stands at 8 GW/year.
- So, if India were to achieve its 2030 target, it would need 60-100 GW (gigawatt) of electrolyser capacity, which means almost **12 times the current global production** capacity.
- Lack of access to critical minerals such as nickel and rare earth metals such as lanthanum and zirconium to **overcome the electrolyser challenge**.
 - These resources are concentrated in China, Democratic Republic of Congo (DRC), Australia, Indonesia, South Africa, Chile and Peru.
 - India has **limited processing capabilities** in these minerals.

2. **Energy source challenge**

- Green hydrogen requires **renewable energy** as a source of electricity.
- India's plan is to install 500 GW of renewable energy capacity by 2030 but currently **174.53 Giga Watts**.

3. **Endogenous resources challenge**

- Production of **one kg of hydrogen** by electrolysis requires around **nine litres of water**.
 - **Electrolysis** is the process of using electricity to split water into hydrogen and oxygen.
- In the case of India, its requirement of approximately 50 billion litres of demineralised water supply.
- As several parts of India are already **severely water-stressed**.
- It will **impact biodiversity** and create challenges and limitations in the location of electrolysers.

4. **Policy challenges**

- **Uncertainty** in the policy framework
- Lack of research and development ("R&D")
- **Capital-intensive process** can cause burden to government funds.

Looking forward

- **Set up largescale manufacturing**, build expertise and secure geopolitical partnerships for the procurement of critical minerals.

- Improve the overall **technical and economic viability** of electrolysers year-over-year.
- Add efficiently and economically close to 100 GW of overall renewable energy capacity **per year over the next seven years** and make available dispatch corridors and mechanisms.
- **Establish safety standards** for green hydrogen storage and transportation, adding to the cost of hydrogen as a fuel.
- **Green hydrogen hubs** to strike a fine balance between being renewable energy-rich, water resource-rich and being close to hydrogen demand (end-use) centres for them to be economically feasible while keeping the additional costs minimum.

Currently, the global levelized cost of producing green hydrogen ranges between Rs. 250-650/kg while India aims to produce green hydrogen in the range of Rs 100-150/kg by 2030. It is a difficult task to accomplish. There are challenges on the way but there is a huge benefit if India will achieve the green hydrogen target. It will surely boost the economy and will give new heights to our energy sector.

13. India sees nuclear as key to energy transition away from coal. Discuss the current status and prospects of India's Nuclear Energy.

India's nuclear power capacity experienced a significant increase. By **2021-22**, it had risen to **47,112 Million Units**.

- In 2017, the government gave **simultaneous approval for 11 indigenous pressurised heavy water reactors** with a **total capacity of 7,000 MegaWatts**.

Status of India's Nuclear Energy

- Nuclear energy is the **fifth-largest source of electricity for India** which contributes about 3% of the total electricity generation in the country.
- India has over **22 nuclear reactors in 7 powerplants** across the country which produces **6780 MW of nuclear power**. In addition, one reactor, **Kakrapar Atomic Power Project (KAPP-3)** has also been connected to the grid in January- 2021.
 - **18 reactors** are **Pressurised Heavy Water Reactors (PHWRs)** and 4 are **Light Water Reactors (LWRs)**.
 - **KAPP-3** is the India's first 700 MWe unit, and the biggest indigenously developed variant of the PHWR.
- **Recent Developments:**
 - **Joint Ventures with Public Sector Undertakings (PSUs):**
 - Government has also allowed Joint Ventures with PSUs to **enhance India's nuclear program**.
 - As a result, the **Nuclear Power Corporation of India Limited (NPCIL)** is now in two joint ventures with the **National Thermal Power Corporation Limited (NTPC)** and the **Indian Oil Corporation Limited (IOCL)**.
 - **Expansion of Nuclear Installations:**
 - In the past, **India's nuclear installations were mostly located in South India** or in Maharashtra and Gujarat in the west.
 - However, the government is now **promoting its expansion to other parts of the country**. As an example, the upcoming **nuclear power plant in Gorakhpur town of Haryana**, which will become operational in the near future.
 - **India's Indigenous Move:**
 - The world's first thorium-based nuclear plant, "**Bhavni**," using **Uranium-233**, is being set up at **Kalpakkam in Tamil Nadu**.
 - This plant will be **entirely indigenous and will be the first of its kind**. The experimental thorium plant "**Kamini**" already exists in **Kalpakkam**.

Challenges

- **Limited Domestic Resources:** India has **limited domestic resources of uranium**, which is the fuel for nuclear reactors.
 - This has **forced the country to import a significant portion of its uranium requirements**, making the country's nuclear energy program vulnerable to global market conditions and **political tensions**.
- **Public Opposition:** The construction of nuclear power plants often faces opposition from local communities due to **concerns over the safety of the reactors** and the potential **impact on the environment**.
- **Technical Challenges:** The development of nuclear power plants involves **complex technical challenges**, including the design and construction of reactors, the **management of nuclear waste**, and the **maintenance of nuclear safety standards**.
- **International Sanctions:** India is not a member of the Nuclear **Non-Proliferation Treaty (NPT)** and has faced international sanctions in the past for its nuclear weapons program.
 - This has **limited its access to advanced nuclear technology** and fuel supplies from other countries.
- **Regulatory Barriers:** The **regulatory framework for the development of nuclear power in India** is complex and has been criticised for **being slow and bureaucratic**, leading to delays in the implementation of projects.

Enhancing India's Nuclear Power Capacity

- **Overcoming Public Opposition:** Addressing public concerns and increasing public awareness about the **safety of nuclear power** is critical to **overcoming opposition to the construction of new reactors**.
 - This can be achieved through **transparent communication and consultation with local communities**, as well as the implementation of rigorous safety standards.
- **Technical Innovation:** To overcome the technical challenges faced by the nuclear energy sector, **India needs to focus on innovation in reactor design, waste management**, and safety systems.
 - This could involve **investment in research and development** and the deployment of advanced technologies.
- **Financial Sustainability:** To overcome the financial challenges faced by the nuclear energy sector, **India needs to find ways to make nuclear energy more cost-competitive** with other forms of energy.
 - This could involve **reducing construction and operation costs**, as well as developing innovative financing models.
- **Improving International Collaboration:** India needs to strengthen its international partnerships to **overcome the limitations posed by international sanctions and access to advanced nuclear technology** and fuel supplies.

- This could involve the **development of joint ventures with other countries**, the participation in international research initiatives, and the **negotiation of nuclear trade agreements**.

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14. Examine the issue of inclusiveness of women in AI industry.

- **Artificial Intelligence** is penetrating every walk of life, fundamentally changing the way people associate, work, and think.
- AI can transform societies and **improve the quality of life of people**. But, it can also **threaten privacy** with invasive applications, and disrupt human rights.
- The impact of AI on societies largely depends on the motives and minds behind the technology.
- So, in today's era, it is very important to have **equitable participation** of diverse people, especially women, to make AI holistic and beneficial for everyone.

The current state of Women in the AI field

- Women are **under-represented** in the field of AI.
 - Women make up only 22 % of the AI workforce.
- AI systems that are designed without considering the experiences and needs of diverse populations can **continue discrimination and inequality**.
- Gender-blind AI designs are leading to **unfair credit scoring for women**.
- Biased AI-recruiting tools have **automatically filtered out job applications from women**.
 - Biased AI systems can exacerbate existing gaps in the workforce and even harm under-represented communities.
 - **14 %** of STEM jobs in India go to women.
 - **81 %** of women in STEM face gender bias during performance evaluations during their careers.
- Tech giants like Google and Facebook have only **10-15 % of AI specialists as women**.
- Only 13.83 % of AI research publications are authored by women.

Need for women's inclusion in AI

- AI industry can have a positive impact on society **only when it is inclusive** and adopts **gender-sensitive approaches**.
 - This is possible when women participate in all stages of AI development and deployment.
- Because of **Less representation** of women in the AI field, it causes **gender pay gap and limits career** growth in the field of AI.

Efforts undertaken for inclusion of women in AI industry

- Some governments and international organizations have initiated programs to improve the participation of women in AI, starting from education and research to employment and entrepreneurship.
- **KIRAN scheme**:
 - To address various issues related to **women scientists**.

- **Aims** to provide opportunities in research, technology development/demonstration, self-employment, etc.
- **National Strategy for AI of India:**
 - It focuses on inclusiveness and promotes the idea of **#AIFORALL**.
 - Under this program, **Telangana** aims to train 1,00,000 students, with a focus on girls from vulnerable backgrounds in AI and Data Science and has trained more than 5,000 girls.
 - **Rural women in Telangana** are being trained and employed in three rural data annotation centres in the State.
- The government promoted **We-Hub**, which acts as an accelerator for women entrepreneurs in Hyderabad that has trained more than 700 girls aged 13 to 17 in Data Science and AI.
- Due to these efforts, today **43 % of STEM graduates** produced in India are women which is **higher than in most advanced economies**.

