MONTHLY
CURRENT AFFAIRS
JUNE-JULY 2023
for Competitive Exams

The Complete Coverage of All Important Events from JUNE - JULY 2023

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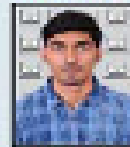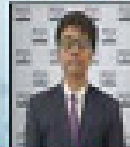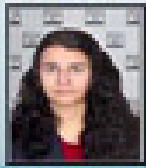
HIGHLIGHTS

- GALWAN VALLEY
- KAVACH SYSTEM
- JAGANNATH RATH YATRA
- CYCLONES AND MONSOONS
- HIROSHIMA AI PROCESS (HAP)

Foreword

Dear Aspirants,

This magazine by **Plutus IAS team** is designed in such a fashion that it holistically covers all the relevant and important topics for civil services exam or IAS exam to make aspirants battle or exam ready. **Plutus IAS Current Affairs Magazine** is a secondary source of information, the newspaper will always remain the first source for preparation of current affairs.

Now, current affairs no longer remain the current, it is contemporary affairs. Questions asked in prelims as well as mains test the conceptual clarity of an aspirant.This magazine prepared with an aim to help you understand the interlinkage of both statics and current and internalize those concepts required to crack this examination.

Plutus IAS team wishes you all the best. Prepare for UPSC Civil Services Examination with calm , composed and serene mind with some patience to crack this examination in one go.

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Team
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Sources:

The Hindu | The Indian Express | The Economic Times | Press Information Bureau (keep checking the Features section for imp articles and our weekly PIB Gist) | PRS (only for recent Bills and articles related to them) | IDSA: Institute for Defense Studies and Analysis (keep checking every 2-3 days for in-depth IR articles) | Yojana and Kurukshetra (no need to read all articles – read selectively) | LokSabha and RajyaSabha Debates | NCERTs All standard reference books.

Plutus IAS Current Affairs Magazine covers a wide range of topics that overlaps with the CORE subjects.

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JUNE-JULY 2023
CURRENT AFFAIRS

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General studies - 1

(Indian Heritage and Culture, History and Geography of the World and Society)

ASHOKAN EMPIRE

This article covers "Daily Current Affairs" and the topic details "Ashokan Empire". The topic "Ashokan Empire" has relevance in the Ancient History and Ethics section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
Facts about the Ashokan Empire?
Boundaries of the Ashokan Empire?

FOR MAINS:
GS 1 and 4: Ancient History and Ethics
Importance of the Ashokan Empire?
What can India learn from Ashoka today?

WHY IN THE NEWS?
- Mural in the new Parliament shows the Ashoka empire, said the Government.
- The mural triggered a controversy in Nepal as it is being interpreted as a map of 'Akhand Bharat' comprising parts of several neighboring countries.

FACTS ABOUT THE ASHOKAN EMPIRE?
- Reign: Ashoka ruled the Maurya Empire from approximately 268 BCE to 232 BCE, succeeding his father, Emperor Bindusara.
- Conversion to Buddhism: After the brutal Kalinga War(c. 261 BCE), Ashoka underwent a profound change of heart and converted to Buddhism. This event influenced his policies and actions throughout his reign.
- Dhamma: Ashoka promoted the concept of "Dhamma" (also spelled as Dharma), which encompassed moral righteousness, ethical conduct, and principles of social welfare.

BOUNDARIES OF THE ASHOKAN EMPIRE?
- Northern Boundary: The northern boundary of the Ashokan Empire extended to the foothills of the Himalayas. It included present-day regions such as modern-day Uttar Pradesh, Bihar, and parts of Nepal.
- Western Boundary: The western boundary of the empire is believed to have extended up to the region of modern-day Afghanistan, including areas such as Gandhara (present-day Khyber Pakhtunkhwa in Pakistan) and parts of the Indus Valley.

- Eastern Boundary: The eastern boundary of the empire encompassed regions such as Magadha (present-day Bihar), Bengal, and parts of present-day Bangladesh. It is believed to have extended towards the Brahmaputra River in the east.
- Southern Boundary: The southern boundary of the empire included regions such as Andhra Pradesh, Telangana, Karnataka, and parts of Tamil Nadu. It is believed to have extended as far south as the Krishna River.

IMPORTANCE OF THE ASHOKAN EMPIRE?

- Spread of Buddhism: Ashoka played a pivotal role in the spread of Buddhism throughout India and beyond. After the violent Kalinga War, Ashoka converted to Buddhism and embraced its principles of non-violence, compassion, and moral conduct. He actively promoted Buddhism by sending missionaries to neighboring regions, erecting pillars and inscriptions with Buddhist teachings, and convening Buddhist councils. As a result, Buddhism gained widespread acceptance, and India became a major center for Buddhist learning and pilgrimage. Example: Ashoka's Rock Edicts: Ashoka inscribed his edicts on rocks and pillars across his empire. The Edicts of Ashoka, such as the Major Rock Edict XIII, emphasize the principles of Buddhism, moral conduct, and social welfare. Sending Buddhist Missionaries: Ashoka sent Buddhist missionaries, such as Mahinda and Sanghamitra, to Sri Lanka, where they successfully propagated Buddhism. This led to the establishment of Buddhism as the dominant religion in Sri Lanka.
- Edicts and Governance: Ashoka's reign is notable for his rock and pillar edicts, which were inscriptions carved on rocks and pillars across his empire. These edicts conveyed his policies, principles, and moral teachings, emphasizing social welfare, religious tolerance, and the importance of righteous governance. Ashoka's focus on dharma (righteousness) and the welfare of his subjects set a precedent for ethical leadership and inspired subsequent rulers in India. Example: Rock Edict XII: This edict highlights Ashoka's commitment to social welfare, including the provision of medical treatment for humans and animals, planting of medicinal herbs, and establishment of veterinary hospitals. Pillar Edicts: The Pillar Edicts, such as the Sarnath Pillar Edict, express Ashoka's adherence to dharma, emphasizing moral conduct, non-violence, and religious tolerance. These edicts promote social harmony and ethical governance.
- Administrative Reforms: Ashoka introduced significant administrative reforms that improved governance and welfare. He established an efficient bureaucracy to govern his vast empire, with officials known as Dharma Mahamatras who oversaw law and order, collected taxes, and resolved disputes. Ashoka also promoted the welfare of his subjects by constructing wells, rest houses, hospitals, and veterinary facilities. These reforms aimed to ensure the well-being and prosperity of the people. Example: Dharma Mahamatras: Ashoka appointed Dharma Mahamatras,

officials responsible for upholding dharma and ensuring justice and social welfare. They helped maintain law and order, resolve disputes, and oversee governance at the local level. Construction of Public Facilities: Ashoka constructed various public facilities, including wells, rest houses, and hospitals, to cater to the needs of his subjects. These initiatives aimed to improve the well-being and living conditions of the people.

- International Relations: Ashoka's reign witnessed active engagement with neighboring regions and states. He sent emissaries and established diplomatic relations with various kingdoms, including Hellenistic kingdoms, Egypt, and Sri Lanka. Ashoka's pursuit of peaceful coexistence, non-aggression pacts, and cultural exchanges helped foster regional stability and facilitated the spread of Indian culture and ideas beyond its borders. Example: Emissaries to Hellenistic Kingdoms: Ashoka sent emissaries to Hellenistic kingdoms such as Greece, Egypt, and Syria, promoting cultural exchanges and diplomatic ties. Ashoka's Missions to Sri Lanka: Ashoka sent his son Mahinda and daughter Sanghamitra as Buddhist missionaries to Sri Lanka, leading to the establishment of Buddhism in the country and the subsequent growth of Buddhist culture.

- Legacy of Non-Violence: Ashoka's transformation from a conqueror to an advocate of non-violence has left a lasting impact on India's cultural and philosophical landscape. His conversion to Buddhism and his commitment to non-violence influenced the moral and ethical principles of subsequent rulers, as well as the development of Indian philosophy, ethics, and social systems.

WHAT CAN INDIA LEARN FROM ASHOKA TODAY?

- Embrace Compassionate Leadership: Ashoka's transformation from a conqueror to an advocate of non-violence and compassion serves as a powerful example of leadership. India can learn from his emphasis on empathy, moral conduct, and the well-being of all citizens. Leaders today can prioritize compassion, understanding, and inclusive governance.

- Promote Religious Tolerance and Pluralism: Ashoka's support for various religious traditions, particularly Buddhism, and his advocacy for religious tolerance are relevant in today's diverse society. India can benefit from fostering an environment of religious harmony, respecting and protecting the rights of individuals to practice their faiths freely.

- Focus on Social Welfare: Ashoka's initiatives for social welfare, such as building hospitals, constructing public facilities, and promoting the welfare of animals, highlight the importance of addressing societal needs. Modern India can prioritize initiatives to provide healthcare, education, sanitation, and other essential services to all its citizens, ensuring equitable development.

- Champion Environmental Stewardship: Ashoka's emphasis on environmental

conservation, as seen in his edicts about planting medicinal herbs and protecting wildlife, resonates with the urgent need for sustainable practices today. India can learn from his eco-conscious approach and work towards preserving its natural resources, promoting renewable energy, and combating climate change.

- Promote Diplomacy and International Cooperation: Ashoka's engagement with neighboring kingdoms through diplomatic missions and cultural exchanges demonstrates the significance of diplomacy and peaceful coexistence. India can benefit from fostering strong diplomatic ties, engaging in multilateral cooperation, and contributing to global issues through dialogue and collaboration.
- Value Ethical Governance: Ashoka's emphasis on righteous governance, ethical conduct, and adherence to dharma sets a precedent for leaders today. Upholding integrity, transparency, and accountability in governance can contribute to trust-building and efficient administration.
- Learn from History and Reflect on Past Mistakes: Ashoka's transformation following the Kalinga War highlights the importance of learning from past mistakes. India can draw lessons from history to promote reconciliation, resolve conflicts peacefully, and build a more harmonious society.

Q.1 Who was the Mauryan emperor known for his conversion to Buddhism and promotion of moral governance?
(a) Chandragupta Maurya
(b) Bindusara
(c) Ashoka
(c) Pushyamitra Shunga
Answer: (c)

Q.2 Which of the following statements regarding the Ashokan edicts is/are correct?
1. The Ashokan edicts were inscriptions commissioned by Emperor Ashoka during his reign.
2. The edicts were inscribed on rocks and pillars across the Mauryan Empire.
3. The Ashokan edicts primarily emphasize the principles of Buddhism and moral conduct.
4. The edicts of Ashoka were written exclusively in the Prakrit language.
Select the correct answer using the codes below:
(a) 1 and 2 only
(b) 1, 2, and 3 only
(c) 1, 3, and 4 only
(d) 1, 2, 3, and 4
Answer: (a)

Q.3 Explain the ethical principles underlying Ashoka's philosophy and their relevance in today's society. How can Ashoka's philosophy contribute to fostering a culture of ethical governance and compassionate leadership? Illustrate your answer with suitable examples.

BIRSA MUNDA

This article covers "Daily Current Affairs" and the topic details "Birsa Munda". The topic "Birsa Munda" has relevance in the Modern History section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
Who is Birsa Munda?

FOR MAINS:
GS 1&4 : Modern History and Ethics
Legacy of Birsa Munda?
What can we learn from Birsa Munda today?

WHY IN THE NEWS?
Birsa Munda, the legendary freedom fighter, social reformer and a revered tribal leader sacrificed his life for the nation on 9 June, in 1900.

WHO IS BIRSA MUNDA?
- Birsa Munda was a prominent tribal leader and freedom fighter from India. He was born on November 15, 1875, in Ulihatu village, in what is now the state of Jharkhand. Birsa Munda played a crucial role in the tribal resistance against British colonial rule during the late 19th century.
- Birsa Munda led the Munda rebellion, also known as the Ulgulan movement, which aimed to challenge the oppressive policies of the British government and protect the rights and autonomy of tribal communities. He mobilized the tribal people, particularly the Munda tribe, and organized them against the exploitation of their land, forests, and resources by the British authorities and local landlords.
- Despite facing significant challenges, Birsa Munda's rebellion gained momentum and disrupted British administration in the region. However, he was eventually arrested in 1900 and died in captivity on June 9, 1900, at the young age of 25.

LEGACY OF BIRSA MUNDA?

- Tribal Resistance: Birsa Munda emerged as a powerful symbol of tribal resistance against British colonial rule. He fought against the exploitation, marginalization, and cultural oppression faced by tribal communities during that time. His rebellion, known as the Munda Ulgulan or the Munda Rebellion, challenged the British administration and inspired other tribal leaders and communities to rise up against oppression.

- Advocacy for Tribal Rights: Birsa Munda fought for the rights and autonomy of tribal communities. He sought to protect their land, resources, and cultural heritage from encroachment and exploitation by external forces. His efforts focused on preserving the customs, traditions, and identity of tribal people, emphasizing their right to self-determination and a dignified existence.

- Social Reforms: Birsa Munda's movement was not limited to resisting colonial rule but also aimed at bringing social reforms within tribal communities. He fought against social evils like alcoholism, witchcraft accusations, and caste-based discrimination prevalent among tribal groups. He promoted unity, equality, and justice within his community.

- Symbol of Tribal Pride: Birsa Munda is regarded as a symbol of tribal pride and identity. His courageous leadership and relentless struggle against injustice have inspired generations of tribal communities in India. He instilled a sense of pride in their cultural heritage and a determination to assert their rights and protect their interests.

- Inspiration for Tribal Movements: Birsa Munda's legacy has served as a source of inspiration for subsequent tribal movements in India. His fight for tribal rights paved the way for the recognition and protection of tribal communities' interests. His rebellious spirit and advocacy for social justice have influenced many subsequent leaders and movements working for tribal welfare and empowerment.

- Commemoration and Remembrance: Birsa Munda is commemorated and celebrated in various ways to honor his contributions. His birth anniversary, November 15, is observed as Birsa Munda Jayanti, during which people pay tribute to his sacrifices and remember his ideals. Statues, memorials, and institutions have been established in his name to ensure that his legacy endures.

WHAT CAN WE LEARN FROM BIRSA MUNDA TODAY?

- Upholding Justice and Equality: Birsa Munda fought against injustice and inequality faced by tribal communities during the colonial era. He stood up against exploitation, marginalization, and discrimination. His struggle teaches us the importance of standing up for justice and equality for all individuals, especially those who are oppressed or marginalized.

- Preserving Cultural Identity: Birsa Munda emphasized the preservation of tribal

customs, traditions, and cultural identity. He fought against cultural assimilation and worked towards the empowerment of tribal communities while respecting their unique heritage. This teaches us the significance of valuing and preserving diverse cultural identities in an inclusive society.

- Empathy and Solidarity: Birsa Munda's leadership was marked by his empathy and solidarity with his fellow tribal community members. He understood their struggles and worked towards their upliftment. This teaches us the importance of empathy and solidarity with marginalized communities and individuals, promoting inclusivity and social cohesion.
- Courage and Resilience: Birsa Munda displayed immense courage and resilience in his fight against oppression and exploitation. Despite facing numerous challenges, he remained determined and resilient. This teaches us the value of perseverance, courage, and resilience in pursuing ethical goals and overcoming obstacles.
- Ethical Leadership: Birsa Munda's leadership was characterized by his commitment to the welfare and empowerment of his community. He placed the interests of his people above his own, leading by example and inspiring others to join the struggle. This teaches us the importance of ethical leadership, which involves acting with integrity, selflessness, and a genuine concern for the well-being of others.
- Non-violent Resistance: Birsa Munda's rebellion, although armed, primarily focused on non-violent resistance against oppressive policies. His approach highlights the effectiveness and ethical dimension of nonviolent means to bring about social change and fight against injustice.
- Environmental Stewardship: Birsa Munda advocated for the protection of tribal lands and resources from exploitation. His movement emphasized the importance of maintaining a harmonious relationship with nature. This teaches us the significance of environmental stewardship and sustainability in our ethical considerations and actions.

Q.1 Who among the following tribal leaders played a significant role in the Ulgulan Rebellion against British colonial rule during the late 19th century?
(a) Tantia Bhil
(b) Birsa Munda
(c) Rani Gaidinliu
(c) Alluri Sitarama Raju
Answer: (b)

Q.2 Which state in India is associated with the birthplace of tribal leader Birsa Munda?
(a) Odisha
(b) Jharkhand
(c) Chhattisgarh
(d) Madhya Pradesh
Answer: (b)

Q.3 Discuss the life, contributions, and legacy of Birsa Munda as a tribal leader and freedom fighter in the context of India's struggle for independence and the empowerment of marginalized communities. Analyze the significance of his socio-cultural reforms and his role as a symbol of resistance and unity among tribal communities.

JAGANNATH RATH YATRA

This article covers "Daily Current Affairs" and the topic details "Jagannath Rath Yatra". The topic "Jagannath Rath Yatra" has relevance in the Art and Culture section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is Jagannath Rath Yatra?
Facts about Jagannath Rath Yatra?

FOR MAINS:
GS 1: Art and Culture
Jagannath Temple?
Gundicha Temple?
Significance of Jagannath Rath Yatra?

WHY IN THE NEWS?
As per the Odia calendar, the Jagannath Rath Yatra is celebrated on the second day of Shukla Paksha at Puri. In 2023, this was on June 20.

WHAT IS JAGANNATH RATH YATRA?
The Jagannath Rath Yatra, also known as the Chariot Festival, is a significant Hindu festival associated with Lord Jagannath (a form of Lord Krishna), held annually in Puri,

Odisha, India. The festival is celebrated on the second day of the lunar month of Ashadha (June/July) according to the Hindu calendar.

The Rath Yatra involves the procession of Lord Jagannath, along with his siblings Lord Balabhadra and Devi Subhadra, in grand chariots called "raths" through the streets of Puri. The chariots are huge wooden structures with intricate designs, colors, and decorations.

FACTS ABOUT JAGANNATH RATH YATRA?

- Historic Significance: The Jagannath Rath Yatra has a history of over a thousand years. It is believed to have been initiated by King Indradyumna, a legendary ruler of Odisha, who wanted to bring the deities out of the temple so that everyone could have the opportunity to see and worship them.
- Chariot Construction: The three chariots used in the Rath Yatra are built every year using specific types of wood. The chariot of Lord Jagannath, called Nandighosa, has 18 wheels and is 45.6 feet high. The chariot of Lord Balabhadra, called Taladhwaja, has 16 wheels and is 45 feet high. The chariot of Devi Subhadra, called Darpadalana, has 14 wheels and is 44.6 feet high.
- Rath Pulling: One of the highlights of the festival is the pulling of the chariots by devotees. Thousands of people come together to grab the ropes and pull the chariots through the streets of Puri. It is considered an act of devotion and a way to seek blessings.
- Chariot Festival of Massive Scale: The Jagannath Rath Yatra is one of the largest chariot festivals in the world. It attracts millions of devotees from different parts of India and abroad, making it a significant event in the Hindu calendar.
- Rath Yatra Outside Puri: While the Rath Yatra in Puri is the most famous and grandest, similar chariot processions are also organized in other parts of India and abroad. Cities like Ahmedabad, Kolkata, and Jagannath temples in different countries also celebrate the festival with great enthusiasm.
- Chhera Pahara Ritual: During the Rath Yatra, the Gajapati Maharaja, the King of Puri, performs the ceremonial sweeping of the chariot floors with a golden broom. This act symbolizes the equality of all devotees before the deities, as the king humbly serves them.
- Symbolic Journey: The Rath Yatra symbolizes the journey of Lord Jagannath, Lord Balabhadra, and Devi Subhadra from their main temple, the Jagannath Temple, to the Gundicha Temple, where they stay for a week before returning. The journey signifies the divine siblings' visit to their aunt's house.

JAGANNATH TEMPLE?

- Age and History: The Jagannath Puri Temple, also known as Shri Mandir, is one of the oldest and most revered Hindu temples in India. Its construction dates back

to the 12th century. The temple is associated with the Eastern Ganga dynasty and King Anantavarman Chodaganga Deva, who initiated its construction.

- Deities: The main deities worshiped in the Jagannath Puri Temple are Lord Jagannath (a form of Lord Krishna), Lord Balabhadra (his elder brother), and Devi Subhadra (his younger sister). The deities are carved out of neem wood and are replaced with new idols every 12 to 19 years in a sacred ritual called the Navakalevara.
- Unique Appearance: The idols of Lord Jagannath, Lord Balabhadra, and Devi Subhadra in the temple have a distinct appearance. They are devoid of any specific human-like features and have large round eyes. This iconic representation is known as the "Darubrahma" form and is unique to the temple.
- Rituals and Festivals: The Jagannath Puri Temple is known for its elaborate rituals and festivals. The daily rituals include offering various bhogs (food offerings) to the deities, known as Mahaprasad. The temple is also famous for its annual Rath Yatra, where the deities are taken on a grand chariot procession.
- Kitchen and Prasad: The temple has one of the largest kitchens in the world, known as the "Ananda Bazar." Here, food is prepared in traditional methods to offer as prasad to the devotees. It is believed that the prasad from the Jagannath Puri Temple is spiritually significant and can purify the soul.
- Nilachakra: The Jagannath Puri Temple is adorned with a prominent wheel-shaped chakra on its top known as the "Nilachakra." It is made of alloy and is believed to be one of the largest metal wheels in India. The chakra has symbolic representations and is considered auspicious.
- Rath Yatra and Chariots: The Jagannath Puri Temple is famous for the annual Rath Yatra or Chariot Festival. During this festival, three grand chariots, namely Nandighosa for Lord Jagannath, Taladhwaja for Lord Balabhadra, and Darpadalana for Devi Subhadra, are pulled by devotees through the streets of Puri.
- Temple Architecture: The Jagannath Puri Temple showcases the Kalinga style of architecture, characterized by its towering spires (shikharas), intricately carved pillars, and exquisite sculptures. The temple complex covers a vast area and includes various mandapas (halls) and shrines.

GUNDICHA TEMPLE?

- Significance: The Gundicha Temple, also known as the Mausi Maa Temple, is located in Puri, Odisha, India. It holds immense significance in the Jagannath Rath Yatra festival as it is believed to be the temporary abode of Lord Jagannath, Lord Balabhadra, and Devi Subhadra during their annual Rath Yatra.
- Temple Architecture: The Gundicha Temple follows the Kalinga style of architecture, similar to the Jagannath Puri Temple. It is a simple yet elegant structure with a square sanctum and a spire (shikhara) adorned with sculptures. The temple complex includes a large courtyard and several smaller shrines dedicated to various deities.

- Annual Visit: During the Rath Yatra, the deities from the Jagannath Puri Temple are ceremoniously carried in chariots to the Gundicha Temple. They stay at the Gundicha Temple for a period of seven days, known as the "Navadina Brahma" or "Vrindavana" period. Devotees eagerly await the opportunity to have darshan (sight) of the deities during this time.
- Symbolism: The Gundicha Temple holds symbolic significance in Hindu mythology. It is believed to represent the house of Lord Krishna's aunt, where he would visit during his childhood days. The Rath Yatra reenacts Lord Krishna's journey from his abode to the house of his aunt, showcasing his playfulness and love for his devotees.
- Rituals and Festivals: Various rituals and festivities take place during the stay of the deities at the Gundicha Temple. Special prayers, bhajans (devotional songs), and performances are conducted by devotees. Devotees also engage in cleaning the temple premises as an act of devotion and service.
- Devotee Access: Unlike the Jagannath Puri Temple, which is restricted to Hindus only, the Gundicha Temple allows people of all faiths to enter and have darshan of the deities during the Rath Yatra period. This inclusive approach promotes unity and the idea that the divine is accessible to all.
- Return Journey: After the seven-day stay at the Gundicha Temple, the deities are carried back to the Jagannath Puri Temple in a grand procession called the "Bahuda Yatra." The return journey signifies the conclusion of the Rath Yatra festival.

SIGNIFICANCE OF JAGANNATH RATH YATRA?
- Darshan of the Deities: The Rath Yatra provides an opportunity for devotees to have darshan (sight) of Lord Jagannath, Lord Balabhadra, and Devi Subhadra outside the temple premises. It is believed that having a glimpse of the deities during the procession brings blessings and spiritual fulfillment.
- Equality and Inclusivity: The Rath Yatra emphasizes the principle of equality and inclusivity. During the festival, people from all walks of life, irrespective of caste, creed, or social status, come together to pull the chariots. It signifies that in the eyes of the divine, everyone is equal.
- Unity and Brotherhood: The Rath Yatra fosters a sense of unity and brotherhood among devotees. As they collectively participate in pulling the chariots, people experience a feeling of togetherness, transcending barriers and differences.
- Journey of the Divine: The Rath Yatra represents the divine journey of Lord Jagannath, Lord Balabhadra, and Devi Subhadra from their abode, the Jagannath Temple, to the Gundicha Temple. The journey symbolizes the divine siblings' visit to their aunt's house and their subsequent return. It is seen as a metaphorical representation of the eternal journey of the soul towards spiritual liberation.
- Spiritual Cleansing and Renewal: The Rath Yatra is believed to cleanse the sins and impurities of the devotees. The act of pulling the chariots and being in the presence

of the deities is considered purifying and spiritually rejuvenating.

- Devotional Service: Participating in the Rath Yatra and engaging in the seva (service) of pulling the chariots is seen as an act of devotion and surrender to the divine. It is believed to be a way of seeking blessings and expressing love and devotion towards Lord Jagannath.
- Cultural Heritage and Tradition: The Jagannath Rath Yatra is deeply rooted in the cultural heritage of Odisha and holds significant historical and traditional value. It showcases the rich traditions, rituals, and art forms associated with the festival, contributing to the preservation and promotion of cultural heritage.

Source:
https://economictimes.indiatimes.com/magazines/panache/jagannath-rath-yatra-2023-get-to-know-the-festival-of-chariots-a-bit-better/articleshow/101121401.cms

Q.1 The Gundicha Temple, also known as the Mausi Maa Temple, is associated with which famous Hindu festival?
(a) Diwali
(b) Holi
(c) Jagannath Rath Yatra
(d) Makar Sankranti
Answer: (c)

Q.2 Which of the following statements about the Jagannath Temple in Puri is correct?
A.   The temple is dedicated to Lord Shiva.
B.   The Navakalevara ceremony is performed every year in this temple.
C.   The temple architecture follows the Dravidian style.
Options:
(a) A and B only
(b) B only
(c) A, C,
(d) B, C,
Answer: (b)

Q.3 Discuss the architectural style and historical significance of the Jagannath Temple in Puri, highlighting its influence on Odisha's cultural heritage.

General Studies - 2

(Governance, Constitution, Polity, Social Justice & International Relations)

AADHAAR PAYMENTS BRIDGE SYSTEM (APBS)

This article covers "Daily Current Affairs" and the topic details "Aadhaar Payments Bridge System (APBS)". The topic "Aadhaar Payments Bridge System (APBS)" has relevance in the Governance section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "AADHAAR PAYMENTS BRIDGE SYSTEM (APBS)":

FOR PRELIMS:
What is Aadhaar Payments Bridge System (APBS)?

FOR MAINS:
GS 2: Governance
What is the significance of Aadhaar Payments Bridge System (APBS)?
What are the issues with Aadhaar Payments Bridge System (APBS)?
Way Forward

WHY IN THE NEWS?
In May 2023, around 88% of wage payments were made using ABPS.

WHAT IS AADHAAR PAYMENTS BRIDGE SYSTEM (APBS)?
- The Aadhaar Payments Bridge System (APBS) is a digital platform implemented by the National Payments Corporation of India (NPCI) in collaboration with the Unique Identification Authority of India (UIDAI).
- It is designed to facilitate the electronic transfer of government benefits and subsidies directly to the bank accounts of beneficiaries using Aadhaar, a unique 12-digit identification number issued to residents of India.

WHAT IS THE STATUS OF ABPS?
- According to NPCI data, the Aadhaar-enabled Direct Benefit Transfer (DBT) system has achieved a success rate of 99.55%.
- Out of a total of 14.28 crore active beneficiaries, 13.75 crore Aadhaar numbers have been linked. Of these, 12.17 crore Aadhaar numbers have been successfully authenticated, with 77.81% being eligible for ABPS.

WHAT IS THE ROLE OF ABPS?
The APBS acts as a bridge between the government departments, banks, and beneficiaries by leveraging the Aadhaar infrastructure. It enables the seamless and efficient transfer of funds from the government to the intended recipients, eliminating intermediaries and reducing leakages and delays in the disbursement process.

HOW DOES THE ABPS WORK?

1. Enrollment: Individuals need to enroll for an Aadhaar number by providing their demographic and biometric information.
2. Bank Account Linking: The beneficiaries link their Aadhaar numbers with their respective bank accounts. This enables the government to directly transfer funds to the beneficiary's account.
3. Mapping Beneficiaries: Government departments or agencies responsible for disbursing benefits create a database of beneficiaries and map them to their Aadhaar numbers.
4. Fund Transfer: The government initiates the fund transfer process, specifying the Aadhaar numbers and the amount to be transferred. This information is sent to the NPCI.
5. NPCI Processing: The NPCI receives the fund transfer requests and processes them. It validates the Aadhaar numbers and identifies the bank accounts linked to those numbers.
6. Fund Transfer to Banks: The NPCI transfers the funds to the respective banks where the beneficiaries' accounts are held.
7. Crediting Beneficiary Accounts: The banks receive the funds and credit them to the beneficiaries' bank accounts linked to their Aadhaar numbers.

WHAT IS THE SIGNIFICANCE OF THE AADHAAR PAYMENTS BRIDGE SYSTEM (APBS)?

- Direct Benefit Transfer (DBT): Facilitates direct transfer of government benefits and subsidies to beneficiaries' bank accounts.
- Financial Inclusion: Links Aadhaar with bank accounts, promoting access to banking services for the unbanked population.
- Transparency and Accountability: Enhances transparency by reducing identity fraud and maintaining an auditable trail of transactions.
- Cost Savings: Reduces administrative expenses, corruption, and paperwork associated with physical cash disbursements.
- Efficiency and Convenience: Streamlines fund transfer processes, making disbursements faster and more efficient.
- Scalability and Reach: Leverages the vast Aadhaar database to reach a large population, even in remote areas.
- Promotes Digital Economy: Contributes to building a digital and inclusive economy by enabling efficient digital transactions.
- Government Schemes and Programs: Used for disbursing social welfare schemes, scholarships, pensions, and subsidies.
- Eliminates Intermediaries: Reduces leakages and delays by eliminating middlemen in the disbursement process.

