

GOVERNANCE**Vehicle Insurance in India**

Recently, the Insurance Information Bureau of India released its annual report (Motor Annual Report 2018-19).

- Insurance Information Bureau (IIB) was promoted by Insurance Regulatory Development Authority of India (IRDAI) as a single platform to meet the needs of the insurance industry, in 2009.

Key Findings:**Uninsured Vehicles:**

- Nearly 57% of the total vehicles on the road were uninsured as of March 2019, up from 54% in March 2018.
- The bulk of uninsured vehicles are two-wheelers, with the numbers being as high as 66%.
- According to the Motor Vehicles Act, 2019, it is mandatory for all vehicles to be insured with third-party vehicle insurance policy.
- Third-party insurance is essentially a form of liability insurance purchased by an insured (first-party) from an insurer (second party) for protection against the claims of another (third party). The first party is responsible for their damages or losses, regardless of the cause of those damages.

Reasons:

- Weak enforcement by traffic police in states, lack of follow-up by insurers and rising cost of third-party covers has resulted in a larger number of vehicle owners not renewing their motor insurance policy.

Concerns:

- About 13.2 crore vehicles on Indian roads are plying without the mandatory third-party insurance covers. Victims of accidents caused by these vehicles will not get adequate compensation as there would not be any one insurance company on which the liability can be pinned. The owners, too, have limited means to provide compensation.

Findings from the annual report on Road Accidents in India, released by the Ministry of Road Transport and Highways in 2019:

The road accidents numerics:

- It kills almost 1.5 lakh people annually in India.
- The accidents, as well as accident-related deaths in the period 2010-2018, dropped drastically compared with the previous decades, despite the very high rate of growth of automobiles.
- The road accident severity (the number of persons killed per 100 accidents) has increased by 0.6% in 2018 compared to 2017.

Major Cause:

- Over-speeding is a major cause, accounting for 64.4% of the persons killed.
- Two-wheelers accounted for the highest share (35.2%) in total accidents in 2018.
- For insurance companies, the low level of compliance results in a higher claims ratio as, on several occasions, the tribunals have held the insurers liable for compensation, asking them to recover from the insured.

Related Global initiatives:**Brasilia Declaration on Road Safety (2015):**

- The declaration was signed at the second Global High-Level Conference on Road Safety held in Brazil. The first conference was held in Russia (2009).
- Through the Brasilia Declaration, countries plan to achieve the Sustainable Development Goal 3.6 i.e. to half the number of global deaths and injuries from road traffic accidents by 2030.
- The United Nations has also declared 2010-2020 as the decade of action for Road Safety.

Way Forward

- India is one of the largest auto markets in the world with over 20 million vehicles sold annually. It is also among the countries with the highest number of road accidents and fatalities. In this scenario, it is very risky and dangerous when more than half the vehicles in the country are uninsured.
- Insurance will definitely not reduce the death and accidents however it will reduce the loss and will help in post accident recovery.

- There is a need for complementary thrust to spread awareness and improve financial literacy, particularly the concept of insurance, and its importance.
- Another area that necessitates regulatory scrutiny is that of application of technology in insurance.
- The regulator needs to exercise vigilance on three other aspects.
- It must ensure that insurance is not denied to lower-income people who make up the bulk of the population and have the most need for protection.
- It should insist that insurers facilitate a simple online process for direct buying of insurance products, bypassing intermediaries.
- It should ensure that players do not overcharge or add hidden costs.

GEOGRAPHY

El Niño & Drought

In a recent study by Indian Institute of Science's (IISc) Centre for Atmospheric and Oceanic Sciences (CAOS), it has been found that El Niño was not the only cause for droughts during the Summer Monsoon in the Indian Subcontinent.

- El Niño is a recurring climate event during which abnormally warm equatorial Pacific waters pull moisture-laden clouds away from the Indian subcontinent.
- It is the usual suspect for failing Indian summer monsoons between June and September.

Key Points

Findings of the Study:

- 43% of the droughts that occurred during the Indian summer monsoon season in the past century may have been driven by atmospheric disturbances from the North Atlantic region.
- These droughts that India faced occurred during years when El Niño was absent.

