

INTERNATIONAL RELATION GS PAPER II**India's Neighbourhood Policy**

India's neighbourhood policy is under scrutiny as its relations with several neighbouring countries face challenges. With a history of deep cultural and historical ties, India's approach to its neighbours must balance its growing global aspirations with regional sensitivities.

India's Neighbourhood Policy:

- **Neighbourhood First Policy:**
 - Emphasizes prioritizing relations with immediate neighbours.
 - Seeks economic integration, development partnerships, and cultural ties.
- **Gujral Doctrine:**
 - Advocates non-reciprocity and goodwill gestures toward neighbours.
 - Focuses on non-interference, respect for sovereignty, and peaceful dispute resolution.
- **Act East Policy:**
 - Connects India with Southeast Asia for trade, security, and cultural integration.
 - Strengthens ties with Myanmar, Bangladesh, and ASEAN countries.

Present Diplomatic Means to Handle Neighbours:

- **Economic Initiatives:**
 - Trade agreements and infrastructure projects like BBIN and SAARC.
 - Investments in energy, transport, and connectivity in Nepal, Bhutan, and Bangladesh.
- **Security Cooperation:**
 - Joint exercises and counter-terrorism efforts, e.g., BIMSTEC and Quad.
 - Border management agreements with Bhutan, Nepal, and Bangladesh.
- **Cultural Diplomacy:**
 - Leveraging historical and religious ties with Nepal and Sri Lanka.
 - Promoting Indian soft power through educational scholarships and cultural exchanges.
- **Aid and Assistance:**
 - Humanitarian assistance during crises (e.g., earthquake relief in Nepal).
 - Development aid to Bhutan, Maldives, and Afghanistan.

Positive Impacts:

- **Economic Growth:**
 - Enhanced trade and energy cooperation with Bangladesh and Bhutan.
 - Cross-border projects like Maitree Super Thermal Power Project with Bangladesh.
- **Regional Stability:**
 - Cooperation on counter-terrorism and maritime security in the Indian Ocean region.
 - Proactive measures in disaster management strengthen goodwill.
- **Soft Power:**
 - Popularity of Indian culture, films, and educational initiatives in neighboring countries.
 - Religious tourism initiatives, such as Ramayana Circuit.

Negative Impacts:

- **Trust Deficit:**
 - Perceptions of India as a "big brother" in Nepal and Sri Lanka.
 - Accusations of interference in internal politics, e.g., Maldives and Nepal.
- **Chinese Influence:**
 - China's Belt and Road Initiative offers economic alternatives to India's neighbours.
 - Strategic encirclement through infrastructure projects like Hambantota Port in Sri Lanka.
- **Security Concerns:**
 - Rise in anti-India sentiment used for political gains in Bangladesh and Maldives.
 - Border disputes with Nepal strain bilateral ties.

Measures to Prioritize Neighbour Relations:

- **Respect Sovereignty:**
 - Avoid overt interference in domestic politics of neighboring countries.
 - Uphold the principle of non-reciprocity in bilateral agreements.
- **Strengthen Economic Ties:**
 - Enhance cross-border infrastructure and connectivity projects.

- Promote regional trade blocs like BIMSTEC and BBIN.
- **Collaborate on Shared Challenges:**
- Partner in addressing climate change, disaster management, and health crises.
- Ensure equitable sharing of water resources in transboundary rivers.
- **Engage Strategically:**
- Counterbalance Chinese influence by offering competitive investments and aid.
- Focus on soft-power diplomacy through cultural and educational exchanges.
- **Transparent Communication:**
- Regular summits and dialogues to address grievances and foster trust.
- Encourage people-to-people contact to mitigate misunderstandings.

Conclusion

India's neighbourhood policy must focus on fostering trust, mutual respect, and collaboration. Strengthening ties with its neighbours through economic, cultural, and diplomatic initiatives is crucial for regional stability and India's global aspirations.

GS PAPER 2-FUNCTIONS AND RESPONSIBILITIES OF THE UNION AND THE STATES, ISSUES AND CHALLENGES PERTAINING TO THE FEDERAL STRUCTURE

Manipur Crisis: Constitutional Breakdown, Judicial Delays, and Government Inaction

The article discusses the ongoing violence in Manipur since May 2023. It argues that the constitutional machinery has failed, urging the President to invoke Article 356 for central intervention to restore peace, citing historical debates and constitutional obligations.