- Improves Service Delivery: Ensures benefits reach intended recipients promptly, reducing delays and grievances.

WHAT ARE THE ISSUES WITH AADHAAR PAYMENTS BRIDGE SYSTEM (APBS)?

1. Exclusion and dependency on Aadhaar.
2. Privacy and data security concerns.
3. Authentication failures and technical glitches.
4. Exclusion of vulnerable sections.
5. Lack of awareness and digital literacy.
6. Dependence on internet and banking infrastructure.
7. Fraud and misuse.

WAY FORWARD

It is important to address these issues through continuous improvements, addressing privacy concerns, enhancing digital infrastructure, raising awareness, and providing alternatives for individuals who face difficulties with Aadhaar authentication. The goal should be to ensure that the APBS system is inclusive, secure, and reliable for all beneficiaries.

Source:
https://www.pib.gov.in/PressReleseDetail.aspx?PRID=1929577

PRELIMS QUESTIONS

Q.1 Which of the following statements best describes the Aadhaar Payments Bridge System (APBS)?
1. APBS is a platform for transferring funds between foreign banks and Indian banks.
2. APBS is a scheme aimed at providing free banking services to individuals below the poverty line.
3. APBS is a digital platform facilitating the direct transfer of government benefits and subsidies to beneficiaries' bank accounts.
4. APBS is an initiative to promote digital literacy and provide training in financial management to rural communities.

Answer: (c)

Q.2 Consider the following statements about Aadhaar Payments Bridge System (APBS):
1. It enables the direct transfer of government benefits and subsidies to beneficiaries' bank accounts.
2. It is implemented by NPCI in association with UIADI.

3. It is a platform for interbank transactions and fund transfers within India.

Select the correct answer from the code given below:
1. 1 only
2. 1 and 2 only
3. 3 only
4. 1, 3, and 4 only

Answer: (b)

Mains Question
1. What are the advantages and limitations of implementing the Direct Benefit Transfer Scheme as a means to reform the government delivery system?

INDIA RANKINGS 2023

This article covers "Daily Current Affairs" and the topic details "India Rankings 2023". The topic "India Rankings 2023" has relevance in the Governance section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "INDIA RANKINGS 2023":

FOR PRELIMS:
What are India Rankings 2023?

FOR MAINS:
GS 2: Governance
What is the status of Higher Education in India?
What is the significance of India Rankings 2023?
What are the issues with India Rankings 2023?
Way forward

WHY IN THE NEWS?
The Minister of State for Education and External Affairs released the India Ranking. This marks a crucial step toward evaluating and recognizing the performance and quality of various institutions in India.

WHAT ARE INDIA RANKINGS 2023?
The India Rankings 2023 refer to the latest edition of the rankings released by the Ministry of Education in India. These rankings are a part of the National Institutional

Ranking Framework (NIRF) developed by the Ministry to assess and evaluate higher educational institutions across the country. The rankings provide insights into the performance and quality of various institutions in different categories.

KEY HIGHLIGHTS OF INDIA RANKINGS 2023:
1. IIT Madras retains its 1st position in the Overall Category for the fifth consecutive year and in Engineering for the eighth consecutive year.
2. IISc Bengaluru tops the Universities Category for the eighth consecutive year and the Research Institutions Category for the third consecutive year.
3. IIM Ahmedabad ranks first in the Management subject for the fourth consecutive year.
4. AIIMS, New Delhi holds the top position in the Medical category for the sixth consecutive year and improves its overall ranking from 9th to 6th position.
5. NIPER, Hyderabad ranks first in the Pharmacy category, surpassing Jamia Hamdard.

WHAT ARE THE PARAMETERS TAKEN BY INDIA RANKINGS TO EVALUATE ?
The India Rankings 2023 take into consideration multiple parameters to evaluate institutions. They include:
1. Teaching
2. Learning
3. Research
4. Graduation outcomes
5. Outreach and inclusivity, and
6. Infrastructure.

WHAT IS THE SIGNIFICANCE OF INDIA RANKINGS 2023?
1. The ranking provides a comprehensive and objective assessment of institutions to help students, parents, and policymakers make informed decisions about higher education options.
2. The rankings serve as a tool for institutions to identify areas of improvement and strive for excellence in various aspects of their functioning.
3. They also promote healthy competition among institutions and encourage them to enhance their performance and quality standards.
4. They aid in promoting transparency, accountability, and excellence in the Indian education system.
5. They help the stakeholders in understanding the relative strengths and weaknesses of institutions and foster an environment of continuous improvement and growth in the higher education sector.

WHAT ARE THE ISSUES WITH INDIA RANKINGS 2023?

1. Limited Scope: Rankings may not capture the full diversity and specialisation of Indian higher education, focusing more on traditional parameters.
2. Subjectivity of Parameters: Some evaluation criteria can be subjective, leading to inconsistencies and biases in rankings.
3. Data Accuracy and Availability: Rankings heavily rely on accurate and uniformly reported data, which can be a challenge across institutions.
4. Inadequate Inclusivity Measures: Efforts to promote diversity and inclusion may not be fully captured in the rankings.
5. Overemphasis on Quantifiable Metrics: Rankings prioritise quantifiable metrics, potentially disadvantaging smaller institutions excelling in non-quantitative areas.
6. Lack of Long-Term Perspective: Rankings provide a snapshot and may not fully reflect an institution's long-term impact and sustainability.

WAY FORWARD

It is important to consider rankings alongside other factors such as academic programs, faculty expertise, student experiences, and alumni networks for informed decisions about higher education.

Source: https://www.pib.gov.in/PressReleseDetail.aspx?PRID=1930027

PRELIMS QUESTIONS

Q.1 Consider the following statements about the objective of the National Institutional Ranking Framework (NIRF).
1. To promote research collaboration among Indian universities
2. To evaluate the financial resources of higher education institutions
3. To provide a comprehensive ranking of higher education institutions in India
4. To determine the eligibility criteria for admissions in Indian universities

Select the correct answer from the code given below:
1. 1 only
2. 2 only
3. 3 only
4. None of the above

Answer: (c)

Q.2 Which of the following parameters are considered by the India Rankings 2023 to evaluate educational institutions?
1. Teaching and learning methods
2. Research output and collaborations
3. Graduation Outcomes and employability

4. Outreach and inclusivity initiatives

Select the correct answer from the code given below:
1. 1 only
2. 1 and 2 only
3. 1 and 3 only
4. All of the above

Answer: (d)

Mains Question
1. **Critically analyse the role of India Ranking 2023 in the improvement of the outcomes of the institutions in India.**

KOSOVO

This article covers "Daily Current Affairs" and the topic details "Kosovo". The topic "Kosovo" has relevance in the International Relations section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
Facts about Kosovo?

FOR MAINS:
GS 2: International Relations
Serbia Kosovo conflict?
India's position on Kosovo?

WHY IN THE NEWS:
In the aftermath of one of the worst escalations of tensions between Kosovo and Serbia in at least a decade, the North Atlantic Treaty Organization (NATO), sent 700 more of its peacekeeping troops to Kosovo.

FACTS ABOUT KOSOVO
Kosovo, officially known as the Republic of Kosovo, is a partially recognized landlocked country located in Southeastern Europe. It declared independence from Serbia in 2008. However, the status of Kosovo's independence remains a topic of international dispute, as Serbia does not recognize Kosovo as an independent state.
• Geography: Kosovo is situated in the central Balkans and shares borders with Serbia

to the north and east, North Macedonia to the southeast, Albania to the southwest, and Montenegro to the northwest.

- Capital and Largest City: The capital city of Kosovo is Pristina, which is also the country's largest city.
- Population: Kosovo has a diverse population consisting mainly of ethnic Albanians, who form the majority. There are also significant communities of ethnic Serbs and other minority groups.
- History: Kosovo has a rich and complex history that includes influences from various empires and cultures. It has been inhabited since ancient times and has witnessed significant historical events, including battles and conflicts.
- Economy: Kosovo has a developing economy. Key sectors include agriculture, mining, manufacturing, construction, and services. International assistance and remittances from the diaspora play a significant role in the country's economy.
- Institutions: Kosovo has its own institutions, including a unicameral parliament, a president, and a prime minister. The country also has its own security forces.
- International Recognition: Kosovo has been recognized as an independent state by over 100 countries, including the United States and most European Union member states. However, countries such as Russia, China, and several EU members, including Spain, do not recognize Kosovo's independence.

SERBIA KOSOVO CONFLICT?

- Background: The conflict between Serbia and Kosovo stems from the breakup of Yugoslavia in the 1990s. Kosovo, with a majority ethnic Albanian population, sought greater autonomy and eventually declared independence from Serbia in 2008. However, Serbia does not recognize Kosovo's independence.
- Ethnic and Nationalist Tensions: The conflict has strong ethnic and nationalist undertones. Kosovo's Albanian population aspires for independence and self-determination, while Serbia sees Kosovo as an integral part of its territory with historical and cultural significance.
- Violence and War: The conflict escalated into violence in the late 1990s when Kosovo Albanian separatists, organized under the Kosovo Liberation Army (KLA), fought against Serbian security forces. The Serbian government responded with a brutal crackdown, resulting in a humanitarian crisis and international intervention.
- NATO Intervention: In 1999, NATO launched a military intervention against Serbia, which led to the withdrawal of Serbian forces from Kosovo. The intervention aimed to protect the Kosovo Albanian population from ethnic cleansing and restore stability to the region. Following the intervention, Kosovo came under the administration of the United Nations.
- Negotiations and Status Talks: Since the end of the war, various international efforts have been made to find a resolution to the conflict. Negotiations and status talks

have taken place between Serbia and Kosovo, facilitated by international mediators and organizations, including the European Union.

- International Recognition: Kosovo has been recognized as an independent state by over 100 countries, including the United States and many European Union member states. However, Serbia, along with countries such as Russia and China, does not recognize Kosovo's independence.
- Current Situation: The status of Kosovo remains unresolved, and tensions between Serbia and Kosovo persist. Efforts towards normalizing relations and achieving a comprehensive agreement continue, but progress has been slow and challenging.

INDIA'S POSITION ON KOSOVO?

- Non-Recognition of Kosovo: India does not recognize Kosovo as an independent state. India's stance is based on its adherence to the principles of international law, including the respect for territorial integrity and the United Nations Charter. India considers the issue of Kosovo's status as a bilateral matter between Serbia and Kosovo.
- Support for Dialogue and Negotiations: India has consistently emphasized the importance of dialogue and negotiations between Serbia and Kosovo to find a mutually acceptable solution. India supports a peaceful resolution through dialogue that respects the sovereignty and territorial integrity of all countries involved.
- UN Security Council Position: As a non-permanent member of the United Nations Security Council (UNSC) for the term 2021-2022, India's position on Kosovo was guided by the UNSC resolutions and decisions related to the issue. India has emphasized the need to find a solution that is acceptable to both Serbia and Kosovo, in line with international law.
- Balancing Relations: India maintains diplomatic relations with both Serbia and Kosovo. It seeks to maintain a balanced approach and engage with all parties involved to foster stability and peace in the region.

Source:
https://www.thehindu.com/news/international/explained-why-is-there-trouble-in-kosovo-again/article66939379.ece

Q.1 Which of the following statements regarding Kosovo is correct?
1. Kosovo is recognized as an independent state by all members of the United Nations.
2. India recognizes Kosovo as an independent state.

Select the correct option:
(a) 1 only
(b) 2 only
(c) Both 1 and 2

(d) None of the above

Answer (d)

Q.2 Which of the following statements regarding the conflict between Serbia and Kosovo is incorrect?

1. The conflict between Serbia and Kosovo emerged following the breakup of Yugoslavia in the 1990s.
2. The NATO intervention in 1999 aimed to protect the Ethnic Serb population from ethnic cleansing.

Select the correct option:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) None of the above

Answer: (a)

Q.3 Discuss the conflict between Serbia and Kosovo, its historical background, international intervention, and the challenges in achieving a sustainable resolution. Examine India's stance on the Kosovo issue and its implications on India's foreign policy.

TECHNOLOGY IN GOVERNANCE

This article covers "Daily Current Affairs" and the topic details "Technology in Governance". The topic "Technology in Governance" has relevance in the governance section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
Projects related to Technology in Governance in India?

FOR MAINS
GS 2: Governance
Leveraging technology in governance?
Challenges for India in adopting Technology in Governance?
Solutions to the challenges?

WHY IN THE NEWS?
The Prime Minister, Shri Narendra Modi shared articles, videos, graphics and information

on '9 years of tech for growth'.

THE PRIME MINISTER TWEETED :
"India embraced technology to revolutionize governance and uplift service delivery. Technology has brought efficiency and convenience to the lives of people. It also enhanced efforts to build a digitally empowered India. #9YearsOfTechForGrowth"

PROJECTS RELATED TO TECHNOLOGY IN GOVERNANCE IN INDIA?
- Aadhaar: The Aadhaar project is a biometric identification system that assigns a unique 12-digit identification number to each resident of India. It enables efficient delivery of government services and benefits, facilitates financial inclusion, and streamlines identity verification processes.
- Goods and Services Tax Network (GSTN): The GSTN is a technology platform that facilitates the implementation of the Goods and Services Tax (GST) in India. It serves as the IT backbone for GST-related processes, including registration, return filing, and tax payments, ensuring seamless and transparent tax administration.
- DigiLocker: DigiLocker is a digital document storage platform that provides citizens with a secure online space to store and access their important documents. It eliminates the need for physical documents, promotes paperless governance, and enables easy sharing of verified documents with government agencies.
- BharatNet: BharatNet aims to provide broadband connectivity to all gram panchayats (village councils) in India. It involves the laying of optical fiber cables across the country, enabling digital connectivity in rural areas and supporting e-governance initiatives, digital services, and rural development programs.
- UMANG (Unified Mobile Application for New-age Governance): UMANG is a mobile application launched by the Government of India to provide citizens with a single platform for accessing various government services and schemes. It offers a wide range of services, including passport applications, income tax filing, and accessing government documents.
- e-NAM (National Agriculture Market): e-NAM is an online trading platform for agricultural commodities that aims to create a unified national market for farmers. It enables farmers to sell their produce online, access real-time market information, and connect with buyers and traders across the country, promoting transparency and better price realization.
- Smart Cities Mission: The Smart Cities Mission aims to transform cities in India into sustainable and citizen-friendly urban centers. The mission incorporates the use of technology in areas such as urban planning, waste management, intelligent transportation systems, and e-governance to enhance the quality of life for citizens.
- DigiGaon (Digital Village) Initiative: The DigiGaon initiative aims to transform select villages into digital hubs, providing digital infrastructure and services to rural communities. It includes setting up Wi-Fi hotspots, digital literacy programs, access

to e-commerce platforms, and telemedicine services, bridging the digital divide and empowering rural citizens.

LEVERAGING TECHNOLOGY IN GOVERNANCE?

- E-Government: Technology enables governments to provide online services to citizens, such as e-filing of taxes, online registration for permits and licenses, and access to government information and resources. E-government initiatives improve administrative efficiency, enhance transparency, and make public services more accessible to citizens.
- Open Data: Governments are increasingly adopting open data policies, making large amounts of public information freely available to the public in machine-readable formats. This allows individuals, researchers, and businesses to analyze and utilize the data to make informed decisions and develop innovative solutions.
- Digital Identity and Authentication: Digital identity systems help establish and verify the identity of citizens, businesses, and government officials online. These systems streamline interactions with government services, enable secure online transactions, and reduce the risk of identity fraud.
- Data Analytics and Decision Making: Governments collect vast amounts of data, and technology enables the analysis of this data to gain insights and make informed decisions. Data analytics can be used for policy development, resource allocation, predicting and preventing issues, and measuring the impact of government programs.
- Smart Cities: Technology is utilized to create smart city infrastructure, leveraging data and connectivity to enhance urban management and improve the quality of life for residents. Smart city solutions include intelligent transportation systems, energy-efficient buildings, real-time monitoring of utilities, and smart governance platforms.
- Civic Engagement and Participation: Technology enables governments to engage with citizens in more meaningful ways. Online platforms and social media facilitate public consultations, citizen feedback mechanisms, and participatory decision-making processes. This fosters transparency, inclusivity, and collaboration in governance.
- Cybersecurity and Privacy: As governments adopt digital solutions, ensuring cybersecurity and protecting citizens' privacy become crucial. Governments invest in robust cybersecurity measures, including encryption, secure communication channels, and protocols to safeguard sensitive data and critical infrastructure from cyber threats.
- Artificial Intelligence and Automation: Governments are exploring the potential of artificial intelligence (AI) and automation in various domains. AI-powered systems can improve service delivery, automate routine tasks, enhance decision-making

processes, and detect patterns in large datasets, aiding in fraud detection and law enforcement.
- Blockchain Technology: Governments are exploring the use of blockchain technology for secure and transparent transactions and record-keeping. Blockchain can be applied to areas such as land registry, supply chain management, voting systems, and identity verification, providing tamper-proof and decentralized solutions.

CHALLENGES FOR INDIA IN ADOPTING TECHNOLOGY IN GOVERNANCE?
- Digital Divide: India has a significant digital divide, with a large population still lacking access to basic internet connectivity and digital devices. Unequal access to technology can create disparities in accessing government services and hinder the effective implementation of technology-driven initiatives.
- Infrastructure Limitations: The successful adoption of technology in governance relies on robust and reliable infrastructure, including internet connectivity, power supply, and data centers. India faces infrastructure challenges, particularly in rural areas, which can impede the seamless implementation of digital solutions.
- Data Privacy and Security: The adoption of technology in governance involves the collection and processing of vast amounts of personal data. Ensuring data privacy and implementing robust cybersecurity measures are critical to protect citizens' sensitive information from unauthorized access and cyber threats.
- Skill Development and Capacity Building: Effective utilization of technology in governance requires a skilled workforce capable of managing and implementing digital solutions. Enhancing digital literacy, providing training programs, and fostering a culture of innovation and technology adoption are vital for building the necessary human capital.
- Interoperability and Standardization: The integration of various technology systems used by different government departments and agencies can be challenging. Ensuring interoperability and standardization of systems and data formats is crucial for seamless information exchange and collaboration between different entities.
- Legal and Regulatory Framework: The legal and regulatory framework must adapt to the rapid advancements in technology to address emerging challenges adequately. Regulations related to data protection, cybersecurity, digital transactions, and electronic signatures need to be developed and updated to ensure accountability, privacy, and trust in technology-driven governance.
- Resistance to Change: Resistance to change and the inertia of traditional bureaucratic systems can hinder the adoption of technology in governance. Addressing resistance and promoting a culture of innovation, transparency, and accountability are essential for successful implementation.
- Cost and Sustainability: Technology adoption in governance requires significant investments in infrastructure, software, and human resources. Ensuring the

financial sustainability of technology initiatives, cost-effectiveness, and long-term maintenance and support can be a challenge for governments, particularly in resource-constrained environments.

SOLUTIONS TO THE CHALLENGES?

- Bridge the Digital Divide: Focus on expanding internet connectivity and improving access to digital devices, particularly in rural and remote areas.
- Enhance Digital Literacy: Implement comprehensive digital literacy programs to ensure citizens have the necessary skills to effectively utilize technology and access government services.
- Strengthen Infrastructure: Invest in robust and reliable digital infrastructure, including internet connectivity, power supply, and data centers, to support the seamless implementation of technology-driven initiatives.
- Ensure Data Privacy and Security: Establish stringent data protection laws and cybersecurity measures to safeguard citizens' personal information and address concerns related to data privacy and security.
- Promote Skill Development: Provide training programs and capacity building initiatives to develop a skilled workforce capable of managing and implementing technology solutions.
- Foster Interoperability and Standardization: Establish standards and protocols to ensure interoperability and seamless integration of different technology systems used by various government departments.
- Update Legal and Regulatory Framework: Review and update existing laws and regulations to address emerging challenges and enable a conducive environment for technology adoption in governance.
- Encourage Innovation and Collaboration: Foster a culture of innovation, transparency, and collaboration among government agencies, private sector partners, and citizens to drive technological advancements in governance.
- Prioritize Cost-effectiveness and Sustainability: Ensure cost-effective implementation and long-term sustainability of technology initiatives by leveraging public-private partnerships and exploring innovative funding models.

Source:
https://pib.gov.in/PressReleseDetail.aspx?PRID=1930910

Q.1 Which of the following statements regarding technology in governance is/ are correct?
1. E-governance initiatives aim to improve administrative efficiency and make public services more accessible to citizens through online platforms.
2. The digital divide refers to the unequal access to technology and internet connectivity,

which can hinder the effective implementation of technology-driven governance initiatives.
3. Data privacy and security are not significant concerns when adopting technology in governance, as government systems are inherently secure.
4. Interoperability and standardization of technology systems are not essential for seamless information exchange and collaboration between different government entities.

Choose the correct option(s):
(a) 1 and 2 only
(b) 1 and 3 only
(c) 1, 2 and 3 only
(d) 1, 2, 3 and 4
Answer: (a)

Q.2 Consider the following statements:
1. Aadhaar is a biometric identification system that assigns a unique 10-digit identification number to each resident of India.
2. GSTN serves as the IT backbone for the implementation of the Goods and Services Tax (GST) in India.
3. BharatNet aims to provide broadband connectivity to all villages in India.
4. UMANG is a mobile application launched by the Government of India to provide access to various government services and schemes.

Choose the correct statement(s):
(a) 1 and 2 only
(b) 2, 3 and 4 only
(c) 1, 2, 3 and 4
(d) 2 and 4 only
Answer: (b)

Q.3 "Examine the role of technology in promoting transparency, efficiency, and citizen-centric governance in India, highlighting the challenges and potential solutions."

PVTGS

This article covers "Daily Current Affairs" and the topic details "Particularly Vulnerable Tribal Groups (PVTGs)". The topic "Particularly Vulnerable Tribal Groups (PVTGs)" has relevance in the Social Justice of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
GS 2: Social Justice?
Who are PVTGs?

FOR MAINS:
Challenges in welfare of PVTGs?
Protective measures taken for PVTGs?

WHY IN THE NEWS?
President of India, Smt. Droupadi Murmu, will grace the PVTG (Particularly Vulnerable Tribal Groups) Meet in the Sports Ground of the Rashtrapati Bhawan, President's Estate. The President has invited the Members of 75 PVTGs for a visit to the Rashtrapati Bhawan for an extensive interaction with them and to apprise them about the various Schemes and Initiatives of the Ministry of Tribal Affairs.

WHO ARE PVTGS?
- PVTG stands for Particularly Vulnerable Tribal Group. In India, the government recognizes certain tribal communities as Particularly Vulnerable Tribal Groups based on their relatively stagnant socio-economic development, low literacy rates, and declining population. These groups are considered as more vulnerable and disadvantaged compared to other tribal communities.
- There are 75 recognized PVTGs in India. Some examples of PVTGs include the Jarawa, Sentinelese, and Onge tribes in the Andaman and Nicobar Islands, the Birhor and Kharia tribes in Jharkhand, and the Paniya and Kurumba tribes in Kerala.

In India, tribal population makes up for 8.6% of the total population.

- In 1973, the Dhebar Commission introduced the category of Primitive Tribal Groups (PTGs) to identify and address the specific needs of certain tribal communities that were less developed. However, in 2006, the Government of India recognized the need for a more inclusive and respectful terminology and renamed PTGs as Particularly Vulnerable Tribal Groups (PVTGs). This change in nomenclature reflects a shift towards acknowledging the vulnerabilities faced by these groups and emphasizes the importance of focused welfare measures to uplift and empower them.

CHALLENGES IN WELFARE OF PVTGS?
- Marginalization and Displacement: PVTGs have historically faced marginalization and displacement due to various factors such as development projects, land acquisition, and conflicts. This disrupts their traditional way of life, leading to loss of livelihoods, cultural erosion, and social disintegration.
- Poverty and Lack of Economic Opportunities: PVTGs generally face high levels

of poverty and lack access to income-generating opportunities. Limited access to markets, inadequate infrastructure, and limited skills hinder their economic development and upward mobility.

- Education and Literacy Gap: PVTGs have lower literacy rates and limited access to quality education. They often face challenges such as a lack of schools in their areas, language barriers, and discrimination, which results in lower educational attainment and limited opportunities for the younger generation.

- Health and Healthcare Disparities: PVTGs face significant health disparities and limited access to healthcare facilities. Factors such as remote geographical locations, inadequate healthcare infrastructure, cultural barriers, and lack of awareness contribute to higher rates of morbidity and mortality among PVTGs.

- Cultural Preservation and Identity: Rapid socio-cultural changes, assimilation, and external influences pose a threat to the cultural preservation and identity of PVTGs. Economic pressures, urbanization, and exposure to mainstream society can lead to the erosion of traditional knowledge, customs, languages, and practices.

- Land Rights and Resource Conflicts: PVTGs often struggle with securing and retaining their traditional land rights. Encroachments, land grabbing, and conflicts over natural resources, including forest land, deprive them of their traditional sources of livelihood and sustenance.

- Social Discrimination and Stigma: PVTGs continue to face discrimination, prejudice, and stigmatization in society. They may experience exclusion, stereotypes, and unequal treatment, which further marginalize and hinder their social and economic progress.

- Limited Representation and Participation: Despite measures to ensure their representation, PVTGs often face challenges in actively participating in decision-making processes at various levels of governance. Their voices may be marginalized or not adequately heard, impacting the formulation and implementation of policies that directly affect them.

PROTECTIVE MEASURES TAKEN FOR PVTGS?

- Reservation of Seats: PVTGs are provided reserved seats in local government bodies, such as Gram Panchayats (village councils), to ensure their representation and participation in decision-making processes.

- Land Rights: Efforts are made to secure and protect the land rights of PVTGs. This includes providing them with legal recognition of their traditional lands, preventing land alienation, and assisting in the retrieval of alienated lands.

- Housing: Government schemes aim to provide PVTGs with housing facilities, including support for constructing and improving houses to ensure better living conditions.

- Education: Special focus is given to the education of PVTG children. This includes

initiatives such as residential schools, hostels, and ashram shalas (residential schools for tribal children) located in or near PVTG habitations. These facilities offer free education, meals, and other support services.

- Healthcare: PVTGs have access to specialized healthcare services, including mobile medical units and primary health centers established in their areas. Outreach programs are conducted to provide medical assistance, immunization, and healthcare awareness campaigns.
- Livelihood Support: PVTGs receive support for livelihood enhancement through various schemes, including skill development programs, vocational training, agricultural support, and financial assistance for income-generating activities.
- Forest Rights: The Forest Rights Act (2006) provides PVTGs with rights over forest resources, including the right to access and use non-timber forest produce, grazing rights, and the right to protect and manage their traditional forests.
- Preservation of Cultural Heritage: Steps are taken to preserve and promote the cultural heritage of PVTGs. This includes documenting and archiving their traditional knowledge, promoting cultural festivals, supporting cultural centers, and facilitating the preservation of their languages and traditional arts.
- Awareness and Sensitization: Government agencies conduct awareness and sensitization programs among the general public and government officials to foster understanding, respect, and appreciation for the cultural diversity and unique needs of PVTGs.

Source:
https://pib.gov.in/PressReleseDetail.aspx?PRID=19k31534

Q.1 **Which of the following criteria are used to identify and categorize a tribal community as a Particularly Vulnerable Tribal Group (PVTG) in India?**
1. Low literacy rates
2. High population growth
3. Technologically advanced practices
4. Cultural distinctiveness
Select the correct option:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1, 3, and 4 only
(d) 1 and 4 only
Answer: (c)

Q.2 Which of the following statements regarding Particularly Vulnerable Tribal Groups (PVTGs) in India is/are correct?
1. PVTGs are recognized by the government of India based on their socio-economic

development only.
2. The Forest Rights Act (2006) provides PVTGs with rights over forest resources, including the right to access and use non-timber forest produce.

Select the correct answer using the code given below:
(a) 1 and 2 only
(b) 2 only
(c) Both 1 and 2
(d) None of the above
Answer: (b)

Q.3 Discuss the challenges faced by Particularly Vulnerable Tribal Groups (PVTGs) in India in their socio-economic development and suggest measures to ensure their inclusive growth and welfare.

MISSION KARMAYOGI

This article covers "Daily Current Affairs" and the topic details "Mission Karmayogi". The topic "Mission Karmayogi" has relevance in the Governance section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "MISSION KARMAYOGI":

FOR PRELIMS:
What is Mission Karmayogi?

FOR MAINS:
GS 2: Governance
What is the need for Mission Karmayogi?
What are the objectives of Mission Karmayogi?
What is the significance of Mission Karmayogi?
Way forward

WHY IN THE NEWS?
The Prime Minister has recently inaugurated the first-ever National Training Conclave of the

WHAT IS MISSION KARMAYOGI?
The National Programme for Civil Services Capacity Building (NPCSCB) – Mission Karmayogi is an initiative in India that is aimed at creating a competent civil service

that is deeply connected to Indian ethos and shares a common understanding of the country's priorities.

WHAT IS THE NEED FOR MISSION KARMAYOGI?

1. Rapid changes in the modern world necessitate equipping the civil service with the necessary skills and knowledge.
2. The mission emphasises a citizen-centric approach to governance, focusing on delivering quality services and addressing citizen needs effectively.
3. Coordination and harmonisation among different departments and agencies of the civil service are crucial for effective governance.
4. Performance enhancement and accountability are important aspects of the mission, promoting a performance-driven culture in the civil service.
5. Institutional reforms within the civil service, such as streamlined recruitment and career progression opportunities, are part of the mission's objectives.
6. The mission recognizes the significance of continuous learning and development for civil servants.
7. A competent, responsive, and citizen-centric civil service is essential for effective governance and efficient public service delivery.

WHAT ARE THE OBJECTIVES OF MISSION KARMAYOGI?

1. To enable civil servants to effectively deliver public services in a harmonised and efficient manner.
2. To empower civil servants to thrive in challenging environments.
3. To enhance government-citizen interaction and engagement.
4. To transform civil servants into facilitators and enablers for citizens and businesses.
5. To improve the quality of government services and create an environment that is conducive to the ease of living for citizens and the ease of doing business for enterprises.
6. To develop behavioural, functional, and domain competencies among civil servants, the mission aims.

WHAT IS THE SIGNIFICANCE OF MISSION KARMAYOGI?