Cause of these Drought:

- Sudden and steep drop in rainfall in late August that was linked to an atmospheric disturbance in the mid-latitude region over the North Atlantic Ocean, creating a pattern of atmospheric currents that move over the Indian subcontinent and "derail" the monsoon.

Change in Drought Pattern:

El Niño year drought:

- The rainfall deficit begins mid-June and spreads throughout the country.

Normal year Drought Condition:

- There is normal rainfall during the monsoon season but a sudden and steep decline was observed in August.

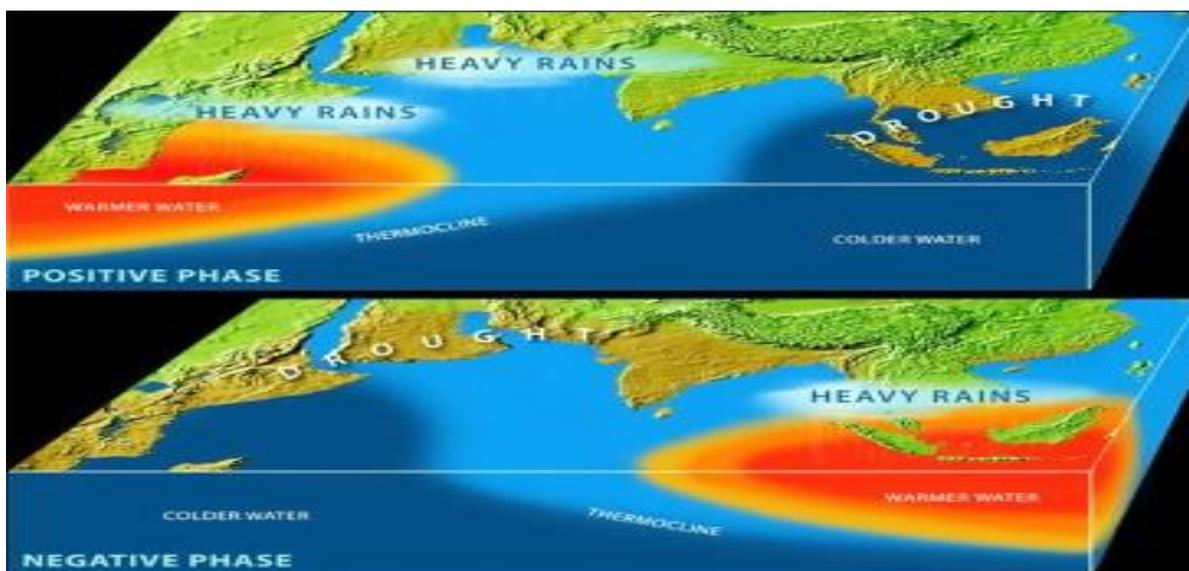
Causes for this August decline:

- An unusual atmospheric disturbance in the mid-latitudes
- The middle latitudes are spatial regions on Earth located between the latitudes 23° and 66° north.
- The disturbance emerges from winds in the upper atmosphere interacting with a cyclonic circulation above abnormally cold North Atlantic waters.
- The resulting wave of air currents, called a Rossby wave, moves from the North Atlantic towards the Tibetan plateau and hits the Indian subcontinent around mid-August, suppressing rainfall and causing drought-like conditions.

Other Atmospheric Circulations that Impact Monsoon

Indian Ocean Dipole:

- The Indian Ocean Dipole (IOD) is defined by the difference in sea surface temperature between two areas (or poles, hence a dipole) – a western pole in the Arabian Sea (western Indian Ocean) and an eastern pole in the eastern Indian Ocean south of Indonesia.
- IOD develops in the equatorial region of Indian Ocean from April to May peaking in October.
- With a positive IOD winds over the Indian Ocean blow from east to west (from Bay of Bengal towards Arabian Sea). This results in the Arabian Sea (western Indian Ocean near African Coast) being much warmer and eastern Indian Ocean around Indonesia becoming colder and dry.



- In the negative dipole year (negative IOD), reverse happens making Indonesia much warmer and rainier.