What is the current situation in Manipur?

1. Since May 2023, Manipur has faced severe ethnic violence.
2. Over **250 people have been killed**, and **more than a lakh displaced**. Houses, temples, and churches have been destroyed. On **November 9, 2024**, a mother of three was raped and killed, and 17 houses were burned.
3. Unlike insurgencies in Nagaland or Mizoram, violence in Manipur involves **ordinary people as both victims and perpetrators**. People are forced to defend themselves, escalating the unrest.

What is the meaning of the expression "failure of machinery"?

1. The term "failure of machinery" refers to a situation where the **State government is unable to function according to constitutional provisions**.
2. **Dr. B.R. Ambedkar** linked this phrase to the Government of India Act, 1935, indicating situations where governance collapses entirely.
3. **K. Santhanam** described it as the inability to maintain law and order due to internal disturbances or external aggression.
4. **Thakur Das Bhargava** explained it as a state where people lose basic liberties and peace.
5. **Alladi Krishnaswami Ayyar** stated it is the Union's duty to restore constitutional order.

What does the Constitution say about such situations?

1. **Article 356** allows the President to intervene when a State government cannot function as per the Constitution.
2. Dr. B.R. Ambedkar stated that this provision is essential during constitutional breakdowns.
3. **Article 355** obliges the Union to assist States in maintaining constitutional order.
4. The **President of India** can act under **Article 356** when a State's constitutional machinery fails.

How has the Supreme Court responded?

1. On **May 8, 2023**, the Supreme Court recorded that violence had decreased temporarily but emphasized the need for **law and order** and **rehabilitation**.
2. By **July 2023**, the Court was alarmed by incidents like women being paraded naked.
3. Despite **27 hearings**, the Supreme Court's intervention has been criticized as slow and ineffective.

Why has the government been criticized?

1. **Prime Minister's Role:** The Prime Minister has been criticized for not taking decisive action to ensure **peace, harmony, and justice**.
2. **Constitutional Duty Ignored:** Article 355 obliges the Union to assist states during constitutional breakdowns, but it failed to fulfill this responsibility effectively.
3. Critics argue that the lack of proactive measures undermines citizens' fundamental rights to life, liberty, and dignity.

What are the key takeaways?

1. Manipur's situation highlights **constitutional failure, judicial delays, and government inaction**.
2. Immediate central intervention is required to restore peace, justice, and fundamental rights.
3. This crisis demands decisive leadership and proactive measures.

GS PAPER3- ECONOMY AND SCIENCE AND TECHNOLOGY- DEVELOPMENTS AND THEIR APPLICATIONS AND EFFECTS IN EVERYDAY LIFE

India's Rs 1,000 crore venture capital fund for the space sector

The article discusses India's Rs 1,000 crore venture capital fund for the space sector. It supports startups, boosts innovation, creates jobs, and strengthens the economy. The fund aims to make India a global leader in space technology and exploration.

India's Rs 1,000 crore venture capital fund for the space sector

What is the Rs 1,000 crore venture capital fund for the space sector?

1. The Indian government has approved a **Rs 1,000 crore venture capital (VC) fund** to support the private space sector.
2. **IN-SPACe (Indian National Space Promotion and Authorization Centre)** will oversee the fund, acting as a gateway for startups in space technology.
3. The fund will enable startups to develop and scale innovative ideas in a capital-intensive sector. For example, a startup like **StarTech** can use the fund to launch satellites for high-speed internet in remote areas, bridging the digital divide.
4. The fund is critical for creating a **multiplier effect**, attracting private investment, and retaining companies in India.
5. By fostering innovation, the fund aligns with **Atmanirbhar Bharat** and aims to grow India's space economy to **\$44 billion by 2033**.
6. Countries like the UK, Japan, and Saudi Arabia have similar space-focused VC funds. India's initiative aims to position it as a leader in global space technologies.

How will space technology impact different sectors?