- Enhanced Competence: Mission Karmayogi enhances the competence of civil servants through training and capacity building.
- Citizen-Centric Governance: It promotes a citizen-centric approach to governance, prioritising the needs of citizens.
- Effective Policy Implementation: The mission aims to improve policy implementation and deliver high-quality public services.
- Coordinated and Harmonized Governance: It emphasises coordination and

harmonisation among different departments for efficient governance.
- Performance-Driven Culture: Mission Karmayogi fosters a performance-driven culture, promoting accountability and continuous learning.
- Institutional Reforms: Institutional reforms are a key focus, streamlining recruitment and providing career progression opportunities.
- National Development: The mission contributes to national development by facilitating ease of living and ease of doing business.

Thus, Mission Karmayogi brings transformative changes to the civil service, enhancing its effectiveness and responsiveness.

Source:
https://igotkarmayogi.gov.in/

PRELIMS QUESTIONS
Q.1   Consider the following statements about Mission Karmayogi:
1. It is led by the Department of Personnel and Training, Government of India.
2. It is aimed at creating a competent civil service that is responsive to the needs of the citizens.
Select the correct answer from the code given below:
1. 1 only
2. 2 only
3. Both 1 and 2
4. None of the above
Answer: (c)

Q.2   Mission Karmayogi often seen in the news is related to:
1. Creation of efficient and citizen-centric civil servants.
2. Development of trained armed paramilitary forces.
3. Training of NCC cadets to clear the Armed Forces exams.
Select the correct answer from the code given below:
1. 1 only
2. 2 only
3. 3 only
4. None of the above
Answer: (a)

Mains Question
1. The role and responsibilities played by Civil servants have undergone a huge change in current times. In light of the statement, discuss the need and significance of Mission Karmayogi.

India-UAE CEPA

This article covers "Daily Current Affairs" and the topic details "India-UAE CEPA". The topic "India-UAE CEPA" has relevance in the Governance section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "INDIA-UAE CEPA":

FOR PRELIMS:
What is CEPA?
What is India-UAE CEPA

FOR MAINS:
GS 2: Governance
What is the trade status of India and UAE?
What is the significance of India-UAE CEPA?
Way forward

WHY IN THE NEWS?
The first meeting of the Joint Committee of the India-UAE Comprehensive Economic Partnership Agreement heralds a new era of bilateral cooperation.
During this meeting, both sides came together to discuss and negotiate various aspects of the agreement, aiming to reach mutually beneficial outcomes.

WHAT IS CEPA?
A Comprehensive Economic Partnership Agreement, or CEPA, is a special kind of trade agreement between two countries that aims to strengthen their economic cooperation. It goes beyond just reducing tariffs and barriers to trade by covering a wide range of areas, such as trade in goods and services, investment, intellectual property rights, and competition policy.
Basically, it's a way for countries to work together more closely on economic matters and create more opportunities for businesses.

WHAT IS INDIA-UAE CEPA?
The case of the India-UAE CEPA, it's a significant agreement that holds great potential for both countries. By entering into this partnership, India and the United Arab Emirates are taking a big step towards deepening their economic ties and fostering closer collaboration.
They are looking to remove obstacles that hinder trade and investment and to create a more favorable environment for businesses from both nations to thrive.

The CEPA aims to promote and facilitate:
1. Trade in goods and services,
2. Boost investment flows,
3. Protect intellectual property rights,
4. Improve market access for businesses from both India and the UAE.
5. Closer collaboration in sectors such as agriculture, textiles, manufacturing, information technology, finance, and tourism.

WHAT IS THE TRADE STATUS OF INDIA AND UAE?
- Bilateral trade:
  - The bilateral trade between India and the UAE is on an upward trajectory after the signing of CEPA.
  - With modest trade starting at USD 180 million per annum in the 1970s it has crossed US$ 80 billion today.
  - After the signing of the CEPA, the trade has increased from US$ 72.9 billion to US$ 84.5 billion by the month of March 2023.
  - UAE is India's third-largest trading partner.
- Exports:
  - UAE is the second-largest export destination for India.
- FDI:
  - UAE is eighth in terms of foreign direct investment (FDI).

WHAT IS THE SIGNIFICANCE OF INDIA-UAE CEPA?
- Tariff Reduction: There is greater access for UAE exports to enter the Indian markets through the reduction or removal of tariffs on more than 80 percent of products.
- Non-Discriminatory Environment: An open and non-discriminatory environment for cross-border trade with India, ensuring fair treatment for UAE businesses.
- Expanded Market Access for Services: Enhanced market access for UAE service providers across 11 sectors and more than 100 sub-sectors, promoting collaboration and investment in service industries.
- Addressing Technical Barriers: The removal of unnecessary technical barriers (TBT) for UAE and Indian exporters, facilitating smoother trade procedures and compliance with international standards.
- International Standards: The use of international standards as the basis for technical regulations, promoting harmonization and reducing trade barriers.
- Government Procurement Opportunities: Enhanced access for UAE businesses to Indian government procurement opportunities, enabling participation in government tenders and projects.
- Price Preference in UAE Government Procurement: Support for UAE companies through a 10 percent price preference in UAE government procurement tenders,

- providing competitive advantages.
- Exemption from Anti-dumping Investigations: Assurance that UAE products will not be subject to India's anti-dumping investigations as transshipped goods, ensuring fair treatment for UAE exporters.
- Joint Committee for Continuous Improvement: Establishment of a Joint Committee to assess, revise, and propose amendments to the CEPA, including improving market access and addressing any emerging trade issues.

Source:
https://www.pib.gov.in/PressReleseDetail.aspx?PRID=1931759
https://www.moec.gov.ae/en/cepa_india

PRELIMS QUESTIONS

Q.1 Which of the following are the emirates in the UAE:
1. Ras Al Khaimah
2. Sharjah
3. Dubai
4. Riyadh

Select the correct answer from the code given below:
1. 1 only
2. 2 and 3 only
3. 1, 2, and 3 only
4. None of the above

Answer: (c)

Q.2 Arrange the following trade agreements in the increasing order of trade integration:
1. Free Trade Agreement
2. Comprehensive Economic Partnership Agreement
3. Customs Union
4. Economic Union

Select the correct answer from the code given below:
1. 1->3->2->4
2. 2->3->1->4
3. 4->3->2->1
4. 3->1->2->4

Answer: (a)

Mains Question

1. Discuss the significance of India-UAE CEPA and the associated challenges.

FIXED DOSE COMBINATIONS (FDCS)

This article covers "Daily Current Affairs" and the topic details "FDCs". The topic "FDCs" has relevance in the Public Health section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What are FDCs?

FOR MAINS:
GS 2: Public Health
Benefits of FDCs?
Challenges presented by FDCs?

WHY IN THE NEWS?
Fourteen fixed-dose combination (FDC) medicines found to lack therapeutic relevance have been banned by the Central Government through a gazette notification issued over the weekend.

WHAT ARE FDCS?
Fixed-dose combinations (FDCs) refer to pharmaceutical products that contain two or more active ingredients in a single dosage form. These ingredients are combined in fixed amounts, meaning the ratios and quantities of the components remain consistent in each dose. FDCs are commonly used in medical practice to simplify medication regimens, improve patient compliance, and enhance treatment efficacy.

- Combination Therapy: Fixed-dose combinations are often prescribed when multiple medications are required to manage a particular medical condition. By combining different active ingredients into a single pill or tablet, FDCs offer convenience and streamline treatment.
- Synergistic Effects: FDCs may have synergistic effects, where the combined action of the active ingredients produces a greater therapeutic effect than the individual components alone. This can lead to enhanced efficacy, improved symptom control, and better patient outcomes.
- Rational Combination: FDCs are carefully formulated based on scientific evidence, clinical trials, and knowledge of the disease process. The selection of active ingredients and their doses is determined by their compatibility, complementary mechanisms of action, and potential for improved therapeutic benefits.

BENEFITS OF FDCS?

- Simplified Treatment Regimens: FDCs combine multiple active ingredients into a single dosage form, reducing the number of pills or tablets a patient needs to take. This simplifies the treatment regimen and improves patient compliance, as it is easier to remember and adhere to a single medication schedule.
- Enhanced Efficacy: FDCs are often formulated to have synergistic effects, where the combined action of the active ingredients leads to improved therapeutic outcomes. The combination of drugs targeting different aspects of a disease or working through complementary mechanisms can result in enhanced efficacy and better control of symptoms.
- Reduced Risk of Medication Errors: When multiple medications are prescribed individually, there is a higher risk of medication errors, such as incorrect dosing or missed doses. FDCs help reduce these risks by providing a pre-determined and fixed dosage of each active ingredient in a single product, minimizing the chances of dosing errors.
- Cost Savings: FDCs can be cost-effective compared to the individual medications taken separately. By combining multiple drugs into a single formulation, FDCs may result in lower manufacturing costs, reduced packaging, and potentially lower prices for patients.
- Convenience and Portability: FDCs offer convenience and portability, especially for patients who need to take multiple medications throughout the day. With FDCs, patients can carry and manage a single medication pack instead of multiple bottles or blister packs, making it easier to adhere to their prescribed regimen even when away from home.
- Public Health Impact: FDCs can play a crucial role in managing public health concerns such as infectious diseases. For example, in the case of tuberculosis or HIV/AIDS, FDCs that combine multiple antiretroviral or antitubercular drugs simplify treatment protocols, improve medication adherence, and reduce the risk of developing drug resistance.

CHALLENGES PRESENTED BY FDCS?

- Limited Clinical Evidence: FDCs may not always have robust clinical evidence supporting their efficacy and safety compared to individual medications. Conducting clinical trials specifically for FDCs can be complex and costly, resulting in a lack of comprehensive data on their effectiveness in certain patient populations or specific medical conditions.
- Variable Individual Responses: Individual patients may respond differently to FDCs due to variations in their metabolism, genetic factors, coexisting conditions, or concomitant medications. Predicting and addressing these individual differences can be challenging, as FDCs offer limited flexibility for dose adjustments or

component substitutions.

- Potential for Polypharmacy: FDCs can contribute to polypharmacy, which refers to the concurrent use of multiple medications. Polypharmacy increases the risk of drug interactions, medication errors, and adverse drug reactions. Prescribers need to carefully evaluate the overall medication regimen and consider the potential impact of adding an FDC to an existing treatment plan.
- Lack of Tailored Treatment: FDCs may not accommodate individualized treatment approaches. Patients with specific needs, such as those with multiple comorbidities, geriatric patients, or individuals with organ dysfunction, may require tailored treatment regimens that involve separate medications with adjustable doses.
- Adverse Effects and Tolerability: Adverse effects and tolerability issues associated with FDCs can be challenging to manage. If a patient experiences side effects or adverse reactions, it can be difficult to identify the specific component responsible. This can hinder the optimization of treatment and may require discontinuation of the entire combination, even if only one component is causing the problem.
- Regulatory and Market Access Challenges: The regulatory approval process for FDCs varies across different countries, and obtaining approvals for new combinations can be time-consuming and complex. Additionally, market access may be limited due to reimbursement policies or formulary restrictions, making certain FDCs inaccessible to patients who could potentially benefit from them.
- Long-Term Safety Monitoring: Monitoring the long-term safety profile of FDCs can be challenging, particularly when rare or delayed adverse events are involved. Robust pharmacovigilance systems are essential to detect and evaluate any safety concerns associated with FDCs after they are introduced into the market.

Source:
https://www.thehindu.com/sci-tech/health/govt-bans-14-combination-drugs-used-to-treat-common-ailments/article66927674.ece

Q.1 Which of the following statements regarding Fixed-Dose Combinations (FDCs) is correct?
1. FDCs are primarily used to simplify treatment regimens and improve patient compliance.
2. FDCs are subject to regulatory scrutiny and can be marketed without approval.
3. FDCs always provide better therapeutic outcomes compared to individual medications.

Select the correct answer from the options given below:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1,2 and 3 only
(d) None of the above

Answer: (a)

Q.2 Which of the following is a potential advantage of Fixed-Dose Combinations (FDCs)?
1. FDCs offer greater flexibility in adjusting the dosage of specific components.
2. FDCs can simplify treatment regimens and improve patient compliance.
3. FDCs eliminate the risk of drug interactions due to their fixed ratios.

Select the correct answer from the options given below:
(a) 1 and 2 only
(b) 2 only
(c) 1 and 3 only
(d) 1,2 and 3

Answer: (b)

Q.3 Discuss the advantages and challenges associated with the use of Fixed-Dose Combinations (FDCs) in healthcare. How can FDCs contribute to improving patient outcomes, and what are the key considerations in their appropriate utilization?

VIENNA DECLARATION AND PROGRAMME OF ACTION (VDPA)

This article covers "Daily Current Affairs" and the topic details "Vienna Declaration and Programme of Action". The topic "Vienna Declaration and Programme of Action" has relevance in the Social Justice section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is the Vienna Declaration and Programme of Action?

FOR MAINS:
GS 2: Social Justice
Significance of Vienna Declaration and Programme of Action?
Other International Human Rights Laws?
New Challenges for the Human Rights regime?
India's position on International Human Rights?

WHY IN THE NEWS?
Vienna Declaration and Programme of Action (VDPA) is celebrating its 30th anniversary

in June 2023.

What is the Vienna Declaration and Programme of Action?

The Vienna Declaration and Programme of Action (VDPA) is a landmark human rights document adopted at the World Conference on Human Rights held in Vienna, Austria, in 1993. It serves as a comprehensive framework for the promotion and protection of human rights globally.

SIGNIFICANCE OF VIENNA DECLARATION AND PROGRAMME OF ACTION?

- Universality, Indivisibility, and Interdependence of Human Rights: The VDPA emphasizes that all human rights are universal, indivisible, and interdependent. It recognizes that the realization of civil, political, economic, social, and cultural rights is essential for the overall well-being of individuals and societies.
- Non-Discrimination: The VDPA condemns discrimination in all its forms and stresses the need to eliminate discrimination based on race, color, sex, language, religion, political or other opinion, national or social origin, property, birth, or other status.
- Democracy, Rule of Law, and Good Governance: The VDPA highlights the importance of democracy, the rule of law, and good governance in promoting and protecting human rights. It emphasizes the need for participatory and inclusive systems that respect human rights and the will of the people.
- Gender Equality: The VDPA recognizes the importance of gender equality and the empowerment of women. It calls for the elimination of all forms of discrimination and violence against women and the promotion of equal opportunities in all spheres of life.
- Right to Development: The VDPA recognizes the right to development as a universal and inalienable right and emphasizes the need for international cooperation to promote sustainable development and address poverty and inequality.
- Human Rights Education: The VDPA emphasizes the importance of human rights education and awareness-raising to promote a culture of human rights and strengthen the understanding and respect for human rights at all levels of society.

OTHER INTERNATIONAL HUMAN RIGHTS LAWS?

- Universal Declaration of Human Rights (UDHR): Adopted by the United Nations General Assembly in 1948, the UDHR is a foundational document that sets out the fundamental rights and freedoms to which all individuals are entitled. Although not legally binding, it has influenced the development of subsequent human rights treaties and is considered a widely accepted standard.
- International Covenant on Civil and Political Rights (ICCPR): The ICCPR, adopted in 1966, guarantees civil and political rights, including the right to life, freedom of

expression, freedom of religion, and the right to a fair trial. It establishes obligations for states to respect and protect these rights and establishes the Human Rights Committee to monitor compliance.

- International Covenant on Economic, Social and Cultural Rights (ICESCR): Also adopted in 1966, the ICESCR recognizes the right to work, the right to education, the right to health, and other socio-economic rights. It obligates states to progressively realize these rights and establishes the Committee on Economic, Social and Cultural Rights for monitoring.

NEW CHALLENGES FOR THE HUMAN RIGHTS REGIME?

- Technological Advancements: The rapid advancement of technology has posed new challenges for human rights. Issues such as data privacy, surveillance, artificial intelligence, and online freedom of expression require careful consideration to ensure that human rights are protected in the digital age.
- Climate Change and Environmental Rights: Climate change poses significant threats to human rights, including the right to life, health, food, water, and a safe environment. Addressing the adverse impacts of climate change and promoting sustainable development while safeguarding human rights require innovative approaches and international cooperation.
- Displacement and Migration: The global increase in displacement and migration presents complex challenges for human rights. Protecting the rights of refugees, internally displaced persons, and migrants, including their right to seek asylum, access to basic services, and non-discrimination, requires comprehensive and humane responses from governments and the international community.
- Emergence of New Human Rights Issues: As societies evolve, new human rights issues emerge. These may include the rights of LGBTQ+ individuals, rights of persons with disabilities, rights of indigenous peoples, and other marginalized groups. Ensuring their equal rights and protection necessitates continuous advocacy and legal reforms.
- Shrinking Civic Space and Threats to Civil Society: Many countries have witnessed a shrinking civic space and increasing restrictions on civil society organizations and human rights defenders. Intimidation, harassment, and legal restrictions hinder the work of those advocating for human rights, challenging the promotion and protection of human rights globally.

INDIA'S POSITION ON INTERNATIONAL HUMAN RIGHTS?

India has ratified both the ICCPR and the ICESCR, demonstrating its commitment to upholding civil, political, economic, social, and cultural rights. However, it's important to note that while the ICCPR and the ICESCR are legally binding treaties, the UDHR itself is not a treaty and has not been signed or ratified by states. Nonetheless, the

UDHR continues to be recognized as a significant document that has influenced the development of human rights laws and serves as a guiding principle for promoting and protecting human rights globally.

Q1. Which of the following statements regarding the Vienna Declaration and Programme of Action (VDPA) is/are correct?
1. The Vienna Declaration and Programme of Action was adopted at the World Conference on Human Rights held in Vienna in 2003.
2. The VDPA reaffirms the universality, indivisibility, interdependence, and interrelatedness of all human rights.
3. It emphasizes the importance of non-discrimination, equality, and the right to development.
4. The VDPA recognizes the significance of civil and political rights, but does not address economic, social, and cultural rights.

Select the correct answer from the options given below:
(a) 1 and 4 only
(b) 1, 2 and 3 only
(c) 1, 2, 3 and 4
(d) None of the above

Answer: (b)

Q.2 Which of the following statements regarding international human rights laws and India is/are correct?
1. India has ratified the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR).
2. The Universal Declaration of Human Rights (UDHR) is legally binding on India.
3. The National Human Rights Commission (NHRC) of India is an independent body established to address human rights violations.

Select the correct answer using the codes given below:
(a) 1 and 3 only
(b) 1, 2 and 3 only
(c) 1, and 2 only
(d) None of the above

Answer: (a)

Q.3 Discuss India's engagement with international human rights laws and institutions, highlighting its ratification of key human rights treaties, establish-

ment of the National Human Rights Commission, and participation in the Universal Periodic Review. Assess the challenges faced by India in implementing and promoting human rights, and suggest measures for further enhancing its commitment to human rights protection.

POCSO ACT

This article covers "Daily Current Affairs" and the topic details "POCSO Act". The topic "POCSO Act" has relevance in the Polity section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "POCSO ACT":

FOR PRELIMS:
What is POCSO Act?
What are the features of the POCSO Act?

FOR MAINS:
GS 2: Polity and Governance
What is the significance of the POCSO Act?
Way forward

WHY IN THE NEWS?
The POCSO Act has been in the news recently related to the accusations levelled against a Lok Sabha MP.

WHAT IS POCSO ACT?
The POCSO Act stands for the Protection of Children from Sexual Offences Act.
* It is a law implemented in India in 2012. Its purpose is to provide a legal framework for safeguarding children from sexual abuse, exploitation, and pornography. The act was introduced due to the alarming increase in incidents of sexual offenses against children, with the aim of ensuring their safety and well-being.
* The POCSO Act defines various forms of sexual offenses against children and specifies severe punishments for offenders. It encompasses acts like child molestation, sexual harassment, sexual assault, and child pornography. Additionally, the act also covers non-contact offenses, such as using a child for pornographic purposes or engaging in online sexual exploitation.

WHAT ARE THE FEATURES OF THE POCSO ACT?
1. Definition of Child: In accordance with the Act, a child is defined as any individual

below the age of 18 years. The Act emphasizes the rights of all children to be safeguarded from any form of sexual violence.

2. Crimes: The Act acknowledges that engaging in any type of sexual contact with a child is considered a criminal offense. The child's consent, deception, or coercion are irrelevant factors in determining the offense.

3. Special courts: The act mandates the establishment of special courts to handle cases related to child sexual offenses. These courts are expected to conduct speedy trials to ensure justice for the victims.

4. Child-friendly procedures: The act emphasizes child-friendly procedures during investigation, trial, and rehabilitation. It aims to create a safe and supportive environment for child victims or witnesses, including the provision of support persons and the recording of statements in a non-intimidating manner.

5. Reporting: According to the Act, it is obligatory for anyone who becomes aware of an offense under the Act to promptly report it to the police or a child welfare committee. Failure to do so may result in imprisonment for up to 6 months, a fine, or both.

6. Protection of Victim's Identity: The Act mandates that media personnel and others involved protect the identity and privacy of the child victim. Any disclosure of information that could potentially identify the child may lead to imprisonment for up to one year, a fine, or both.

7. Penalties: The POCSO Act prescribes stringent penalties for offenders. It includes imprisonment, fines, and the possibility of enhanced punishment for repeat offenders. The act also provides for the mandatory reporting of offenses, making it a legal obligation for individuals aware of such crimes to report them.

8. Victim support and rehabilitation: The act emphasizes the rehabilitation and support of child victims. It includes provisions for medical assistance, counseling, and other necessary support services to aid the physical, emotional, and psychological recovery of the child.

WHAT IS THE SIGNIFICANCE OF THE POCSO ACT?

1. Protection of Children: The act prioritizes the protection of children from sexual offenses, ensuring their safety and well-being.

2. Increased Awareness: The act has raised awareness about child sexual abuse and related offenses, promoting discussions and preventative measures.

3. Deterrence: Stringent penalties established by the act serve as a deterrent, discouraging offenders and creating a safer environment for children.

4. Speedy Justice: Special courts established under the act facilitate swift trials, ensuring timely justice for victims and reducing trauma.

5. Child-Friendly Procedures: The act emphasizes child-friendly procedures, creating a supportive environment during investigation, trial, and rehabilitation.

6. Rehabilitation and Support: The act mandates the provision of medical assistance, counseling, and support services for the physical and psychological recovery of child victims.
7. Reporting Obligations: Individuals are legally obligated to report child sexual offenses, promoting intervention, protection, and justice for victims.
8. Holistic Approach: The act recognizes the long-term impact of offenses and focuses on comprehensive rehabilitation and support for victims.
9. Safer Environment: The act contributes to the creation of a safer environment for children, promoting their well-being and protection.
10. Legal Framework: The act provides a dedicated legal framework for addressing child sexual offenses, ensuring accountability and justice.

WAY FORWARD
It has played a crucial role in addressing child sexual abuse and promoting a safer environment for children in India.

Source:
https://wcd.nic.in/sites/default/files/POCSO%20Act%2C%202012.pdf

PRELIMS QUESTIONS
Q.1 POCSO Act stands for?
1. Protection of Children from Sexual Offences.
2. Prevention of Children from Sexual Obscenity.
3. Prevention of Children from Sexual Offences.
4. Protection of Children from Sexual Obscenity.

Select the correct answer from the code given below:
1. Option 1
2. Option 2
3. Option 3
4. Option 4

Answer: (c)

Q.2 Consider the following statements about the POCSO Act:
1. The POCSO Act stands for the Protection of Children from Sexual Offences Act.
2. The purpose of the law is to provide a legal framework for safeguarding working women from sexual abuse and exploitation on work premises.

Select the correct answer from the code given below:
1. 1 only
2. 2 only
3. Both 1 and 2

4. Neither 1 nor 2
Answer: (a)

Mains Question
1. **Discuss the significance of the POCSO Act in protecting children from sexual offenses in India. Examine its key provisions and their impact on raising awareness, ensuring justice, and providing support to the victims. (Word limit: 250 words)**

NARCOTICS PROBLEM IN INDIA

This article covers "Daily Current Affairs" and the topic details "Narcotics Problem In India". The topic "Narcotics Problem In India" has relevance in the Governance section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
GS 2: Governance
What are Narcotics?
What is the Golden Crescent?
What is the Golden Triangle?

FOR MAINS:
Challenges presented to India by Narcotics?
Government efforts to deal with the Narcotics Problem?

WHY IN THE NEWS?
The Directorate of Revenue Intelligence (DRI) has detected a novel modus operandi of smuggling of narcotics (Cocaine) into India via the courier route, wherein the cocaine was concealed within the thermocol balls, purportedly used to cushion the declared goods.

WHAT ARE NARCOTICS?

Narcotics are drugs that have psychoactive properties and are known to produce analgesic (pain-relieving) effects. The term "narcotic" is often used to refer to a specific category of drugs, primarily opioids, but it can have broader or more specific definitions depending on the context. Here are the different interpretations of the term "narcotics":

Opioids: In a medical and legal context, narcotics specifically refer to opioids, which are a class of drugs derived from or similar to opium. Examples of opioids include morphine, codeine, oxycodone, hydrocodone, fentanyl, and heroin. These drugs are potent pain relievers but also carry a high risk of dependence and abuse.

Illicit Drugs: In a broader context, "narcotics" can refer to a range of illicit drugs with psychoactive effects. This includes substances such as heroin, cocaine, methamphetamine, MDMA (ecstasy), LSD, and marijuana (in some cases). These drugs may have different mechanisms of action and effects on the central nervous system.

Controlled Substances: The term "narcotics" is often used in the legal framework to categorize drugs with a high potential for abuse and dependence. Governments classify certain drugs as narcotics and regulate their production, distribution, and use through laws and regulations. This classification typically includes opioids and other controlled substances.

WHAT IS THE GOLDEN CRESCENT?

The Golden Crescent region, consisting of Afghanistan, Iran, and Pakistan, is one of the world's largest producers of opium and heroin. Heroin production in this region relies heavily on opium cultivation, with Afghanistan being the primary opium-producing country. Narcotics traffickers exploit the porous borders of Pakistan and Iran to smuggle heroin into India.

WHAT IS THE GOLDEN TRIANGLE?

The Golden Triangle, encompassing Myanmar, Laos, and Thailand, has long been known for its opium production and heroin trafficking. Although the production of opium has decreased in recent years, it remains a significant source of heroin for the global market. Heroin produced in the Golden Triangle often finds its way into India through illicit channels.

CHALLENGES PRESENTED TO INDIA BY NARCOTICS?

- Geographical Location: India's geographical proximity to the Golden Crescent and the Golden Triangle regions makes it vulnerable to drug trafficking activities. The vast and porous borders, coupled with a long coastline, pose significant challenges in intercepting drug shipments and preventing their entry into the country.
- Transnational Criminal Networks: Narcotics trafficking in India is often orchestrated by transnational criminal networks with sophisticated operations and international connections. These networks exploit existing smuggling routes, corrupt officials, and weak law enforcement capacities, making it difficult to dismantle their operations

effectively.

- **Drug Production in Neighboring Countries:** India shares borders with countries known for drug production, such as Afghanistan, Pakistan, and Myanmar. The production of opium, heroin, and other narcotics in these countries has a direct impact on drug availability and trafficking patterns within India.

- **Growing Domestic Drug Market:** India has seen a rise in drug abuse and addiction within its own population. The demand for narcotics fuels the trafficking networks and contributes to the expansion of the illicit drug market. Addressing domestic drug abuse requires comprehensive strategies that encompass prevention, treatment, and rehabilitation programs.

- **Money Laundering and Financing:** Narcotics trafficking generates substantial profits, and the laundering of illicit proceeds poses a significant challenge for India. Money laundering activities associated with drug trafficking complicate the efforts to trace and seize the illicit funds, hindering the disruption of trafficking networks.

- **Corruption and Insider Complicity:** Corruption among law enforcement officials, border guards, and other public servants undermines efforts to combat narcotics trafficking. Insider complicity allows drug traffickers to operate with relative impunity, bypassing security measures and facilitating the movement of drugs across borders.

- **Technological Advancements:** Drug traffickers exploit advancements in technology for their illicit activities. They use encrypted communication channels, dark web platforms, and other sophisticated techniques to coordinate drug transactions, making it harder for law enforcement agencies to track and intercept their operations.

- **Limited Resources and Capacities:** Indian law enforcement agencies responsible for combating narcotics trafficking often face resource constraints and capacity issues. Insufficient manpower, outdated equipment, and limited training can hamper their effectiveness in dealing with the complex and evolving drug trade.

GOVERNMENT EFFORTS TO DEAL WITH THE NARCOTICS PROBLEM?

- **Narcotics Control Bureau (NCB):** The NCB is the primary agency responsible for coordinating and implementing anti-narcotics efforts in India. It conducts intelligence operations, carries out raids and seizures, and coordinates with international agencies to disrupt drug trafficking networks.

- **Strengthening Legal Framework:** The government has enacted and amended laws to strengthen the legal framework for tackling narcotics trafficking. The Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985, provides the legal basis for controlling drug trafficking and abuse. Amendments have been made to enhance penalties for offenders and streamline legal procedures.

- **International Cooperation:** India actively cooperates with international organizations

and neighboring countries to combat narcotics trafficking.

- Border Management: The government has prioritized improving border management to curb narcotics trafficking. This includes enhancing surveillance technologies, deploying specialized units, and establishing joint border control mechanisms with neighboring countries to prevent the entry of drugs into India.
- Intelligence and Interagency Coordination: Intelligence sharing and interagency coordination play a crucial role in combating narcotics trafficking. The government has focused on strengthening coordination between various law enforcement agencies
- Demand Reduction Programs: The government recognizes the importance of addressing the demand side of drug abuse. It has implemented awareness campaigns, preventive education programs, and rehabilitation and treatment services to reduce drug demand and support individuals struggling with addiction.
- Public-Private Partnerships: The government has encouraged partnerships with the private sector, civil society organizations, and community stakeholders to enhance efforts against narcotics trafficking. Collaborations involve initiatives such as awareness campaigns, capacity-building programs, and support for rehabilitation and reintegration of drug users.
- Technology and Digital Initiatives: The government has leveraged technology to strengthen anti-narcotics efforts. This includes the use of advanced surveillance systems, data analytics, and digital platforms for tracking drug trafficking patterns, identifying suspects, and disrupting illicit networks.
- International Conventions and Treaties: India is a party to various international conventions and treaties related to narcotics control, such as the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. The government actively participates in international forums to strengthen cooperation and compliance with international obligations.