Looking forward

- Use **social media or ad campaigns** to change mindsets
 - It can raise awareness and promote the positive representation of women in AI.
- Governments and educational institutions should **invest in and execute programs** that boost the participation of women in AI.
 - Programs like skills development programs in AI designed for women, scholarships, research grants, and internships.
- The private sector should **promote leadership positions** for women in AI.
 - **It will help in:**
 - Having an equal number of women participating in panel discussions
 - Ending the gender pay gap
 - Provide mentorship and networking opportunities
 - prioritizing recruitment of young women from diverse backgrounds in AI roles
 - Invest in entrepreneurship and research led by women in AI
 - Promoting AI competencies among girls and women
 - Facilitating women from multidisciplinary backgrounds to participate in the AI revolution.
- Promote women's **participation in non-technical roles** in AI such as those in regulation, ethics, governance, communication, and management.

Currently, AI is trending worldwide with its AI bots, and much new AI-related technologies. So, we can say that AI is currently a rising star in India. This field has a huge scope for a better future for India as well as employment. And now with the G20 presidency and spotlight on Nari Shakti, India is best positioned to drive international cooperation and shape the global policy on advancing gender equality in AI.

15. Discuss the role of India's leadership in tackling climate change with its G20 Presidency.

- With the Russia-Ukraine war, energy and food security concerns, and many more issues like that, and in between these, India holds the presidency of the G20.
- Moreover, many **new regional trade blocks** are emerging which is ill-suited for climate cooperation as it will have an adverse impact on the long-term concerns such as climate crisis.
- In this context, India should use this opportunity to push for **greater cooperation** to combat complex climate issues.

G20

- It is a **strategic multilateral platform** connecting the world's major developed and emerging economies.
 - Starting in 1999 as a meeting for the finance minister and central bank governors, it has evolved into a **yearly summit** involving the **Head of State and Government**.
- The **Sherpa meetings** working groups and special events are also organized throughout the year.
- Each year, **the Presidency** invites guest countries to participate fully in the G20 exercise.
- The G20 has **no permanent secretariat**.

Significance of G20

- The G20 plays an important role in shaping and strengthening **global architecture and governance** on all major **international economic issues**.
- It recognizes that **global prosperity** is interdependent and that economic opportunities and challenges are interlinked.

India's role do with G20 Presidency

Regarding climate crisis

- G20 believes in **One Earth, One Family, and One Future**.
- Because of climate change, many nations are facing problems.
- India can use its presidency to urge that addressing the climate crisis remains **near the top of the agenda**.

Address energy security concerns

- India can give a reminder to stick to the policy that some European nations are reacting to **energy security concerns** by **reopening coal mines** and scrambling for gas contracts.
- India can put this fact on focus at the G20.

Put mitigation effort equally towards all fossil fuels

- India should put more focus on the argument that **mitigation efforts** should proceed evenly **across all fossil fuels**.
- Many nations are putting emphasis **only on coal**.

Lifestyle for Environment initiative (LiFE)

- Through the LiFE initiative of India, the G20 can **promote sustainable consumption** through enhanced attention to energy-use patterns.
- LiFE sends an important message on **sustainable consumption** and provides a perfect platform to amplify the need for demand-side measures for energy that are a proven route to cost-effective climate mitigation.

Conflicted agenda of climate finance

- India can make further progress in some **conflicted agendas**.
- Developed countries are giving attention to **mobilizing private finance** instead of public finance.
 - **Private finance** is unlikely to flow for adaptation, and the promised new loss-and-damage mechanism also needs funds.
 - **Public finance** can play a role in leveraging private finance for mitigation.

Green policies

- Green industrial policy, by definition, requires **developing a competitive advantage** in particular areas of the economy.
- **Winning domestic political support** for green policies requires showing that these help domestic industry and create jobs.

The opportunity of being a leader in G20 should be utilized at the maximum by addressing the problems in G20. This leadership can benefit India in many ways like proving its competency of India to solve global problems. Globally many countries are in danger because of the climate crisis and the leadership of G20 is the best opportunity to address the problem and draw the focus of developed countries to make a sustainable future for everyone by implementing policies related to the environment and make sure to they stick to the policies.

16. Comment on India-Japan partnership on the Global South.

Global South

- The term '**Global South**' began by loosely referring to **those countries that were left out of the industrialisation era** and had a conflict of ideology with the capitalist and communist countries, **accentuated by the Cold War**.
 - It includes countries that are **mostly in Asia, Africa and South America**.
 - Moreover, Global North is defined essentially by an economic division between the rich and poor countries.
 - Global North' refers loosely to countries like the US, Canada, Europe, Russia, Australia and New Zealand.
 - 'Global South' is significant because of its **large population, rich cultures, and abundant natural resources**.
 - Understanding the Global South is important for addressing global issues such as **poverty, inequality, and climate change**.

Concerns of the Global South

- **Poverty and Inequality:**
 - Many countries in the Global South struggle with extreme poverty, which can **manifest in a range of issues such as malnutrition**, lack of access to education, and inadequate healthcare.
 - The Global South is often marked by significant inequalities, both within countries and between countries. For example, there may be significant **disparities in wealth and access to resources between urban and rural areas**, or between different ethnic or socioeconomic groups.
- **Environmental Challenges:**
 - Many countries in the Global South are **particularly vulnerable to environmental challenges** such as climate change, deforestation, and pollution. These issues can have a significant impact on the health and well-being of local communities.
- **Political Instability:**
 - Political instability is one of the major issues in some countries in the Global South, with challenges **ranging from coups and civil wars** to corruption and weak governance.
- **Lack of Infrastructure, Education and Health:**
 - Many countries struggle to provide **access to quality education for their populations**, which can limit economic opportunities and perpetuate poverty and inequality.
 - Health issues are also a major concern, where **access to quality healthcare may be limited or non-existent**. This can lead to a range

of health issues, including infectious diseases, malnutrition, and chronic conditions.

Japan Reach Out to the Global South

Japan is hosting G7 summit 2023 at Hiroshima. With India wanting to make the voice of the Global South heard at this year's **G20 summit**, there is much **new room for global political collaboration between Delhi and Tokyo**.

- **Japan Fears Ukraine-Like Implications:**
 - Japan has transformed its foreign and security policies, since it fears similar **Ukraine-Like Implications**.
 - The **Ukraine war**, coming on top of the long-standing threats from North Korea and mounting security challenges from China, has pushed **Japan towards sweeping reform of Japan's defence policy**.
- **Diplomacy and Defense:**
 - Japan thinks that the war in Ukraine has made it recognise the **essential relationship between diplomacy and defence**.
 - Diplomacy needs to be backed by defence capabilities and reinforcing defence capabilities will also lead to persuasiveness in carrying out our diplomatic efforts.
- **Acknowledging Negligence from West:**
 - The West has neglected political engagement with the Global South in recent decades.
 - In the Cold War, the West competed fiercely with Russia for strategic influence across the Global South.
 - After the collapse of the **Soviet Union**, the G7 simply took the **Global South for granted and was more interested in lecturing** rather than talking to the leaders of the Global South.
 - This, in turn, left **much room for China and Russia to play** in the developing world.

India's role

- Championing the Global South today would **demand more active Indian engagement with the messy regional politics** within the developing world.
- India must also **come to terms with the fact that the Global South** is not a coherent group and does not have a single shared agenda. There is much differentiation within the South today in terms of wealth and power, needs and capabilities.
 - This demands a tailored Indian policy to different regions and groups of the developing world.
- India is eager to become a **bridge between the North and the South** by focusing on practical outcomes rather than returning to old ideological battles. If India can translate this ambition into effective policy, there will be no contradiction between the simultaneous pursuit of universal and particular goals.

India, which has long backed Japan's leadership role in Asia, has every reason Japan's new interest in the Global South. Japan's initiatives on the Indo-Pacific and the Quad have broken the misperception of Asia as being merely Sino-centric. The India-Japan partnership on the Global South might hopefully help overcome the traditional divides between East and West as well as North and South.