1. **Supply Chain and Transportation:** Satellite data will optimize routes, reduce costs, and improve delivery efficiency. For example, logistics companies can navigate traffic and weather using satellite navigation.
2. **Food and Beverage:** Precision technology will enhance last-mile delivery. Space labs may develop nutrient-rich foods to fight malnutrition.
3. **Defense:** Satellites will improve intelligence and surveillance for national security.
4. **Retail and E-Commerce:** Satellite internet will enable online shopping in remote areas.
5. **Disaster Management:** Space-based systems will provide early warnings for natural disasters.
6. **Humanitarian Aid:** Satellites will monitor infrastructure and track human trafficking for better response efforts.

What challenges could limit growth?

1. **Space Debris:** Increasing debris can pose risks to satellites and space missions, impacting efficiency and safety.
2. **Regulatory Constraints:** Complex regulations could slow innovation and delay projects, affecting private sector participation.
3. **High Costs:** The space sector is capital-intensive, requiring sustained investment. Without private funding, growth could be stunted.
4. **Competition from Alternatives:** Terrestrial technologies, like fiber optics, could compete with satellite-based solutions.
5. **Collaboration Issues:** Lack of standardization and harmonization between public and private stakeholders may hinder progress.

What is the significance of the VC fund?

1. **Job Creation:** Each investment can create hundreds of direct jobs in engineering, software, and manufacturing. Thousands of indirect jobs will emerge in logistics, component manufacturing, and services.
2. **Strengthens National Security:** Enhances defense capabilities through satellite-based intelligence and surveillance.
3. **Global Leadership:** Positions India as a global leader in space technologies, competing with countries like the UK and Japan. This initiative supports long-term growth and global competitiveness in the space sector.

CLIMATE RESILIENT INFRASTRUCTURE GS PAPER III

High-Performance Buildings

High-Performance Buildings (HPBs) are essential for achieving sustainable living in the face of climate change, rising urbanization, and energy demands. Designed to conserve resources, enhance energy efficiency, and withstand extreme weather, HPBs represent the future of sustainable construction and urban resilience.

High-Performance Buildings:

- **Definition:** HPBs are designed to optimize energy efficiency, reduce resource consumption, and provide resilience against unpredictable climatic conditions.
- **Need:**
 - **Carbon Emissions:** Buildings account for 28% of global energy-related emissions; in India, the sector contributes 20% of national emissions.

- **Urbanization:** India's urban population is projected to reach 600 million by 2030, increasing the demand for energy-efficient infrastructure.
- **Global Goals:** Meeting the UN's goal of a 30% energy efficiency improvement in buildings by 2030 requires immediate action.
- **Integrative Design:**
 - Encourages collaboration among architects, engineers, and building owners to achieve measurable performance goals.
 - Uses **digital modeling** for predicting outcomes and refining designs before construction, ensuring operational efficiency and cost-effectiveness.

Example: Passive design strategies optimize natural sunlight and thermal mass to reduce heating and cooling needs.

- **Sustainable Materials:**
 - Prioritize materials with **low embodied carbon** and high recycled content.
 - Use low-emission materials to enhance indoor air quality by minimizing volatile organic compounds (VOCs).

Example: Indian Institute of Human Settlements (IIHS) uses lifecycle assessments to choose durable materials for its Bengaluru campus.

- **Energy Efficiency:**
 - **Passive Strategies:** Utilize natural light, building orientation, and thermal mass to minimize reliance on mechanical systems.
 - **Active Strategies:** Employ energy-efficient HVAC systems, smart technologies, and renewable energy sources to achieve net-zero energy goals.

Example: Infosys Hyderabad campus uses radiant cooling systems and daylighting controls to reduce energy use.

- **Water Conservation**
 - **Efficient Fixtures:** Low-flow faucets and dual-flush toilets conserve water.
 - **Reuse Systems:** Rainwater harvesting and wastewater recycling for irrigation and sanitation.

Example: Infosys campuses recycle 100% of wastewater using advanced treatment systems.

- **Handling Climate Risks**
 - Incorporate **climate-resilient features** like flood protection, durable materials, and renewable energy systems.
 - Ensure **passive survivability** to maintain habitability during power outages.

Example: Infosys Crescent building in Bengaluru uses advanced cooling systems and consumes far less energy than standard office buildings.