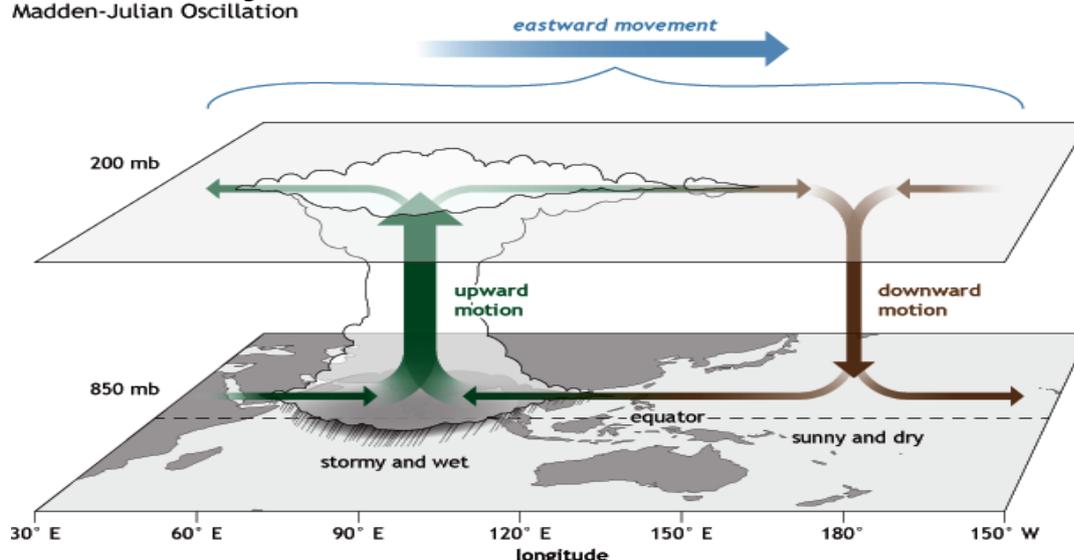
Indian Ocean Dipole effect:

- It was demonstrated that a positive IOD index often negated the effect of El Niño, resulting in increased Monsoon rains in several El Niño years like the 1983, 1994 and 1997.
- Two poles of the IOD – the eastern pole (around Indonesia) and the western pole (off the African coast) were independently and cumulatively affecting the quantity of rains for the Monsoon in the Indian subcontinent.
- Impact of IOD on Cyclogenesis in Northern Indian Ocean:
- Positive IOD (Arabian Sea warmer than Bay of Bengal) results in more cyclones than usual in Arabian Sea.
- Negative IOD results in stronger than usual Tropical Cyclones in the Bay of Bengal. Cyclonic activity in Arabian Sea is suppressed.

Madden-Julian Oscillation, or MJO

- The Madden-Julian Oscillation (MJO), is an eastward moving band of rain clouds that travels around the globe spanning 12,000–20,000 km across the tropical oceans returning to its initial starting point in 30 to 60 days.
- In its journey, it interacts with surface waters of the Indo-Pacific ocean, the largest pool of warm water in the globe.

Madden-Julian Oscillation



- The MJO consists of two parts, or phases: one is the enhanced rainfall (or convective) phase and the other is the suppressed rainfall phase.

Strong MJO activity often dissects the planet into halves:

- One half within the enhanced convective phase and the other half in the suppressed convective phase. These two phases produce opposite changes in clouds and rainfall and this entire dipole propagates eastward.

Effects of MJO on global weather phenomenon:

- It can modulate the timing and strength of monsoons.
- It Influences tropical cyclone numbers and strength in nearly all ocean basins.
- It can result in jet stream changes that can lead to cold air outbreaks, extreme heat events, and flooding rains over the United States and North America.

SOCIAL JUSTICE
Human Development Index: UNDP

India ranked 131 among 189 countries on the Human Development Index (HDI) for 2019, slipping two places from the previous year, according to the Human Development Report (HDR) 2020 released by the United Nations Development Program (UNDP).

- The 2020 Report has introduced planetary pressures-adjusted Human Development Index, which adjusts the standard Human Development Index (HDI) by a country's per capita carbon dioxide emissions and material footprint.

The other indices that form the part of the Report are:

- Inequality-adjusted Human Development Index (IHDI),
- Gender Development Index (GDI),
- Gender Inequality Index (GII) and
- Multidimensional Poverty Index (MPI).

Key Points
Human Development Index:

- About: HDI emphasizes that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone.

