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Weekly Current Affairs

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POLITY AND GOVERNANCE

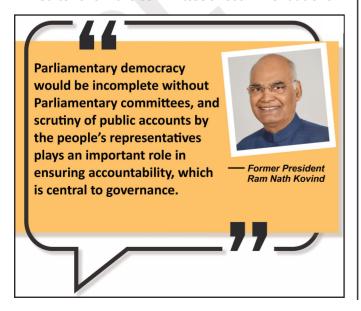
PARLIAMENTARY COMMITTEES

Why in the news?

The Lok Sabha Ethics Committee is currently investigating a complaint regarding the alleged involvement of a Member of Parliament in the 'Cash-for-Query' case.

Parliamentary Committees

- A Parliamentary Committee refers to a group of Members of Parliament (MPs) appointed, elected, or nominated by the Speaker.
- These committees operate under the Speaker's guidance and trace their origins to the British Parliamentary System.
- Their authority is rooted in Article 105, which addresses MPs' privileges, and Article 118, granting Parliament the power to establish rules governing its procedures and business conduct.
- The Committees present their findings to either the House or the Speaker.
- It's essential to note that Parliament is not obligated to follow the committee's recommendations.



Types of Parliamentary Committees

- Parliamentary Committees encompass Financial Committees, Departmentally Related Standing Committees, Other Parliamentary Standing Committees, and Ad hoc Committees.
- Financial Committees: They constitute the Estimates Committee, Public Accounts Committee, and the Committee on Public Undertakings.
- Departmentally Related Standing Committees: In 1993, seventeen Departmentally Related Standing Committees were instituted to scrutinise budget proposals and significant government policies, with their number later expanding.
- Ad hoc Committees serve specific purposes and dissolve upon completing their assigned tasks and presenting a report.
- Parliament also has the option to form a Joint Parliamentary Committee (JPC) with members from both Houses for in-depth scrutiny of a subject or bill.
- Additionally, each House has other Standing Committees, such as the Business Advisory Committee and the Privileges Committee.

Significance of Parliamentary Committees:

- Improves Parliament's Effectiveness: These committees scrutinise legislation and hold the executive accountable, enhancing Parliament's effectiveness.
- Facilitates Inter-Ministerial Coordination: Working closely with multiple Ministries, these committees foster inter-ministerial coordination.
- Performs Vital Functions: They examine Bills, grant demands, annual reports, and long-term plans of Ministries/departments.
- Provides Technical Expertise: They offer a platform for Members to engage with domain experts and government officials, enabling Parliament to deliberate on complex matters

requiring technical expertise.

- Builds Consensus Across Political Parties: Closed-door committee meetings allow members to question and discuss issues, leading to consensus freely.
- Shares Legislative Mandate: These committees share the legislative mandate and are responsible for control, vigilance, and supervision, supporting the legislature in fulfilling its duties.
- Provides Thorough Investigation and Analysis: They conduct thorough investigations and analysis, essential for Parliament's effective functioning.
- Handles Legislative Process: Due to time constraints and the complexity of legislative activities, the Committees manage a significant portion of the legislative process.

Issues with Parliamentary Committees:

- Recommendatory nature: Parliamentary committees lack enforcement power, relying on the government's discretion to act on their recommendations, potentially undermining their effectiveness.
- Limited resources: Insufficient staff and expertise hinder committees from conducting in-depth studies and preparing comprehensive reports.
- Lack of independence: Influence from the government or other powerful entities can compromise committees' impartiality and independence.
- Poor referral rate: Not all bills undergo committee scrutiny, resulting in unequal levels of legislative examination.
- Short time period: Committees often face time constraints, hampering their ability to review bills and government proposals thoroughly.

Despite these challenges, parliamentary committees play a vital role in democracy. By strengthening the committees and addressing the issues they face, governments can make them more effective in holding the executive accountable and improving the quality of legislation.

PRELIMS QUESTIONS

Q1. With reference to Parliamentary Committees, consider the following statements:

- 1. The Parliamentary Committees find their mention in the Constitution of India.
- 2. The Parliament is obligated to follow the committee's recommendations.

Which of the statements given above is/are correct?

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

Q2. Consider the following:

- 1. The Parliamentary Committees improve parliament's effectiveness.
- 2. They are completely free from influences from the government and pressure groups.
- 3. All constitutional amendment bills undergo committee scrutiny.