India's Initiatives for Energy-Efficient Buildings:

- **Eco-Niwas Samhita:** A code for energy-efficient residential buildings.
- **Energy Conservation Building Code (ECBC):** Sets energy performance standards for commercial buildings.
- **Energy Conservation (Amendment) Act, 2022:** Aims to improve energy efficiency across sectors.
- **NEERMAN Awards:** Recognizes innovation in energy-efficient buildings.
- **Green Rating for Integrated Habitat Assessment (GRIHA):** Promotes sustainable building practices.

Limitations:

- **Operational Neglect:** Focus on initial costs often overlooks long-term operational efficiency.
- **Diverse Typologies:** Energy efficiency varies across building types, complicating standardization.
- **Split Incentives:** Mismatch in benefits between owners and tenants reduces support for energy-efficient upgrades.
- **Loss of Indigenous Knowledge:** Overreliance on foreign technologies sidelines cost-effective local solutions.
- **Fragmented Systems:** Lack of integration between design, construction, and operations reduces overall building performance.

Conclusion:

High-Performance Buildings are indispensable for sustainable urbanization and achieving global energy goals. Despite limitations, India's initiatives are fostering progress. As practices become more widespread, HPBs can set benchmarks for future-ready, climate-resilient construction.

PRELIM FACTS

1. Guru Ghasidas-Tamor Pingla Tiger Reserve

Recently, Guru Ghasidas-Tamor Pingla Tiger Reserve has been notified as the 56th Tiger Reserve of the country.

About Guru Ghasidas-Tamor Pingla Tiger Reserve

- 1. Location:** It is located in Chhattisgarh. It is nested in the Chota Nagpur plateau and partly in Baghelkhand plateau. The reserve spreads across four districts in Chhattisgarh: Manendragarh-Chirmiri-Bharatpur, Korea, Surajpur, and Balrampur.
- 2. Area:** The Tiger Reserve spans a total area of 2,829.38 square kilometers, including a core or critical tiger habitat of 2,049.2 square kilometers that encompasses the Guru Ghasidas National Park and Tamor Pingla Wildlife Sanctuary.
- 3.** It also has a buffer zone of 780.15 square kilometers, making it the third-largest tiger reserve in India.
- 4. Adjacent preserved areas:** It also links with the Bandhavgarh Tiger Reserve (Madhya Pradesh) in the west and the Palamau Tiger Reserve (Jharkhand) in the east.
- 5. Significance:** It forms a contiguous landscape with the Sanjay Dubri Tiger Reserve in Madhya Pradesh, creating a complex of nearly 4,500 sq. km.
- 6. Flora:** It comprises of blend of sub-tropical and deciduous forests. The park's primary flora consists of Sakhua or Sal trees.
- 7. Vegetation:** The vegetation includes species like teak, Saja, Salai, Mahua, Sisham, Kari, Gurjan, Achar, Tendu, and Bamboo, among many others.
- 8. Fauna:** The reserve is home to 753 documented species, including 365 invertebrates and 388 vertebrates. It shelters 230 bird species and 55 mammal species including several threatened species. Its insect diversity, mainly from the class Insecta, contributes to a healthy ecosystem balance.

Implications of the New Reserve

Ecological Impact: The expansive area of the Guru Ghasidas-Tamor Pingla Tiger Reserve will bolster tiger population growth while also safeguarding other fauna and flora. Its connectivity with adjacent reserves enhances gene flow and strengthens regional biodiversity.

Economic and Social Benefit: Tiger reserves significantly contribute to ecotourism, benefiting local communities through sustainable livelihoods. Conservation programs often involve local participation, ensuring harmonious coexistence between humans and wildlife.

Strengthening Global Commitments: This milestone reinforces India's dedication to international conservation goals, such as the Global Tiger Initiative and the Global Tiger Recovery Program which aim to double tiger numbers worldwide.

2. GSAT-N2 (GSAT-20)

Recently, SpaceX Falcon-9 Launches India's GSAT-N2 Satellite at Space Launch Complex 40, Cape Canaveral Space Force Station, Florida. Falcon-9 rocket launched GSAT-N2 into a geosynchronous transfer orbit. It is the first-ever collaboration between SpaceX and India.