Based on three Basic Dimensions of Human Development:

- A long and healthy life,
- Access to knowledge, and
- A decent standard of living.
- Top Performers for 2019:
- Norway topped the index, followed by Ireland and Switzerland. Hong Kong and Iceland complete the top five.

Performance of the Asian Region:

- Singapore was ranked 11, Saudi Arabia 40, and Malaysia was at 62 in the global index, representing the top bracket among the Asian countries with "very high human development".
- Sri Lanka (72), Thailand (79), China (85) and Indonesia and Philippines (both 107), and Vietnam (117), among others, were "high human development" countries.
- India, Bhutan, Bangladesh, Myanmar, Nepal, Cambodia, Kenya and Pakistan were ranked among countries with "medium human development" with ranks between 120 and 156.

India's Performance:

- Overall Performance: HDI value for 2019 is 0.645, which puts the country in the medium human development category, positioning it at 131 out of 189 countries and territories.
- Between 1990 and 2019, India's HDI value increased from 0.429 to 0.645, an increase of 50.3%.
- Long and Healthy Life: Life expectancy for Indian's at birth was 69.7 years in 2019, slightly lower than the south Asian average of 69.9 years.
- Between 1990 and 2019, India's life expectancy at birth increased by 11.8 years.
- Access to Knowledge: The expected years of schooling in India was 12.2 years, compared with 11.2 years in Bangladesh and 8.3 years in Pakistan.
- Between 1990 and 2019, mean years of schooling increased by 3.5 years, and expected years of schooling increased by 4.5 years.
- A Decent Standard of Living: In terms of Gross National Income (GNI) per capita, India at USD 6,681 fared better than some others in 2019, despite a fall over the previous year.
- India's GNI per capita increased by about 273.9% between 1990 and 2019.

Planetary pressures-adjusted Human Development Index (PHDI):

- About: The PHDI adjusts the standard HDI by a country's level of carbon dioxide emissions and material footprint, each on a per capita basis.

Performance of the Countries:

- Norway, which tops the HDI, falls 15 places if this metric is used, leaving Ireland at the top of the table.
- The United States (HDI Rank -17) and Canada (HDI Rank -16) would fall 45 and 40 places respectively, reflecting their disproportionate impact on natural resources.
- The oil and gas-rich Gulf States also fell steeply. China would drop 16 places from its current ranking of 85.

India's Performance:

- India would move up eight places in the ranking.
- Under the Paris Agreement, India pledged to reduce the emission intensity of its GDP from the 2005 level by 33-35% by 2030 and to obtain 40% of electric power capacity from non-fossil fuel sources by 2030.
- Solar capacity in India increased from 2.6 gigawatts in March 2014 to 30 gigawatts in July 2019, achieving its target of 20 gigawatts four years ahead of schedule.
- In 2019, India ranked fifth for installed solar capacity.
- The National Solar Mission aims to promote solar energy for power generation and other uses to make solar energy competitive with fossil fuel-based options.

Other Indices**Inequality-adjusted Human Development Index:**

- The IHDI indicates percentage loss in HDI due to inequality.
- For India, IHDI value for 2019 is 0.537 (16.8% overall loss).

Gender Development Index:

- GDI measures disparities on the HDI by gender.
- For India, GDI value for 2019 is 0.820 (World: 0.943).

Gender Inequality Index:

- GII presents a composite measure of gender inequality using three dimensions:
- Reproductive health,
- Empowerment and
- The labour market.
- In GII, India is at 123rd rank. Last year, it was ranked 122nd out of 162 countries.

Multidimensional Poverty Index:

- MPI captures the multiple deprivations that people in developing countries face in their health, education and standard of living.
- The most recent survey data publicly available for India's MPI estimation refer to 2015-2016. In India, 27.9% of the population (3,77,492 thousand people) are multidimensionally poor, while an additional 19.3% are classified under vulnerable to multidimensional poverty (2,60,596 thousand people).

Other Findings**Major Challenges:**

- While the devastating effects of Covid-19 have taken the world's attention, other layered crises, from climate change to rising inequalities, continue to take their toll. The challenges of planetary and societal imbalance are intertwined: they interact in a vicious circle, each making the other worse.