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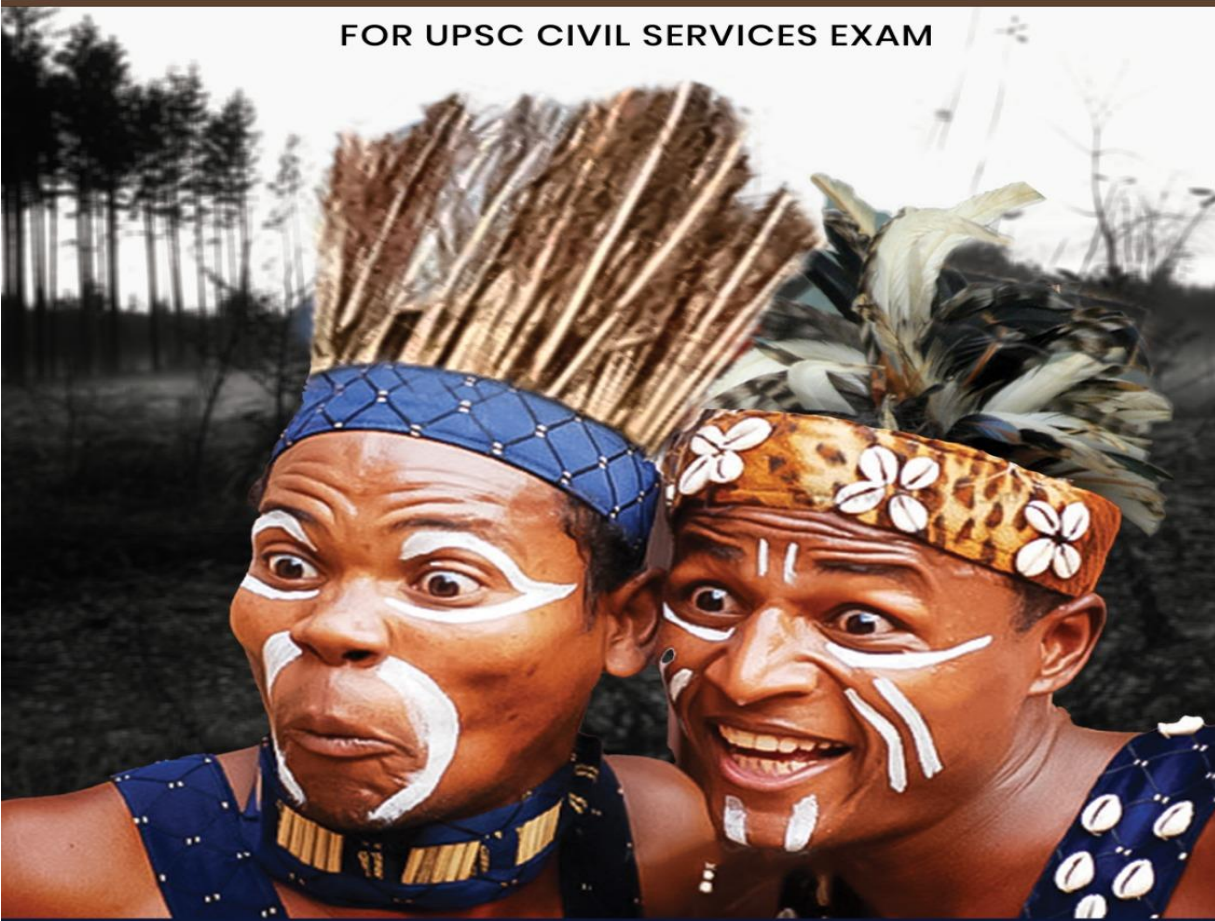
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17. Examine the major challenges in enabling a more disabled-friendly digital ecosystem in India. How can we ensure "Digital inclusivity" and "Digital accessibility" for persons with disabilities?

- According to a recent report titled 'Making the Digital Ecosystem Disabled Friendly, **WhatsApp has been ranked India's most accessible app for persons with disabilities**, which evaluated the most popular apps across categories like messaging, online payments, transport, **e-commerce** and food delivery.
- According to the **World Health Organization**, about **16% of the global population is disabled**. Based on that figure, there are at **least 192 million disabled Indians**.
- Also, India had 750 million Internet/smartphone users in 2020, including 120 million people with disabilities.
- Despite technology's tremendous potential to level the playing field for the disabled, it can also reinforce barriers if it is not designed with their needs in mind.

Major Challenges with the Digital Ecosystem for Disabled in India

- *Lack of Accessibility:*
 - **Many websites, apps, and online resources are not designed with accessibility in mind**, making it difficult for people with disabilities to access them.
 - This includes **barriers to using assistive technologies** like screen readers, magnifiers, or voice recognition software, which makes it hard for people with visual, auditory, or motor disabilities to access the digital content.
- *Limited Availability of Assistive Technologies:*
 - Many people with disabilities in India **do not have access to the necessary assistive technologies to access digital content**. The cost of these devices is often prohibitive, and there is also a lack of awareness about their availability and benefits.
- *Limited Awareness:*
 - Many people with disabilities in India are **not aware of the available digital resources or how to access them**.
 - For instance, there is a lack of information on the accessibility features of various digital platforms, apps, and websites.
- *Language Barriers:*
 - There is a **significant language barrier in India**, with a vast population speaking different regional languages.
 - Many digital resources are available only in English or Hindi, making it difficult for people who speak other languages to access them.
- *Limited User Testing:*

- User testing for people with disabilities is often limited or non-existent. Therefore, the accessibility features and overall usability of digital resources for people with disabilities are not adequately assessed.

Looking ahead

- *Accessibility Standards:*
 - India can **implement accessibility standards to ensure that digital products and services are accessible to persons with disabilities.**
 - The accessibility standards should be based on **international standards such as Web Content Accessibility Guidelines (WCAG) or Bureau of Indian Standards (BIS) standards.**
- *Inclusive Design:*
 - Inclusive design can **ensure that digital products and services are designed to be accessible** to everyone, including persons with disabilities.
 - Inclusive design involves designing with the user in mind, taking into consideration their abilities, needs, and limitations.
- *Assistive Technology:*
 - India can **encourage the development and use of assistive technology to help persons with disabilities** access digital products and services.
 - Assistive technology includes software, hardware, and devices that help persons with disabilities to interact with digital products and services.
- *Training and Awareness:*
 - India can **provide training and awareness to digital product and service providers**, developers, and designers on accessibility and inclusive design. This can help ensure that accessibility and inclusive design are integrated into the design and development process.
- *Collaborations:*
 - India can **collaborate with organizations, researchers, and experts in the field of disability and accessibility** to develop innovative solutions to make digital products and services accessible to persons with disabilities.
- *Government Policies:*
 - The Indian government can **create policies that incentivize companies to implement accessibility standards and inclusive design in their digital products and services.** The government can also create policies that require digital products and services to be accessible to persons with disabilities.
- *Use of AI:*

- Currently technology is **used to automate a large number of accessibility tests**, and combine that with in-depth manual testing to provide comprehensive accessibility feedback to developers.
- Developers and companies can now use AI to automate accessibility testing and analyze feedback from users with disabilities to provide actionable insights.

18. There is a demographic transition towards aged populations underway in the world. India can reap rich dividends with right policy focus. Comment.

The world is going through a **phase of demographic transition towards aged populations**. Adaptation strategies will require **governments, businesses and common people to make key adjustments**.

- This may usher in a great opportunity for India that is **experiencing a demographic dividend**.

Demographic Transition and Demographic Dividend

- **Ademographic shift refers to a change in the composition of a population over time.**
 - This change can occur due to various factors such as **changes in birth and death rates, migration patterns**, and changes in social and economic conditions.
- **Ademographic dividend** is a phenomenon that occurs when a country's population structure shifts from having a high proportion of dependents (children and elderly) to having a **higher proportion of working-age adults**.
 - This change in population structure can result in economic growth and development if the country invests in its **human capital and creates conditions for productive employment**.

Significance of India's Demographic Dividend

- India **entered the demographic dividend opportunity window in 2005-06** and will remain there till **2055-56**.
- India's median age is markedly **lower than that of the US or China**.
 - While the median ages of the **US and China are already 38 and 39 respectively**, India's median age is not expected to reach 38 until 2050.
- **Challenges Associated with India's Demographic Dividend:**
 - **Low Female Labour Force Participation:** India's labour force is constrained by the **absence of women from the workforce**.
 - As per **Periodic Labour Force Survey 2020- 2021**, female labour workforce participation stands at **1%**.
 - **Environmental Degradation:** India's rapid economic growth and urbanisation have led to **significant environmental degradation**, including **air pollution, water pollution, and deforestation**.
 - Addressing these issues is essential to **ensuring sustainable economic growth**.
 - **High Dropout Rate:** While over 95% of India's children attend primary school, the **National Family Health Surveys** confirm that poor infrastructure in **government schools, malnutrition, and scarcity of trained teachers** have resulted in poor learning outcomes and **high dropout ratios**.
 - **Lack of Employment Opportunities:** With a large and growing working-age population, **Indian job market is not able to generate enough jobs to meet the demands of this expanding workforce**.

- This has resulted in high rates of **underemployment and unemployment.**
- **Lack of Adequate Infrastructure:** Poor infrastructure, including **inadequate education and health facilities, transportation, power, and communication network**, makes it challenging for people to access basic services and employment opportunities, **particularly in rural areas.**
- **Brain Drain:** India has a large pool of **highly skilled and talented professionals**, but many of them choose to **leave the country in search of better job opportunities** and living conditions abroad.
 - This brain drain is a significant loss for India, as **it results in a shortage of skilled workers and limits the country's ability** to fully leverage its demographic dividend.