How many of the abovementioned statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

ANSWERS

S. No.	Answers
1.	D
2.	Α

MAINS QUESTIONS

Q1. Parliamentary democracy would be incomplete without Parliamentary committees. Discuss.

INTERNATIONAL RELATIONS

SCO MEETING OF THE HEADS OF GOVERNMENT

Why in the news?

The 22nd meeting of the Heads of Government (Prime Ministers) Council of the Shanghai Cooperation Organisation occurred in Bishkek, Kyrgyzstan.

Shanghai Cooperation Organization:

- The Shanghai Cooperation Organisation (SCO) was formed by China and Russia in 2001. It focuses on politics, economics, international security, and defence in Eurasia.
- The SCO is the largest regional organisation in the world, covering about 60% of Eurasia's area and 40% of the global population. In 2021, its combined GDP accounted for roughly 20% of the global GDP.

Membership of SCO:

Members:

O China, India, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan.

Observers:

Afghanistan, Belarus, and Mongolia

Dialogue Partners:

 Azerbaijan, Armenia, Egypt, Qatar, Turkey, Saudi Arabia, the United Arab Emirates, Maldives, Nepal, and Sri Lanka

Origins of SCO:

- The SCO was formed from the original 'Shanghai Five' alliance, which consisted of Russia, China, Kazakhstan, Kyrgyzstan, and Tajikistan.
- The purpose of this alliance, established in 1996 after the Soviet era, was to address regional security concerns, reduce border troop presence, and combat terrorism.
- In 2001, Uzbekistan was embraced into the Shanghai Five, leading to the group's transformation into the SCO.
- By June 2017, the organization experienced further expansion, reaching a total of eight member states, with the inclusion of India and Pakistan.
- Iran joined the group in July 2023.

Institutional Framework:

SCO Councils:

- O SCO Heads of State Council: This is the highest authority within the SCO, responsible for setting priorities, defining the Organization's primary activities, determining its internal structure, managing its interactions with other States and international organisations, and addressing pressing global issues.
- SCO Heads of Government Council: This Council, comprising Prime Ministers, is responsible for approving the Organization's budget and making decisions related to specific areas of interaction, especially those of an economic nature, within the SCO.

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- O SCO Foreign Ministers Council: This council focuses on the day-to-day operations of the SCO, including preparing Heads of State Council meetings and conducting consultations on international issues. Additionally, it has the authority, when appropriate, to issue statements on behalf of the SCO.
- Two permanent bodies support the organisation:
 - SCO Secretariat located in Beijing
 - Executive Committee of the Regional Anti-Terrorist Structure has its headquarters in Tashkent.
- Chinese and Russian serve as the recognised official languages within the SCO.

Objectives of The SCO:

- Enhancing mutual trust and fostering neighbourly relations among participating nations
- Facilitating comprehensive collaboration across diverse sectors such as politics, commerce, economics, scientific research, technology, cultural exchange, education, energy, transportation, tourism, and environmental conservation
- Collectively striving to uphold peace, security, and stability within the region
- Dedicating efforts to shape a global political and economic framework that embodies democratic principles, fairness, and rationality

Regional Anti-Terrorist Structure (RATS):

- The Regional Anti-Terrorist Structure (RATS)
 Executive Committee, based in Tashkent, Uzbekistan, is a permanent body of the SCO.
- Its primary purpose is facilitating cooperation among member states in combating the three evils of terrorism, separatism, and extremism.
- The appointment of the Director of the SCO RATS Executive Committee is for a duration of three years.
- Each member state appoints a permanent representative to RATS to ensure continuous communication and coordination.

More About The News: SCO Meeting Of The Heads Of Government

- The SCO Council of Heads of Government (CHG) convenes annually to deliberate on strategies for multilateral cooperation and to approve the organisation's yearly budget, among other agenda items.
- The External Affairs Minister of India urged members of the Shanghai Cooperation Organisation (SCO) to collaborate in advancing stability and prosperity in the region.
- He stressed the significance of strictly adhering to international law, respecting one another's sovereignty and territorial integrity, and fostering economic cooperation.
- Additionally, he highlighted the potential of the India-Middle East-Europe Economic Corridor (IMEC) and the International North-South Transport Corridor (INSTC) as catalysts for prosperity.

The SCO remains important for India due to its strategic, economic, and cultural significance, despite limited achievements. India's continued engagement in its future endeavors is crucial, and media and think tanks can play a role in monitoring developments that affect national interests.

UNITED NATIONS INTERIM FORCE IN LEBANON (UNIFIL)

Why in the news?