Challenges Related to Children:

- Indigenous children in Cambodia, India and Thailand show more malnutrition-related issues such as stunting and wasting.
- In India, different responses in parent behaviour as well as some disinvestment in girls' health and education have led to higher malnutrition among girls than among boys as a consequence of shocks likely linked to climate change.

Displacements in 2020:

- Disasters continued to trigger most new displacements in 2020. Cyclone Amphan hit Bangladesh and India, driving the largest single displacement event in the first half of the year, triggering 3.3 million pre-emptive evacuations.

Solutions:

Expanding human development - more education of women and girls, more economic empowerment of women, more bargaining power of young girls in households, reduced poverty, etc.

Evidence from Colombia to India indicates that financial security and ownership of land improve women's security and reduce the risk of gender-based violence, clearly indicating that owning land can empower women.

INTERNATIONAL RELATIONS**CAATSA Sanctions on Turkey**

The USA administration has recently imposed sanctions on Turkey for its purchase of the S-400 missile system from Russia.

- The issue of sanctions under Section 231 of the Countering America's Adversaries Through Sanctions Act (CAATSA) for purchase of Russian arms is of particular interest to India, which is also in the process of buying the S-400 from Russia.

Key Points**Background:**

- Previously, the United States had made it clear to Turkey that its purchase of the S-400 system would endanger the security of the USA.
- The procurement will provide substantial funds to Russia's defense sector, as well as Russian access to the Turkish armed forces and defense industry.
- Turkey yet decided to move ahead with the procurement and testing of the S-400, despite the availability of alternatives such as NATO-interoperable systems (such as USA's Patriot missile defense system), to meet its defense requirements.
- Turkey is a North Atlantic Treaty Organization (NATO) ally of the USA.
- NATO is a military alliance established by the North Atlantic Treaty (also called the Washington Treaty) in 1949, by several Western nations to provide collective security against the Soviet Union.
- In 2019, the USA had removed Turkey from its F-35 jet program over concerns that sensitive information could be accessed by Russia if Turkey used Russian systems along with the USA jets.
- The S-400 Triumf air defence system integrates a multifunction radar, autonomous detection and targeting systems, anti-aircraft missile systems, launchers, and command and control centre. It is capable of firing three types of missiles to create a layered defence.
- It is a mobile, surface-to-air missile system (SAM). It is the most dangerous operationally deployed modern long-range SAM (MLR SAM) in the world, considered much ahead of the US-developed Terminal High Altitude Area Defense system (THAAD).
- Thaad is US anti ballistic missile defence system

Sanctions on Turkey:

- Sanctions were imposed on Turkey's main defence procurement agency, the Presidency of Defense Industries (SSB).
- These sanctions comprise a ban on granting specific U.S. export licenses and authorisations for any goods or technology.
- Also, a ban on loans or credits by U.S. financial institutions totaling more than 10 million USD in any 12-month period.
- A ban on U.S. Export-Import Bank assistance for exports and mandated U.S. opposition to loans by international financial organisations to SSB.

Countering America's Adversaries Through Sanctions Act (CAATSA)

- Enacted in 2017, it is a US federal law that imposed sanctions on Iran, North Korea and Russia.
- Includes sanctions against countries that engage in significant transactions with Russia's defence and intelligence sectors.
- The Act empowers the US President to impose at least five of the 12 listed sanctions on persons engaged in a "significant transaction" with Russian defence and intelligence sectors.
- Its "ultimate goal", "is to prevent revenue from flowing to the Russian Government.

Concerns for India:

- India, inked a Rs. 39,000 crore deal to buy the S-400 Triumf long-range surface-to-air missile systems from Almaz-Antey Corporation of Russia in October 2018 and the delivery is expected to start in 2021.