India Utilise its Demographic Dividend

- **Gender Equality:** India needs to address **gender inequality** in education and employment, including **improving access to education and employment opportunities for women.**
 - Women's participation in the workforce can increase economic growth and lead to a more inclusive society.
- **Raising Education Standards:** In both rural and urban settings, the public school system must ensure that **every child completes high school and goes on to skilling, training, and vocational education.**
 - The modernization of school curricula along with the implementation of **Massive Open Online Courses (MOOCS)** and the establishment of open digital universities will further contribute to India's qualified workforce.
- **Encouraging Entrepreneurship:** India needs to encourage entrepreneurship and innovation, particularly among the youth, to **create job opportunities and contribute to economic growth.**

19. Examine the scope of same-sex marriages under the Special Marriage Act.

Special Marriage Act, 1954

- It is an **Act of the Parliament** of India with provision for **civil marriage** for people of India and all **Indian nationals in foreign countries**, irrespective of religion or faith followed by either party.
- **SMA provides a civil form of marriage** for couples who cannot marry under their **personal law**.
- When a **person solemnises marriage under this law**, then the marriage is not governed by personal laws but by the **Special Marriage Act**.

Special Marriage Act Arguments of Petitioners

- The petition claimed that **Special Marriage Act violates Fundamental Right of LGBTQ+ community** by denying their right to marry. Under the Act, same-sex couples are denied **basic and elementary rights** of adopting and parenting children, enjoying property rights through inheritance and succession, and mental peace, which together have an effect on their emotion and health, thus violating their basic **fundamental**
- **Non-recognition of same-sex marriage** is an act of discrimination that strikes at the root of **dignity and self-fulfillment** of the LGBTQ+ couples. **Equality is not achieved with the discrimination of homosexuality** alone but must extend to all spheres of life, including the **home, workplace and public places**. **Homosexuals have a fundamental right to live with dignity**. They are entitled to be treated as **human beings** and should be allowed to imbibe the spirit of fraternity. **Petitioners emphasized that the SMA "ought to apply** to a marriage between any two persons, regardless of their **gender identity and sexual orientation"**.

Supreme Court's Stand on Homosexuality

- **Supreme Court in Navtej Singh Johar case, 2018, decriminalized**
 - It held that criminalization of **private consensual sexual conduct** between **adults** of the same sex under **Section 377** of the Indian Penal Code is clearly **unconstitutional**.
 - Discrimination on the basis of **sexual orientation** is violation of **freedom of speech and expression**.
- **In NALSA vs. Union of India judgment (2014)**, the Court had said that **non-binary individuals** were protected under the **Constitution** and fundamental rights such as **equality, non-discrimination, life, freedom** and so on could not be restricted to those who were biologically male or female.

Government's Stand on Same-Sex Marriages

- Solicitor General had said that as per the law, marriage was permissible between a "biological man" and "biological woman".
- Acceptance of the **institution of marriage** between two **individuals** of the **same gender** is neither **recognised** nor **accepted** in any **uncodified personal laws** or any **codified statutory laws**.

Global Stand on Same-Sex Marriages

- **Total of 32 countries around the world** have legalized **same-sex marriages**.
- **Netherlands was the first country in 2001** to legalize same-sex marriage by amending one line in its civil marriage law.
- In some countries, the decriminalization of homosexuality was not followed for years by the recognition of same-sex marriage, **for instance, in the U.S.** the former happened in 2003 while the latter in 2015.

Special Marriage Act Features

- It allows people from two different **religious backgrounds** to come together in the bond of marriage.
- Lays down the procedure for both **solemnization and registration** of marriage, where either of the **husband or wife** or both are not **Hindus, Buddhists, Jains, or Sikhs**.
- Being a **secular Act**, it plays a key role in **liberating individuals** from traditional requirements of marriage.

20. Discuss the key principles of Responsible Artificial Intelligence (AI).

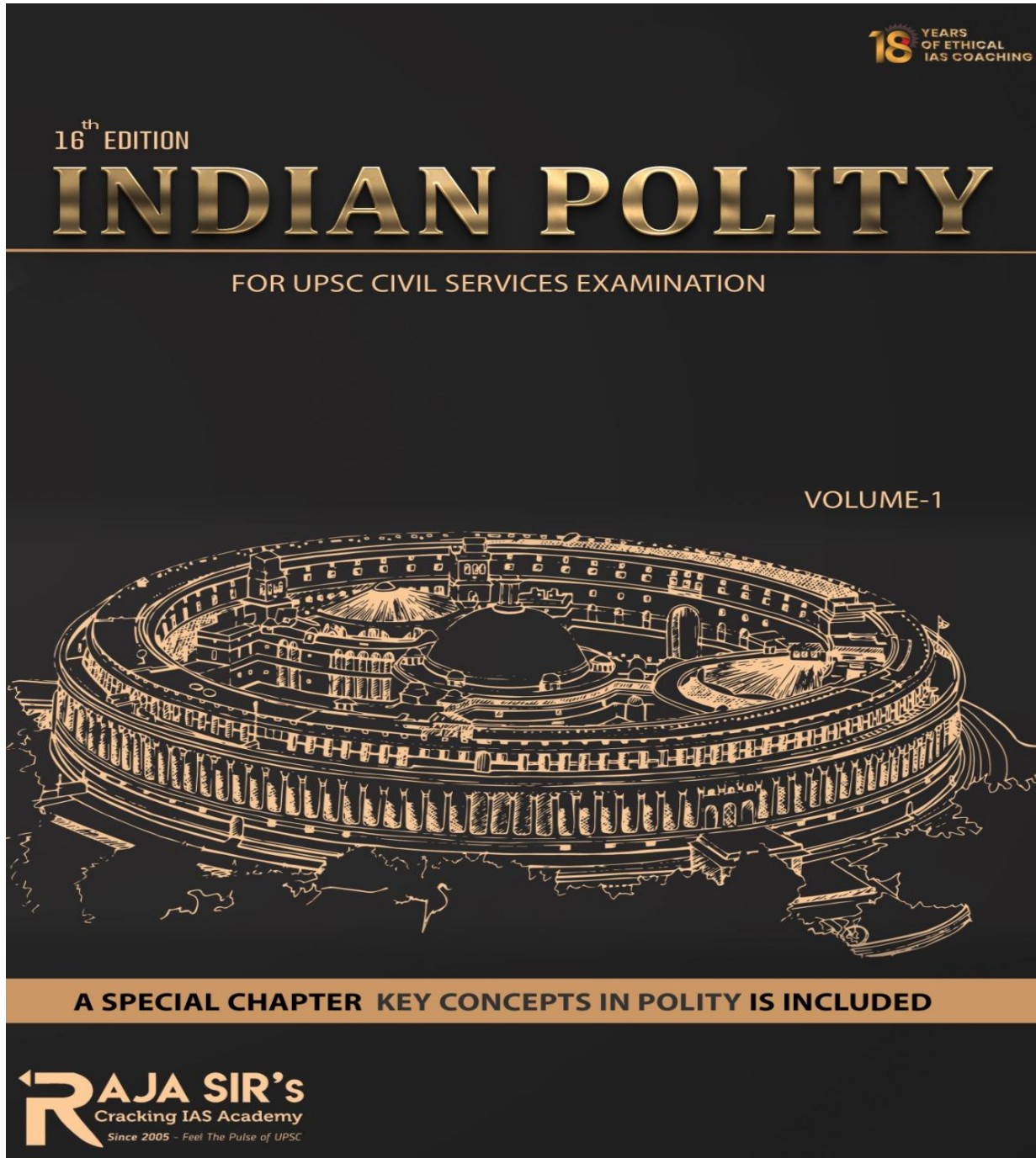
- Artificial Intelligence (AI) describes the action of machines accomplishing tasks that have historically required human intelligence. It includes technologies like machine learning, pattern recognition, big data, neural networks, self algorithms etc.
- The origin of the concept can be traced back to the greek mythology, although it is only during modern history when stored program electronic computers were developed.
- Example: Million of algorithms and codes are there around the humans to understand their commands and perform human-like tasks. Facebook's list of suggested friends for its users, a pop-up page, telling about an upcoming sale of the favourite brand of shoes and clothes, that comes on screen while browsing the internet, are the work of artificial intelligence.

Ethical Guidelines for AI Development and Deployment can help **ensure that developers and organizations are working towards the same ethical standards** and that AI systems are designed with ethical considerations in mind.