Source:
https://pib.gov.in/PressReleaseDetail.aspx?PRID=1932729

Q.1 Which of the following regions is known as the "Golden Crescent" in relation to narcotics production and trafficking?
(a) South America, comprising Colombia, Peru, and Bolivia
(b) West Africa, including countries such as Nigeria and Guinea-Bissau
(c) South Asia, comprising Afghanistan, Iran, and Pakistan
(d) Southeast Asia, including Myanmar, Laos, and Thailand
Answer: (c)

Q.2 Which of the following statements about the Golden Triangle is correct?
(a) The Golden Triangle refers to the region in South Asia comprising Afghanistan, Iran,

and Pakistan, known for its significant opium production.

(b) The Golden Triangle is an area in Southeast Asia consisting of Myanmar, Laos, and Thailand, historically recognized as a major source of illicit drugs.

(c) The Golden Triangle is a term used to describe the golden hue of sunsets in the Thar Desert region of India.

(d) The Golden Triangle is a global initiative aimed at promoting trade and economic cooperation among India, China, and Myanmar.

Answer: (b)

Q.3 **"Discuss the challenges posed by the narcotic in India and evaluate the government's strategies to address drug trafficking, drug abuse, and related social issues. Suggest policy measures to enhance the effectiveness of the government's efforts in curbing the narcotics menace and its impact on society."**

GENERIC DRUGS

This article covers "Daily Current Affairs" and the topic details "GENERIC DRUGS". The topic "GENERIC DRUGS" has relevance in the Social Justice section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What are Generic Drugs?
What is compulsory licensing?

FOR MAINS:
GS 2: Social Justice
Benefits of Generic Drugs?
Challenges for India in Adopting Generic Drugs?

WHY IN THE NEWS?
Generic drugs for diabetes, gastric issues, cardiovascular ailments see high demand. The Jan Aushadhi Kendras selling generic drugs at affordable prices have seen their sales rise more than 170 times over the last nine years

WHAT ARE GENERIC DRUGS?
Generic drugs are pharmaceutical products that are equivalent to brand-name drugs in terms of active ingredients, dosage form, strength, route of administration, quality, safety, and intended use. They are typically produced and marketed after the patent

protection of the original brand-name drug expires. Generic drugs contain the same active ingredients, have the same pharmacological effects, and provide the same therapeutic benefits as their brand-name counterparts.

Regulatory authority: The regulatory authority responsible for ensuring the quality, safety, and efficacy of drugs in India is the Central Drugs Standard Control Organization (CDSCO). CDSCO approves and regulates generic drugs through a comprehensive evaluation process.

WHAT IS COMPULSORY LICENSING?

Compulsory licensing is a legal mechanism that allows a government to grant permission to a third party to produce, use, or sell a patented invention without the consent of the patent holder. It is a measure used to balance the exclusive rights granted to patent holders with public health needs or other societal interests.

The primary objective of compulsory licensing is to ensure access to essential goods or services, particularly in situations where patent-protected products are priced high, unaffordable, or in short supply. By issuing a compulsory license, the government can authorize other manufacturers or entities to produce and distribute a patented product or technology.

BENEFITS OF GENERIC DRUGS?

- Cost savings: Generic drugs are generally more affordable than brand-name drugs. The competition among multiple manufacturers once the patent protection expires leads to price reductions. This cost savings makes healthcare more accessible and can significantly reduce prescription drug expenses for individuals and healthcare systems.
- Equivalent effectiveness: Generic drugs must demonstrate bioequivalence to brand-name drugs, meaning they have the same active ingredients, dosage forms, strengths, and route of administration. They provide the same therapeutic benefits as their brand-name counterparts when used as prescribed. Regulatory authorities rigorously test generic drugs to ensure their safety, quality, and efficacy.
- Increased access: The affordability of generic drugs enhances access to medications for a broader population. Lower prices make it more feasible for patients to afford necessary treatments, particularly for chronic conditions that require long-term medication use.
- Promote competition: The introduction of generic drugs into the market promotes healthy competition. Brand-name drug manufacturers face competition from generic manufacturers, which can help drive down prices of both generic and brand-name drugs. This competition fosters innovation and efficiency within the pharmaceutical industry.
- Availability of therapeutic alternatives: Generic drugs offer therapeutic alternatives

to brand-name drugs. When a patent expires and generic versions become available, patients have more options to choose from, allowing them to make informed decisions based on factors such as cost and personal preferences.

- Regulatory standards and oversight: Generic drugs undergo stringent regulatory scrutiny to ensure their safety, quality, and effectiveness. Regulatory authorities set standards and guidelines for the approval and manufacturing of generic drugs, providing assurance to patients and healthcare professionals.

- Support for healthcare systems: The availability of cost-effective generic drugs helps healthcare systems manage their budgets more efficiently. By substituting brand-name drugs with generics, healthcare providers and payers can allocate resources more effectively and provide access to a broader range of treatments.

CHALLENGES FOR INDIA IN ADOPTING GENERIC DRUGS?

- Perception and awareness: One of the primary challenges is the perception and awareness of generic drugs among patients and healthcare professionals. Some patients may still have reservations about the quality and efficacy of generic drugs compared to brand-name drugs. Lack of awareness and understanding about bioequivalence and regulatory standards can contribute to this perception.

- Brand loyalty: Brand loyalty is another challenge. Patients who have been using a particular brand-name drug for a long time may be hesitant to switch to a generic alternative, even if it is more cost-effective. Strong brand loyalty and trust in specific brands can make it challenging for patients to accept or consider generic options.

- Lack of trust and misinformation: Trust plays a crucial role in the adoption of generic drugs. In some cases, instances of substandard or counterfeit generic drugs have eroded public trust. Additionally, misinformation or rumors about the quality or effectiveness of generic drugs can further hinder their acceptance and adoption.

- Prescription practices: Prescription practices by healthcare professionals can impact the adoption of generic drugs. If doctors are more inclined to prescribe brand-name drugs or are not proactive in suggesting or prescribing generics, it can limit their usage. Factors such as incentives or relationships between healthcare professionals and pharmaceutical companies may also influence prescribing patterns.

- Regulatory challenges: While India has a robust regulatory framework for generic drugs, ensuring consistent adherence to quality standards across all manufacturers remains a challenge. The quality control and surveillance of the entire supply chain, including manufacturing, distribution, and dispensing, need continuous monitoring and enforcement to maintain quality and build trust in generic drugs.

- Price differentials: While generic drugs are generally more affordable than brand-name drugs, the price differentials between generic and brand-name drugs in some cases may still be substantial. Patients who have limited financial resources may find it challenging to afford even the lower cost of generic drugs, leading to barriers

in their adoption.

- Intellectual property concerns: Intellectual property rights and patent-related issues can create challenges for the availability of certain generic drugs. Patents granted to brand-name drugs may limit the immediate entry of generic versions into the market. Although compulsory licensing provisions exist in India, the complexity of patent laws and litigation processes can impact timely access to affordable generic alternatives.

Addressing these challenges requires a multi-faceted approach involving awareness campaigns, education for patients and healthcare professionals, effective regulation and monitoring, and fostering trust in the quality and efficacy of generic drugs. Collaboration between government agencies, pharmaceutical industry stakeholders, healthcare providers, and patient advocacy groups can help overcome these challenges and promote the wider adoption of generic drugs in India.

Source:
https://www.thehindu.com/sci-tech/health/no-plans-to-take-jan-aushadhi-kendras-online-says-ceo/article66976870.ece

Q.1   Which of the following is a key benefit of generic drugs?
(a) They have a lower risk of adverse effects compared to brand-name drugs.
(b) They are exclusively available in specialized dosage forms.
(c) They offer cost savings compared to brand-name drugs.
(d) They have a longer patent protection period than brand-name drugs.
Answer: (c)

Q.2   Which of the following is a significant challenge in the adoption of generic drugs?
(a) Limited availability of generic drugs for commonly prescribed medications.
(b) Lower effectiveness and safety risks compared to brand-name drugs.
(c) Lack of regulatory oversight for generic drug manufacturing.
(d) Higher cost of generic drugs compared to brand-name drugs.
Answer: (a)

Q.3   Discuss the challenges and opportunities in promoting the widespread adoption of generic drugs in healthcare systems. How can these challenges be addressed to enhance access, affordability, and quality of healthcare?

ONE HEALTH APPROACH

This article covers "Daily Current Affairs" and the topic details "One Health Approach". The topic "One Health Approach" has relevance in the Public Health section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is One Health Approach?
Facts about One Health Approach?

FOR MAINS:
GS 2: Public Health
Benefits of One Health Approach?
Limitations of One Health Approach?
India on One Health Approach?

WHY IN THE NEWS?
The Council of the European Union (EU) adopted a set of recommendations on June 13, 2023 to strengthen action against antimicrobial resistance (AMR). It recommended prudent use of antimicrobials such as antibiotics in human and animal health for reducing the risk of microorganisms becoming resistant to medical intervention.
These recommendations were part of a proposal submitted by the European Commission to the European Council on April 26, 2023. The commission submitted the proposal for a recommendation on stepping up EU actions to combat AMR in a One Health approach.

WHAT IS ONE HEALTH APPROACH?
The One Health approach is a collaborative and interdisciplinary approach that recognizes the interconnectedness of human health, animal health, and the environment. It emphasizes the importance of addressing health issues at the interface of humans, animals, and ecosystems, considering their interdependencies and shared risks.
The core principle of the One Health approach is that the health of humans, animals, and the environment are closely linked and should be considered together when addressing health challenges. By recognizing these interconnections, the One Health approach aims to promote holistic solutions that benefit all three sectors.

FACTS ABOUT ONE HEALTH APPROACH?
• Zoonotic Diseases: Approximately 75% of emerging infectious diseases in humans are zoonotic, meaning they originate from animals. The One Health approach

recognizes the need to monitor and control zoonotic diseases to prevent outbreaks and pandemics.

- One Health Commission: The One Health Commission is an international organization that promotes and facilitates the adoption of the One Health approach. It focuses on fostering interdisciplinary collaborations and advocating for policies that support One Health initiatives.
- Rabies Elimination: The One Health approach has played a significant role in the global efforts to eliminate rabies. By integrating human and animal health strategies, countries have made substantial progress in controlling and eradicating this deadly disease.
- Food Safety: One Health emphasizes the importance of safe and sustainable food production. By integrating the efforts of farmers, veterinarians, food processors, and public health officials, risks associated with foodborne illnesses can be minimized.
- Environmental Conservation: The One Health approach recognizes the impact of environmental degradation on human and animal health. It emphasizes sustainable practices that protect ecosystems and promote biodiversity conservation for the benefit of all species.
- Antimicrobial Resistance (AMR): The One Health approach addresses the growing threat of antimicrobial resistance. It emphasizes responsible use of antibiotics in both human and veterinary medicine, aiming to preserve the effectiveness of antimicrobial drugs for future generations.
- Disaster Response: The One Health approach is crucial in disaster response and management. It recognizes the interconnectedness of humans, animals, and the environment during and after natural disasters, enabling coordinated efforts to protect and restore health in affected communities.
- Education and Research: One Health education and research programs have been established in various universities and institutions worldwide. These initiatives promote interdisciplinary learning and research, preparing future professionals to tackle complex health challenges effectively.
- Global One Health Day: Global One Health Day is celebrated on November 3rd each year. It serves as an opportunity to raise awareness about the importance of the One Health approach and its impact on global health.
- International Collaboration: The One Health approach has gained recognition and support from international organizations such as the World Health Organization (WHO), Food and Agriculture Organization (FAO), and World Organization for Animal Health (OIE). These organizations actively promote and facilitate the implementation of One Health principles worldwide.

BENEFITS OF ONE HEALTH APPROACH?
- Improved Disease Surveillance and Control: By integrating surveillance systems and

sharing information across human and animal health sectors, early detection, and control of diseases can be enhanced. This leads to better preparedness for disease outbreaks and more effective response strategies.

- Enhanced Public Health: The One Health approach focuses on prevention rather than just treatment. By addressing health risks at their source, such as identifying and mitigating zoonotic disease transmission pathways, public health can be improved. This approach also helps in managing antimicrobial resistance, which is a global health concern.

- Holistic Understanding of Health: The interconnectedness of human, animal, and environmental health is acknowledged in the One Health approach. This holistic understanding allows for a more comprehensive assessment of health risks and the development of integrated strategies to address them.

- Environmental Sustainability: The One Health approach recognizes that the health of humans and animals is closely linked to the health of the environment. By considering ecosystem dynamics and promoting sustainable practices, such as responsible agriculture and habitat conservation, the approach supports environmental sustainability.

- Collaboration and Knowledge Sharing: One Health encourages collaboration among different disciplines and sectors, fostering knowledge sharing and interdisciplinary research. This collaborative approach can lead to innovative solutions and the discovery of new insights that benefit all sectors involved.

- Economic Benefits: Investing in One Health approaches can result in long-term economic benefits. By preventing and controlling disease outbreaks, the approach reduces healthcare costs, economic losses from animal diseases, and productivity losses in agriculture. It also promotes sustainable practices that contribute to long-term environmental and economic well-being.

- Resilience to Emerging Challenges: The One Health approach provides a framework to address emerging health challenges effectively. Whether it's the emergence of new infectious diseases, climate change impacts on health, or food security issues, the holistic and interdisciplinary nature of One Health enables a proactive and adaptive response.

LIMITATIONS OF ONE HEALTH APPROACH?

- Interdisciplinary Collaboration: Collaboration among different disciplines, such as human medicine, veterinary medicine, and environmental science, can be challenging due to differences in terminology, methodologies, and priorities. Effective interdisciplinary collaboration requires dedicated efforts to bridge these gaps and establish effective communication channels.

- Institutional Barriers: Existing institutional structures and policies often operate in silos, making it difficult to implement integrated approaches like One Health.

Overcoming bureaucratic and regulatory barriers to facilitate coordination and collaboration between sectors can be a significant challenge.

- Limited Funding and Resources: Adequate funding and resources are essential for successful implementation of the One Health approach. Limited financial support and competing priorities may hinder the allocation of sufficient resources to fully implement and sustain One Health initiatives at local, national, and global levels.
- Data Sharing and Integration: Integrating data from different sectors, such as human health, animal health, and environmental monitoring, can be complicated. Variations in data collection methods, standards, and privacy concerns may hinder the seamless sharing and integration of data necessary for effective One Health decision-making.
- Cultural and Behavioral Factors: Cultural, social, and behavioral factors can influence the acceptance and adoption of the One Health approach. Changing established practices and attitudes, as well as fostering behavioral changes in communities and stakeholders, may require extensive education, awareness campaigns, and community engagement efforts.
- Governance and Policy Coordination: Coordinating policies and governance mechanisms across sectors can be challenging. Effective leadership, cooperation, and coordination are needed to ensure that policies and regulations support the One Health approach and facilitate its implementation at various levels.
- Complexity and Scale: The One Health approach deals with complex issues involving multiple interconnected systems. Scaling up One Health initiatives from local to regional or global levels can be logistically challenging and require extensive coordination, harmonization, and standardization efforts.

INDIA ON ONE HEALTH APPROACH?

- National One Health Strategic Plan: In 2018, India launched the National One Health Strategic Plan as part of its commitment to the One Health approach. The plan focuses on addressing zoonotic diseases, antimicrobial resistance, and environmental health through integrated surveillance, research, and capacity-building initiatives.
- Zoonotic Disease Control: India faces significant challenges related to zoonotic diseases such as rabies, leptospirosis, brucellosis, and avian influenza. The One Health approach in India emphasizes collaboration between human health, animal health, and wildlife sectors to enhance disease surveillance, prevention, and control.
- Veterinary Public Health: The One Health approach recognizes the role of veterinarians in safeguarding public health. In India, veterinary public health professionals play a crucial role in monitoring food safety, conducting disease surveillance, and promoting responsible antimicrobial use in animal husbandry practices.
- One Health Units: India has established One Health units at various levels,

including national, state, and district levels. These units facilitate collaboration and coordination among different sectors, enabling a more integrated approach to health challenges.

- Wildlife Conservation: India is home to a rich diversity of wildlife, and the One Health approach recognizes the importance of wildlife conservation in maintaining ecological balance and preventing zoonotic disease transmission. Efforts are being made to integrate wildlife health surveillance and conservation with public health strategies.
- Research and Capacity Building: Indian institutions and organizations are actively involved in One Health research and capacity-building initiatives. These efforts focus on interdisciplinary training, research collaboration, and knowledge sharing to address emerging health challenges.
- One Health Programs: Several government programs and initiatives in India incorporate the One Health approach. For example, the National Rabies Control Program emphasizes coordinated efforts between human health and animal health sectors to eliminate rabies by 2030.
- One Health Awareness: Awareness about the One Health approach is gradually increasing in India. Various workshops, seminars, and awareness campaigns are being conducted to educate stakeholders, professionals, and the general public about the interconnectedness of human, animal, and environmental health.
- International Collaboration: India actively participates in international forums and collaborations related to One Health, including partnerships with organizations like the WHO, FAO, and OIE. These collaborations facilitate knowledge exchange, technical support, and capacity-building opportunities.
- Policy Integration: The Government of India has recognized the importance of the One Health approach and is working on integrating One Health principles into policies related to health, agriculture, environment, and disaster management. This integration aims to promote a more comprehensive and coordinated approach to health challenges.

Source:
https://www.downtoearth.org.in/news/health/one-health-approach-european-union-strengthens-action-to-combat-antimicrobial-resistance-90084

Q.1   Which of the following best describes the One Health approach?
(a) A healthcare approach that focuses solely on human health and well-being.
(b) An interdisciplinary approach that recognizes the interconnectedness of human, animal, and environmental health.
(c) A strategy to control and eradicate zoonotic diseases through vaccination programs.
(d) A framework for promoting sustainable agriculture practices and food security.

Answer: (b)

Q.2   Which of the following sectors are integrated in the One Health approach?
(a) Human health and environmental science.
(b) Animal health and agricultural practices.
(c) Public health and wildlife conservation.
(d) All of the above.

ANSWER: (D)

Q.3 Discuss the significance of the One Health approach in addressing emerging health challenges and achieving sustainable development. Illustrate with relevant examples from India.

GENDER GAP REPORT

This article covers "Daily Current Affairs" and the topic details "Gender Gap Report". The topic "Gender Gap Report" has relevance in the Social Justice section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is the Gender Gap Report?

FOR MAINS:
GS 2: Social Justice
Key findings of the Report?
Key findings regarding India?

WHY IN THE NEWS?
India climbs eight places to 127 in global gender index, says WEF report.

WHAT IS THE GENDER GAP REPORT?
The Global Gender Gap Report, published annually by the World Economic Forum (WEF), serves as a crucial tool for measuring and analyzing gender disparities across nations. This comprehensive assessment focuses on four key areas: economic participation and opportunity, educational attainment, health and survival, and political empowerment. By examining these dimensions, the report provides valuable insights into the progress made and the challenges that persist in achieving gender equality globally.

KEY FINDINGS OF THE REPORT?

- Labor Market Disparities: Despite a slight increase in women's participation in the labor market, significant gaps still exist. Between 2022 and 2023, the global labor force participation rate parity improved from 63% to 64%.
- Workforce Representation: Women's underrepresentation in leadership positions remains a significant concern across industries. While women account for 41.9% of the global workforce, their representation in senior leadership positions stands at only 32.2%. Notably, different industries exhibit varying levels of gender representation in leadership roles. Sectors such as construction, financial services, and real estate show the lowest levels of female representation. Efforts are needed to break down barriers and promote gender equality in leadership positions.
- Gender Gaps in STEM: The underrepresentation of women in science, technology, engineering, and mathematics (STEM) occupations persists. While there has been an increase in the percentage of female STEM graduates entering the workforce, the retention of women in STEM careers remains a challenge. In the field of artificial intelligence (AI), progress in women's representation has been slow, with women comprising only approximately 30% of AI workers. Encouraging greater female participation in STEM fields is crucial for fostering innovation and driving economic growth.
- Gender Gaps in Future Skills: Online learning platforms provide opportunities for skill development, but gender gaps in access and enrollment persist. Disparities exist across various skill categories, particularly in technology skills and AI, with less than 50% parity. Moreover, the gender gaps tend to widen as proficiency levels increase. Ensuring equal access to future skills training is essential for empowering women and narrowing the gender gap in emerging industries.
- Gender Gaps in Political Leadership: While progress has been made in increasing the number of women in political leadership roles globally, significant gender gaps still exist. As of December 2022, approximately 27.9% of the global population lived in countries with a female head of state. The report also highlights a steady increase in the representation of women in parliaments globally, with the percentage of female parliament members rising from 18.7% in 2013 to 22.9% in 2022. Continued efforts are necessary to enhance women's political empowerment and ensure their meaningful participation in decision-making processes.

KEY FINDINGS REGARDING INDIA?

- India's Ranking and Overall Gender Gap: India improved its ranking in gender parity, moving up eight places to secure the 127th position among 146 countries. The report highlighted that India has closed 64.3% of the overall gender gap, indicating some progress in addressing gender disparities.
- Comparison with Neighboring Countries: In comparison to its neighbors, India's

gender parity performance is varied. The report ranked Pakistan at 142, Bangladesh at 59, China at 107, Nepal at 116, Sri Lanka at 115, and Bhutan at 103. These rankings provide insights into the relative progress made by India concerning gender equality.

- Economic Participation and Opportunity: The report underscored that India still lags behind in economic participation and opportunity, achieving only 36.7% parity. This highlights the existing gaps in employment and entrepreneurship opportunities for women in the country.
- Enrolment in Education: India has achieved parity in enrolment across all levels of education. This indicates that girls and women have equal access to educational opportunities in India, reflecting a positive stride toward gender equality in education.
- Wage Parity and Senior Positions: While there has been an improvement in wage parity and income equality, the report noted a slight decline in the share of women in senior positions and technical roles. This highlights the need for continued efforts to address barriers and biases that hinder women's advancement to leadership positions in various sectors.
- Political Empowerment: India registered a parity score of 25.3% in political empowerment, with women constituting 15.1% of Members of Parliament (MPs). While there has been progress in women's representation in politics, the figures indicate that significant gender gaps persist in political leadership roles.
- International Comparison: Among the 117 countries with available data since 2017, only 18 countries, including Bolivia (50.4%), India (44.4%), and France (42.3%), have achieved women's representation of over 40% in local governance. This highlights the need for increased efforts to enhance women's political participation at various levels of governance.

Source:
https://www.thehindu.com/news/national/india-climbs-eight-places-to-127-in-global-gender-index-says-wef-report/article66994156.ece

Q.1   In the Global Gender Gap Report 2023, which area did India achieve parity in across all levels of education?
(a) Economic participation and opportunity
(b) Political empowerment
(c) Enrolment in education
(d) Wage parity and senior positions
Answer:(C)

Q.2 Which of the following statements regarding labor market disparities, as highlighted in the Global Gender Gap Report 2023, is correct?

1. Women's participation in the global labor market has decreased between 2022 and 2023
2. Women face higher unemployment rates compared to men in the labor market.
3. Women's representation in senior leadership positions across industries is higher than men.
4. Women have achieved parity in science, technology, engineering, and mathematics (STEM) occupations.

Select the appropriate options.
(a) 1 and 2 only
(b) 2 only
(c) 1, 2, 3 and 4
(d) 1, 3 and 4 only

Answer: (b)

Q.3 Discuss the key challenges and potential solutions highlighted in the Global Gender Gap Report 2023 regarding labor market disparities and women's representation in leadership positions. How can these challenges be addressed to promote gender equality and empowerment?

ASSISTED REPRODUCTIVE TECHNOLOGY (ART) REGULATIONS 2023

*This article covers "Daily Current Affairs" and the topic details "**Assisted Reproductive Technology Regulations 2023**". The topic "Assisted Reproductive Technology Regulations 2023" has relevance in the Governance section of the UPSC CSE exam.*

RELEVANCE:

FOR PRELIMS:

What is ART?

FOR MAINS:

GS 2: Governance
Features of ART act 2021?
Significance of ART act 2021?
Concerns about ART act 2021?

WHY IN THE NEWS?

The Health Ministry notified the Assisted Reproductive Technology Regulations (ART), 2023, which are aimed at providing donors and patients with better medical care and security.

WHAT IS ART:

ART stands for Assisted Reproductive Technology. It refers to a range of medical procedures and techniques that are used to assist individuals or couples in achieving pregnancy when they are facing fertility challenges or reproductive difficulties. ART involves the manipulation of sperm, eggs, or embryos outside the human body to facilitate conception and pregnancy.

SOME COMMON TYPES OF ART PROCEDURES INCLUDE:

- **In-Vitro Fertilization (IVF):** This procedure involves the fertilization of eggs with sperm outside the body in a laboratory dish. The resulting embryos are then transferred to the woman's uterus for implantation and pregnancy.
- **Intracytoplasmic Sperm Injection (ICSI):** In this procedure, a single sperm is directly injected into an egg to facilitate fertilization. It is typically used in cases of male infertility or when conventional IVF has not been successful.
- **Gamete Intrafallopian Transfer (GIFT):** In GIFT, both the eggs and sperm are collected and transferred into the woman's fallopian tubes, where fertilization occurs naturally.
- **Zygote Intrafallopian Transfer (ZIFT):** ZIFT involves the transfer of fertilized embryos into the woman's fallopian tubes, similar to GIFT. However, in ZIFT, the embryos are already fertilized in the laboratory before transfer.
- **Surrogacy:** Surrogacy is a process in which a woman (surrogate) carries and delivers a child on behalf of another person or couple. The embryo used for surrogacy can be created through IVF using the intended parents' or donors' gametes.

FEATURES OF ART ACT 2021?

- **Registration of ART Clinics and Banks:** The Act mandates the registration of all ART clinics and banks operating in India under the National Registry of Banks and Clinics of India. This registration ensures the centralization of data and information about these institutions.
- **National Registry:** The Act establishes a National Registry of Banks and Clinics of India, which serves as a central database containing details of registered ART clinics and banks. This registry facilitates effective monitoring and regulation of the

sector.

- **Screening and Storage:** Registered ART banks are authorized to screen, collect, and store semen from men aged between 21 and 55 years. They can also store eggs from women aged between 23 and 35 years.

- **Donor Criteria:** Female donors are required to be married and have at least one child of their own, who is at least three years old. This criteria aims to ensure the availability of suitable donors and their understanding of the implications of their donation.

- **Parental Rights:** The Act legally recognizes a child born through an ART procedure as the biological child of the couple undergoing the procedure. The donor does not retain any parental rights over the child.

- **Informed Consent and Insurance:** Both the couple seeking the ART procedure and the donor are required to provide written informed consent. The couple is also obligated to provide insurance coverage for the female donor in the event of loss, damage, or death.

- **Regulation of ART Processes:** In addition to regulating ART services, the Act establishes National and State Boards to oversee and regulate both ART services and surrogacy. These boards have various functions, including policy advisory, monitoring, and formulating a code of conduct for ART clinics and banks.

- **Offences and Penalties:** The Act identifies several offences related to ART procedures, including abandonment or exploitation of children born through ART, sale or trade of embryos, exploitation of couples or donors, and transferring an embryo into a male or an animal. Committing such offences can result in imprisonment ranging from 8 to 12 years and fines

- **Restrictions and Prohibitions:** The Act prohibits ART clinics and banks from advertising or offering sex-selective ART procedures. Engaging in such activities can lead to imprisonment ranging from 5 to 10 years and/or a fine of Rs 10 to 25 lakhs.

SIGNIFICANCE OF ART ACT 2021?

- **Regulation and Safety:** The Act introduces comprehensive regulations to govern the practice of assisted reproductive technology. It sets standards and guidelines for ART clinics and banks, ensuring the safety, well-being, and rights of individuals undergoing ART procedures. The regulation helps prevent unethical practices, exploitation of donors, and potential risks associated with ART.

- **Protection of Interests:** The Act prioritizes the interests of individuals seeking ART services. By establishing clear guidelines, informed consent requirements, and provisions for insurance coverage, it safeguards the rights and well-being of both the couples undergoing the procedure and the donors involved.

- **Prevention of Congenital Abnormalities:** The Act addresses the prevention of congenital abnormalities by implementing regulations and oversight of ART procedures. It ensures that the techniques and processes used in ART adhere to established medical standards, minimizing the risks of genetic disorders and other complications in the offspring.

- **Elimination of Unregulated Practices:** Prior to the Act, the field of ART in India operated with limited regulations and oversight. The implementation of this law eliminates unregulated practices and untrained individuals in the field, enhancing the quality and reliability of ART services. It promotes professionalism, accountability, and ethical practices among ART clinics and banks.

- **Ethical Considerations:** The Act promotes ethical practices in the field of ART. It emphasizes the importance of informed consent, protection of parental rights, and the prohibition of sex-selective procedures. These ethical considerations ensure that ART procedures are conducted with respect for the dignity and autonomy of individuals involved.

- **Strengthening Healthcare Infrastructure:** The Act's provision for registration and central database of ART clinics and banks strengthens the healthcare infrastructure related to ART. It facilitates better monitoring, data collection, and evaluation of the ART sector, enabling policymakers and healthcare authorities to make informed decisions and implement necessary improvements.

- **International Alignment:** The Act aligns India with international standards and best practices in the field of assisted reproductive technology. This alignment promotes India's credibility and facilitates collaboration with international partners in research, knowledge sharing, and advancements in ART.

CONCERNS ABOUT ART ACT 2021?

- **Limited Availability of Donors:** The Act imposes strict criteria for donors, such as age and eligibility requirements. These restrictions may limit the pool of available donors, resulting in a potential shortage of donor eggs and sperm. Limited availability of donors can lead to longer waiting times and reduced options for couples seeking ART services.

- **Increased Costs:** The Act's provisions, such as insurance coverage for donors, can increase the overall cost of ART procedures. Couples may need to bear additional expenses for procedures like egg or sperm donation, including insurance coverage for donors. These increased costs can pose financial challenges for couples, particularly considering that multiple cycles of ART are often required for a higher chance of success.

- **Extended Treatment Duration:** ART procedures often require multiple cycles for a successful pregnancy. The Act's regulations, such as restrictions on the number of donation attempts or stringent requirements, may prolong the treatment

duration. This can lead to additional costs, emotional stress, and anxiety for couples undergoing ART procedures.

- **Impact on Fertility Rates:** Fertility rates in India and globally are declining. The limitations on available donors under the Act may further exacerbate this issue. Restricted access to donor eggs or sperm can reduce the success rates of ART procedures and limit the options available to individuals or couples with fertility challenges. This can have implications for individuals seeking alternative paths to parenthood.