- Apart from the S-400 air defence system, Project 1135.6 frigates and Ka226T helicopters will also be affected. Also, it will impact joint ventures, like Indo Russian Aviation Ltd, Multi-Role Transport Aircraft Ltd and Brahmos Aerospace. It will also affect India's purchase of spare parts, components, raw materials and other assistance.
- As per the Stockholm International Peace Research Institute (SIPRI) Arms Transfer Database, during the period 2010-17, Russia was the top arms supplier to India

Russian Origin Indian Weapon:

- Nuclear submarine INS Chakra, the Kilo-class conventional submarine, the supersonic Brahmos cruise missile, the MiG 21/27/29 and Su-30 MKI fighters, IL-76/78 transport planes, T-72 and T-90 tanks, Mi-series of helicopters, and Vikramaditya aircraft carrier,
- The CAATSA contains 12 types of sanctions. Of these, 10 will have very little, or no, impact on India's current relations with either Russia or the US. There are only two sanctions that may impact either India-Russia relations or India-US relations.
- The first of these, which is likely to have an impact on India-Russia relations, is the "Prohibition of Banking transactions".
- This would mean difficulties for India in making payments in US Dollars to Russia for the purchase of the S-400 systems.
- The second sanction will have greater consequences for India-US relations.

This is the "export sanction" which has the potential to completely derail the India-US Strategic and Defence partnership, as it will deny the license for, and export of, any items controlled by the US to the sanctioned person such as

- All dual-use high technology goods and technology,
- All defence related items,
- All nuclear related items and
- All other items from the US requiring prior review and approval of the United States Government.

It will effectively bar India from buying any major defence equipment from the US, putting a stop to any Defence and Strategic Partnership between India and the US. The MDP (Major Defence Partner) designation would lose its relevance in that context.

Way Forward

Russia always saw India as a balancer that's why Russia facilitated India's inclusion into SCO and formation of RIC doctrine. India today is in a unique position where it has a favourable relation with all great powers, and she must leverage this position to help in building a peaceful world order. Finally, there is a need to develop closer ties not only with Russia but also with the United States, which could balance any moves towards a strategic partnership between China and Russia.

IMPORTANT FACTS FOR PRELIM**Scheme for Approval of Hygiene Rating Audit Agencies**

Recently, the Quality Council of India (QCI) has come out with a scheme for approval of Hygiene Rating Audit Agencies (HRAA).

This move is a part of the Food Safety and Standards Authority of India's (FSSAI) Food Hygiene Rating Scheme.

Key Points

- Scheme for Approval of Hygiene Rating Audit Agencies:
- It will scale up the hygiene rating by increasing the number of recognised HRAA in the country.
- The recognised HRAA will be responsible for verifying the compliance with food hygiene and safety procedures laid by FSSAI and get hygiene rating.

Food Hygiene Rating Scheme:

- Initiated by the FSSAI, it is a certification system for food businesses supplying food directly to consumers, either on or off-premise.
- It aims to allow consumers to make informed choices/decisions pertaining to the food outlets where they eat by encouraging food businesses to improve their hygiene and safety standards.
- It is applicable for foodservice establishments (such as hotels, restaurants, cafeteria, dhabhas, etc), sweet shops, bakeries, meat retail stores, etc.

Quality Council of India

Set up in 1997, QCI is a pioneering experiment of the Government of India in setting up organizations in partnership with the Indian industry.

Indian industry is represented in QCI by three premier industry associations namely Associated Chambers of Commerce and Industry of India (ASSOCHAM), Confederation of Indian Industry (CII) and FICCI.

Its mandate is to establish and operate the National Accreditation Structure (NAS) for conformity assessment bodies and providing accreditation in the field of health, education and quality promotion. Besides the role of putting in place the accreditation structure, it also promotes the adoption of quality standards relating to Quality Management Systems, Food Safety Management Systems and Product Certification and Inspection Bodies through the accreditation services provided by National Accreditation Board for Certification Bodies (NABCB).

DAILY ANSWER WRITING PRACTICE

Qns “Artificial intelligence (AI) is important for the development of humanity in the near future.” Discuss the ethical implications that arise from the development and implementation of artificial intelligence (AI) technologies. (250 words)

Ans:

Ethical values are those values that determine what is right and wrong in different situations. Institutional ethical values like integrity, transparency, accountability, impartiality, public welfare and equity are guiding principles of the Indian Constitution.

These values are lucidly visible in the preamble which mentions the nature of the state as sovereign, socialist, democratic and republic and the objectives of the Indian state as liberty, equality, justice and fraternity.