About GSAT-N2 (GSAT-20)

- 1. Operator:** NewSpace India Limited (NSIL) (a commercial arm of ISRO).
- 2. Mission Objective:** It enhances broadband and in-flight connectivity across India, including remote regions like Andaman & Nicobar and Lakshadweep islands.
- 3.** It is part of India's space sector reforms initiated in June 2020.
- 4. Predecessor:** GSAT-24 (June 2022), entirely secured by Tata Play.
- 5. Mission Life:** 14 years.

Key Features of GSAT-N2

- 1. Payload Capacity:** Ka-band High-Throughput Satellite (HTS) with advanced communication capabilities. The liftoff Mass is 4,700 kg.
- 2. Communication Payload:** It operates in Ka-band with throughput of approximately 48 Gbps. It is equipped with 32 user beams: It has 8 Narrow Spot Beams covering the northeast region and it also has 24 Wide Spot Beams covering the rest of India.
- iii)** It features multi-beam architecture for frequency reuse, boosting system throughput. Hub stations located within mainland India.
- 3. Reflectors and Sensors:** Three parabolic 2.5-metre deployable reflectors with single-feed-per-beam technology. Sun Sensor, Earth Sensor, Inertial Reference Unit (IRU), and Star Sensor for precise attitude data.

Impact of GSAT-N2

- 1. Broadband Connectivity:** Pan-India coverage, improving internet access and in-flight connectivity.
- 2. Technology Leap:** Multi-beam design and frequency reuse enhance service efficiency.
- 3. Strategic Importance:** Strengthens India's presence in global satellite communications and space technology.

3. 'One Day One Genome' Initiative

The Department of Biotechnology (DBT) and Biotechnology Research and Innovation Council (BRIC) have launched the 'One Day One Genome' initiative to showcase India's microbial diversity.

About One Day One Genome Initiative:

- **Ministry:** Department of Biotechnology (DBT).
- **Launch:** November 9, 2024, by Shri Amitabh Kant at the National Institute of Immunology, New Delhi.
- **Aim:** To highlight India's microbial diversity and showcase its importance in environment, agriculture, and human health.
- **Coordinating Agency:** Biotechnology Research and Innovation Council (BRIC) in collaboration with the National Institute of Biomedical Genomics (NIBMG).
- **Features:**
 - Sequencing one bacterial genome daily to uncover microbial potential.
 - Provides freely accessible, annotated bacterial genome data.
 - Includes graphical summaries, infographics, and genome assembly/annotation details.
 - Supports research in environment management, agricultural development, and human health improvement.
 - Promotes public and scientific engagement to stimulate innovation and community benefits.

4. Aphantasia

Recently, a study by University of Glasgow delved deeper into the connection between humans' auditory and visual senses with regards to Aphantasia.

About Aphantasia

1. Aphantasia is a condition where individuals have limited or no ability to form visual images in their mind. For individuals with aphantasia, the "mind's eye", the mental faculty that allows most people to visualize objects, scenes, and people is effectively "blind."
2. It is not classified as a disability but rather a variation in cognitive processing.
3. **Origins:** It was first noted by British polymath Francis Galton in the 1880s. The term "aphantasia" was coined in 2015 by neurologist Adam Zeman.
4. **Characteristics:** People with aphantasia cannot create mental images when imagining scenes, objects, or memories. For example, hearing the cry of a baby may not evoke a visual representation of a crying infant in their mind.
5. **Connection Between Auditory and Visual Senses:** Research shows that in individuals without aphantasia, auditory stimuli activate the brain's visual cortex, creating mental imagery. This connection is less pronounced in individuals with aphantasia.
6. **Prevalence:** It affects approximately 2% of the population, although more research is needed for precise figures.
7. **Possible Causes:** The exact reasons for aphantasia remain unknown. Studies suggest differences in brain connectivity and activity patterns.

5. Bharat National Cyber Security Exercise

The Bharat National Cyber Security Exercise (Bharat NCX 2024), aimed at strengthening India's cybersecurity resilience, was inaugurated by the National Security Council Secretariat (NSCS) in collaboration with Rashtriya Raksha University (RRU).