- **Accessibility and Equity:** There are concerns regarding the accessibility and equity of ART services under the Act. The strict regulations and potential increase in costs may make ART procedures less accessible to individuals from economically disadvantaged backgrounds. This can create disparities in access to reproductive healthcare services.

Source:

https://www.thehindu.com/news/national/brought-in-to-protect-donors-and-prospective-parents-new-art-provisions-push-up-cost-and-challenges-in-assisted-conception/article67001330.ece

Q.1 Which of the following statements regarding Assisted Reproductive Technology (ART) is/are correct?
1. In vitro fertilization (IVF) is a commonly used ART procedure where fertilization occurs outside the human body.
2. Gamete Intrafallopian Transfer (GIFT) involves transferring both eggs and sperm into the woman's fallopian tubes for fertilization.
3. Surrogacy is not considered a form of ART.
4. ART procedures do not require any medical interventions and rely solely on natural conception methods.

Select the correct option(s):
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1, 2, 3 and 4
(d) 1, 2, and 3 only
Answer: (a)

Q.2 Which of the following concerns are associated with the Assisted Reproductive Technology (ART) Act 2021?
1. Limited availability of donors due to strict eligibility criteria.
2. Potential increase in the cost of ART procedures.
3. Prolonged treatment duration and emotional stress for couples.

4. Impact on fertility rates due to restricted access to donor eggs or sperm.
5. Lack of regulations on advertising and offering sex-selective ART procedures.
(a) 1, 2, and 3 only
(b) 2, 3, and 4 only
(c) 1, 3, 4, and 5 only
(d) 1, 2, 3, 4, and 5
Answer: (d)

Q.3 Analyze the concerns surrounding the Assisted Reproductive Technology (ART) Act 2021 in India and discuss their implications on accessibility, affordability, and ethical considerations.

General Studies - 3

(Technology, Economic Development, Biodiversity, Security & Disaster Management)

GRAIN STORAGE PLAN

This article covers "Daily Current Affairs" and the topic details "Grain Storage Plan". The topic "Grain Storage Plan" has relevance in the Agriculture section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "GRAIN STORAGE PLAN"

FOR PRELIMS:
What is Grain Storage Plan?

FOR MAINS:
GS 3: Indian Economy – Agriculture
What is the significance of the Grain Storage Plan?
What are the issues with the Grain Storage ?
Way Forward

WHY IN THE NEWS?
Union Home Minister and Minister of Cooperation, Shri Amit Shah has thanked Prime Minister Shri Narendra Modi for approving the constitution of an Inter-Ministerial Committee (IMC) for the World's Largest Grain Storage Plan in the Cooperative Sector.

WHAT IS GRAIN STORAGE PLAN?
The Union Cabinet has given the green light to an impressive scheme that involves allocating a substantial ₹1 trillion for expanding storage capacity in the cooperative sector.
India's current grain storage capacity is 145 million tonnes, but the government aims to enhance it by 70 million tonnes to reach 215 million tonnes within five years. This expansion is crucial for reducing food wastage and improving farmers' planning capabilities.

WHAT IS THE ROLE OF COOPERATIVES?
1. Cooperatives will establish decentralised storage facilities across the country.
2. Reduces burden on the Food Corporation of India (FCI) and improves efficiency.
3. Regional requirements and local needs will be integrated into nationwide implementation.

WHAT IS THE ROLE OF PRIMARY AGRICULTURAL CREDIT SOCIETIES?
Primary Agricultural Credit Societies (PACS) will emerge as a crucial pillar of the rural

economy. It will not only enhance food security but also benefit millions of farmers associated with cooperatives. PACS will have the opportunity to expand their role beyond storage facilities, engaging in activities such as operating Fair Price Shops and Custom Hiring Centers. This comprehensive approach will empower PACS to contribute significantly to the agricultural ecosystem and uplift the livelihoods of farmers.

WHAT ARE THE BENEFITS OF THIS PLAN?
1. PACS as MSP Agents: Farmers have the option to sell their crops to Primary Agricultural Credit Societies (PACS) and receive an advance payment at the Minimum Support Price (MSP). The remaining balance is settled once the PACS sells the food grains in the market, providing farmers with financial flexibility.
2. Crop Storage and Financing: Farmers can store their crops in PACS-managed warehouses and avail finance for the next crop cycle. This enables them to sell their crops at a time of their choosing, taking advantage of market conditions and maximising their profits.
3. Whole Crop Sale at MSP: Another option available to farmers is selling their entire crop to PACS at the Minimum Support Price (MSP). This provides a guaranteed price for their produce, ensuring income stability and reducing the risks associated with market fluctuations.

WHAT IS THE SIGNIFICANCE OF THE GRAIN STORAGE PLAN?
1. Grain storage plans ensure food security by storing surplus grain for times of low agricultural production or emergencies.
2. They contribute to price stability by regulating the supply and demand dynamics in the agricultural market.
3. Grain storage plans help manage risks such as adverse weather conditions, pests, diseases, and market volatility.
4. They promote agricultural development and rural economies by providing farmers with reliable storage infrastructure.
5. Effective storage plans enable countries to engage in international trade and export their surplus grain.
6. Grain storage reduces post-harvest losses and food waste.
7. It maximises the utilisation of agricultural resources and minimises environmental impact.

WHAT ARE THE ISSUES WITH GRAIN STORAGE ?
1. Spoilage and quality loss due to inadequate storage conditions
2. Pest infestation, including insects, rodents, and fungi.
3. Insufficient or outdated storage infrastructure.

4. Lack of monitoring and management practices.
5. Financial constraints in building and maintaining storage facilities.
6. Post-harvest losses resulting from physical damage, spoilage, and mishandling.
7. Climate change impacts, such as extreme weather events, affect storage infrastructure and grain quality.

PRELIMS QUESTIONS

Q.1 The grain storage plan approved by the union cabinet aims to address various challenges and improve the agricultural landscape. Select all the correct objectives of this plan:
1. Increasing storage capacity by 100 million tonnes in the cooperative sector.
2. Reducing post-harvest losses and minimising food wastage.
3. Encouraging private sector participation in the storage infrastructure.
4. Implementing advanced technology for efficient grain storage.

Select the other correct answer from the code given below:
- 1 only
- 1 and 4 only
- 2, 3, and 4 only
- all of the above

Answer: (c)

Q.2 What is the main objective of the grain storage plan approved by the union cabinet?
1. To reduce post-harvest losses of grains.
2. To increase the storage capacity of the food corporation of india (fci).
3. To enhance the profitability of agricultural cooperatives.
4. To promote international trade in grain exports.

Select the correct answer from the code given below:
(a) option 1
(b) option 2
(c) option 3
(d) option 4

Answer: (a)

Mains question
1. **What is the significance of primary agricultural credit societies (pacs) in the successful implementation of grain storage plan?**

DAIRY SECTOR IN INDIA

This article covers "Daily Current Affairs" and the topic details "Dairy Sector in India". The topic "Dairy Sector in India" has relevance in the Food Security and Food Management section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
Facts about the Dairy sector?

FOR MAINS:
GS 3: Food Security and Management
Importance of dairy sector for India?
Challenges Faced by the Dairy sector?
Solutions for the Challenges?

WHY IN THE NEWS?
The Department of Animal Husbandry and Dairying, in collaboration with the Agriculture Production Department, Government of Jammu and Kashmir, is going to celebrate World Milk Day on 1st June, 2023 and organize a Summer Meet for the animal husbandry and dairying sector on 1st-2nd June, 2023 at Srinagar, Jammu and Kashmir.

FACTS ABOUT THE DAIRY SECTOR?
- India is the highest milk producer and ranks first position in the world contributing 24% of global milk production in the year 2021-22.
- The top 5 milk-producing states are: Rajasthan (15.05%), Uttar Pradesh (14.93%), Madhya Pradesh (8.6%), Gujarat (7.56%) and Andhra Pradesh (6.97%). They together contribute 53.11% of total Milk production in the country.
- India is the largest producer of buffalo milk globally. Buffalo milk accounts for a significant portion of India's total milk production.
- Export of dairy products recorded a growth of 19.45 % as its export rose to $471 Mn in FY 2022-23 till now (April-December 2022) from $395 Mn in April-December 2021 of the last fiscal year.
- India is home to various indigenous cattle breeds that are known for their milk productivity and adaptability to local conditions. Breeds like Gir, Sahiwal, Red Sindhi, and Tharparkar are valued for their milk production potential.

IMPORTANCE OF DAIRY SECTOR FOR INDIA?
- Livelihood support: The dairy sector provides a substantial source of livelihood

support to millions of rural households, particularly small and marginal farmers. It offers income generation opportunities, employment, and economic stability, helping to alleviate poverty and improve rural livelihoods.

- Food security: The dairy sector plays a crucial role in ensuring food security in India. Milk is a rich source of essential nutrients, and dairy products form an integral part of the Indian diet. The availability of milk and dairy products helps meet the nutritional needs of the population, especially children, pregnant women, and the elderly.
- Income diversification: Dairy farming offers farmers an opportunity to diversify their income sources. By engaging in dairy production, farmers can supplement their earnings from traditional crop farming. This diversification helps reduce the dependence on a single income source and enhances overall income stability.
- Nutritional benefits: Milk and dairy products are rich in proteins, calcium, vitamins, and minerals, making them crucial for maintaining good health. The availability of affordable and nutritious dairy products contributes to improved nutrition and overall well-being of the population, particularly in rural areas.
- Employment generation: The dairy sector creates significant employment opportunities along its value chain. From animal husbandry, fodder cultivation, and dairy farm management to milk collection, processing, and marketing, the sector employs a large number of people, including farmers, dairy workers, technicians, and marketing professionals.
- Women empowerment: Dairy farming provides a platform for women's empowerment in rural communities. Women play a significant role in dairy-related activities, including animal care, milking, and processing. Engaging in dairy farming gives women a sense of independence, economic empowerment, and decision-making authority within their households.
- Export potential: The dairy sector in India has seen a rise in export opportunities. The country exports a variety of dairy products, such as milk powder, ghee, and casein, to international markets. This contributes to foreign exchange earnings and boosts the country's overall economy.

CHALLENGES FACED BY THE DAIRY SECTOR?

- Low milk productivity: The average milk productivity per animal in India is relatively low compared to international standards. Factors such as poor breed quality, inadequate nutrition, lack of proper animal healthcare, and limited access to quality breeding services contribute to low milk productivity.
- Inadequate infrastructure: Insufficient infrastructure, including lack of proper milk collection and chilling centers, cold storage facilities, and processing units, hinders the efficient functioning of the dairy sector. This leads to milk spoilage, quality deterioration, and limited value addition opportunities.

- Quality and safety concerns: Ensuring consistent milk quality and safety is a significant challenge. Contamination at various stages of the milk supply chain, lack of adherence to hygiene standards, and limited testing facilities contribute to concerns regarding milk adulteration and the presence of contaminants.
- Access to credit and finance: Many small-scale dairy farmers face challenges in accessing credit and finance for dairy-related activities. Limited availability of affordable credit, complicated loan procedures, and lack of collateral are common obstacles faced by farmers in expanding their dairy operations or investing in modern infrastructure.
- Inefficient marketing and value chain: Inefficient marketing systems and limited value addition activities restrict the sector's growth potential. Lack of proper linkages between farmers, milk processors, and consumers, coupled with inadequate cold chain facilities, result in wastage, price fluctuations, and limited market access.
- Lack of technical knowledge and training: Many dairy farmers lack access to proper training, technical knowledge, and best practices in dairy management. This hinders the adoption of modern techniques, efficient herd management, and optimal utilization of resources, leading to lower productivity and profitability.
- Climate change and environmental impact: Climate change poses challenges for the dairy sector, including altered rainfall patterns, increased heat stress on animals, and changing availability of fodder and water resources. Adapting to these climate challenges and adopting sustainable practices are necessary to ensure the sector's long-term viability.
- Fragmented and unorganized sector: The dairy sector in India is largely unorganized and fragmented, with a large number of small-scale farmers and informal milk traders. This results in challenges related to quality control, market access, and lack of bargaining power for small farmers.
- Policy and regulatory constraints: Inconsistent policies, complex regulations, and bureaucratic hurdles pose challenges for the dairy sector. Streamlining policies, ensuring regulatory compliance, and providing an enabling environment for investment and growth are essential for the sector's development.

SOLUTIONS FOR THE CHALLENGES?

- Enhancing breed quality and productivity: Encouraging breed improvement programs, promoting the use of superior genetic material, and providing access to high-quality semen for artificial insemination can help improve milk productivity and the overall quality of dairy animals.
- Infrastructure development: Investing in the development of milk collection centers, chilling units, cold storage facilities, and modern processing plants is essential to create a robust dairy infrastructure. This will help reduce milk spoilage, improve value addition capabilities, and ensure the availability of quality dairy products.

- Quality control and safety measures: Implementing stringent quality control measures, including regular testing for adulteration and contamination, can help ensure the safety and integrity of dairy products. Strengthening food safety regulations and establishing more testing laboratories will contribute to improving milk quality and consumer confidence.
- Access to credit and finance: Facilitating easy access to credit and finance for dairy farmers through schemes like Kisan Credit Card, Dairy Entrepreneurship Development Scheme (DEDS), and cooperative loans can support investment in modern infrastructure, technology, and herd management practices.
- Strengthening value chains and marketing systems: Developing efficient marketing channels, strengthening linkages between farmers and processors, and promoting value addition activities such as dairy product diversification and branding can enhance market access and improve returns for farmers.
- Technical training and extension services: Providing training programs, workshops, and extension services to farmers on modern dairy management practices, including feed and nutrition management, breeding, animal health, and farm hygiene, can enhance their knowledge and skills, leading to improved productivity.
- Climate-smart dairy farming: Promoting climate-smart practices such as efficient water management, use of renewable energy sources, conservation of natural resources, and adoption of climate-resilient fodder varieties can help dairy farmers mitigate the impacts of climate change and build resilience.
- Encouraging dairy cooperatives and farmer collectives: Promoting the formation and strengthening of dairy cooperatives and farmer producer organizations (FPOs) can empower farmers, enhance their bargaining power, and provide better market linkages, access to resources, and collective decision-making opportunities.
- Policy and regulatory reforms: Creating an enabling policy environment with consistent and supportive regulations, streamlining bureaucratic processes, and addressing the specific needs of the dairy sector can encourage investment, innovation, and growth.

Source:
https://pib.gov.in/PressReleasePage.aspx?PRID=1928584

Q.1 Which of the following statements regarding the dairy sector in India is/are correct?
1. India is the largest producer of milk in the world, surpassing countries like the United States and China.
2. The dairy sector in India primarily consists of small-scale and unorganized dairy farmers.
3. The per capita milk consumption in India is higher than the global average.
Select the correct option using the codes below:

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1,2 and 3
Answer (d)

Q.2 Which of the following statements regarding the dairy sector in India is/are correct?
1. The National Dairy Development Board (NDDB) is responsible for the implementation of various dairy development programs in India.
2. The dairy sector in India is highly dependent on imported breeds of cattle for milk production.
(a) Both 1 and 2
(b) 1 only
(c) 2 only
(d) None of the above
Answer: (a)

Q.3 To what extent has the dairy sector contributed to India's agricultural and economic development? Discuss the challenges and opportunities faced by the dairy sector in India.

NATIONAL ELECTRICITY PLAN (NEP)

This article covers "Daily Current Affairs" and the topic details "National Electricity Plan (NEP)". The topic "National Electricity Plan (NEP)" has relevance in the Environment section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "NATIONAL ELECTRICITY PLAN (NEP)"

FOR PRELIMS:
What is National Electricity Plan (NEP)?

FOR MAINS:
GS 3: Environment
What are the components of the National Electricity Plan (NEP)?
What is the government's emphasis on Energy Transition?
What are the targets and progress and progress made in the area of Energy Transition?
What are the issues with Energy Transition?

Way Forward

WHY IN THE NEWS?

The Central Electricity Authority (CEA) has notified the National Electricity Plan (NEP) (Vol-I Generation) for the period of 2022-32.

WHAT IS NATIONAL ELECTRICITY PLAN (NEP)?

The NEP in India is a crucial document that guides the development of the power sector in the country. It is formulated by the Central Electricity Authority (CEA), which is the apex statutory organization responsible for planning and coordination in the power sector.

The NEP is designed to assess the demand for electricity and plan the capacity addition required to meet that demand. It also aims to optimize the utilization of resources and coordinate the activities of various planning agencies.

The plan provides:

1. Review of the previous five years,
2. Capacity addition requirements for the upcoming five-year period
3. Projections for a further 15-year period. (5+5+15)

WHAT ARE THE COMPONENTS OF THE NATIONAL ELECTRICITY PLAN (NEP)?

1. Additional coal-based capacity: There is a requirement of adding coal-based capacity ranging from 17 GW to nearly 28 GW by 2031-32. This is in addition to the 25 GW of coal-based capacity that is already under construction.
2. Investing in battery storage infrastructure: The draft plan estimates a need for between 51 GW to 84 GW of battery storage capacity by 2031-32.
3. Increase in Plant Load Factor(PLF): The NEP projects an increase in the Plant Load Factor (PLF) of coal-fired power plants. The PLF is expected to rise from 55% by 2026-27 to 62% by 2031-32.

WHAT IS THE GOVERNMENT'S EMPHASIS ON ENERGY TRANSITION?

Green growth is an important pillar in India's energy transition model. The government has formed a target of 500 GW of renewable energy to be produced by 2030.

1. Setting up battery energy storage of 4,000 MwH through viability gap funding.
2. National Green Hydrogen Mission launched on January 4, 2023, with an initial outlay of Rs 19,700 crore.
3. Rs 35,000 crore for priority capital investment towards energy transition and net zero objectives.
4. Rs. 70,000 crores for specific initiatives:
   1. Rs.19,700 crores for Green Hydrogen,

2. Rs. 35000 crores for energy transition,
3. Rs. 20,700 crores for renewable energy evacuation.

WHAT ARE THE TARGETS AND PROGRESS AND PROGRESS MADE IN THE AREA OF ENERGY TRANSITION?

India has made significant progress in the area of energy transition in recent years. Some of the key developments include:

1. Renewable Energy Capacity: India has announced that it aims to achieve net zero by 20270 as announced in COP-26.
   - India has set an ambitious target of achieving 500 GW of renewable energy capacity by 2030.
   - As of 2021, India had installed more than 172 GW of renewable energy capacity, with solar and wind energy accounting for the majority of this capacity.
o Energy Efficiency: It means using the same energy source in such a way that the energy consumption is less and the savings are more. The government of India has implemented several energy efficiency measures such as:
   - UJALA scheme provides energy-efficient LED bulbs at subsidised rates.
1. Perform Achieve and Trade (PAT) scheme incentivizes industries to improve energy efficiency through incentive-based approach.

SOLAR AND WIND POLICY.

- Electric Mobility: The government of India has launched several initiatives to promote electric mobility:
o Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme provides incentives for electric vehicle adoption.
o National Electric Mobility Mission Plan (NEMMP) to achieve 30% electric vehicle penetration by 2030.
- Policy Reforms: The Indian government has implemented several policy reforms to support the energy transition, such as:
1. Competitive bidding for renewable energy projects,
2. Removal of subsidies on fossil fuels
3. Implementation of a national carbon tax.
2. International Cooperation: India has also engaged in international cooperation to support the energy transition, such as:
International Solar Alliance and OSOWOG, which aims to promote solar energy adoption in developing countries.

WHAT ARE THE ISSUES IN THE ENERGY TRANSITION?

Technological Challenges
- Development and deployment of new renewable energy technologies

- Scaling up renewable energy to meet energy demands
- Engineering and technical complexities in integrating renewable sources

Cost and Economics
- Higher upfront costs of renewable energy compared to fossil fuels
- Need for financial incentives and support mechanisms to bridge cost gap
- Achieving cost competitiveness and improving financial viability of renewables

Grid Integration and Stability
- Managing the intermittent nature of renewable energy sources
- Development of advanced grid management systems
- Energy storage solutions to balance supply and demand

Infrastructure and Planning
- Upgrading energy infrastructure for renewable integration
- Expanding transmission and distribution networks
- Ensuring a smooth transition from fossil fuel-based infrastructure

Energy Storage
- Developing cost-effective and efficient storage technologies
- Balancing variable renewable energy generation with storage
- Advancements in battery technologies and other storage solutions

Policy and Regulation
- Supportive policy and regulatory frameworks for renewables
- Setting renewable energy targets and financial incentives
- Clear rules for grid integration and long-term policy stability

Employment and Just Transition
o Addressing workforce implications in the fossil fuel industry
o Retraining and job creation in the renewable energy sector
o Supporting affected communities for a fair and equitable transition

WAY FORWARD
There is a need for collaboration, innovation, research and development, supportive policies, and a long-term commitment to transitioning to a sustainable energy future.

Source:
https://pib.gov.in/PressReleaseIframePage.
aspx?PRID=1928750#:~:text=According%20to%20the%20NEP%20
document,Survey%20(EPS)%20Demand%20projections.

PRELIMS QUESTIONS
Q.1 Which of the following is NOT the challenge in transitioning from fossil fuels to non-fossil energy sources?
1. Technological complexities in integrating renewable sources

2. Low costs of renewable energy compared to fossil fuels
3. Development of advanced grid management systems
4. Stable and reliable supply of renewable energy at all times

Answer: (b)

Mains Question
1. What is Energy Transition? Give an account of the issues involved and the related suggestions.

FOREIGN PORTFOLIO INVESTMENT (FPI)

This article covers "Daily Current Affairs" and the topic details "Foreign Portfolio Investment". The topic "Foreign Portfolio Investment" has relevance in the Economy section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is Foreign Portfolio Investment?

FOR MAINS:
GS 3: Economy
Impact of FPI on Indian Economy?
How is FPI Misused?
Measures to curb FPI misuse?

WHY IN THE NEWS?
The Securities and Exchange Board of India (Sebi) has proposed that foreign portfolio investors (FPIs) with investments concentrated in a single stock or stocks of a business group should provide granular information on beneficial ownership to custodians. India's markets regulator proposed tightening of disclosure requirements for offshore funds in a consultation paper released on Wednesday. The move is intended to prevent promoters of Indian companies from abusing the FPI route to circumvent minimum public shareholding norms.

WHAT IS FOREIGN PORTFOLIO INVESTMENT?
It refers to the investment made by foreign individuals, institutions, or funds into the financial markets of a country. FPI typically involves the purchase of stocks, bonds, and other financial assets in the foreign market. It is a passive form of investment, where

investors do not actively participate in the management or control of the invested company or entity. FPI plays a significant role in attracting capital, promoting liquidity, and supporting the growth of financial markets in a country. Governments and regulatory bodies often monitor and regulate FPI to maintain stability in the economy and protect national interests.

IMPACT OF FPI ON INDIAN ECONOMY?
- Capital Inflows: FPI has been a significant source of capital inflows for India. It has provided the country with much-needed foreign exchange reserves, which contribute to the stability of the Indian economy. These inflows help finance infrastructure development, investment in various sectors, and overall economic growth.
- Market Liquidity: FPI has played a crucial role in increasing liquidity in Indian financial markets, particularly in the stock and bond markets. The influx of foreign funds has enhanced market depth and facilitated smoother trading activities.
- Increased Investment Options: FPI has expanded the investment opportunities available to Indian investors. It has introduced foreign securities, such as stocks and bonds, enabling domestic investors to diversify their portfolios and potentially earn higher returns.
- Volatility and Market Risk: FPI can also contribute to market volatility and risk. Sudden outflows of foreign funds can lead to market downturns and fluctuations in asset prices. This volatility can pose challenges for policymakers and investors in managing risks and maintaining stability.
- Exchange Rate Fluctuations: Large FPI inflows or outflows can impact the value of the Indian rupee against other currencies. Rapid capital inflows can appreciate the currency, making Indian exports relatively more expensive and potentially affecting the competitiveness of domestic industries.
- Policy Challenges: FPI flows require effective regulation and policy management to ensure that they align with national interests and financial stability. Governments and regulatory authorities need to monitor and manage FPI to prevent excessive volatility, safeguard investor interests, and maintain macroeconomic balance.

HOW IS FPI MISUSED?
- Round-Tripping: Round-tripping refers to the practice of routing domestic funds through offshore entities to bring them back into the country as FPI. This can be done to take advantage of tax benefits, regulatory loopholes, or to inflate investment figures. Round-tripping can artificially inflate FPI numbers, giving a misleading impression of actual foreign investments.
- Market Manipulation: FPI can be misused for market manipulation purposes. Large-scale investors or groups of investors may collude to manipulate stock prices or

engage in insider trading, taking advantage of their positions and the liquidity they bring to the market.

- Tax Evasion: Some investors may use FPI to evade taxes. By routing their investments through tax havens or jurisdictions with favorable tax treatment, they can minimize their tax liabilities and avoid reporting their true income.
- Money Laundering: FPI can be misused as a means to launder illicit funds. Money launderers may use complex structures and transactions through FPI channels to obscure the origin and destination of their funds, making it difficult for authorities to trace and detect the illicit activities.
- Front-Running: Front-running involves taking advantage of advance knowledge of large FPI transactions. Individuals or entities with access to such information may trade ahead of the FPI transaction, thereby benefiting from the subsequent market movements caused by the large investment.
- Speculative Activities: Excessive speculative FPI flows can disrupt financial markets and destabilize economies. Speculators may engage in short-term trading or aggressive investment strategies solely for profit, without considering the long-term consequences or the underlying fundamentals of the market.

MEASURES TO FPI CURB MISUSE?

- Robust Regulatory Framework: Establishing a strong and comprehensive regulatory framework is crucial. This includes regulations and guidelines governing FPI, such as eligibility criteria, registration processes, disclosure requirements, and compliance standards. These regulations should be regularly updated to address emerging risks and loopholes.
- Anti-Money Laundering (AML) and Know Your Customer (KYC) Policies: Implementing stringent AML and KYC policies helps in verifying the identity of investors and ensuring the legitimacy of their funds. Robust due diligence procedures should be in place to identify and prevent money laundering and illicit activities associated with FPI.
- Enhanced Transparency and Reporting: Requiring regular reporting and disclosures from FPI participants can increase transparency in the market. This includes reporting of holdings, transactions, beneficial ownership, and any changes in investment patterns. Timely and accurate information helps identify any suspicious activities and promotes market integrity.
- Monitoring and Surveillance: Establishing dedicated monitoring and surveillance systems is essential to detect any market manipulation, insider trading, or unusual trading patterns related to FPI. This can involve the use of technology, data analytics, and cooperation between regulatory bodies and market participants to identify potential risks and take timely action.
- Cooperation and Information Sharing: Promoting international cooperation and

information sharing among regulatory authorities is crucial. Collaboration with foreign counterparts helps in detecting cross-border illicit activities, tracking round-tripping, and sharing best practices in regulating FPI.
- Strict Penalties and Enforcement: Implementing strict penalties and enforcing them effectively acts as a deterrent against FPI misuse. Heavy fines, legal actions, license revocation, and criminal prosecution can discourage individuals or entities from engaging in fraudulent activities related to FPI.
- Continuous Monitoring and Evaluation: Regular monitoring, evaluation, and assessment of the effectiveness of regulatory measures are necessary. This ensures that regulations and policies remain up-to-date, relevant, and effective in addressing emerging risks and challenges in the FPI space.

Source:
https://www.livemint.com/market/stock-market-news/sebi-moves-to-deter-promoters-from-misusing-fpi-route-11685556803980.html

Q.1 Which of the following statements regarding the misuse of Foreign Portfolio Investment (FPI) is correct?
(a) Round-tripping involves routing domestic funds through offshore entities to bring them back into the country as FPI.
(b) FPI is not susceptible to market manipulation as it involves passive investments.
(c) Money laundering through FPI is easily traceable due to strict regulatory measures.
(d) Front-running in FPI refers to investors colluding to manipulate stock prices.
Answer: (a)

Q.2 Which of the following statements regarding the impact of Foreign Portfolio Investment (FPI) in India is/are correct?
1. FPI inflows contribute to the stability of the Indian economy by increasing foreign exchange reserves.
2. FPI can lead to market volatility and fluctuations in asset prices.
3. FPI has no impact on the competitiveness of domestic industries.
4. FPI primarily benefits large-scale investors and does not provide opportunities for small investors.
Select the correct statement(s) from the options given below:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1, 2, and 4 only
(d) 2 and 4 only
Answer: (c)

Q.3 "Discuss the impact of Foreign Portfolio Investment (FPI) on the Indian

economy and financial markets. Examine the positive contributions of FPI in terms of capital inflows and market liquidity, and analyze the potential challenges and risks associated with FPI. Evaluate the role of regulatory measures in ensuring transparency, stability, and preventing misuse of FPI. Provide examples and relevant data to support your arguments."

KAVACH SYSTEM

This article covers "Daily Current Affairs" and the topic details "KAVACH System". The topic "KAVACH System" has relevance in the Science and Technology section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "KAVACH SYSTEM":

FOR PRELIMS:
What is the KAVACH System?

FOR MAINS:
GS 3: Science and Technology
What is the significance of the KAVACH System?

WHY IN THE NEWS?
The recent accident of the Coromandel Express has highlighted the KAVACH system. Many people have argued that had the KAVACH system been in place the accident could have been prevented. But the Railways statement has said that it is not about the KAVACH but pointed to the signalling failure.

WHAT IS THE KAVACH SYSTEM?
Kavach, meaning "armour" in English, is an indigenous automatic train protection (ATP) system developed by the Indian Railways in collaboration with the Research Designs & Standards Organisation (RDSO).
The initial development of this system began in 2012 under the name Train Collision Avoidance System (TCAS), and it reached completion in 2022.

WHAT IS THE OBJECTIVE OF THE KAVACH SYSTEM?
The main goal of the KAVACH system is to achieve zero accidents. It has been seen that trains collide with each other when they are on the same track. The device aims to automatically stop the train to avoid any kind of accident.

HOW DOES THE KAVACK SYSTEM WORK TO AVOID ANY KIND OF ACCIDENT?

- The Kavach system comprises a set of electronic and RFID devices that are installed in various parts of the railway system such as locomotives, tracks, railway signaling systems, and stations at regular intervals of a kilo meter each.
- Currently, the system utilises ultra-high radio frequencies for communication between its components, but efforts are underway to develop a 4G LTE-based system.
- In instances where a loco pilot jumps a signal, known as Signal Passed at Danger (SPAD) the system alerts the loco pilot and can automatically take control of the brakes, and stop the train if it detects another training on the same line within a specified distance.
- Furthermore, the Kavach device continuously monitors the movement of trains and transmits signals ahead to the locomotives. This feature is particularly beneficial during adverse weather conditions like fog, enhancing safety and reducing the risk of accidents.