Some of the constitutional ethical values can be discussed as following

- **Liberty:** The Constitution provides every citizen a number of liberties and freedoms under Article 19 to 21, 21A, and 22. Some of these liberties are provided with reasonable restrictions so that the ethical obligations under rule of law are also maintained.
- **Justice:** In the Preamble this value embraces three distinct forms: Social, economic and political, secured through various provisions of the Fundamental rights and Directive Principles:
- Article 20 provides protection in respect of conviction for offenses.
- Article 21 deals with Protection of life and personal liberty.
- Equal justice and free legal aid under Article 39A.
- The constitution aims equitable distribution of wealth, equal social status, equal pay for equal work for both men and women under Article 39.
- It also seeks political Justice where all citizens have equal rights in political participation for which Indian Constitution provides for universal adult suffrage and equal value for each vote in Article 326.
- **Equity:** The Constitution states that all citizens are equal before the law and the government should ensure that the social inequalities on the grounds of caste, religion, and gender is eliminated. Article 15,16 and 17 guarantee the same with some provision for positive discrimination like reservation to uplift the backward sections of our society.

Impartiality: Following the principle of mutual respect, minorities and weaker sections of society have been safeguarded by constitutional values of secularism and socialism. Such as:

- Article 17 provides for abolition of Untouchability
- Article 21 guarantees protection of life and personal liberty.
- Article 21A states that that state shall provide free and compulsory education to all children of the age of 6-14 years.
- Article 25 gives freedom of conscience and free profession, practice, and propagation of religion.
- Article 26 deals with freedom to manage religious affairs.
- Under Articles 29, 30,350A and 350B religious minorities have been given rights to protect their language and culture.

Transparency and accountability: The constitution makes the government the representative of the public interest and guardian of public resources. Constitutional bodies like the Finance Commission and Comptroller and Auditor General have been created for the same purpose.

Public welfare: Directive Principles of State Policy in Part IV of Indian constitution aim to create social and economic conditions under which the citizens can lead a good life. They also direct the governments to adopt social and economic democratic value in their conduct to make India a welfare state such as:

- Promotion of education and economic interests of SC, ST, and other weaker sections under Article 46.
- Article 45 has provision for early childhood care and education to children below the age of six years.

- Article 48A endeavours to protect and improve the environment and safeguarding of forests and wildlife.
- Article 39 directs the state to strive to provide adequate means to livelihood, equal work for both men and women
- Article 51A enjoins upon citizens of India to realise their fundamental duties towards the state.
- Fraternity: It is mentioned in the Preamble. This value seeks to promote common brotherhood in India. It endeavours to treat all its citizens as members of a family, no one is inferior or superior, all are equal and have the same rights and duties.
- The Constitution also strives for international peace and security under article 51.

Conclusion

Thus, it can be certainly said that the values enshrined in the Indian Constitution are based on a strong ethical foundation. Moreover, these values of the Indian constitution endeavour and inspire to make the Indian society more ethical and promote the spirit of tolerance and respect towards unity in diversity of India.

DAILY QUIZ

1. Consider the following statements about the Himalayan Serow:

1. Himalayan Serows are found in the Eastern, Western and Trans- Himalayan region.
2. It is listed as Vulnerable in the IUCN Red List.

Which of the statements given above is/are not correct?

- a) **1 only**
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

2. Consider the following statements:

1. GRIHA is India's own green building rating system conceived by The Energy and Resources Institute.
2. Global Housing Technology Challenge is organised by the Ministry of New and Renewable Energy.

Which of the statements given above is/are correct?

- a) **1 only**
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

3. With reference to the National Mission for Clean Ganga (NMCG), consider the following statements:

1. It is the implementation wing of the National Ganga Council.
2. NMCG was established as a statutory body in 2011.

Which of the statements given above is/are correct?

- a) **1 only**
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

4. With reference to National Family Health Survey(NFHS), consider the following statements:

1. International Institute for Population Sciences (IIPS) serves as the nodal agency for the conduct of the survey.
2. Kerala and Bihar recorded the lowest and highest Total Fertility Rate (TFR) respectively.

Which of the statements given above is/are correct?

- a) **1 only**
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

5. Consider the following statements:

1. Vijay Diwas marks the victory of Indian armed forces in the Kargil war.
2. The allied forces consisting of Indian Army and Mukti Bahini defeated Pakistan in the Kargil war.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) **Neither 1 and 2**