- **Implement Accountability Mechanisms:**
 - Developers and Organizations should be **held accountable for the impact of their AI systems.**
 - It can include **establishing clear lines of responsibility and liability**, as well as creating reporting mechanisms for any incidents or issues that arise.
- **Foster Transparency:**
 - AI systems should be **transparent in terms of how they make decisions** and what data they use to do so.
 - It helps ensure that **AI systems are fair and not biased** towards certain groups or individuals.
- **Protect Privacy:**
 - Organizations should **take steps to protect the privacy of individuals whose data is used by AI systems.**
 - It can **include using anonymized data, obtaining consent from individuals**, and establishing clear data protection policies.
 - **Involve Diverse Stakeholders:**
 - It is important to involve a **diverse range of stakeholders in the development and deployment** of AI, including individuals from different backgrounds and perspectives.
 - It will help ensure that AI systems are designed with the needs and concerns of different groups in mind.
 - **Conduct Regular Ethical Audits:**
 - Organizations should conduct regular audits of their AI systems to **ensure that they are aligned with ethical**

principles and values. This can help **identify any issues or areas for improvement** and ensure that AI systems continue to operate in an ethical and responsible manner.

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21. Raising the domestic production of oilseeds is vital to curb costly imports.

Comment

- According to **Department of food and public distribution**, India is one of the **largest consumers** of **vegetable oils** in the world.
- India currently imports vegetable oil amounting to **13-14 million tonnes** and valued at over **\$14 billion** to meet **chronic domestic shortage**.
- In the medium-to-long term, the country must move towards **substantial self-reliance**, but in the short-term import is inevitable.
 - But the current import policy, while advancing consumer interest, has failed to protect the interests of **domestic oilseed growers**.
 - In order to achieve its objectives, a policy that adopts a **comprehensive approach** and takes into account the interests of **both growers and consumers** is essential.
 - Such comprehensive policy action is required because of looming risks including **land constraints, water shortage and climate change**.

Initiatives to Boost Domestic Oilseed Production in long term

- Boosting domestic oilseeds production is inevitable, for which effective policy measures are critical.
- There are **Six initiatives** to boost domestic production:
 - **Enforce area expansion** through incentivised crop rotation in high-input grain mono-cropping regions of Punjab, Haryana and western Uttar Pradesh.
 - **Adopt multiple technologies** including infotech, satellite tech, nuclear agri-tech and nanotech.
 - **Work towards a breakthrough in seed technology**.
 - **Implement a robust nationwide procurement system**.
 - **Tap the huge potential of non-conventional oil sources** like cottonseed, rice-bran and tree-borne oilseeds.
 - **Invest in improving crushing/extraction efficiency**.
- Each one of these is doable, and **positive effects** will be visible over time.
 - But there is also need for some **'quick wins'** for which six policy actions are recommended.

Policy Actions for short term

- **Regulate and monitor imports of vegetable oil:**
 - Currently, the policy interventions are often **knee-jerk** and **reactive, and bereft of supportive data**.
 - Adopt simple administrative system of **'Import Contract Registration'** and monitoring of arrivals
 - It will remove the **opacity in trade** and facilitate **data-driven decision**.

- **Cut down credit period to overseas suppliers to 45 days maximum:**
 - **Long credit period** of 90-120-150 days encourages over-trading and speculation.
 - Some Indian importers are already in a serious '**import debt trap**' because of **rampant over-trading**.
 - **Bank loans** to importers can turn into **NPA** anytime.
- **By Reducing credit period** will automatically slow the pace of import and make the importer more responsible and accountable.
- **Bring cooking oil under Public Distribution (PDS):**
 - **Aim:** To support vulnerable sections of consumers with supply of edible oil under welfare programmes at subsidised rates.
 - Both **PDS** and private trade supplies can **co-exist** to provide help **advance consumer interest**.
 - The PDS evolved as a system of management of scarcity through distribution of food grains at affordable prices.
- **Allow oilseed import for partial replacement of vegoil import:**
 - Import of **oilseeds will boost utilisation** of domestic idle processing capacity, augmented edible oil availability and, importantly, will provide more cake/meal for the **domestic livestock sector or for export**.
- **Create an Oilseeds Processing Industry Modernisation Fund:**
 - Many of the **15,000 oilseed crushing units** and **800 solvent extraction** plants are **intrinsically inefficient** in terms of scale, equipment, technology and productivity.
 - A **modernised industry** will capture greater value and create potential to attract foreign direct investment.
- **Backward integration:**
 - **Large processing unit's dependent** on import must establish backward linkages to produce oilseeds by working with FPOs.

Much bet is being laid on oil palm cultivation, but history shows nothing remarkable has happened in the last 30 years. While the new oil palm initiative is welcome, a comprehensive review of the promotion policy is needed for sustained growth. Policymakers must demonstrate strong 'political will' to creatively disrupt the debilitating status quo. The oilseeds sector deserves policy, investment and research support.

22. An excellent tax base is crucial for every economy as it generates revenue for them, which is needed to develop a nation. Hence it is essential to widen its tax base so that more revenue can be generated. Examine.

With rise in population, the workforce has grown but the **income tax base has not increased, which needs to be addressed.**

The Finance Ministry had revealed that the **number of people who filed income tax returns stood at 6.8 crore in 2020-21.** This means that **only 4.8% of the total population filed IT returns in 2021.** Of these, **only 1.69 crore paid tax since 65% of the taxpayers earned less than Rs. 5 lakh.** So effectively, only 1.2% of the population pays income tax as of now.

Reasons for Low Tax Base in India

- **Large Informal Economy:**
 - **India has a significant informal economy,** which means that a significant portion of economic activity is not registered with the government, and therefore, not taxed.
 - Many small businesses, street vendors, and daily wage workers operate in the informal sector, which makes it difficult for the government to track their income and collect taxes.
- **Low Participation of Women in the Workforce:**
 - Another reason for the **low tax base in India is the low participation of women in the workforce.**
 - According to the World Bank report released in June 2022, Indian women's labour force participation has been **steadily declining since 2005 and is at a low of 19% in 2021.**
 - **Dominance of Agricultural Sector:**
 - A dominant portion of **India's workforce is employed in agriculture and agricultural income is exempt under income tax.**
 - This results in **6% of agri-workers not filing tax returns.** So, only 23 crore of the workers in the non-agri segment are liable to pay tax.
 - This results in a narrow tax base, which is heavily reliant on other sectors of the economy.
 - **Income is not Taxable:**
 - The tax incidence **arises only if the income is above a certain threshold,** and that a large percentage of Indian households have an annual income under Rs.6 lakh.
 - This means that the potential taxpayer base is reduced to a smaller number.
 - According to Statista, **67% of Indian households had annual income under Rs.6 lakh in**

2021, which reduces potential income taxpayers to 7.6 crore.

Harness the Increasing Working Age Population

- **Formalisation of the Economy:**

- The informal sector **accounts for a significant part of India's economy**, but many businesses and workers operate outside the tax net.
 - According to a paper, 'Measuring Informal Economy in India, Indian experience', out of the total workforce in 2017-18, **7% was employed by the informal sector**.
- Formalising the economy by bringing these businesses and workers under the tax net can increase the tax base.
- This can be achieved by **providing incentives for businesses to register themselves and comply with tax laws**, and by simplifying tax laws to make compliance easier.
- Also, it can be **done with some help from the GST system**. One of the objectives of the GST regime in its original form was to nudge those in the unorganised sector to shift to the formal sector and file GST returns in order to avail input tax credits or to continue supplying to larger buyers.

- **Identifying High-Income Earners in the Informal Sector:**

- Many high-income earners operate in the informal sector, but they are not currently paying taxes.
- Identifying and bringing these individuals into the tax net can increase the tax base.
- This can be achieved by **collecting data on income and assets through various means** such as bank transactions, property purchases, etc. and using this data to identify potential taxpayers.

- **Bringing Agricultural Income into the Tax Net:**

- Currently, **agricultural income is exempt from income tax in India**. However, many wealthy farmers earn a significant income from agriculture, but they do not pay taxes.
- Bringing agricultural income into the tax net can increase the tax base.
 - This can be achieved by **setting a minimum threshold for agricultural income to be taxed**, and by incentivising farmers to report their income.
- **Tax collection at source (TCS):**
 - Collecting tax at **source for purchase of certain goods and services is another way to identify those** who earn a tidy sum every year but are not paying any taxes.

- As of now, TCS is collected for high value goods such as expensive motor vehicles, gold jewellery or overseas remittances.
- The ambit of TCS can be **expanded to consumer durables, domestic luxury travel, stays in expensive hotels etc.**
- This can **help identify those operating in the informal sector and earning high income**, yet evading tax.
 - While this could hit honest taxpayers, they can reclaim the tax in their annual return.

23. Examine the role of INGOs and TNCs in Non-State Politics to define the World order and Global Governance.

International relations have traditionally been the **purview of states, with nation-states being the primary actors in shaping global governance**. However, with the rise of globalization, there has been an increasing recognition of the role of non-state actors in shaping international relations. Non-state actors such as Transnational corporations (TNCs) and International non-government organizations (INGOs) have become important players in global governance, and their influence has been on the rise in recent years.

1. The Role of Transnational Corporations

TNCs are **business entities that operate in multiple countries**, with operations that span national boundaries. TNCs have **significant power and influence in the global economy**, and their role in shaping international relations has been widely recognized. TNCs exert influence through various mechanisms, including economic power, political influence, and social influence.