WHAT IS THE SIGNIFICANCE OF THE KAVACH SYSTEM?

- Prevent accidents: The system will prevent the collision of the trains on the same route. It removes the element of human error by taking automatic control in instances of Signal Passed at Danger (SPAD) which is a prime cause of train accidents.
1. Improved Response during Adverse Weather: The continuous monitoring and signalling capabilities of Kavach are particularly valuable during adverse weather conditions such as fog. By providing real-time information and alerts, Kavach assists train operations in such challenging situations, minimising the risk of accidents and improving overall safety.
2. Integration of International Standards: The incorporation of key characteristics from the European Train Control System (ETCS) and the Indian Anti-collision device ensures that Kavach aligns with global safety standards while considering the specific requirements and conditions of the Indian Railways. This integration enhances interoperability and promotes safer train operations.
3. Indigenous Development: Kavach is an indigenous development by the Indian Railways through the Research Designs & Standards Organisation (RDSO). This demonstrates India's capability to develop advanced technology solutions locally, fostering self-reliance and contributing to the country's technological growth.

WHAT IS THE STATUS OF THE KAVACH SYSTEM ?

The Kavach automatic protection system has been implemented on 65 locomotives, covering a route of 14,450 km and 134 stations in the South Central Railway zone. The implementation is currently underway for a route spanning 12,000 km.
In the future, the Kavach system will be upgraded to handle a top speed of 160 mph.

This upgrade will precede its implementation on a 30,000 km route, including the New Delhi-Mumbai and Howrah-Delhi main lines, as part of the Mission Raftar project.

To expedite the implementation of the Kavach system, the Union budget of India for the FY 2022-23 has allocated funds specifically for this purpose. The budget has provided resources to accelerate the installation of Kavach on a 20,000 km track. Furthermore, the implementation of the system has been sanctioned for a total of 34,000 km of the Golden Quadrilateral rail route.

Source:
https://www.thehindu.com/news/national/explained-understanding-the-kavach-system/article66930707.ece

PRELIMS QUESTIONS
Q.1. KAVACH recently in the news is related to:
1. A device to track the adulteration of milk products.
2. An anti-train collision technology developed by railways.
3. An anti-missile protection system developed by DRDO.
4. A protection system was installed in the new parliament to prevent any kind of rocket or bomb attack.

Answer: (b)

Q.2 Consider the following statements about Research Designs & Standards Organisation (RDSO):
1. It is the Research and Development (R&D) organisation under the Ministry of Railways.
2. It is headed by the Secretary of the Ministry of Railways.
3. It is entrusted with the design and development of the KAVACH system and Vande Bharata Express.

Select the correct answer from the code given below:
1. 1 only
2. 1 and 2 only
3. 3 only
4. 1, 2, and 3 only

Answer: (d)

Mains Question
1. The recent train accident has pointed to the flaws in railway safety standards. What are the initiatives taken by the railways in the recent past to improve the safety of the passengers with special reference to KAVACH technology?

CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

This article covers "Daily Current Affairs" and the topic details "Carbon border adjustment Mechanism". The topic "Carbon border adjustment Mechanism" has relevance in the Economy and Climate Change section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is CBAM?

FOR MAINS
GS 3: Economy and Climate Change
Objectives of CBAM?
Challenges for India?

WHY IN THE NEWS?
The European Union's (EU) key climate law, the Carbon Border Adjustment Mechanism (CBAM), has spooked India. New Delhi fears that CBAM will cripple the export of its carbon-intensive products to the EU.

WHAT IS CBAM?
- The Carbon Border Adjustment Mechanism (CBAM) is a policy tool adopted by the European Union(EU) that aims to address carbon leakage and promote a level playing field in international trade by addressing disparities in carbon pricing between countries. It is designed to reduce the risk of carbon leakage, which occurs when stringent climate policies in one country lead to the relocation of carbon-intensive industries to countries with less stringent climate regulations, resulting in global emissions remaining unchanged or even increasing.
- The CBAM works by imposing a tariff on imported goods based on the carbon content embedded in their production. The mechanism seeks to ensure that imported products face a similar carbon cost as domestic products subject to domestic carbon pricing mechanisms. By doing so, it aims to prevent carbon-intensive industries from gaining a competitive advantage over industries in countries with stronger climate policies.
- The CBAM can operate in various ways. One approach is to require importers to purchase carbon certificates or allowances corresponding to the embedded carbon emissions in the imported goods. Another approach is to levy a carbon tax directly on imported products based on their carbon footprint.
- The Carbon Border Adjustment Mechanism (CBAM) is a policy tool introduced

as part of the "Fit for 55 in 2030 package," which is the European Union's plan to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels, in accordance with the European Climate Law. The CBAM aims to contribute to emission reduction efforts by ensuring that imported goods face equivalent carbon costs as domestically produced products within the EU.

OBJECTIVES OF CBAM?

- Address Carbon Leakage: One of the main objectives of the CBAM is to tackle carbon leakage. Carbon leakage occurs when stringent climate policies in one country lead to the relocation of carbon-intensive industries to countries with weaker or no climate regulations. The CBAM aims to prevent this by ensuring that imported goods face a similar carbon cost as domestically produced goods subject to domestic carbon pricing mechanisms. By doing so, it aims to prevent carbon-intensive industries from gaining a competitive advantage by moving production to countries with lower environmental standards.
- Level the Playing Field: The CBAM aims to create a level playing field in international trade by ensuring that all countries adopt similar carbon pricing mechanisms or standards. It seeks to avoid situations where industries in countries with stronger climate policies face higher production costs due to carbon pricing, while industries in countries with weaker climate policies do not face such costs. The CBAM intends to promote fair competition and prevent distortions in global trade.
- Encourage Emission Reductions: By imposing a carbon cost on imported goods, the CBAM aims to incentivize exporters from countries with weaker climate policies to reduce their carbon emissions. Exporters will face the risk of higher tariffs or costs for their carbon-intensive products, which can encourage them to adopt cleaner technologies, reduce emissions, and improve their environmental performance.
- Promote Global Climate Goals: The CBAM aims to contribute to global climate goals by encouraging countries to align their climate policies and take stronger action to reduce carbon emissions. It sends a signal that carbon emissions will have economic consequences in international trade, providing an incentive for countries to adopt ambitious climate policies and work towards achieving global emission reduction targets.

CHALLENGES FOR INDIA?

- Impact on Export Competitiveness: As a developing country, India has a significant share of carbon-intensive industries, such as steel, cement, and textiles. Implementation of the CBAM may increase the cost of exporting these goods, potentially affecting their competitiveness in international markets. This could have implications for India's export-oriented industries and their ability to compete with counterparts from countries with less stringent climate policies.

- Administrative Complexity: Implementing the CBAM requires accurately measuring and verifying the carbon content of imported goods. For a vast and diverse economy like India, establishing robust monitoring, reporting, and verification systems can be complex and administratively burdensome. It would require significant investment in infrastructure, expertise, and resources to effectively implement the CBAM.
- Data Availability and Accuracy: The CBAM relies on accurate data on the carbon emissions embedded in imported goods. Availability and accuracy of such data can be a challenge, especially for developing countries like India, where comprehensive emissions data may not be readily available for all sectors and industries. Obtaining reliable data for carbon footprint calculations could be a hurdle in implementing the CBAM effectively.
- Potential Trade Disputes: The CBAM may be perceived as protectionist or discriminatory by some countries. If India's exports face higher tariffs or additional costs due to the CBAM, it could lead to trade disputes and challenges under international trade rules, such as those governed by the World Trade Organization (WTO). Resolving these disputes and ensuring a fair and non-discriminatory application of the CBAM would be crucial for India's trade interests.
- Harmonization with Domestic Climate Policies: India has its own domestic climate policies and goals to address climate change and reduce emissions. Aligning the CBAM requirements with India's domestic policies and regulations will be necessary to ensure coherence and avoid conflicting obligations. Harmonization between the CBAM and India's climate objectives will require careful coordination and policy coherence.

Source:
https://www.thehindu.com/opinion/op-ed/international-trade-has-a-carbon-problem/article66923521.ece

Q.1 Which of the following statements regarding the Carbon Border Adjustment Mechanism (CBAM) is/are correct?
1. CBAM aims to address carbon leakage and promote a level playing field in international trade.
2. CBAM imposes a tariff on imported goods based on their carbon content.
3. CBAM is a policy tool introduced by the United Nations to reduce global greenhouse gas emissions.
4. CBAM incentivizes exporting countries to reduce their carbon emissions to avoid additional costs.

Select the correct answer using the codes below:
(a) 1 and 2 only
(b) 1, 2, and 4 only
(c) 2 and 3 only

(d) 1, 3, and 4 only
Answer: (a)

Q.2   Which of the following statements accurately describe the objectives of the Carbon Border Adjustment Mechanism (CBAM)?
1. CBAM aims to prevent carbon leakage and promote fair competition in international trade.
2. CBAM imposes a carbon tax on imported goods based on their carbon footprint.
Select the correct answer using the codes below:
(a) Both 1 and 2
(b) 1 only
(c) 2 only
(d) None of the above
Answer: (b)

Q.3 "Discuss the concept of the Carbon Border Adjustment Mechanism (CBAM) and its potential implications for global trade and climate action. Analyze the challenges and opportunities associated with the implementation of CBAM, particularly in the context of developing countries like India. Suggest policy measures and strategies to address the concerns and maximize the benefits of CBAM for both international trade and climate change mitigation."

GRAPHENE

This article covers "Daily Current Affairs" and the topic details "Graphene". The topic "Graphene" has relevance in the Science and technology section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is Graphene?
Properties of Graphene?

FOR MAINS
GS 3: Science and technology?
Importance of Graphene research and adoption in India?
Challenges in Graphene adoption for India?

WHY IN THE NEWS?

Researchers in the UK, led by Nobel laureate Andre Geim, have discovered another property of graphene – a single-atom-thick layer of carbon atoms bonded in a honeycomb pattern – that further distinguishes this 'wonder' material.

WHAT IS GRAPHENE?

Graphene is a two-dimensional material consisting of a single layer of carbon atoms arranged in a hexagonal lattice. It is considered a remarkable substance due to its unique properties, which stem from its atomic structure and bonding.

PROPERTIES OF GRAPHENE?

- Exceptional Strength: Graphene is incredibly strong, even though it is only one atom thick. It has a tensile strength of around 130 gigapascals, making it one of the strongest known materials.
- High Electrical Conductivity: Graphene is an excellent conductor of electricity. Its electrons can move freely, allowing electric current to flow through it with minimal resistance. Graphene's electrical conductivity is about 100 times higher than that of copper.
- Superior Thermal Conductivity: Graphene exhibits exceptional thermal conductivity, meaning it can efficiently transfer heat. It outperforms most materials in terms of heat conduction, making it potentially useful in applications involving heat dissipation.
- Flexibility: Despite its strength, graphene is also remarkably flexible. It can be stretched and bent without easily breaking, which makes it suitable for applications where flexibility is required.
- Transparency: Graphene is highly transparent, allowing around 97.7% of visible light to pass through. This property makes it promising for applications in optoelectronics, such as transparent conductive coatings for touchscreens and solar cells.
- Impermeability: Graphene is an excellent barrier material. Its tightly packed carbon atoms create a nearly impermeable layer, preventing the passage of gases and liquids. This characteristic is valuable for applications in water filtration, gas separation, and packaging.
- Large Surface Area: Graphene has an enormous surface area-to-mass ratio due to its two-dimensional structure. This property makes it attractive for applications such as energy storage in supercapacitors and as a catalyst support for various chemical reactions.
- Biocompatibility: Graphene exhibits good biocompatibility, meaning it is generally well-tolerated by biological systems. This aspect makes it a promising material for biomedical applications, such as drug delivery systems, tissue engineering, and

biosensors.

- Optical Properties: Graphene possesses unique optical properties. It absorbs only a small portion of light across a wide range of wavelengths. This characteristic, combined with its electrical conductivity, makes it a potential candidate for optoelectronic devices and photovoltaics.

IMPORTANCE OF GRAPHENE RESEARCH AND ADOPTION IN INDIA?

- Technological Advancements: Graphene, with its exceptional properties, has the potential to revolutionize various industries. By investing in graphene research, India can drive technological advancements and gain a competitive edge in sectors such as electronics, energy storage, sensors, and composite materials.
- Energy Sector: Graphene-based materials can contribute to more efficient and sustainable energy solutions. India, as a country with a growing energy demand, can benefit from graphene's high electrical conductivity, which can enhance the performance of batteries, supercapacitors, and solar cells. This can lead to improved energy storage systems and increased renewable energy utilization.
- Water and Environmental Solutions: Graphene's impermeability and large surface area make it suitable for water purification and filtration. In a country like India, which faces challenges in providing clean water to all its citizens, graphene-based membranes can help in developing efficient and affordable water treatment systems. Additionally, graphene's use in environmental sensors can aid in monitoring pollution levels and developing effective mitigation strategies.
- Healthcare and Biomedical Applications: Graphene's biocompatibility and unique properties make it promising for healthcare applications. India can leverage graphene research to develop innovative biomedical devices, drug delivery systems, tissue engineering scaffolds, and biosensors. This can contribute to improving healthcare outcomes, reducing medical costs, and advancing the biotechnology sector.
- Job Creation and Economic Growth: Investing in graphene research and fostering its adoption can create opportunities for skilled researchers, scientists, and engineers. It can lead to the establishment of graphene-based industries, attracting investments and generating employment. This can contribute to the overall economic growth and development of India.
- Collaborative Research and International Cooperation: Graphene research is a global endeavor, and India's active participation can foster collaborations with leading research institutions and industries worldwide. By being part of the global graphene research network, India can access knowledge, expertise, and resources, further enhancing its scientific and technological capabilities.

CHALLENGES IN GRAPHENE ADOPTION FOR INDIA?

- High Cost of Production: The current methods for producing high-quality graphene are expensive, limiting its widespread adoption. India needs to invest in research and development to develop cost-effective and scalable production methods to make graphene more accessible.
- Limited Infrastructure and Expertise: Establishing infrastructure for large-scale graphene production, characterization, and application development requires substantial investment. India needs to develop research facilities, specialized equipment, and skilled manpower to support graphene-related research and development.
- Lack of Standardization: Graphene lacks standardized production and characterization protocols. The absence of standardized methods makes it challenging to compare and replicate results, hindering the progress of graphene research and commercialization efforts.
- Environmental and Health Concerns: Graphene's potential environmental and health impacts are still being studied. It is essential to assess the potential risks associated with graphene production, use, and disposal to ensure its safe adoption.
- Limited Awareness and Collaboration: There is a need to increase awareness and understanding of graphene among industries, researchers, policymakers, and potential end-users in India.
- Intellectual Property Protection: Protecting intellectual property rights related to graphene-based innovations is crucial for encouraging research and commercialization.

WAY FORWARD?

- Investment in Research and Development: The government should allocate funds to support graphene research and development initiatives. This includes funding for both fundamental research on graphene properties and applied research for developing graphene-based applications. Encouraging public-private partnerships can also attract industry investment in graphene research.
- Development of Infrastructure: Establishing specialized research facilities and infrastructure for graphene production, characterization, and testing is crucial. This includes setting up graphene synthesis laboratories, advanced characterization facilities, and pilot-scale production facilities. Developing shared research infrastructure can lower costs and foster collaboration among researchers and industry.
- Standardization and Quality Control: Standardization protocols should be developed for graphene production, characterization, and application testing. This will enable reliable and reproducible results, ensuring the quality of graphene-based products. Collaboration with international standardization organizations and adopting best

practices will be beneficial.

- Education and Skill Development: Encouraging educational institutions to incorporate graphene-related courses and research programs can help develop a skilled workforce. Providing training and workshops on graphene synthesis, characterization, and applications can enhance the expertise of researchers and industry professionals. Collaboration with international institutions and experts can also facilitate knowledge exchange and skill development.
- Industry Collaboration and Technology Transfer: Encouraging collaboration between academia and industry is vital for technology transfer and commercialization. Creating platforms for knowledge exchange, such as industry-academia partnerships, technology transfer offices, and innovation clusters, can facilitate the transition of graphene research into practical applications.
- Regulatory Framework and Intellectual Property Protection: Developing a regulatory framework that addresses environmental and health concerns associated with graphene is necessary. It is important to establish guidelines for graphene production, handling, and disposal to ensure safety. Additionally, a robust intellectual property protection system should be in place to encourage innovation and protect graphene-related inventions.
- Promotion of Startups and Entrepreneurship: Creating an ecosystem that supports graphene startups and entrepreneurs is crucial. This involves providing access to funding, incubation centers, and mentoring programs. Initiatives such as startup challenges, grants, and technology transfer platforms can encourage entrepreneurship and commercialization of graphene-based technologies.
- Awareness and Outreach: Conducting awareness campaigns, workshops, and conferences to disseminate knowledge about graphene's potential and applications is essential. Encouraging participation in international conferences and collaborations will help showcase India's research and attract global attention. Engaging with policymakers and stakeholders can also raise awareness and garner support for graphene initiatives

Source:
https://www.thehindu.com/sci-tech/science/giant-magnetoresistance-graphene-room-temperature-andre-geim/article66728864.ece

Q.1 Which of the following statements regarding graphene is correct?
(a) Graphene is a two-dimensional material composed of a single layer of carbon atoms arranged in a hexagonal lattice.
(b) Graphene is a three-dimensional material with a layered structure consisting of carbon nanotubes.
(c) Graphene is a polymer made up of a chain of interconnected carbon rings.
(d) Graphene is a metal alloy consisting of a mixture of carbon and silicon.

Answer: (a)

Q.2   Which of the following statements about graphene is/are correct? Choose the correct option:
1. Graphene is a two-dimensional material consisting of a single layer of carbon atoms arranged in a hexagonal lattice.
2. Graphene has a low electrical conductivity compared to copper.
3. Graphene possesses exceptional thermal conductivity.
4. Graphene is highly permeable to gases and liquids.

Options:
(a) 1 Only
(b) 1 and 3 only
(c) 1 and 4 only
(d) 2 and 3 only

Answer: (b)

Q.3   Discuss the potential applications and challenges associated with the adoption of graphene in India. How can India leverage graphene's unique properties to address societal and industrial needs?

NAVIC

This article covers "Daily Current Affairs" and the topic details "NavIC". The topic "NavIC" has relevance in the Science Technology section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
Facts about NavIC?

FOR MAINS:
GS 3: Science and Technology
Importance of NavIC?
Challenges for NavIC?

WHY IN THE NEWS?
The Indian Space Research Organisation (ISRO) launched the first of the second-generation satellites for its navigation constellation successfully on Monday morning.

FACTS ABOUT NAVIC?

- Regional Navigation System: NavIC is a regional navigation satellite system developed by the Indian Space Research Organisation (ISRO). It is designed to provide precise positioning and timing services in the Indian region.
- Formerly Known as IRNSS: NavIC was previously known as the Indian Regional Navigation Satellite System (IRNSS). The name was later changed to NavIC, which stands for Navigation with Indian Constellation.
- Constellation Configuration: The NavIC constellation consists of seven satellites in total. Three of these satellites are placed in geostationary orbit, while the other four are placed in inclined geosynchronous orbits.
- Dual-Frequency Signals: NavIC broadcasts signals in dual frequencies. The Standard Positioning Service (SPS) signals are broadcasted in L5 and S bands, while the Restricted Service (RS) signals are broadcasted in L5 and S bands.
- Improved Accuracy: NavIC offers higher accuracy compared to other global navigation satellite systems. The open signals of NavIC are accurate up to 5 meters, while the restricted signals are even more precise.
- Coverage Area: NavIC provides coverage over the Indian landmass and extends up to a radius of 1,500 kilometers around it. This regional coverage ensures a strong and consistent signal reception within the designated area.
- Interoperability: NavIC is designed to be interoperable with other global navigation satellite systems like GPS (United States), GLONASS (Russia), Galileo (European Union), and Beidou (China). This interoperability enhances the overall efficiency and reliability of satellite-based navigation.

IMPORTANCE OF NAVIC?

- Strategic Independence: Having its own regional navigation satellite system gives India strategic independence in terms of positioning, navigation, and timing services. It reduces dependence on foreign systems like GPS and ensures that India has reliable and accurate navigation capabilities within its own region.
- National Security: NavIC plays a crucial role in enhancing national security. It provides reliable and precise positioning information to the defense forces, enabling them to effectively carry out operations, maneuver troops, and navigate in challenging terrains. The Restricted Service (RS) signals of NavIC offer secure and encrypted communications for strategic users.
- Disaster Management: NavIC aids in disaster management and emergency response. During natural disasters such as earthquakes, floods, or cyclones, NavIC can provide real-time positioning and timing information to coordinate rescue and relief operations. It helps in mobilizing resources, tracking movement, and providing accurate situational awareness to mitigate the impact of disasters.
- Transportation and Infrastructure: NavIC supports transportation and infrastructure

development in India. It assists in efficient navigation for road, rail, and air transportation, enhancing safety and reducing travel time. NavIC can be integrated into vehicle navigation systems, helping drivers with accurate route guidance and traffic management. It also aids in the synchronization of power grids, facilitating efficient electricity distribution.

- Economic Growth: NavIC has positive implications for India's economic growth. It enables various sectors such as agriculture, fisheries, mining, logistics, and tourism to improve their operations and productivity. Accurate positioning information helps optimize resource allocation, enhance supply chain management, and facilitate precision agriculture. It opens up opportunities for innovation and entrepreneurship in developing applications and services based on satellite navigation.
- Scientific and Technological Advancement: Developing and operating a regional navigation satellite system like NavIC demonstrates India's scientific and technological capabilities. It showcases the country's expertise in space research, satellite technology, and atomic clock development. The advancements made in NavIC contribute to the overall progress of the Indian space program and foster technological innovation.
- International Collaboration: NavIC promotes international collaboration in satellite navigation. It encourages interoperability with other global navigation satellite systems, allowing seamless integration and compatibility. Collaborative efforts with other countries and organizations enhance India's global presence and cooperation in the field of satellite-based navigation.

CHALLENGES FOR NAVIC?
- Limited Coverage: NavIC is primarily designed to provide coverage over the Indian region and its surrounding areas within a radius of 1,500 kilometers. Outside this coverage area, the signal strength may diminish, leading to reduced accuracy and reliability.
- Interference: Interference from natural or man-made sources can affect the quality of NavIC signals. Sources such as atmospheric disturbances, buildings, and electronic devices can weaken or disrupt the signals, impacting the positioning accuracy.
- Compatibility with Global Systems: While NavIC is interoperable with other global navigation satellite systems, ensuring seamless compatibility and integration with existing systems can be a challenge. Harmonizing different signal frequencies, protocols, and standards requires coordination and cooperation among multiple countries and organizations.
- User Awareness and Adoption: The successful utilization of NavIC depends on the awareness and adoption of the system by users. Ensuring that the public, businesses, and relevant sectors are aware of NavIC's capabilities and encouraging the integration of NavIC into devices and applications requires effective communication

and promotion efforts.

- Technological Upgrades: As with any satellite-based system, technological advancements and upgrades are necessary to keep NavIC up-to-date. Upgrading the infrastructure, satellite capabilities, and user equipment to leverage the latest technologies and ensure compatibility with evolving requirements pose ongoing challenges.
- Satellite Maintenance and Replacement: NavIC's satellite constellation requires regular maintenance, including monitoring their health, ensuring accurate timekeeping with atomic clocks, and replacing aging satellites. Managing the lifecycle of the satellites, maintaining their functionality, and launching replacements when needed are crucial for the continuity of the system.
- Funding and Investment: Developing, maintaining, and upgrading a satellite navigation system like NavIC requires significant financial resources. Securing funding for research, development, infrastructure, and ongoing operations is a challenge that requires support from the government, industry partnerships, and effective resource allocation.

Source:
https://indianexpress.com/article/explained/explained-sci-tech/new-navic-satellite-launching-today-why-a-regional-navigation-system-matters-to-india-8633947/

Q.1 Which of the following statements regarding NavIC (Navigation with Indian Constellation) is/are correct?
1. NavIC is a regional navigation satellite system developed by the Indian Space Research Organisation (ISRO).
2. NavIC provides positioning, navigation, and timing services in the Indian region and its surrounding areas.
3. The constellation of NavIC consists of six satellites placed in geostationary orbit.
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1,2 and 3
(d) None of the above
Answer: (a)

Q.2 Which of the following statements accurately describes the range of NavIC (Navigation with Indian Constellation)?
1. NavIC provides coverage over the entire Indian landmass and up to a radius of 1,500 kilometers around it.
2. NavIC offers accurate positioning and navigation services within a radius of 5 kilometers from the user's location.

3. NavIC's range extends beyond the Indian subcontinent, covering parts of Southeast Asia and the Middle East.
(a) 1 only
(b) 2 and 3 only
(c) 1,2 and 3
(d) None of the above
Answer: (a)

Q.3 Discuss the significance of NavIC for India's strategic, economic, and technological development. Examine its potential applications in sectors such as defense, transportation, agriculture, disaster management, and innovation. Also, highlight the challenges and future prospects of NavIC in further strengthening India's satellite-based navigation capabilities.

Cyclones and Monsoons

This article covers "Daily Current Affairs" and the topic details "Cyclones and Monsoons". The topic "Cyclones and Monsoons" has relevance in the Environment section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "CYCLONES AND MONSOONS":

FOR PRELIMS:
What are cyclones?
What are the initial conditions for the onset of monsoons?

FOR MAINS:
GS 3: Environment
What is the relation between cyclones and monsoons?
What are the recent changes are observed in the pattern of monsoons in relation to cyclones?
Way forward

WHY IN THE NEWS?

WHAT ARE CYCLONES?
Cyclones are powerful tropical storms characterized by low-pressure systems and strong winds that circulate around a central eye. They typically form over warm ocean waters near the equator.

WHAT ARE THE INITIAL CONDITIONS FOR THE ONSET OF CYCLONES?
1. Warm ocean waters (at least 26.5°C or 80°F)
2. Atmospheric instability with temperature and moisture differences
3. Coriolis effect, more pronounced at 5-30 degrees latitude
4. Low vertical wind shear
5. Disturbance or tropical wave as a trigger
6. Pre-existing low-pressure system

WHAT IS THE RELATION BETWEEN CYCLONES AND MONSOONS?
- Monsoons play a role in the formation of cyclones. The seasonal reversal of wind patterns during monsoons can contribute to the development of cyclones. As monsoon winds bring in moisture from the ocean, it enhances the atmospheric conditions necessary for cyclone formation.
- Cyclones can impact the progress and intensity of monsoon seasons. Cyclones bring intense rainfall and can disrupt normal monsoonal circulation. They can alter wind patterns, temporarily stall or weaken the monsoon, or bring excessive rainfall leading to flooding.

WHAT ARE THE RECENT CHANGES OBSERVED IN THE PATTERN OF MONSOONS IN RELATION TO CYCLONES?
- Cyclones can have both positive and negative impacts on the onset of monsoons. The location of the origin of the cyclone is important for the impact on the monsoon winds. It depends on whether the cyclone is originating in the Arabian Sea or the Bay of Bengal.
- The southwest monsoon in India is influenced by the movement of cyclones in the Bay of Bengal. The monsoon trough, which is a low-pressure area, plays a crucial role in the onset and progression of the monsoon.
- When a cyclone is located further north in the Bay of Bengal, the counter-clockwise circulation around the cyclone creates strong southwest winds on its western side. These winds can interact with the monsoon trough and help in pulling it forward. As a result, the southwest winds associated with the cyclone can strengthen the prevailing monsoon winds, aiding in the advancement and onset of the monsoon over the Indian subcontinent.

The onset of the Monsoons: Since the direction of the cyclone movement is anti-clockwise the back winds as a result of the cyclones aid in the onset of the monsoon winds which also flow from southwest to northeast.

When a cyclone is positioned farther north in the Bay of Bengal, the southwest-to-northeast back winds can have a positive impact on the monsoon. These winds help in

pulling the monsoon trough forward, aiding in the timely onset of the monsoon season.
1. For example, Cyclone Mocha formed in the Bay of Bengal had a trajectory from northwest to east. Its back winds aided the timely onset of monsoon over the Andaman and Nicobar Islands.

PRELIMS QUESTIONS

Q.1   Consider the following statements about the cyclonic back-winds that play a significant role in the onset of the monsoon season:
1. They hinder the onset of the monsoon.
2. They have no impact on the monsoon.
3. They assist in the onset of the monsoon.
4. They cause cyclones to form.

Select the correct answer from the code given below:
1.   1 only
2.   2 only
3.   3 only
4.   None of the above

Answer: (c)

Q.2   Consider the following statements about the initial conditions for the onset of cyclones:
1. Warm ocean waters above 26°C-27°C.
2. Atmospheric stability with minimal temperature and moisture differences.
3. Coriolis effect, more pronounced at 5-30 degrees latitude
4. High vertical wind shear.

Select the correct answer from the code given below:
1.   1 only
2.   1 and 2 only
3.   1 and 3 only
4.   All of the above

Answer: (c)

Mains Question
1. **Discuss the relationship between cyclone formation and the onset of monsoons with suitable examples.**

TAPI GAS PIPELINE PROJECT

This article covers "Daily Current Affairs" and the topic details "TAPI Gas Pipeline Project". The topic "TAPI Gas Pipeline Project" has relevance in the Energy Security section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is the TAPI Gas Pipeline Project?

FOR MAINS:
GS 3: Energy Security
Significance of the TAPI Gas Pipeline Project for India?
Challenges in the TAPI Gas Pipeline Project for India?