According to recent news reports, the United Nations Interim Force in Lebanon (UNIFIL) reported that one of its personnel was injured following shelling near the border between Israel and Lebanon.

United Nations Interim Force in Lebanon (UNIFIL)

- UNIFIL is a Peacekeeping Force established in March 1978 by the United Nations Security Council to serve as a buffer between Lebanon and Israel along the Blue Line.
- Its primary objectives were to confirm the withdrawal of Israeli forces from Lebanon, restore

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- international peace and security, and assist the Lebanese government in regaining control of the area.
- UNIFIL's mandate has evolved in response to changing circumstances, with adjustments in 1982 and 2000 and further enhancements following the 2006 Israel–Hezbollah War.
- UNIFIL is funded through a separate account approved annually by the United Nations General Assembly.

Blue Line

- The Blue Line, established by the United Nations on June 7, 2000, serves as a demarcation line between Lebanon and Israel, as well as Lebanon and the Golan Heights.
- Its primary purpose was to assess the complete withdrawal of Israeli forces from Lebanon.
- This demarcation has been characterised as "temporary" and not a formal border but a "line of withdrawal."

Current Mandate:

- Monitoring the cessation of hostilities.
- Supporting the deployment of the Lebanese armed forces in southern Lebanon.
- Helping ensure humanitarian access to civilian populations.
- Facilitating the voluntary and safe return of displaced persons.

Role and Impact

- Promoting Stability: The mission is crucial in promoting stability and security in Lebanon.
- Monitoring Efforts: Through its monitoring efforts, the organisation helps maintain the cessation of hostilities and prevent conflicts.
- Support for Lebanese Armed Forces: UNIFIL supports the deployment and capacity-building

- of the Lebanese armed forces in southern Lebanon, enhancing the country's security.
- Humanitarian Access: By ensuring humanitarian access to civilian populations, the organisation helps address the needs of vulnerable communities in the region.
- Displaced Persons: UNIFIL's role in facilitating the voluntary and safe return of displaced persons contributes to restoring normalcy and stability in the area.

United Nations Peacekeeping Operations

- UN peacekeeping missions play a critical role in providing security and offering political and peacebuilding support to assist nations in navigating the challenging transition from conflict to peace. Currently, there are 12 UN peacekeeping operations active worldwide.
- These operations operate based on fundamental principles:
 - Consent of the Parties: UN Peacekeeping operations require the consent of all involved parties to operate effectively.
 - Impartiality: Peacekeepers are committed to maintaining impartiality in their activities and interactions.
 - Non-Use of Force: UN Peacekeeping forces utilise force solely in self-defence or to uphold their designated mandates.
- UN peacekeeping operations are typically authorised by the UN Security Council, which sets out the mission's mandate and provides the necessary resources.
- Recognising its contributions to global peace and security, UN Peacekeeping has been honoured with the Nobel Peace Prize.

India's Contribution to UN Peacekeeping And Unifil:

 India contributes the second highest troops to the UNIFIL. It is one of the largest contributors to UN peacekeeping, with around 5,900 Indian troops deployed in 12 missions.

- India has established a centre for UN Peacekeeping in New Delhi and provides training to more than 12,000 troops every year.
- India contributes troops, police personnel, staff officers, and experts to all 12 active UN peacekeeping missions.
- India has the highest contribution of troops in regions including the Central African Republic, South Sudan, the Democratic Republic of Congo, Mali, Lebanon, Abyei, and Cyprus, among others.

INDIA – QATAR

Why in the news?

In a recent development, a Qatari court sentenced eight former Indian Navy veterans who were detained in Doha in 2022 to death.

India's Gas Import Dependency And Trade With Qatar

Imports from Qatar:

- o In FY2022-23, India's total imports from Qatar amounted to \$16.81 billion.
- LNG imports alone represented a significant portion at \$8.32 billion, accounting for 5% of the total imports.
- Other major imports from Qatar include fossil fuel-related commodities like liquefied petroleum gas (LPG), plastics, and petrochemical products.
- Petronet LNG, a government-owned entity, holds a long-term contract with Qatar for importing 8.5 million tonnes per annum (mtpa) of LNG.

Exports to Qatar:

- o In the same fiscal year, India's exports to Qatar were valued at \$1.97 billion.
- Key exports encompass cereals, copper articles, iron and steel products, vegetables,

fruits, spices, and processed food items.