- **Economic Power:**
 - TNCs have significant economic power, with many TNCs having a **larger GDP than many countries**. This economic power gives TNCs significant **influence over governments**, as they are often major contributors to a country's economy.
- They can use their economic power to **lobby governments to create policies that favor their interests**.
 - For example, in the 1990s, the **tobacco industry lobbied against regulations** that would limit smoking, arguing that it would hurt their business.
- **Political Influence:**
 - TNCs can use their economic power to **fund political campaigns and lobby politicians to support policies that benefit their interests**.
- They also have significant **influence over international organizations** such as the **World Trade Organization (WTO)**, which sets the rules for international trade.
 - Further, they can lobby the WTO to **create rules that favor their interests** and protect their intellectual property rights.
- **Social Influence:**
 - They also have significant social influence, as they often operate in countries with **weak or non-existent labor and environmental regulations**.
- They can use their social influence to promote corporate social responsibility (CSR) initiatives, which can help **improve their image and reputation**.

- CSR initiatives can also help TNCs **gain access to new markets**, as consumers increasingly demand products and services that are socially responsible.

2. The Role of International Non-Governmental Organizations (INGOs)

- INGOs are non-governmental organizations that **operate at the international level**. INGOs are often focused on promoting human rights, environmental protection, and social justice.

Positive Implications

- **Human Rights:**
 - INGOs have been instrumental in **promoting human rights at the international level**.
 - INGOs such as **Amnesty International and Human Rights Watch** have been involved in monitoring and documenting human rights abuses around the world.
- They are also instrumental in advocating for the **creation of international human rights treaties**, such as the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights.
 - **Peace and Security:**
 - They have also played a critical role in **promoting peace and security** at the international level.
 - INGOs such as the International Crisis Group and the **International Committee of the Red Cross** have been involved in conflict prevention, resolution, and post-conflict reconstruction efforts.
 - These organizations often work with governments and other stakeholders to promote peaceful solutions to conflicts and prevent the escalation of violence.
 - **Poverty Reduction:**
 - INGOs have also been instrumental in promoting poverty reduction at the international level, such as **Oxfam and CARE International** have been involved in **promoting sustainable development and poverty reduction initiatives in developing countries**.
 - These organizations often work with local communities and governments to promote economic development, improve access to education and healthcare, and reduce poverty.

Negative Implications

- **Economic Dominance:** They often engage in practices such as transfer pricing, tax evasion, and environmental degradation,

which have negative impacts on the economy and environment of the host country.

- For example, the oil company Shell has been accused of environmental degradation in Nigeria, where it operates oil fields.
- **Subduing the Sovereignty:** They usually try to influence the internal affairs of countries, such as elections or policy-making processes, thereby subduing the sovereignty of countries.
 - Ignoring or violating national laws and regulations, which can have negative impacts on the sovereignty of countries.
- For example, **Greenpeace NGO**, which is a **global environmental organization** that creates **hinderance in the development process** of countries in the name of protecting environment.
 - **Cultural imperialism:** TNCs often promote cultural imperialism, which can lead to the erosion of local cultures and values. For example, the spread of American fast-food chains and Hollywood movies around the world has been criticized for homogenizing cultural diversity.

The non-state actors such as TNCs and INGOs have become increasingly important players in shaping international relations. While they have the potential to promote positive change and address global issues, they also have negative implications, such as economic dominance, subduing sovereignty, and cultural imperialism. Therefore, it is crucial for global governance to recognize and regulate the role of these non-state actors to ensure that their actions align with the goals of international cooperation and sustainable development.

24. Examine the challenges that need to be overcome to achieve the goal of making India emerge as a biodiversity champion.

- Biodiversity, which **encompasses the total quantity and variety of life on our planet**, is crucial for the future of Earth. The **United Nations Biodiversity Conference in Montreal, Canada (2022)** emphasized the significance of this biological wealth.
- In the same conference, **188 country representatives adopted an agreement** to “halt and reverse” biodiversity loss by conserving 30% of the world’s land and 30% of the world’s oceans by 2030, known as the 30×30 pledge.
- India currently **hosts 17% of the planet’s human population and 17% of the global area in biodiversity hotspots**, placing it at the helm to guide the planet in becoming biodiversity champions. To **achieve the 30% goal**, India needs to have Biodiversity Friendly Management.

Challenges related to Biodiversity Conservation

- **Habitat Loss and Fragmentation:**
 - Human activities such as **deforestation, agriculture, urbanization, and infrastructure development** are leading to the loss and fragmentation of natural habitats, making it difficult for many species to survive and reproduce.
- **Climate Change:**
 - **Rising temperatures, changing rainfall patterns, and extreme weather events** are affecting ecosystems and altering the distribution and behaviour of many species.
- **Invasive Species:**
 - Non-native species introduced by humans can compete with and displace native species, disrupt ecosystem functioning, and spread diseases.
- **Overexploitation:**
 - **Unsustainable use of natural resources such as overfishing, hunting**, and harvesting of timber and other forest products can lead to the decline or extinction of species.
- **Pollution:**
 - Contamination of air, water, and soil with chemicals and waste products can harm wildlife and their habitats.
 - **For example:** pollutants such as **sulfur can lead to excess levels of acid in lakes and streams**, and damage trees and forest soils; **atmospheric nitrogen can reduce the biodiversity of plant communities** and harm fish and other aquatic life; ozone damages tree leaves and negatively affects scenic vistas in protected natural areas.
- **Lack of Awareness and Appreciation:**

- Many people are **not aware of the importance of biodiversity** and the role it plays in supporting human well-being, leading to insufficient public support and funding for conservation efforts.
- **Poverty and Inequality:**
 - **Poverty** can drive people to rely on natural resources for their livelihoods, leading to overexploitation and habitat destruction. Lack of access to education and economic opportunities can also contribute to biodiversity loss.

Looking Forward

- **Science-based Monitoring Programme:**
 - A science-based and inclusive monitoring programme is critical not only for the success of the biodiversity conservation related steps taken but also for documentation and distillation of lessons learnt for replication, nationally as well as globally.
 - Some examples of science-based monitoring programs for biodiversity conservation include: **The Global Biodiversity Information Facility (GBIF), The Living Planet Index, The National Biodiversity Network (NBN),**
- **Effectively using Modern Concepts of Sustainability of Ecosystems:**
 - New missions and programmes should **effectively use modern concepts of sustainability and valuation of ecosystems** that consider ecological, cultural, and sociological aspects of biological wealth.
 - Multiple sustainable **bio economy** can be achieved by defining clear boundaries for the system, prioritizing the benefits for those who provide the resources, and creating value through service-based funds rather than focusing solely on the flow of goods.
- **Conserving Water:**
 - The **future of our wetland ecosystems will depend on how we are able to sustain ecological flows through reduction in water use** in key sectors such as agriculture by encouraging changes to less-water intensive crops such as millets as well as investments in water recycling in urban areas using a combination of grey and blue-green infrastructure.
- **Focusing on Ecological Restoration:**
 - As far as the **Green India Mission** is concerned, **implementation should focus on ecological restoration rather than tree plantation** and choose sites where it can contribute to ecological connectivity in landscapes fragmented by linear infrastructure.
 - Furthermore, **choice of species and density should be informed by available knowledge** and evidence on resilience under emerging climate change and synergies and trade-offs with respect to hydrologic services.
- **Carefully Selecting Site for Mangrove Initiative:**

- **Site selection should also be carefully considered for the mangrove initiative** with a greater emphasis on diversity of mangrove species with retention of the integrity of coastal mud-flats and salt pans themselves, as they too are important for biodiversity.
- **Involving Local Community:**
 - Each of these **efforts regarding biodiversity conservation must be inclusive of local and nomadic communities** where these initiatives will be implemented.
 - **Traditional knowledge and practices of these communities should be integrated** into the implementation plans.
 - Each of these programmes has the potential to greatly improve the state of biodiversity if their implementation is based on the latest scientific and ecological knowledge.
- **Significant Educational and Research Funding:**
 - For India's biological wealth to be critically appraised and brought to the public's attention, **each program should include significant educational and research funding.**
 - There is already an agreement among the **Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC)** and the government is expected to launch the **National Mission on Biodiversity and Human Wellbeing** on an immediate basis.
 - This mission seeks to harness the power of interdisciplinary knowledge — **for greening India and its economy**, to restore and enrich the natural capital for the well-being of the people, and to position India as a global leader in applied biodiversity science.

25. What is 'strategic autonomy'?. For India, the Ukraine war has been an opportunity to practice strategic autonomy. Comment.

Autonomy is akin to sovereignty and a principled and strong India can contribute significantly on the global front while guaranteeing that domestic concerns abate. Strategic partnerships with countries willing to stand by an independent India have been valued for decades. If values of such countries are actually liberal, they must be liberal enough to accept the sovereign functioning of participants in a multipolar world order. Strategic autonomy denotes the ability of a state to pursue its national interests and adopt its preferred foreign policy without being constrained in any manner by other states.