About Bharat National Cyber Security Exercise (Bharat NCX 2024):

- **Ministry/Organization:** Organized by National Security Council Secretariat (NSCS) in collaboration with Rashtriya Raksha University (RRU).
- **Launch Date:** November 18, 2024.
- **Aim:**
 - Enhance India's cybersecurity resilience.
 - Train cybersecurity professionals in advanced defense, incident response, and decision-making.
 - Prepare leadership to handle national-level cyber crises.
- **Key Features:**
 - **Immersive Training:** Cyber defense and incident response training with live-fire simulations targeting IT and OT systems.
 - **Strategic Decision-Making Exercise:** Simulates national-level cyber crises for senior leadership across sectors.
 - **CISO's Conclave:** Brings together Chief Information Security Officers to discuss trends, government initiatives, and insights.
 - **Startup Exhibition:** Showcases innovative cybersecurity solutions by Indian startups.
 - **Collaborative Platforms:** Facilitates interactions between government and industry stakeholders.
 - **Comprehensive Debrief:** Consolidates best practices and lessons learned at the end of the event.

ANSWER WRITING

Q. Analyze the security implications of Starlink for India's data privacy and national security. How can India safeguard its interests while embracing satellite-based internet services?

Starlink, a satellite-based internet project by SpaceX, aims to provide high-speed internet globally, especially in remote and underserved areas. By using a constellation of Low Earth Orbit (LEO) satellites, Starlink offers minimal latency, overcoming traditional broadband limitations. However, the project raises significant security concerns for countries like India, especially regarding data privacy and national security.

Security Implications of Starlink for India's Data Privacy

- **Data Routing through Foreign Satellites:** Starlink transmits Indian data through foreign satellites, raising concerns about **data interception** and unauthorised **data storage** outside India.
- **Lack of Indian Regulatory Control:** Operating under **US jurisdiction**, Starlink limits India's ability to monitor data handling practices, which could lead to **unauthorised data access** by third parties.
For example: India's **Digital Personal Data Protection Act, 2023 (DPDP Act)** mandates **data localization**, but data routed through Starlink satellites bypasses these controls.
- **Vulnerability to Cyberattacks:** The interconnected satellite network poses cyber risks, as data in transit could be susceptible to **hacking** or **signal jamming** from hostile actors.
- **Potential for Commercial Exploitation:** Starlink may collect user data to enhance services, potentially leading to **privacy breaches** if such data is sold or shared with third parties.
For example: Instances of data-sharing by tech companies highlight the need for strict **user consent mechanisms** for Starlink's operations in India.

Security Implications of Starlink for India's National Security

- **Risk of Foreign Surveillance:** With Starlink's global reach, data and communications in sensitive Indian regions could be vulnerable to **foreign surveillance**.
For instance: **Critical infrastructure** in India could be susceptible to data monitoring via Starlink's satellite networks.
- **Compromise in Communication Security:** Starlink's infrastructure could expose **Indian military and government communications** to interception or disruption by hostile entities.
- **Disruption of Indigenous Projects:** Starlink's entry may undermine Indian projects, affecting India's goal of **self-reliance in space technology**.
For example: Domestic initiatives like **OneWeb** and **JioSpace Fiber** may delay the development and expansion of India's own satellite internet capabilities.
- **Potential for Strategic Manipulation:** Starlink's control by a foreign corporation poses risks of strategic data manipulation or disruption, especially during geopolitical tensions.
For instance: Countries have faced digital blockades or access restrictions imposed by foreign firms, highlighting risks during conflicts.
- **Space Debris and Orbital Interference:** With thousands of Starlink satellites, risks of **space debris** collisions increase, which could disrupt India's space operations and satellite security.
For instance: Close approaches of Starlink satellites with ISRO satellites emphasise the need for better space traffic coordination.
- **Monopolistic Tendencies:** A dominant Starlink presence might reduce competition, leaving India dependent on one operator for essential connectivity.
For instance: **Predatory pricing** can have adverse effects on existing telecom service providers leading to their **exit**, such monopolistic tendency can harm India's **sovereignty** for data and communication.