WHY IN THE NEWS?
In an effort to speed up work on Turkmenistan, Afghanistan, Pakistan, and India (Tapi) gas pipeline project and finish the feasibility study as soon as possible, Pakistan and Turkmenistan signed a Joint Implementation Plan (JIP)

WHAT IS THE TAPI GAS PIPELINE PROJECT?
The Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline is a major natural gas pipeline project that aims to transport natural gas from Turkmenistan to Afghanistan, Pakistan, and India.
- Route: The TAPI pipeline originates from the Galkynysh gas field in Turkmenistan, one of the world's largest gas reserves. It then passes through Afghanistan, Pakistan, and ends at Fazilka in northwestern India.
- Length and Capacity: The total length of the TAPI pipeline is approximately 1,814 kilometers (1,127 miles). It has a designed transportation capacity of 33 billion cubic meters (bcm) of natural gas per year.
- Energy Security: The TAPI pipeline is seen as a strategic energy project aimed at enhancing energy security for the participating countries. It provides a new source of natural gas supply and diversifies the energy mix in the region.
- Economic Benefits: The pipeline has the potential to generate significant economic benefits for the participating countries. It can create jobs during the construction phase, boost local economies along the pipeline route, and provide a reliable and affordable energy source for industries and households.
- Project Consortium: The TAPI pipeline is a collaborative effort among four countries. Turkmenistan is the gas supplier, while Afghanistan, Pakistan, and India are the recipient countries. The project is implemented by a consortium known as TAPI

Pipeline Company Limited (TPCL), with each country having an equal stake.

- Project Timeline: The TAPI pipeline project has faced numerous delays and challenges since its inception in the 1990s. Construction work on the pipeline officially began in Turkmenistan in 2015, and subsequent sections are planned to be completed in phases, with the aim of delivering natural gas to the recipient countries in the coming years.

SIGNIFICANCE OF THE TAPI GAS PIPELINE PROJECT FOR INDIA?

- Energy Security: India is the world's third-largest energy consumer, and ensuring a diverse and secure energy supply is crucial for its economic growth. The TAPI pipeline provides India with a direct and reliable source of natural gas from Turkmenistan, helping to diversify its energy mix and reduce dependence on traditional energy sources.
- Fueling Economic Growth: The availability of natural gas from the TAPI pipeline can support India's industrial and economic development. Natural gas is used in various sectors, including power generation, manufacturing, fertilizers, and transportation. The pipeline's supply of natural gas can contribute to economic growth, job creation, and improved industrial competitiveness.
- Clean Energy Transition: Natural gas is considered a cleaner fossil fuel compared to coal and oil, with lower emissions of greenhouse gases and pollutants. Access to natural gas through the TAPI pipeline can aid India in its efforts to transition to a cleaner energy mix and reduce its carbon footprint.
- Enhanced Energy Access: The TAPI pipeline can bring natural gas to regions in India that currently have limited access to clean energy sources. This can benefit rural and remote areas by providing cleaner fuel options for cooking, heating, and other domestic purposes.
- Regional Cooperation and Diplomacy: The TAPI pipeline is a symbol of regional cooperation and connectivity. Its successful implementation strengthens diplomatic ties among the participating countries, fosters economic integration, and enhances India's engagement in Central and West Asia.
- Geopolitical Considerations: The TAPI pipeline can contribute to India's geopolitical interests in the region. It offers an alternative energy route bypassing Pakistan, which has geopolitical implications for India's energy security and reduces its vulnerability to disruptions in other energy supply routes.
- Infrastructure Development: The construction and operation of the TAPI pipeline requires significant infrastructure development, including gas processing plants, compressor stations, and pipeline networks. This contributes to the overall infrastructure development in India and creates opportunities for related industries.
- Employment and Trade Opportunities: The TAPI pipeline project can create employment opportunities during the construction phase and generate trade and

business prospects in the energy sector. It can attract investments and collaboration between Indian companies and international stakeholders involved in the project.

- **Strengthening International Relations:** The TAPI pipeline strengthens India's relations with Turkmenistan, Afghanistan, and Pakistan, as it involves cooperation and coordination among these countries. It provides a platform for engagement on energy, economic, and strategic matters, fostering closer ties and regional stability.
- **Energy Diplomacy:** The TAPI pipeline serves as a significant component of India's energy diplomacy efforts. It showcases India's ability to engage in cross-border energy projects and highlights its role as a reliable and responsible energy partner in the region.

CHALLENGES IN THE TAPI GAS PIPELINE PROJECT FOR INDIA?

- **Security Concerns:** The TAPI pipeline passes through politically unstable regions, particularly in Afghanistan and parts of Pakistan. Ensuring the security of the pipeline infrastructure and personnel can be a significant challenge.
- **Geopolitical Complexities:** The TAPI pipeline traverses multiple countries, each with its own geopolitical dynamics. Maintaining harmonious relations and addressing any geopolitical tensions among the participating countries can be challenging.
- **Funding and Financial Viability:** The TAPI pipeline project requires substantial investment for its construction and operation. Securing adequate funding and attracting investment can be a challenge, especially considering the high costs associated with the project.
- **Land Acquisition and Right-of-Way Issues:** The pipeline route involves acquiring land from multiple stakeholders, including private individuals, communities, and government entities. Land acquisition and right-of-way issues can lead to delays, disputes, and potential conflicts with local communities and indigenous populations.
- **Coordination and Regulatory Framework:** The successful implementation of the TAPI pipeline requires effective coordination among the participating countries, regulatory bodies, and stakeholders involved.
- **Technical and Operational Challenges:** Building and operating a long-distance pipeline, especially in challenging terrains and diverse environmental conditions, presents technical and operational challenges.
- **Long-Term Gas Supply and Pricing:** Ensuring a reliable and sustainable long-term gas supply from Turkmenistan is crucial for the success of the pipeline. Negotiating gas supply agreements, managing gas pricing mechanisms, and addressing potential fluctuations in gas availability and prices can pose challenges for India as the recipient country.
- **Infrastructure Connectivity and Integration:** Integrating the TAPI pipeline into India's existing gas infrastructure, including distribution networks and power plants, requires substantial infrastructure development and coordination. Ensuring

seamless connectivity and optimizing gas utilization across different regions can be complex and require significant investment and planning.

- Environmental and Social Impact Mitigation: The pipeline's construction and operation can have environmental and social impacts, including habitat disruption, potential pollution, and displacement of local communities.

Q.1 Which of the following is a significant challenge associated with the implementation of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline?
(a) Geopolitical complexities among the participating countries
(b) Insufficient funding from international financial institutions
(c) Technical difficulties in maintaining pipeline integrity
(d) Lack of public support for the project
Answer: (a)

Q.2 Which of the following statements is true regarding the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline?
1. The TAPI pipeline aims to transport crude oil from Turkmenistan to India via Afghanistan and Pakistan.
2. The TAPI pipeline project has faced challenges due to security concerns in Afghanistan and Pakistan.
3. The TAPI pipeline will provide a direct source of freshwater supply to the participating countries.
4. The TAPI pipeline is primarily funded through bilateral agreements between Turkmenistan and India.
Select the correct answer using the code below:
(a) 1 and 2 only
(b) 2 only
(c) 1, 2 and 3 only
(d) 1, 2, 3 and 4
Answer: (b)

Q.3 Examine the significance of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline for regional energy cooperation and its potential impact on the geopolitical dynamics of South and Central Asia. Discuss the challenges faced in its implementation and suggest measures to ensure the successful

realization of the project.

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Hiroshima AI Process (HAP)

This article covers "Daily Current Affairs" and the topic details "Hiroshima AI Process (HAP)". The topic "Hiroshima AI Process (HAP)" has relevance in the Science and Technology section for the UPSC CSE exam.

RELEVANCE OF THE TOPIC "INDIA-UAE CEPA":

FOR PRELIMS:
What is Hiroshima AI Process (HAP)?

FOR MAINS:
GS 3: Science and Technology
What is the need for regulation of AI?
What are the components of the Hiroshima AI Process?
Way forward

WHY IN THE NEWS?
The G-7 Summit that took place in Hiroshima on May 19-21, 2023 was a really important event. World leaders from the G-7 countries came together to talk about Artificial Intelligence (AI) and how it should be regulated. During the summit, the leaders started something called the Hiroshima AI Process (HAP).

WHAT IS THE NEED FOR REGULATION OF AI?
The leaders realised that AI is a powerful technology that can have a big impact on our lives, so they wanted to make sure it is used in a responsible and ethical way. The need for regulation of AI arises out fog the following factors:
- Ethical concerns: AI should be developed and used in a way that respects human rights and fundamental values.
- Safety and accountability: Regulations are needed to ensure the transparency, explainability, and reliability of AI systems.
- Fairness and non-discrimination: Regulations can address biases in AI algorithms and promote inclusive outcomes.
- Data protection and privacy: Clear guidelines on data collection, storage, and usage are necessary to safeguard privacy.
- Economic impact and job displacement: Regulations can mitigate job displacement

and promote retraining programs.

- National security and misuse: Regulations can prevent the misuse of AI technologies for harmful purposes.
- International coordination and standards: Regulations facilitate global cooperation and harmonisation of AI standards.

WHAT ARE THE COMPONENTS OF THE HIROSHIMA AI PROCESS?

1. Open Dialogue: Encouraging inclusive discussions among stakeholders.
2. Best Practice Sharing: Sharing successful approaches and experiences.
3. International Standards: Establishing common guidelines for AI governance.
4. Policy Recommendations: Formulating practical policy suggestions.
5. Ethical Guidelines: Addressing transparency, fairness, accountability, and privacy.
6. Capacity Building: Promoting education and training on AI-related topics.
7. Collaboration and Partnerships: Fostering cooperation among governments, academia, industry, and civil society.

WHAT ARE THE CHALLENGES IN THE PROCESS?

1. Divergent views among the G-7 countries.
2. The concerns of other country groups need to be taken as the words are more than the G-7. It leaves big players like India and China.
3. Each country as of today is following its own way of working and not a uniform model.

The G-7 Summit in Hiroshima and the initiation of the Hiroshima AI Process (HAP) are significant steps in the global efforts to regulate AI. The leaders understand the potential of AI and want to make sure it benefits everyone while minimising risks. They hope that through the HAP, they can create a framework for responsible and sustainable AI development that respects our values and promotes the well-being of individuals and societies.

Source:
https://www.thehindu.com/sci-tech/technology/hiroshima-ai-process-g7-explained/article66959829.ece

PRELIMS QUESTIONS

Q.1 Which significant event took place in Hiroshima in May 2023?
1. The signing of a major trade agreement
2. The hosting of the G-7 Summit
3. The inauguration of a new international airport

4.   The celebration of a local cultural festival
Select the correct answer from the code given below:
1.   Option 1
2.   Option 2
3.   Option 3
4.   Option 4
Answer: (b)

Q.2 Arrange the following islands of Japan as they are located north to south on the world map:
1.   Honshu
2.   Hokkaido
3.   Kyushu
4.   Shikoku
Select the correct answer from the code given below:
1.   1->3->2->4
2.   2->1->4->3
3.   4->3->2->1
4.   3->1->2->4
Answer: (b)

Mains Question
1. **The regulation of AI needs a collaborative approach as highlighted in the Hiroshima AI process. Discuss.**

GALWAN VALLEY

This article covers "Daily Current Affairs" and the topic details "Galwan Valley". The topic "Galwan Valley" has relevance in the Security section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
Facts about Galwan Valley?

FOR MAINS:
GS 3: Security
Challenges for India at LAC?

Solutions for the Challenges?
Reason Behind India's Failure to Acquire latest Defence Technology?

WHY IN THE NEWS?

Three years after the Galwan Valley clash between India and China on June 15, 2020, despite many rounds of negotiations and engagement at multiple levels, the military tensions continue. India has said there can be no normal ties if China breaches border agreements. Both sides are building infrastructure in the area.

FACTS ABOUT GALWAN VALLEY

- Location: The Galwan Valley is located in the Aksai Chin region of the Union Territory of Ladakh in India. It lies on the western side of the Line of Actual Control (LAC), the de facto border between India and China.
- Geography: The valley is situated in the Himalayas and is surrounded by high-altitude mountain ranges. It is a remote and challenging terrain with harsh weather conditions, including freezing temperatures and high winds.
- Strategic Importance: The Galwan Valley holds significant strategic importance due to its proximity to the LAC. It provides access to the Shyok River and serves as a route for the movement of troops and supplies.
- Galwan River: The valley is named after the Galwan River, which flows through it. The river originates from the glaciers in the area and eventually merges with the Shyok River.
- Military Presence: Both India and China have maintained military posts and patrols in the Galwan Valley. The region has witnessed occasional standoffs and tensions between the two sides.
- Galwan Valley Clash: The Galwan Valley clash refers to the violent confrontation that occurred between Indian and Chinese troops on June 15, 2020. It resulted in casualties on both sides and marked a significant escalation in the ongoing border tensions.
- Infrastructure Development: In recent years, both India and China have undertaken infrastructure development projects in the region. This includes the construction of roads, bridges, and military infrastructure to support their respective positions along the border.

CHALLENGES FOR INDIA AT LAC?

- Border Infrastructure: One of the challenges for India is the relatively underdeveloped infrastructure along the LAC compared to China.
- Border Incursions: China has been known to undertake border incursions into the Indian territory along the LAC. These incursions often involve Chinese troops

crossing into disputed areas, setting up temporary structures, and asserting their presence.

- Border Disputes and Perceptions: India and China have differing perceptions of the LAC in several areas, including the Galwan Valley. These differences in perception often lead to face-offs and confrontations between the troops of both countries.
- High-Altitude Environment: The LAC is characterized by a high-altitude environment with extreme weather conditions, including freezing temperatures, high winds, and low oxygen levels. The harsh terrain poses logistical challenges for Indian troops deployed in the region.
- Military Build-up: China has significantly developed its military infrastructure along the LAC, including the construction of roads, airstrips, and advanced surveillance systems. India faces the challenge of countering this military build-up to maintain a credible defense posture along the border.
- Diplomatic and Geopolitical Considerations: The border disputes between India and China have broader diplomatic and geopolitical implications. India needs to balance its responses at the LAC while considering the potential impact on regional dynamics, relations with other countries, and its overall strategic interests.

SOLUTIONS FOR THE CHALLENGES?

- Strengthen Border Infrastructure: India should continue investing in the development of border infrastructure, including roads, bridges, and communication networks. Improved infrastructure will enhance mobility, logistics, and troop deployment capabilities along the LAC, bolstering India's defense posture.
- Enhance Surveillance and Intelligence: India should focus on enhancing its surveillance and intelligence capabilities along the LAC. This includes utilizing advanced technologies such as unmanned aerial vehicles (UAVs), satellite imagery, and early warning systems to monitor and detect any suspicious activities or incursions.
- Build Military Capabilities: India should continue to build and modernize its military capabilities, including land forces, air power, and naval assets. This involves upgrading equipment, improving training and readiness levels, and fostering interoperability among different branches of the armed forces to effectively respond to any contingencies at the LAC.
- Strengthen Diplomatic Engagement: India should maintain consistent diplomatic engagement with China to find a peaceful resolution to the border disputes. Continued dialogue and negotiations can help in building mutual trust, clarifying perceptions of the LAC, and reducing tensions along the border.
- Forge Strategic Partnerships: India should strengthen its strategic partnerships and alliances with like-minded countries that share concerns about China's assertiveness in the region. Collaborating with partners can provide diplomatic

support, intelligence sharing, and opportunities for defense cooperation, which can enhance India's position at the LAC.

- Focus on Indigenous Defense Production: India should continue to promote indigenous defense production and research and development capabilities. Encouraging domestic defense manufacturing and innovation will reduce dependence on foreign technology and enhance self-reliance in critical defense sectors.
- Improve Border Management: India should enhance border management mechanisms, including regular consultations, joint patrols, and hotlines, to maintain communication channels and prevent misunderstandings or accidental escalations. Confidence-building measures can play a crucial role in de-escalating tensions and maintaining peace along the border.
- Strengthen Economic and Trade Relations: Strengthening economic and trade ties with neighboring countries can create interdependencies and promote stability. Enhanced economic cooperation can provide avenues for dialogue and de-escalation, reducing the likelihood of conflicts along the LAC.
- Focus on Soft Power Diplomacy: India should leverage its soft power assets, including cultural exchanges, people-to-people contacts, and economic diplomacy, to build goodwill and influence in the region. Soft power initiatives can help in fostering understanding and trust between countries, contributing to peaceful relations at the LAC.

REASON BEHIND INDIA'S FAILURE TO ACQUIRE LATEST DEFENCE TECHNOLOGY?

- Limited R&D Investment: Historically, India has allocated a relatively low percentage of its GDP towards research and development (R&D) compared to some other countries. Insufficient investment in R&D hampers the country's ability to develop cutting-edge technologies domestically and can limit its capacity to acquire advanced technologies from abroad.
- Emphasis on Low-cost Solutions: India has often prioritized low-cost solutions and affordability over acquiring advanced technology. This approach has been driven by the need to address the country's large population and socio-economic challenges. Consequently, there may be less focus on seeking and acquiring expensive, state-of-the-art technology.
- Lack of a Robust Innovation Ecosystem: Building a robust innovation ecosystem requires a combination of factors, including strong academia-industry collaboration, a favorable regulatory environment, and a vibrant startup culture. While India has made progress in recent years, there are still challenges in creating an ecosystem that fosters innovation and technological advancements.
- Limited Defense Exports: India's defense industry has traditionally focused more on meeting domestic requirements rather than pursuing extensive defense exports.

This approach has restricted the country's exposure to advanced technology collaborations with other nations and limited its access to state-of-the-art defense technologies.

- Complex Procurement Processes: India's procurement processes, particularly in the defense sector, have often been criticized for their complexity and lengthy timelines. These bureaucratic hurdles can hinder the efficient acquisition of technology and discourage foreign entities from engaging in technology transfer partnerships.
- Export Control Regimes: Certain countries have strict export control regimes that limit the transfer of sensitive technologies. This can pose challenges for India when attempting to acquire advanced technology from these countries, particularly in strategic sectors such as defense and nuclear energy.
- Intellectual Property Rights Concerns: India has faced criticism regarding intellectual property rights (IPR) protection. Concerns over weak enforcement and inadequate legal frameworks can discourage foreign technology providers from engaging in technology transfer agreements with Indian entities.

Q.1 Which of the following statements is/are correct regarding the Galwan Valley?
1. It is located in the Union Territory of Ladakh in India.
2. The Galwan River flows through the valley.
3. The Galwan Valley clash in 2020 marked a significant escalation in border tensions between India and Pakistan.
4. The valley is known for its lush green landscapes and agricultural productivity.

Select the correct option(s) from the following:
(a) 1 and 2 only
(b) 1, 2, and 3 only
(c) 2 and 4 only
(d) 1, 2, and 4 only
Answer: (a)

Q.2 Which of the following rivers are associated with the Galwan Valley?
1. Galwan River
2. Shyok River
3. Indus River
4. Brahmaputra River

Select the correct option(s) from the following:
(a) 1 and 2 only
(b) 1, 2, and 3 only

(c) 2 and 4 only
(d) 1, 2, and 4 only
Answer: (a)

Q.3 **The Galwan Valley clash of 2020 highlighted the complexities and challenges in India-China relations. Discuss the strategic significance of the Galwan Valley, the factors contributing to the clash, and the implications for India's foreign policy approach towards China.**

QUANTUM COMPUTER

This article covers "Daily Current Affairs" and the topic details "Quantum Computer". The topic "Quantum Computer" has relevance in the Science and Technology section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is a Quantum Computer?
Facts about Quantum Computers?

FOR MAINS:
GS 3: Science and Technology
Applications of Quantum Computing?
Challenges in Quantum Computing?
India and Quantum Computing?

WHY IN THE NEWS?
Recently, IBM published a paper in which it claimed to have demonstrated that a quantum computer could solve a useful problem that today's conventional computers can't.

WHAT IS A QUANTUM COMPUTER?
A quantum computer is a type of computing device that leverages the principles of quantum mechanics to perform computations. Unlike classical computers, which use bits to represent and process information as binary digits (0s and 1s), quantum computers use quantum bits, or qubits, which can exist in multiple states simultaneously thanks to a property called superposition.

FACTS ABOUT QUANTUM COMPUTERS?

- Quantum Supremacy: In 2019, Google claimed to have achieved "quantum supremacy," demonstrating that a quantum computer could perform a specific calculation faster than the world's most powerful supercomputers. This milestone showcased the potential of quantum computers to outperform classical computers in certain tasks.
- Quantum Bits (Qubits): Qubits are the fundamental units of information in quantum computing. Unlike classical bits that can represent only 0 or 1, qubits can exist in a superposition of states, allowing for exponentially larger computational possibilities.
- Entanglement: Entanglement is a property unique to quantum systems where two or more qubits become linked, regardless of their physical distance. This phenomenon enables the creation of highly correlated quantum states and is crucial for performing complex computations and achieving quantum speedup.
- Quantum Parallelism: Quantum computers can perform calculations on multiple inputs simultaneously, thanks to superposition. This inherent parallelism holds the potential to solve certain problems significantly faster than classical computers, leading to exponential speedup.
- Quantum Error Correction: Quantum error correction techniques are essential for preserving the integrity of qubits and protecting quantum information from errors caused by decoherence and noise. These techniques involve encoding qubits redundantly and applying error correction codes.
- No-Cloning Theorem: Unlike classical bits, it is impossible to make an exact copy of an unknown quantum state due to the no-cloning theorem. This theorem underpins the security of quantum cryptography protocols, where the transmission of quantum information can be performed securely.
- Quantum Algorithms: Several quantum algorithms have been developed that exploit the unique properties of quantum computers. Examples include Shor's algorithm for factoring large numbers and Grover's algorithm for database searching, which offer significant speedup compared to classical algorithms in their respective domains.

APPLICATIONS OF QUANTUM COMPUTING?

- Cryptography: Quantum computing can impact cryptography by breaking current encryption algorithms, such as RSA and ECC, which rely on the difficulty of factoring large numbers. Quantum algorithms, like Shor's algorithm, can factor large numbers exponentially faster, posing a threat to traditional cryptographic systems. However, quantum cryptography can also provide enhanced security through techniques like quantum key distribution.
- Optimization and Simulation: Quantum computers can be utilized to solve optimization problems, such as finding the best routes for logistics or minimizing

energy consumption. Quantum algorithms, like the Quantum Approximate Optimization Algorithm (QAOA), can provide more efficient solutions compared to classical optimization algorithms. Additionally, quantum simulation allows for the study of complex physical and chemical systems that are difficult to model classically, leading to advancements in material science and drug discovery.

- Machine Learning and AI: Quantum computing can enhance machine learning algorithms by accelerating tasks like pattern recognition and optimization of large datasets. Quantum machine learning algorithms, such as quantum support vector machines and quantum neural networks, have the potential to achieve better performance than classical counterparts in certain applications.
- Financial Modeling: Quantum computing can enable more accurate and sophisticated financial modeling by efficiently analyzing vast amounts of data and complex mathematical models. This can aid in risk analysis, portfolio optimization, option pricing, and simulations for financial decision-making.
- Weather Forecasting and Climate Modeling: Quantum computers have the potential to improve weather forecasting and climate modeling by simulating complex atmospheric and oceanic processes more accurately. This can lead to better predictions of weather patterns, extreme events, and long-term climate trends, aiding in disaster management and climate change mitigation.
- Drug Discovery and Molecular Modeling: Quantum computers can accelerate the process of drug discovery by simulating molecular interactions and predicting the behavior of complex chemical systems. This can help in designing more effective drugs and understanding the mechanisms of diseases.
- Supply Chain and Logistics: Quantum computing can optimize supply chain and logistics operations, enabling more efficient routing, inventory management, and resource allocation. This can lead to cost savings, reduced transportation times, and improved overall efficiency in logistics networks.
- Artificial Intelligence (AI) and Natural Language Processing: Quantum computing can enhance AI algorithms by providing faster data processing, enabling more sophisticated pattern recognition, and enhancing natural language processing tasks like sentiment analysis and language translation.

CHALLENGES IN QUANTUM COMPUTING?
- Quantum Decoherence: Quantum systems are extremely sensitive to environmental noise and interference, leading to decoherence and the loss of quantum states. Maintaining the fragile quantum states for a sufficiently long time is crucial for performing reliable computations. Developing error correction techniques and reducing decoherence rates are ongoing challenges in quantum computing.
- Scalability: Building large-scale, fault-tolerant quantum computers is a significant challenge. The number of qubits and the level of control required increases

exponentially as the system size grows. Overcoming technical barriers and engineering challenges to scale up quantum systems while maintaining the integrity of qubits is a major hurdle.

- Qubit Reliability and Error Correction: Qubits are prone to errors due to decoherence, control imperfections, and noise from the environment. Developing error correction codes and fault-tolerant quantum gates is necessary to protect the quantum states and ensure accurate computations. Increasing qubit reliability and minimizing errors are critical for practical quantum computing.
- Physical Implementation: Various physical platforms are being explored for implementing quantum computers, including superconducting qubits, trapped ions, topological qubits, and others. Each platform has its own set of challenges in terms of stability, scalability, and coherence. Determining the most viable and scalable approach for building quantum computers is an active area of research.
- Quantum Software and Algorithms: Developing quantum algorithms that can effectively leverage the power of quantum computers and outperform classical algorithms is a significant challenge. Designing efficient quantum software tools, programming languages, and quantum simulators to facilitate algorithm development and testing is also an ongoing effort.
- Access to Quantum Resources: Quantum computing requires specialized resources and expertise that are currently limited. Access to quantum computers and adequate training for researchers and developers is essential to drive innovation and practical applications. Ensuring wider accessibility and fostering collaborations among academia, industry, and governments is crucial.
- Quantum Security and Ethical Implications: The advent of quantum computers poses security risks to traditional encryption systems, raising concerns about data privacy and cybersecurity. Developing quantum-resistant encryption methods and addressing ethical implications related to privacy, data protection, and potential misuse of quantum technology are important considerations.
- Cost and Infrastructure: Quantum computing technologies are still expensive and require sophisticated infrastructure, making them inaccessible to many organizations. Reducing the cost of hardware, improving infrastructure, and enabling cloud-based access to quantum resources can help overcome this challenge.

INDIA AND QUANTUM COMPUTING?

- National Mission on Quantum Technologies and Applications (NMQTA): In 2020, the Government of India launched the NMQTA with a budget allocation of INR 8,000 crore (approximately USD 1.1 billion). The mission aims to accelerate the development and adoption of quantum technologies in India, including quantum computing, quantum communication, and quantum cryptography.
- Quantum Computing Initiatives: Under the NMQTA, several initiatives have been

launched to support quantum computing research and development. Institutes like the Indian Institute of Science (IISc) and the Indian Institutes of Technology (IITs) are actively engaged in quantum computing research.

- Collaboration and Partnerships: India has been fostering collaborations and partnerships with leading international organizations and institutions in the field of quantum computing. For instance, the Indian Institute of Science Education and Research (IISER) has collaborated with IBM to establish the IBM-IISER Quantum Computing Lab in Mohali. Such collaborations provide access to resources, expertise, and collaborative research opportunities.
- Quantum Computing Research and Talent Development: India has been investing in quantum computing research to develop indigenous capabilities. Efforts are being made to train and develop a skilled workforce in quantum technologies through specialized programs, workshops, and training initiatives. This helps in nurturing talent and building expertise in quantum computing within the country.
- Quantum Communication and Cryptography: India is also exploring the development of quantum communication and quantum cryptography technologies. These areas are crucial for secure communication and data transmission in the quantum era. Initiatives are underway to develop quantum communication networks and explore quantum-safe cryptographic solutions.
- Startup Ecosystem: India has a growing quantum computing startup ecosystem, with several startups working on quantum software, algorithms, and applications. The government has also launched programs to support and incubate quantum technology startups, fostering innovation and entrepreneurship in the field.
- International Collaborations: India actively participates in international collaborations and initiatives related to quantum computing. For example, India is a member of the Quantum Flagship Program of the European Union, which aims to accelerate the development and commercialization of quantum technologies.

Source:
https://www.thehindu.com/sci-tech/science/phonons-quantum-computer-acoustic-beam-splitter/article66984735.ece

Q.1 Which of the following statements is true regarding quantum computing?
(a) Quantum computing uses classical bits to process information.
(b) Quantum computing relies on superposition and entanglement of qubits.
(c) Quantum computing has no applications beyond cryptography.
(d) Quantum computing is primarily focused on enhancing classical computing speed.
Answer: (b)

Q.2 Which of the following is a major challenge in the field of quantum computing?
A. Quantum entanglement

B. Quantum algorithms
C. Quantum error correction
D. Quantum decoherence

Select the correct option:

(a) A, B
(b) B, C
(c) C, D
(d) A, D

Answer: (d)

Q.3 Assess the potential impact of quantum computing on various sectors, including cybersecurity, scientific research, and economic growth. Highlight the steps that India should take to harness the full potential of quantum computing and establish itself as a global leader in this field.

ARTEMIS ACCORD

This article covers "Daily Current Affairs" and the topic details "Artemis Accord". The topic "Artemis Accord" has relevance in the Science and Technology section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:
What is the Artemis Accord?
What is the Artemis Programme?

FOR MAINS:
GS 3:Science and Technology
Principles of the Artemis Accords?
Benefits for India in joining Artemis Accords?

WHY IN THE NEWS
In a decision that will bring the two countries' space programmes closer than ever before, India on Thursday signed on to the three-year-old Artemis Accords, a US-led alliance seeking to facilitate international collaboration in planetary exploration and research

WHAT IS THE ARTEMIS ACCORD?

The Artemis Accords are a set of principles and guidelines established by NASA, the United States space agency, for international cooperation in lunar exploration and space exploration missions. These accords aim to create a framework for responsible and sustainable exploration of the Moon, with the ultimate goal of establishing a long-term presence on the lunar surface.

ARTEMIS PROGRAMME OF NASA:

The Artemis program, initiated by NASA, has set ambitious goals for human space exploration, specifically targeting a manned mission to the moon by 2024. One of the notable objectives of the program is to achieve a historic milestone by sending the first woman and the first person of color to the lunar surface.

The primary purpose of the Artemis program is not only to advance scientific knowledge but also to generate economic advantages and stimulate technological innovations. By returning to the moon, NASA aims to unlock new discoveries, conduct in-depth research, and develop sustainable exploration capabilities that could potentially benefit various industries on Earth.

PRINCIPLES OF THE ARTEMIS ACCORDS INCLUDE:

- **Peaceful Purposes:** The accords affirm that cooperative activities in space should be for peaceful purposes, in line with the Outer Space Treaty and international law.
- **Transparency:** Signatory nations commit to sharing information about their national space policies and exploration plans in accordance with their respective rules and regulations, promoting openness and collaboration.
- **Interoperability:** The accords emphasize the importance of interoperability among participating nations to ensure safe and efficient space exploration operations.
- **Emergency Assistance:** Signatories pledge to provide necessary assistance to personnel in distress in outer space, acknowledging their obligations under the Agreement on the Rescue of Astronauts and the Return of Objects Launched into Outer Space.
- **Registration of Space Objects:** The accords underscore the significance of appropriate registration of space objects to mitigate the risks of interference and promote responsible space activities, aligning with the obligations of the Registration Convention.
- **Release of Scientific Data:** Participating countries commit to sharing scientific data with the global community in a timely and transparent manner, fostering international collaboration and advancing scientific knowledge.
- **Protecting Heritage:** The accords recognize the importance of preserving historically significant human or robotic landing sites, artifacts, spacecraft, and other elements of exploration that hold cultural and historical value.