- The Ukraine war has been an **opportunity to practice strategic autonomy**. Adopting a neutrality India has maintained its relationship with Moscow while iterating support to global peace.
- India **worked around Western sanctions to buy oil from Russia**. As much as **25% of India's oil purchase is now from Russia**, from less than 2% before the war.
- Recently, **India abstained** on a UNGA resolution on first anniversary of the war, asking Russia to withdraw from its territory as the resolution had limitations in reaching the lasting goal of securing lasting peace.
 - India has **abstained on all three votes so far** on the Ukraine crisis at the UN General Assembly since Russian invasion.
- But the longer the war continues, the more pressure on India from the Western alliance to choose the "right side".
- India has expressed the hope that it can use its **G-20 presidency to bring peace**.
- India emphasizes dialogue and diplomacy, and it has therefore urged Russia and Ukraine to return to the path of diplomacy. In addition, it has repeatedly called for "respect for the sovereignty and territorial integrity of states" and "for the immediate cessation of violence and hostilities." This balanced approach to the crisis is rooted in India's tradition of non-alignment, evoked by its first prime minister, Jawaharlal Nehru.

However, strategic autonomy does not mean unilateralism. The upended global order and the current geopolitical realities have reinforced the need to build strategic partnerships.

The "right side of history" is written by victors employing brute force. A truer victory would lie in pursuing peace and economic stability, ideals towards which India has contributed consistently. It may just be time to consider that bringing the world to the brink of nuclear war will never be India's goal when pursuing partnerships, and strategic autonomy will ensure that India continues to stand for peace.

26. What are Induced Pluripotent Stem Cells?. Discuss the merits and demerits of Induced Pluripotent Stem Cells.

Stem cells are unspecialized cells in the human body that possesses two prominent properties: a capability for self-renewal and potency, which is the efficiency of proliferation and differentiation to various cellular lineages under suitable conditions. Essentially, stem cell stays uncommitted until it is signaled to change into a specialized cell. Stem cells have the special properties of developing into an expansion of different cells in the human body. They function as a repair system by being able to divide without restriction to replenish other cells.

Potency of Stem Cells

The stem cell Potency indicates the differentiation capability which means the ability to specialize into various types of cell:

- *Totipotent* stem cells Can differentiate into embryonic and extraembryonic cell types. The fertilized egg and the cells generated by the first few divisions of the fertilized egg are totipotent.
- *Pluripotent* stem cells Are considered the progeny of totipotent cells and can specialize into almost all cells including cells derived from any of the three germ layers. Pluripotent cells are distinguished by self-renewal and a differentiation capability to all cell types of the adult organism. Embryonic Stem Cells are categorized under this group.
- *Multipotent* stem cells Can produce several types of cells, but limited to those of closely related types. For example, hematopoietic (adult) stem cells are multipotent stem cells that can generate all blood cells.

Types of stem cells

Stem cells are divided into 2 main forms. They are embryonic stem cells and adult stem cells.

1. Embryonic stem cells. The embryonic stem cells used in research today come from unused embryos. These result from an in vitro fertilization procedure. They are donated to science. These embryonic stem cells are pluripotent. This means that they can turn into more than one type of cell.
2. Adult stem cells. There are 2 types of adult stem cells.
 - One type comes from fully developed tissues such as the brain, skin, and bone marrow. There are only small numbers of stem cells in these tissues. They are more likely to generate only certain types of cells. For example, a stem cell that comes from the liver will only make more liver cells.
 - The second type is induced pluripotent stem cells. These are adult stem cells that have been changed in a lab to be more like embryonic stem cells. Scientists first reported that human stem cells could be changed in this way in 2006. Induced pluripotent stem cells don't seem to be different from embryonic stem cells, but scientists have not yet found one that can develop every kind of cell and tissue. Induced pluripotent stem cells (iPSCs) are derived from skin or blood cells that have been reprogrammed back into an

embryonic-like pluripotent state that enables the development of an unlimited source of any type of human cell needed for therapeutic purposes.

Merits

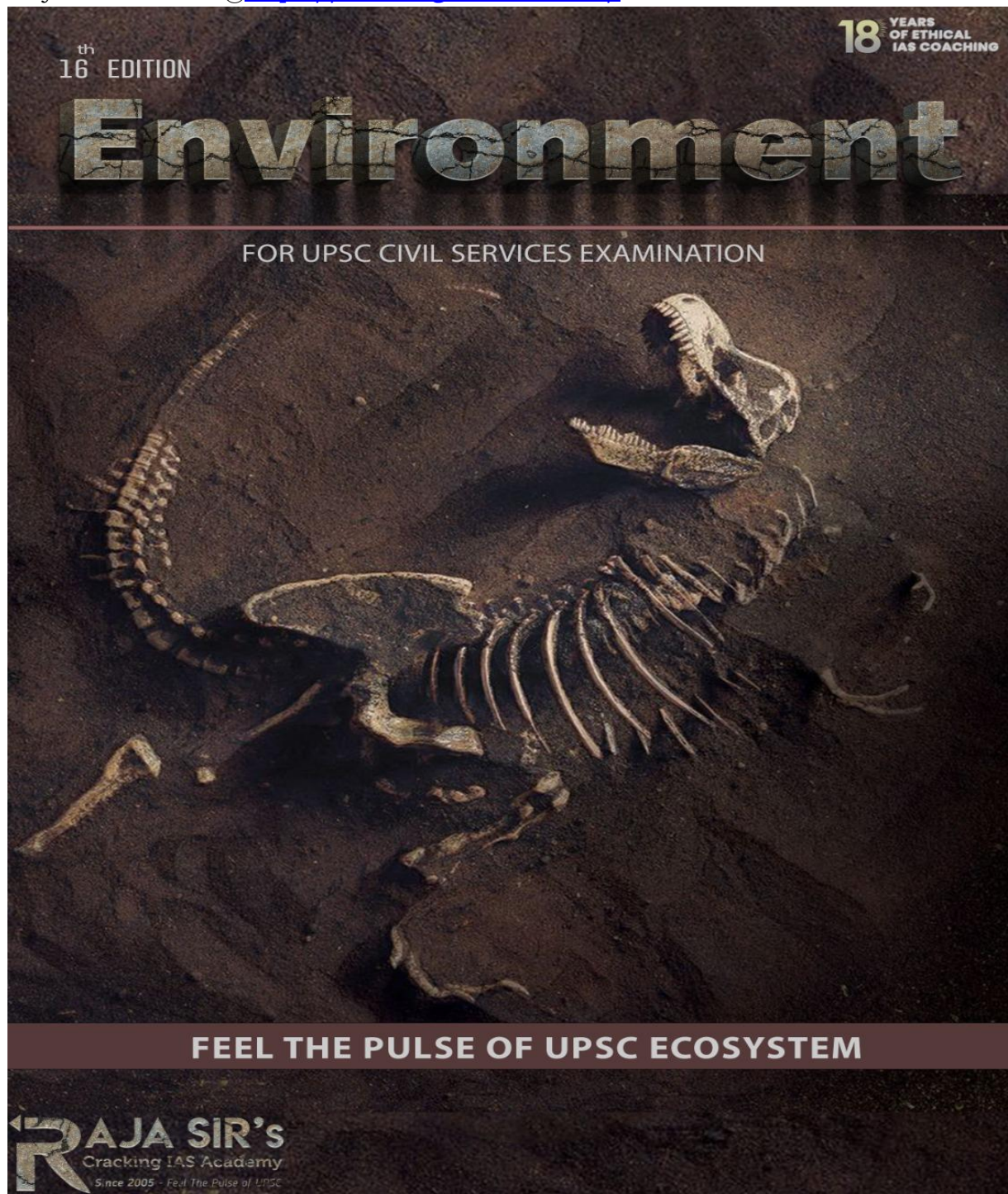
1. The utilization of iPSCs has resolved the ethical debate concerning the use of ESCs in research and overcome the imposed restrictions on either human ES cell research or production.
2. Minimized immunorejection options. iPSCs are produced from the somatic cells of the same individual, therefore there is no hazard of immunorejection of these autologous cells.
3. Detection and study of toxicity/therapeutic reactions of recently produced drugs.
4. Reduce the total cost and risk of clinical trials. iPSCs can provide information on drug intoxication through various cytotoxicity analyzes and reduce the budget associated with the use of animal models, ultimately reducing the cost of clinical trials.
5. The application of a personalized approach to drug delivery and individual modeling of disease by iPSCs allows the screening of disease development and pharmacological agents to offer the appropriate choice for each individual.
6. Gene targeting and Correction Techniques (Gene Therapy). Reprogramming of somatic cells with genetic mutation to iPS cells enabled the production of cell lines that have mutations that cause disease. The ability to alter specific sites in a genome to modify specific mutated genes is very important here.