Qatar's Significance for India

• Indian Diaspora in Qatar:

- Over 800,000 Indian nationals call Qatar their home.
- O They constitute the largest expatriate community in Qatar, contributing to various sectors such as medicine, engineering, education, finance, banking, business, media, and a substantial number in blue-collar jobs.

Imports and Exports:

- O Qatar is a vital trade partner for India.
- Key exports from Qatar to India include LNG, LPG, chemicals, petrochemicals, plastics, and aluminum articles.
- O India reciprocates with exports to Qatar, such as cereals, copper articles, iron and steel products, vegetables, fruits, spices, processed food items, electrical and machinery, plastic products, construction materials, textiles and garments, chemicals, precious stones, and rubber.
- O India ranks among the top three largest export destinations for Qatar, alongside China and Japan, and is among the top three sources of Qatar's imports, along with China and the United States.

• Defense Ties:

- India and Qatar share defense ties with various collaborations.
- India provides training opportunities in its defense institutions to several partner countries, including Qatar.
- India takes an active part in the biennial Doha International Maritime Defence Exhibition and Conference (DIMDEX) hosted in Qatar.
- Indian Naval and Coast Guard ships make regular visits to Qatar, enhancing bilateral



cooperation.

O The India-Qatar Defense Cooperation Agreement, initially signed during the Indian Prime Minister's visit to Qatar in November 2008, was extended for an additional five years in November 2018, solidifying defense cooperation between the two nations.

Geostrategic Significance of India-Qatar Relations

• GCC Membership:

Qatar's membership in the Gulf Cooperation Council (GCC) holds considerable geostrategic importance for India, particularly regarding sensitive matters like Kashmir.

• UNSC Support:

 India's pursuit of a permanent seat at the United Nations Security Council (UNSC) necessitates backing from nations like Qatar.

Concerns Impacting India-Qatar Relations:

Religious Controversy:

- In June 2022, a controversy erupted due to derogatory remarks about the Prophet on a TV show, causing tensions between India and Qatar.
- Qatar demanded a public apology, which India promptly addressed by removing the individual responsible.

Recent Shift-Overs:

- A notable challenge arises from the imprisonment of eight former Navy personnel in Oatar.
- This incident caught India off guard, especially given the presence of a substantial Indian expatriate community in Qatar, rendering India-Qatar relations a delicate issue.



PRELIMS QUESTIONS

Q1. With reference to Shanghai Cooperation Organization, consider the following statements:

- 1. SCO Heads of Government Council is the highest authority within the SCO.
- 2. The SCO Foreign Ministers Council focuses on the day-to-day operations of the SCO.
- 3. The SCO Secretariat is located in Beijing, China.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) None

Q2. Consider the following:

- 1. China
- 2. Kazakhstan
- 3. Russia
- 4. Tajikistan



- 5. Uzbekistan
- 6. India

How many of them were founding members of the Shanghai Cooperation Organization?

- (a) Only two
- (b) Only three
- (c) Only four
- (d) Only five

Q3. With reference to United Nations Interim Force in Lebanon (UNIFIL), consider the following statements:

- 1. The UNIFIL has been serving as a buffer between Lebanon and Syria along the Blue Line.
- 2. The Blue Line is also a demarcation line between Lebanon and the Golan Heights.

Which of the statements given above is/are correct?

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

Q4. Consider the following:

- 1. UN peacekeeping missions provide security, political support, and peacebuilding assistance during the transition from conflict to peace in nations.
- 2. UN Peacekeeping operations do not require the consent of all involved parties to operate.
- 3. The UN Security Council typically authorises UN peacekeeping operations.

How many of the abovementioned statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Q5. Consider the following statements regarding Qatar's location?

- 1. Qatar is situated on the eastern coast of the Arabian Peninsula.
- 2. Qatar is a landlocked country in the Middle East.

Which of the statements given above is/are correct?

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

Q6. Consider the following statements:

- 1. Indians constitute the largest expatriate community in Qatar.
- 2. India is a part of the Doha International Maritime Defence Exhibition and Conference (DIM-DEX).

Which of the statements given above is/are correct?

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

ANSWERS

S. No.	Answers
1.	В
2.	С
3.	D
4.	В
5.	Α
6.	С

MAINS QUESTIONS

- Q1. Discuss the strategic and economic significance of India's participation in the Shanghai Cooperation Organization (SCO).
- Q2. Discuss the role and significance of the United Nations Interim Force in Lebanon (UNIFIL) and India's substantial contribution to UN peacekeeping efforts.
- Q3. How has the India-Qatar relationship evolved, and what are the key factors influencing this bilateral partnership in the contemporary geopolitical landscape?