Ways in which India can Safeguard its Interests in Embracing Satellite-Based Internet Services

- **Strengthening Regulatory Frameworks:** India must establish robust regulatory policies ensuring foreign satellite operators comply with **data privacy** and **national security norms**.
For instance: Enforcing **data localization** requirements would ensure data generated in India is stored within the country.
- **Partnerships with Domestic Players:** Promoting collaborations between foreign providers and Indian firms can facilitate knowledge sharing and strengthen **domestic technology capabilities**.
For example: The **OneWeb-ISRO partnership** demonstrates successful technology transfer and regional data security.
- **Cybersecurity Measures for Space Assets:** Developing advanced **cybersecurity protocols** for satellite networks can mitigate data risks and prevent unauthorised access.
For instance: Establishing a dedicated **Cyber Command** for space infrastructure would safeguard critical communications.
- **Promoting Indigenous Satellite Projects:** Supporting projects like **JioSpace Fiber** can reduce reliance on foreign networks, fostering **self-reliance** in space technology.

For instance: Expanding coverage through ISRO's satellite networks will ensure data security and indigenous control.

- **Engagement in Global Space Governance:** India's active participation in **international space governance forums** can help shape norms on satellite security and data privacy.

For instance: Collaborating with bodies like the ITU ensures India's stance on data sovereignty is upheld globally.

The integration of satellite-based internet, such as Starlink, brings both opportunities and challenges for India. To secure its data privacy and national security interests, India must adopt a balanced approach, emphasising regulatory control, indigenous development, and global collaboration. This aligns with the vision of self-reliant digital sovereignty as outlined in Digital India and India's Space Policy 2023, enabling India to embrace new technologies securely in the digital era.

MCQ

- Consider the following statements about the Global Energy Efficiency Alliance (GEEA):
 - It was launched at COP29 with the aim of doubling global renewable energy capacity by 2030.
 - The UAE leads the alliance by fostering knowledge transfer and public-private partnerships.
 - The alliance focuses on promoting energy efficiency technologies and standardization across member nations.

How many of the above statements is/are correct?

a) Only one **b) Only two**
c) All three d) None
- Consider the following statements about Willingdon Island:
 - It is a natural island formed by sedimentation in the backwaters of Kochi.
 - It houses India's largest naval base and container terminal.

Which of the above statements is/are correct?

a) 1 only b) 2 only
c) Both 1 and 2 **d) Neither 1 nor 2**
- Panchachuli Mountain Range is located in which Himalayan region?

a) Garhwal Himalayas
b) Pir Panjal Range
c) Kumaon Himalayas
d) Dhauladhar Range
- With reference to GSAT-N2 (GSAT-20) communication satellite, consider the following statements:
 - It aims to enhance India's broadband infrastructure.
 - It operates in the Ku-band frequency range.
 - The launch of satellite marks the first collaboration of Indian Space Research Organisation (ISRO) with SpaceX.

How many of the statements given above are correct?

a) Only one **b) Only two**
c) All three d) None
- Which one of the following best differentiates high-performance buildings (HPBs) from green buildings?

a) HPBs focus on operational efficiency, while green buildings emphasize environmental impacts during construction.

b) HPBs are certified, while green buildings are not.
c) Green buildings use basic technologies, while HPBs use advanced technologies.
d) Green buildings are designed for residential use, while HPBs are exclusively for commercial purposes.
- Consider the following statements regarding the Guru Ghasidas-Tamor Pingla Tiger Reserve:
 - It is the 55th Tiger Reserve of India, located in the state of Chhattisgarh.
 - It is the Second-largest tiger reserve in the country in terms of area.

Which of the statements given above is/are incorrect?

a) 1 only b) 2 only
c) Both 1 and 2 d) Neither 1 nor 2
- The 'One Day One Genome' initiative launched by the Department of Biotechnology focuses on sequencing the genome of which of the following?

a) Human genome **b) Bacterial genome**
c) Cattle genome d) Plant genome
- Which one of these countries does NOT share a land border with Nigeria?

a) Niger b) Chad
c) Cameroon **d) Ghana**
- Consider the following statements regarding the Global Alliance Against Hunger and Poverty:
 - It is aimed at addressing the issues of hunger and extreme poverty worldwide.
 - The alliance is built on three pillars.
 - The technical headquarters of the alliance will be based at the World Bank.

Which of the statement(s) given above is/are correct?

a) 1 and 2 only b) 1 only
c) 2 and 3 only d) 3 only
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