Demerits

- For putative regenerative medicine applications, patient safety is the foremost consideration. Standardized methods must be developed to characterize iPSCs and their derivatives. Furthermore, reprogramming has demonstrated a proof-of-principle, yet the process is currently too inefficient for routine clinical application.
- Despite numerous technical advances in the derivation of human iPSCs, relatively little is known about their molecular and functional equivalence to Embryonic Stem Cells (ESCs), which could affect their potential therapeutic utility.
- There are also concerns regarding risks and experimental interventions which may be irreversible. Generation of iPSCs make use of retroviral or lentiviral systems, so, it needs to be concerned if the viral systems get incorporated with the host genome. The genetic material inserted via retroviral vectors may randomly integrate into the genome of the host which can cause genetic aberration and teratoma formation.
- The use of the Myc gene as a transcription factor of reprogramming and/or the reactivation of a silenced c-Myc gene in iPS cells could lead to cancer cells.

Addressing this question will require a careful analysis of the genomic integrity of human iPSCs, as well as the development of optimized differentiation protocols and reliable assays to evaluate the functionality of iPSC-derived specialized cells.

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27. The magnitude of smuggling and the consequent loss to the country's economy might become a roadblock in India's march towards a \$40 trillion economy. Examine the gravity of the issue and suggest few effective measures to counter the same.

- The deadly combination of smuggling and massive amounts of misdeclaration that leverage existing free trade agreements and treaties poses a growing threat to **India's Atmanirbhar Bharat Initiative**.
- Attractive-looking thin cigarettes lack mandatory images as per the Cigarettes and Other Tobacco Products Act guidelines can be seen on the streets and local markets. These cigarettes are imported and do not carry the required information such as the manufacturer, importer or packer's name and address, quantity of the product, month and year of manufacture, retail sale price, and more, thereby violating the **Legal Metrology Act** and the **Legal Metrology (Packaged Commodities) Rules, 2011**.
- It is time for India to **crack down, both internally and at the borders**, to curb this menace. India should **take the lead and declare an Anti-Smuggling Day** and work with other countries to make this a global effort.

Impact of Smuggling

- **Instigating Crime:**
 - Smuggling is an illegal activity that involves the transportation and distribution of contraband goods, such as drugs, firearms, and counterfeit products.
 - This illicit trade can **contribute to a rise in organized crime**, as it creates a profitable underground market for criminal groups to exploit.
- **Funding Terrorism:**
 - Smuggling can **also be a source of funding for terrorist organizations**, as they may use the proceeds from smuggling operations to finance their activities.
 - This can have a **destabilizing effect on national and international security**, as it allows these groups to continue their violent operations.
- **Generating and Circulating Black Money:**
 - Smuggling often **involves the exchange of goods and services for cash**, which can be used to generate and circulate **black money**.
 - This can result in a **loss of tax revenue for governments, as well as contribute to the growth of the informal economy**, which can undermine the effectiveness of formal economic institutions.
- **Loss of Revenue:**
 - Smuggling often involves avoiding or evading taxes and tariffs, resulting in significant revenue losses for governments.
 - This can reduce the funding available for public services and infrastructure.

- A report titled "Illicit Markets: A Threat to Our National Interests" that analyzes the impact of illegal trade in five industries in India reported that the **size of illicit markets in these industries is worth Rs 2.6 trillion.**
- This **unlawful trade results in a total estimated legitimate employment loss** of 15.96 lakh and a tax loss to the Centre that has increased by 163% over ten years.

Challenges in Countering Smuggling

- **The Scale of Smuggling:**
 - Smuggling is a **multi-billion dollar industry**, and it involves a vast range of goods, including drugs, weapons, counterfeit goods, wildlife, and humans.
 - The sheer scale of smuggling makes it difficult for law enforcement agencies to keep up with the criminals involved.
- **The Sophistication of Smuggling Networks:**
 - Smugglers often operate in highly organized networks that span multiple countries, making it difficult for law enforcement agencies to track them down.
 - These networks are often **highly sophisticated and use advanced technology to evade detection.**
- **Corruption:**
 - Smugglers often **rely on corruption to facilitate their activities.** This corruption can occur at all levels, from customs officials to police officers to politicians.
 - **Corruption makes it difficult to enforce laws** and regulations and undermines efforts to combat smuggling.
- **The Lack of Resources:**
 - Countering smuggling requires significant resources, including personnel, equipment, and funding.
 - Many law enforcement agencies are **underfunded and understaffed, which makes it difficult for them to effectively combat smuggling.**
- **The Global Nature of the Problem:**
 - Smuggling is a **global problem that requires international cooperation and coordination** to address effectively.
 - Many countries have different laws and regulations related to smuggling, which can make it difficult to coordinate efforts.
- **Evolving Tactics:**
 - Smugglers are **constantly changing their tactics to evade detection.** They may use new technologies, change their routes, or use different methods to transport goods.
- **Public Support:**

- The public **may not always support efforts to combat smuggling**, especially if it involves increased surveillance or other measures that infringe on their privacy.
- This lack of public support can make it difficult for law enforcement agencies to take effective action.

Looking Forward

- **Better Cross-border Coordination:**
 - One of the most effective ways to **counter smuggling is by improving cross-border coordination** between different agencies and countries.
 - This can involve sharing intelligence, increasing communication, and implementing joint operations to identify and intercept smuggled goods.
- **Trade-data Reconciliations:**
 - Another way to **counter smuggling is by implementing trade-data reconciliations**, which involves comparing data from different sources to identify discrepancies and anomalies.
 - By identifying these discrepancies, **authorities can more easily identify potential smugglers and take action to stop them.**
- **In-country Crackdown on Grey Markets:**
 - Another effective strategy is **cracking down on grey markets, which are often a source of smuggled goods.**
 - This can **involve increasing enforcement efforts**, implementing stricter regulations, and educating consumers about the dangers of buying smuggled goods.
- **Increasing the Manpower in Departments like Legal Metrology:**
 - Another way to **counter smuggling is by increasing the manpower in departments** like **legal metrology**, which are responsible for ensuring compliance with regulations related to weights and measures.
 - By increasing the **number of inspectors, authorities can more effectively monitor the movement of goods** and identify potential smuggling operations.

28. Has caste lost its relevance in understanding the multi-cultural Indian Society? Elaborate your answer with illustrations. (150 words) [UPSC MAINS 2020 - General Studies Paper 1]

Caste has for long been viewed as a **distinctive feature of the Indian society**. It is not merely an institution that characterizes the structure of social stratification in India. 'Caste' has often been seen to **represent the core of India**. It has been viewed both as an **institution** as well as an **ideology**.

- **Institutionally**, 'caste' provided a framework for **arranging and organizing** social groups in terms of their **statuses and positions** in the social and economic system. It fixed individuals into the structure of social hierarchy on the basis of their birth.
- **As an ideology**, caste was a system of values and ideas that **legitimized and reinforced the existing structure** of social inequality. It also provided a worldview around which a typical Hindu organized his/her life.

Apart from being an institution that distinguished India from other societies, caste was also an **epitome of the traditional society**, a 'closed system', where generation after generation individuals did similar kinds of work and lived more or less similar kinds of lives.

Caste is losing its relevance

Due to various factors such as **modern education, industrialisation, urbanisation, Indian Constitution** etc. Indian multi-cultural society has started giving less consideration to the 'caste'.

- **Growing dissociation between caste and hereditary occupation**: No longer one can deduce a person's caste by looking at his occupation. A person who is working in a salon may not be a barber.
- **All castes have given importance in the socio-political field**: There is improvement in the socio-economic conditions of lower caste people. They are protected by the different policies of the government. They get equal power with other caste categories in expressing their decision in nation building.
- **Change in the caste identity**: People are no more identified according to their caste identity or ascriptive status; rather they are identified according to achieved status.
 - Educational qualification, occupational position, income etc. are the bases of identification of the individual.
- **Now Indian society is more tolerant of inter-caste marriage**: The number of inter-caste marriages is increasing day by day, particularly among the urbanised and educated group of each caste.
- Restaurants, shopping malls, regional celebrations, local festivals, public institutions, private establishments, do **not consider the caste factor**.

'Caste' is still prevailing

- In India, **different political parties** represent the interests of different caste groups. During elections, the political parties compete with each other in **utilising the same kind of caste calculus**.
- **Violence based on caste** has also erupted in recent times, much of it involving attacks on Dalits.
- Despite the changes though, caste identities remain strong, and last **names** are almost always indications of what caste a person belongs to.
- **Manual scavenging**, the worst surviving symbol of untouchability is still an occupation of people from lower castes.

One of the most significant yet paradoxical changes in the caste system in the contemporary period is that it hastended to become 'invisible' for the upper caste, urban middle and upper classes. For the so-called scheduled castes and tribes and the backward castes – the opposite has happened. For them, caste has become all too visible.