- Space Resources: Utilizing space resources in a manner compliant with the Outer Space Treaty and beneficial to humanity is considered crucial for sustainable space operations, recognizing the potential of resource utilization.
- Deconfliction of Activities: Signatories are required to provide notifications of their space activities, including the location and nature of operations, and coordinate with relevant actors to prevent harmful interference. These coordinated areas are referred to as "safety zones."
- Orbital Debris and Spacecraft Disposal: The accords emphasize the importance of mitigating orbital debris and safely disposing of spacecraft to maintain a safe space environment and promote sustainable operations.

These principles form the foundation for international cooperation and responsible space exploration among the signatory nations of the Artemis Accords.

BENEFITS FOR INDIA IN JOINING ARTEMIS ACCORDS:
- Technological Advancements: By participating in the Artemis program, India can access advanced technologies and expertise in space exploration. Collaboration with other member nations can facilitate knowledge-sharing and foster technological advancements in areas such as spacecraft design, propulsion systems, lunar surface operations, and resource utilization.
- Scientific Discoveries: Joining the Artemis Accords provides India with opportunities to contribute to scientific research and discoveries on the moon and beyond. Participation in lunar missions can enable Indian scientists and researchers to conduct experiments, collect data, and analyze samples, leading to new insights into lunar geology, resource potential, and the origin of the moon.
- Economic Opportunities: The Artemis program offers potential economic benefits for India. As space exploration evolves, there is growing interest in space tourism, resource extraction, and commercial activities. India's involvement in lunar missions can open doors for Indian industries to participate in space-related ventures, including the development of advanced technologies, manufacturing of space hardware, and provision of satellite services.
- International Collaboration: Joining the Artemis Accords allows India to strengthen its ties with other spacefaring nations and participate in international collaborations. This collaboration can enhance India's standing in the global space community, promote diplomatic relations, and foster partnerships in space research, technology transfer, and joint missions.
- Capacity Building: Participation in the Artemis program can significantly contribute to building India's space capabilities and expertise. Collaborating with other nations can provide opportunities for Indian scientists, engineers, and astronauts to gain valuable experience, share best practices, and develop skills in areas such as mission planning, spacecraft operations, and space medicine.

- Inspiration and Education: India's involvement in the Artemis program can inspire and motivate the country's youth to pursue careers in science, technology, engineering, and mathematics (STEM) fields. The achievements and discoveries made through the program can serve as a catalyst for scientific curiosity, innovation, and the development of a skilled workforce in India's space sector.

By joining the Artemis Accords, India can position itself as a key player in the global space exploration landscape, contributing to scientific knowledge, technological advancements, and economic growth. It offers an opportunity for India to collaborate, learn, and contribute to the collective efforts of humanity in expanding our understanding of the universe and pushing the boundaries of space exploration.

Source:
https://indianexpress.com/article/world/coming-artemis-accords-isro-nasa-mission-8680033/

Q.1 Which of the following statements about the Artemis Accords is correct?
(a) The Artemis Accords are legally binding agreements among nations for the peaceful use of outer space.
(b) The Artemis Accords aim to land humans on Mars by 2024.
(c) The Artemis Accords were established by NASA in collaboration with seven other founding member nations.
(d) The Artemis Accords prioritize national competition and discourage international cooperation in space exploration.
Answer: (c)

Q.2 Which agency is leading the Artemis program for lunar exploration?
(a) National Aeronautics and Space Administration (NASA)
(b) European Space Agency (ESA)
(c) Roscosmos (Russian space agency)
(d) China National Space Administration (CNSA)
Answer: (a)

Q.3 Discuss the potential benefits and challenges of India's collaboration with the Artemis program for lunar exploration.

SEMICONDUCTOR INDUSTRY IN INDIA

This article covers "Daily Current Affairs" and the topic details "Semiconductor industry in India". The topic "Semiconductor industry in India" has relevance in the Science and Technology section of the UPSC CSE exam.

RELEVANCE:
FOR PRELIMS:
Facts about Semiconductors?
FOR MAINS:
GS 3: Science and Technology
Facts about the global Semiconductor industry?
Reasons for India to Make Chips?
Advantages that India has?
Challenges Faced By India?

WHY IN THE NEWS:
US memory-chip maker Micron Technology announced it would set up an outsourced semiconductor assembly and testing plant at Sanand in Gujarat entailing an investment of $2.75 billion.

FACTS ABOUT SEMICONDUCTORS?
- Semiconductors are materials with unique electrical properties.
- They can transmit electricity under certain conditions but not in others.
- Semiconductors are used as the basis for computers and other electronic devices.
- They have the ability to control the flow of electrical current.
- Semiconductors are crucial components in electronic devices such as cars, smartphones, medical equipment, aircraft, and weapons.
- They are produced through a sophisticated process in chip fabrication plants (fabs).
- Semiconductors enable the creation of smaller, faster, and more efficient electronic devices.
- They have revolutionized industries and driven technological innovation.
- Semiconductors play a vital role in modern electronics and technology.

FACTS ABOUT THE GLOBAL SEMICONDUCTOR INDUSTRY?
- The global semiconductor industry is valued at approximately $500-$600 billion, serving the global electronics industry valued at around $3 trillion.
- Semiconductor chips are made from silicon and consist of billions of microscopic transistors. They are designed to control the flow of current and follow specific computational instructions.

- The most advanced semiconductor technology nodes currently available are the 3 nanometre (nm) and 5nm nodes.
- Higher nanometre value semiconductors are used in applications such as automobiles and consumer electronics, while lower nanometre value semiconductors are used in devices like smartphones and laptops.
- Semiconductor fabrication units, or fabs, transform raw materials like silicon into integrated circuits that are incorporated into electronic hardware.
- China has surpassed Taiwan in terms of global sales share from fabs, leading to concerns about its dominance in the semiconductor industry.
- In response to this, the U.S. has enacted the CHIPS Act, providing significant subsidies and investments of over $280 billion to manufacturers establishing fabs and producing semiconductors within the U.S.
- Additionally, there have been restrictions and sanctions imposed on the Chinese semiconductor industry as part of efforts to safeguard national interests and reduce dependence on foreign supply chains.

REASONS FOR INDIA TO MAKE CHIPS?
- **Boosting Electronics Manufacturing:** India aims to promote electronics manufacturing as a strategic sector for its economic growth. By producing chips domestically, India can strengthen its electronics supply chain and reduce dependence on imports, particularly from China. This aligns with the government's vision of enhancing the domestic manufacturing ecosystem and attracting investments.
- **Reducing Import Dependency:** Currently, India heavily relies on imports for semiconductor chips, which can be a significant drain on foreign exchange reserves. By manufacturing chips domestically, India can reduce import dependency, enhance self-reliance, and improve its balance of trade in the electronics sector.
- **Job Creation and Skill Development:** Establishing a robust chip manufacturing industry in India would generate employment opportunities and contribute to skill development. It can create a significant number of high-value jobs, attract talent, and stimulate the growth of a skilled workforce specialized in semiconductor technology.
- **Attracting Investments and Diversification:** As companies worldwide seek to diversify their manufacturing bases away from China, India has an opportunity to position itself as a reliable destination for chip production. By establishing a strong semiconductor industry, India can attract foreign investments, foster technological collaborations, and strengthen its position in the global electronics market.
- **National Security and Strategic Autonomy:** Ensuring domestic chip production is crucial for India's national security and strategic autonomy. Relying on foreign countries for critical components like semiconductors can pose risks in terms of supply chain disruptions, security vulnerabilities, and geopolitical factors.

Domestic chip manufacturing enables better control over the entire value chain and enhances India's self-sufficiency in critical technology sectors.

ADVANTAGES THAT INDIA HAS?

- **Design and Intellectual Labour:** A significant aspect of semiconductor manufacturing involves design and intellectual labour. India has an advantage in this area, as it boasts a substantial number of semiconductor design engineers, many of whom are Indian or of Indian origin. Companies like Intel and NVIDIA have established large facilities in India, which are already equipped with skilled Indian talent working on design challenges. This advantage becomes particularly significant as China faces sanctions and an aging population, potentially diminishing its control over the design aspect.
- **Large Consumer Base:** India has a massive domestic consumption market, being the world's largest populous economy. This offers a significant advantage in terms of semiconductor demand. As India's population continues to grow and the country experiences increasing urbanization and digitization, the demand for electronic devices and components, including semiconductors, is expected to rise. This domestic demand can serve as a strong driving force for the growth of the semiconductor industry in India.
- **Emerging Start-up Ecosystem:** India has witnessed the emergence of a vibrant start-up ecosystem in recent years, particularly in the technology sector. Several start-ups in India are focusing on semiconductor-related technologies, such as chip design, AI, and IoT. This entrepreneurial ecosystem provides opportunities for innovation, collaboration, and the development of indigenous semiconductor solutions, fostering the growth of the industry in the country.
- **Government Initiatives and Policies:** The Indian government has recognized the importance of semiconductor manufacturing and has introduced various initiatives and policies to promote the sector. Programs like "Make in India" and "National Policy on Electronics" aim to create a conducive environment for semiconductor manufacturing, attract investments, and develop the necessary infrastructure and ecosystem for the industry's growth.
- **Skilled Workforce:** India has a large pool of highly skilled engineers and technical professionals. The country's strong educational institutions and technical training programs produce a steady supply of talent that can contribute to the semiconductor industry. Additionally, India's young demographic profile ensures a sustainable supply of skilled labor, which is crucial for the success of the semiconductor manufacturing sector.

CHALLENGES FACED BY INDIA?

- **Costly and Capital Intensive:** Chip production is a highly capital-intensive process. Setting up a semiconductor fabrication facility (fab) requires a significant

investment ranging from $3 to $7 billion. The high cost involved poses a challenge for attracting adequate investment and creating a competitive manufacturing ecosystem.

- **Lack of Fiscal Support from Government:** The level of fiscal support provided by the government for semiconductor manufacturing is relatively low compared to the massive investments required. Insufficient fiscal incentives and support may hinder the establishment of robust semiconductor manufacturing capacities in the country.
- **Lack of Latest Technology:** While India initially focuses on "lagging-edge" technology nodes to cater to sectors like automotive and appliances, creating global demand may be challenging. Countries like Taiwan already offer cutting-edge chip technologies worldwide, making it difficult for India to compete on the forefront of technology.
- **Water Efficiency:** Chip fabrication requires substantial amounts of ultrapure water on a daily basis. Ensuring a consistent and reliable water supply to semiconductor factories can be challenging, particularly in regions facing drought conditions. The availability of sufficient ultrapure water infrastructure is crucial for sustainable chip manufacturing operations.
- **Supply of Power:** The uninterrupted supply of electricity is vital for semiconductor manufacturing processes. Even slight fluctuations or spikes in power can result in significant financial losses. Ensuring a stable and reliable power supply is essential for the successful operation of semiconductor fabs.
- **Consumer Demand:** To sustain the growth of the semiconductor industry, there is a need to drive up consumer demand for electronic devices and components domestically. The government must work towards creating an environment that encourages consumer demand, ensuring that the industry remains viable without relying solely on taxpayer-funded subsidies.

Source:

https://economictimes.indiatimes.com/tech/technology/government-in-talks-with-multiple-semiconductor-companies-for-major-investments-over-the-next-one-year-ashwini-vaishnaw/articleshow/101225195.cms

Q.1 Which of the following statements regarding semiconductors is correct?
1. Semiconductors are materials that have electrical conductivity between conductors and insulators
2. Semiconductors are materials that only exhibit electrical conductivity in the presence of light.
3. Semiconductors are materials that possess high thermal conductivity and low electrical conductivity.

4.   Semiconductors are materials that do not respond to changes in temperature.
Select the correct option:
(a) A only
(b) B only
(c) C only
(d) D only
Answer: (a)

Q.2 Which of the following processes is involved in the manufacturing of semiconductor chips?
1.   Diffusion
2.   Etching
3.   Lithography
4.   Doping
Select the correct option from the choices given above:
(a) 1 and 2
(b) 2 and 3
(c) 1, 2, and 4
(d) 1, 2, 3, and 4
Answer: (d)

Q.3 Analyze the challenges faced by the semiconductor chips industry in India. How can the government and industry stakeholders work together to overcome these challenges and promote indigenous semiconductor chip manufacturing? Discuss with suitable examples.

GREENWASHING

This article covers "Daily Current Affairs" and the topic details "Greenwashing". The topic "Greenwashing" has relevance in the Environment section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:

What is Greenwashing?
For Mains:
GS 3: Environment

Negative impacts of greenwashing?
Challenges in tackling Greenwashing?
Way forward?

WHY IN THE NEWS?

The International Sustainability Standards Board (ISSB) plans to introduce new norms that will establish globally uniform sustainability and climate standards for companies starting in 2024. These norms aim to provide a consistent framework for companies to follow worldwide, ensuring greater transparency and accountability in their environmental practices. By implementing these standards, the ISSB seeks to address the current challenges of greenwashing, promote sustainable business practices, and facilitate a more comprehensive and reliable assessment of companies' environmental impact.

WHAT IS GREENWASHING?

Greenwashing refers to the deceptive or misleading practices of companies or organizations that claim to be environmentally friendly or sustainable when, in reality, they are not. Here are some key facts about greenwashing:

- **Prevalence:** Greenwashing is a widespread issue across various industries, including fashion, beauty, food, energy, and transportation. Many companies use greenwashing tactics to appeal to environmentally conscious consumers and enhance their brand image.

- **Misleading Labels:** Greenwashing often involves the use of misleading labels or certifications that give the impression of eco-friendliness. These labels may be vague, unregulated, or self-created by the company, making it challenging for consumers to discern genuine environmentally friendly products or services.

- **Empty or Exaggerated Claims:** Greenwashing can involve making empty or exaggerated claims about a company's environmental initiatives or the sustainability of its products. This could include statements like "all-natural," "eco-friendly," or "100% sustainable" without providing substantial evidence to support these claims.

- **Tokenism:** Some companies engage in tokenistic gestures or small, insignificant changes to portray themselves as environmentally conscious. For example, a company may promote a single eco-friendly product while the majority of its offerings remain environmentally harmful.

- **Irrelevant or Distracting Information:** Greenwashing can involve highlighting minor environmental attributes of a product or service while neglecting more significant environmental impacts. This tactic diverts attention away from the company's overall negative environmental practices.

NEGATIVE IMPACTS OF GREENWASHING?

- **Misleading Consumers:** Greenwashing deceives consumers into believing that products or services are more environmentally friendly than they actually are. This misleads consumers who genuinely want to make sustainable choices and can undermine their efforts to support genuinely eco-friendly companies or products.

- **Undermining Trust:** Greenwashing erodes trust between companies and consumers. When companies engage in deceptive practices, it can damage their reputation and make consumers skeptical about sustainability claims in general. This lack of trust can hinder genuine sustainability efforts and discourage consumers from supporting truly environmentally responsible businesses.

- **Impeding Progress:** Greenwashing can slow down progress towards a more sustainable future by diverting attention and resources away from genuine sustainability initiatives. When companies focus on marketing and promoting a false image of sustainability instead of implementing substantive changes, it hampers the overall efforts to address pressing environmental challenges.

- **Lack of Accountability:** Greenwashing allows companies to avoid accountability for their environmental impact. By creating an illusion of sustainability without taking meaningful action, companies can sidestep responsibility for their negative environmental practices or lack of progress towards sustainability goals.

- **Overconsumption and Waste:** Greenwashing can contribute to overconsumption and wasteful practices. When companies promote products as "green" or "eco-friendly" without significant environmental benefits, it can lead to increased consumption of these products without a genuine reduction in environmental impact. This can further strain natural resources and contribute to waste generation.

- **Dilution of Standards:** Greenwashing can undermine efforts to establish clear standards and regulations for sustainable practices. By misusing or misrepresenting existing certifications or labels, companies can dilute the significance of these standards and create confusion among consumers. This makes it more difficult to differentiate between genuinely sustainable products and those that are falsely labeled as such.

- **Environmental Harm:** Greenwashing can perpetuate environmentally harmful practices by giving companies the appearance of sustainability without making substantive changes to their operations. This can include practices such as excessive resource consumption, pollution, deforestation, or contribution to climate change. These activities continue to harm the environment while misleading consumers about the true impact of the company's operations.

CHALLENGES IN TACKLING GREENWASHING?

- **Lack of Regulatory Framework:** One of the primary challenges is the absence of comprehensive and standardized regulations specifically targeting greenwashing. Without clear guidelines and enforcement mechanisms, it becomes difficult to hold companies accountable for their deceptive sustainability claims.

- **Ambiguity in Terminology:** The lack of standardized terminology and definitions related to sustainability and environmental claims creates confusion. Terms like "natural," "green," or "eco-friendly" can be interpreted differently by different companies and consumers, leading to inconsistent and misleading claims.

- **Limited Enforcement and Penalties:** Even in cases where greenwashing is identified, the enforcement of penalties can be inadequate or inconsistent. Regulatory bodies may have limited resources or face challenges in proving deceptive intent, resulting in lenient consequences for companies engaging in greenwashing practices.

- **Complexity of Supply Chains:** Many products have complex supply chains, making it challenging to track and verify environmental claims accurately. Companies may make sustainability claims based on a single aspect of their product or supply chain while neglecting the overall environmental impact.

- **Lack of Transparency:** Greenwashing thrives in environments where companies are not required to disclose comprehensive information about their environmental practices. The absence of transparency makes it difficult for consumers and watchdog organizations to assess the validity of sustainability claims.

- **Limited Consumer Awareness:** Many consumers may not be aware of greenwashing or how to identify deceptive sustainability claims. Lack of knowledge and information can make it easier for companies to manipulate consumer perceptions and continue engaging in greenwashing practices.

- **Influence of Marketing and Advertising:** Companies often use sophisticated marketing techniques to promote their green initiatives, making it challenging for consumers to differentiate between genuine sustainability efforts and greenwashing. Companies with significant marketing budgets may have an advantage in shaping consumer perceptions.

- **Time and Resource Constraints:** Identifying and exposing greenwashing practices requires significant time, resources, and expertise. Consumer advocacy groups, NGOs, and regulatory bodies may face limitations in terms of manpower, funding, or access to data, making it difficult to thoroughly investigate and address every instance of greenwashing.

- **International Coordination:** Greenwashing is a global issue, and coordination among different countries and regulatory bodies is essential. Harmonizing regulations, sharing best practices, and collaborating on enforcement can be

challenging due to differing priorities, legal frameworks, and resource availability across jurisdictions.

- **Evolving Nature of Greenwashing:** Greenwashing tactics can evolve and adapt over time, making it difficult to keep up with new deceptive practices. As companies become more aware of consumer demand for sustainability, they may employ subtler methods of greenwashing that are harder to detect and address.

WAY FORWARD?

- **Strengthen Regulations:** Governments and regulatory bodies should establish clear and enforceable regulations specifically targeting greenwashing practices.
- **Enhance Transparency and Disclosure:** Companies should be encouraged to provide transparent and comprehensive information about their environmental practices, supply chains, and sustainability initiatives.
- **Establish Independent Verification and Certification:** Third-party verification and certification bodies should be supported and promoted to provide independent assessments of companies' sustainability claims.
- **Educate and Empower Consumers:** Consumer awareness campaigns and educational initiatives should be undertaken to enhance understanding of greenwashing tactics and help consumers make informed choices.
- **Foster Collaboration and Knowledge Sharing:** Collaboration among governments, regulatory bodies, industry associations, and NGOs is crucial in tackling greenwashing effectively.
- **Encourage Industry Self-Regulation:** Industry associations and business groups should take an active role in self-regulation and setting higher sustainability standards.
- **Invest in Research and Development:** Continued research and development efforts are necessary to drive innovation and develop more sustainable practices and technologies.

Source:

https://economictimes.indiatimes.com/news/international/world-news/new-carbon-accounting-rules-for-cos-target-greenwashing/articleshow/101288390.cms?from=mdr

Q.1 Which of the following best describes the term "greenwashing"?
(a) The act of environmentally conscious individuals engaging in activism for environmental causes.
(b) The process of enhancing the natural beauty of a landscape through sustainable practices.
(c) Deceptive or misleading practices by companies or organizations that claim to be

environmentally friendly or sustainable.
(d) The act of recycling and reusing waste materials to reduce environmental impact.
Answer: (c)

Q.2 Which of the following statements regarding greenwashing is/are correct?
1. Greenwashing refers to the deceptive or misleading practices of companies or organizations that claim to be environmentally friendly or sustainable when, in reality, they are not.
2. Greenwashing primarily occurs in the fashion and beauty industries, while other industries are relatively immune to such practices.
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) None of the above
Answer: (a)

Q.3 Greenwashing has emerged as a major challenge in the promotion of sustainable practices. Discuss the concept of greenwashing, its impact on various stakeholders, and the measures that can be taken to effectively address this issue.

GLOBAL ENVIRONMENT FACILITY (GEF)

This article covers "Daily Current Affairs" and the topic details "Global Environment Facility". The topic "Global Environment Facility" has relevance in the Environment section of the UPSC CSE exam.

RELEVANCE:

FOR PRELIMS:

What is GEF?
For Mains:
GS 3: Environment
Impact of GEF?
Challenges For GEF?
GEF and India?

WHY IN THE NEWS?
At the 64th Global Environment Facility (GEF) council meeting in Brazil, the governing

body approved the disbursement of $1.4 billion to accelerate efforts to tackle the climate, biodiversity and pollution crises.

WHAT IS GEF?

The Global Environment Facility (GEF) is an international financial organization that provides grants and financing for projects aimed at addressing global environmental challenges and promoting sustainable development. Here are some key facts about the Global Environment Facility:

- **Established:** The GEF was established in 1991 as a result of cooperation between the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and the World Bank. It operates as an independent organization.

- **Mission:** The GEF's mission is to help countries tackle the world's most pressing environmental issues by investing in projects that promote sustainable development, protect biodiversity, combat climate change, promote sustainable land management, protect international waters, and address issues related to chemicals and waste.

- **Membership:** The GEF has a membership of 184 countries, including both developing and developed nations. These countries work together to shape and implement the GEF's programs and initiatives.

- **Financial Resources:** The GEF raises and manages financial resources to support its projects. It receives contributions from member countries, known as "donors," as well as from other sources such as multilateral development banks, private foundations, and the private sector.

- **Project Types:** The GEF funds projects in a variety of areas, including biodiversity conservation, climate change mitigation and adaptation, sustainable land management, international waters management, chemicals and waste management, and sustainable forest management. These projects aim to have a positive impact on the environment and contribute to sustainable development.

- **Focal Areas and Programs:** The GEF operates through different focal areas and programs to address specific environmental challenges. These include the Least Developed Countries Fund (LDCF), the Special Climate Change Fund (SCCF), the Adaptation Fund (AF), and the Global Wildlife Program (GWP), among others.

- **Project Implementation:** The GEF provides grants and concessional financing to countries for project implementation. It works in collaboration with governments, civil society organizations, and other stakeholders to design and implement projects that have a positive impact on the environment and local communities.

- **Impact:** The GEF has supported thousands of projects around the world, resulting in positive impacts on biodiversity conservation, greenhouse gas emissions reduction, sustainable land management, and the protection of international waters. These

projects contribute to the achievement of global environmental goals and promote sustainable development.

- **Country Ownership:** The GEF promotes country ownership by engaging governments and stakeholders in the design and implementation of projects. It emphasizes the importance of integrating local knowledge and priorities into project activities.

- **Knowledge Sharing and Capacity Building:** The GEF supports knowledge sharing and capacity building activities to enhance countries' abilities to address environmental challenges effectively. It facilitates the exchange of experiences, best practices, and lessons learned among countries and partners.

IMPACT OF GEF?

- **Biodiversity Conservation:** The GEF has supported numerous projects aimed at conserving biodiversity and protecting ecosystems. It has helped establish protected areas, promote sustainable management of biodiversity, and conserve endangered species.

- **Climate Change Mitigation and Adaptation:** The GEF plays a crucial role in addressing climate change by supporting projects that mitigate greenhouse gas emissions and promote adaptation to climate impacts. It has funded renewable energy projects, energy efficiency initiatives, reforestation programs, and climate-resilient infrastructure development.

- **Sustainable Land Management:** The GEF has supported projects that promote sustainable land management practices, such as sustainable agriculture, reforestation, and combating land degradation. These projects have helped restore degraded lands, improve soil fertility, and enhance agricultural productivity.

- **International Waters Management:** The GEF has contributed to the sustainable management of transboundary water systems, including rivers, lakes, and oceans. It has funded projects to reduce water pollution, protect coastal areas, and enhance water resource management.

- **Chemicals and Waste Management:** The GEF addresses the sound management of chemicals and hazardous waste through its projects. It supports efforts to reduce the use of harmful chemicals, promote safe disposal practices, and build capacities for chemical management.

- **Knowledge Sharing and Capacity Building:** The GEF emphasizes knowledge sharing and capacity building to enhance countries' abilities to address environmental challenges effectively. It supports the exchange of experiences, best practices, and lessons learned among countries and stakeholders.

- **Leveraging Additional Funding:** The GEF's financial support often acts as a

catalyst for attracting additional funding from various sources. By mobilizing co-financing and leveraging resources, the GEF amplifies its impact and enables the implementation of larger-scale projects.

CHALLENGES FOR GEF?

- **Funding:** Ensuring sufficient and predictable funding is a constant challenge for the GEF. It relies on voluntary contributions from member countries and other sources, and securing adequate resources to address the growing environmental challenges remains a persistent challenge.
- **Complexity of Environmental Issues:** The GEF deals with complex and interconnected environmental issues, such as climate change, biodiversity loss, and land degradation. Developing comprehensive and integrated solutions that effectively address these challenges requires coordination and collaboration across multiple sectors and stakeholders.
- **Balancing National Priorities:** The GEF works with diverse countries, each with its own set of environmental priorities and development needs. Balancing national priorities with global environmental objectives can be challenging, as countries may have differing levels of commitment, capacity, and resources for environmental initiatives.
- **Implementation and Monitoring:** Ensuring effective implementation and monitoring of GEF-funded projects is a challenge. Projects often require coordination among multiple stakeholders, technical expertise, and long-term monitoring and evaluation to measure their impact and success.
- **Local Community Engagement:** Engaging local communities and ensuring their participation in environmental projects can be challenging. GEF projects aim to deliver benefits at the local level, but achieving community ownership and meaningful involvement requires overcoming cultural, social, and economic barriers.
- **Addressing Inequities:** Environmental challenges often disproportionately affect vulnerable communities and countries with limited resources. The GEF faces the challenge of addressing these inequities and ensuring that its interventions promote inclusive and equitable outcomes for all.
- **Adapting to Changing Environmental Priorities:** The global environmental landscape is dynamic, and new challenges emerge over time. The GEF must continually adapt its strategies and funding priorities to address emerging environmental issues, such as plastic pollution, ocean acidification, and new dimensions of climate change.

GEF AND INDIA?

- **Partnership Duration:** India has been an active participant in the GEF since

its inception in 1991 and continues to collaborate with the GEF on various environmental initiatives.

- **Funding Allocation:** India has received substantial financial support from the GEF for its environmental projects. The GEF has allocated over $1.2 billion in grants to India across various focal areas, including biodiversity conservation, climate change, land degradation, international waters, chemicals, and waste management.

FOCAL AREAS AND PROJECTS:

1. Biodiversity Conservation: The GEF has supported India in preserving its rich bio-diversity through projects such as the Protected Area Network Expansion project and the Mainstreaming Conservation and Sustainable Use of Medicinal Plants project.

2. Climate Change Mitigation and Adaptation: GEF-funded initiatives in India focus on promoting renewable energy, energy efficiency, and climate-resilient infrastructure. Notable projects include the Solar Rooftop Photovoltaic Program and the Climate Resilient Cities project.

3. Land Degradation and Sustainable Land Management: The GEF has supported India in combating land degradation and promoting sustainable land management practices. Projects like the Sustainable Land and Ecosystem Management project aim to restore degraded lands and improve soil fertility.

4. International Waters Management: Collaborating with the GEF, India has worked on projects to protect its transboundary water bodies, such as the Ganga River Basin Management Plan project and the Integrated Sustainable Coastal Zone Management project.

5. Chemicals and Waste Management: GEF-funded initiatives have helped India strengthen its capacity for the environmentally sound management of chemicals and hazardous waste. Projects like the Persistent Organic Pollutants Management project focus on reducing the use and release of harmful substances.

- **Small Grants Program:** The GEF's Small Grants Program (SGP) in India provides grants to local communities and grassroots organizations for environmental projects. The SGP supports initiatives promoting sustainable agriculture, biodiversity conservation, climate change adaptation, and community-based natural resource management.

- **Capacity Building and Knowledge Sharing:** GEF initiatives in India emphasize capacity building and knowledge sharing. They promote the exchange of experiences, best practices, and lessons learned among stakeholders to enhance India's capacity to address environmental challenges effectively.

- **National Ownership and Partnerships:** GEF projects in India emphasize national

ownership, with active involvement from the Indian government, civil society organizations, and other stakeholders. Collaborations with national and state-level agencies, research institutions, and private sector entities have been instrumental in implementing GEF-funded projects.

Q.1 Which of the following statements about the Global Environment Facility (GEF) is/are correct?
1. The GEF was established in 1991 to address global environmental challenges.
2. The GEF solely focuses on climate change mitigation and adaptation projects.
3. The GEF operates under the United Nations.

Select the correct option(s):
(a) 1 only
(b) 2 only
(c) 1 and 3 only
(d) 1, 2, 3
Answer: (a)

Q.2 Which of the following statements regarding the Global Environment Facility (GEF) is/are accurate?
1. The GEF is the largest funder of climate change projects globally.
2. The GEF operates solely in developing countries and does not support projects in developed nations.

Choose the correct option(s):
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) None of the above.
Answer: (d)

Q.3 "Discuss the role and significance of the Global Environment Facility (GEF) in addressing global environmental challenges and promoting sustainable development. Highlight its major achievements, challenges faced, and potential areas for improvement.

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