SCIENCE AND TECHNOLOGY

BLETCHLEY DECLARATION

Why in the news?

Nations from around the globe have united in an agreement – the Bletchley Declaration to tackle the pressing concerns related to cutting-edge AI at the first Artificial Intelligence (AI) Safety Summit in the United Kingdom.

Artificial Intelligence (AI):

- Al refers to computer systems that can perform tasks that typically require human intelligence, such as problem-solving, learning, and decision-making.
- It encompasses machine learning, deep learning, natural language processing, and robotics.
- Al has numerous applications in industries like healthcare, finance, transportation, and more.

About AI Safety Summit

- The UK's AI Safety Summit convened technology experts, global leaders, and delegates from 27 countries and the European Union.
- **Objective:** To establish a comprehensive framework for mitigating the potential risks associated with AI while maximising its benefits.
- This significant event unfolded at Bletchley Park, a historically renowned site that once served as the headquarters for codebreakers during the Second World War.
- The outcome of this gathering was the formation of the 'Bletchley Declaration.'
- South Korea is slated to host the next AI Safety Summit in six months, followed by a second summit hosted by France another six months

later.

 The Bletchley Declaration was signed by more than 27 countries, notably India and China, the United States, the United Kingdom, and the European Union.

WHAT DOES THE BLETCHLEY DECLARATION MEAN?

- At its core, the Bletchley Declaration represents international cooperation to address transformative technological advancements.
- It underscores the shared responsibility of governments, the private sector, and the global community to ensure Al's positive impact.
- The declaration prioritises Al safety and responsible development to maximise benefits while mitigating risks.

Global Collaboration:

- Robust International Cooperation: The declaration highlights the need for strong international collaboration.
- Scientific Research: It recognizes the importance of scientific research and the establishment of dedicated networks dedicated to frontier AI safety.
- Evidence-Based Policymaking: his commitment reflects a shared dedication to evidence-based policymaking, which is crucial for effectively managing the inherent risks of AI while unlocking its immense potential.

• Holistic Approach:

- Comprehensive Risk Assessment: The declaration underscores the importance of addressing Al-related risks like cybersecurity, biotechnology, and disinformation.
- International Cooperation Framework: It provides a framework for international cooperation and the development of riskbased policies.

Need for the Regulation of AI:

- Ethical Concerns: Al can raise ethical dilemmas, such as bias in algorithms, job displacement, and privacy violations.
- Accountability: Regulations are essential to determine responsibility in case of Al-related errors or accidents.
- Safety and Security: All can be vulnerable to malicious use, making it crucial to establish security and safety standards.
- **Transparency:** Regulations ensure transparency in AI systems, allowing users to understand their functioning.
- Fairness: To mitigate bias and discrimination, Al needs regulations that promote fairness and inclusivity.
- International Cooperation: With the global impact of Al, international cooperation is crucial for unified standards and policies.

LUCY MISSION

Why in the news?

NASA's Lucy mission has discovered that the asteroid Dinkinesh is actually a binary system of two asteroids.

About Lucy Mission:

The Lucy mission, initiated by NASA, is an extraordinary venture designed to explore the enigmatic Trojan asteroids of Jupiter. Launched successfully on October 16, 2021, from the Kennedy Space Center in Florida, the mission is set to span 12 years, providing valuable insights into these ancient relics of our solar system's formation.

Key Aspects of the Lucy Mission:

 Objective: Lucy is the first mission of its kind, dedicated to the exploration of Jupiter's Trojan asteroids. These asteroids share the same orbit as Jupiter, with two distinct groups at the lead-

- ing (L4) and trailing (L5) Lagrangian points of the planet.
- Mission Duration: Over its 12-year mission duration, Lucy will make close encounters with a remarkable number of asteroids. It will pass by two asteroids within the asteroid belt between Mars and Jupiter, followed by encounters with ten Trojan asteroids, including both individual asteroids and the moons of some of them.
- Earth Flybys: As a unique feature, Lucy will execute three Earth flybys. These flybys will utilize Earth's gravity to provide the necessary velocity adjustments, allowing Lucy to reach its target Trojans. This marks Lucy as the first spacecraft to return to Earth's vicinity from the outer solar system.
- Scientific Instruments: Lucy is equipped with two infrared spectrometers and four cameras, enabling it to conduct detailed observations and gather critical data about the Trojan asteroids.

Trojan Asteroids:

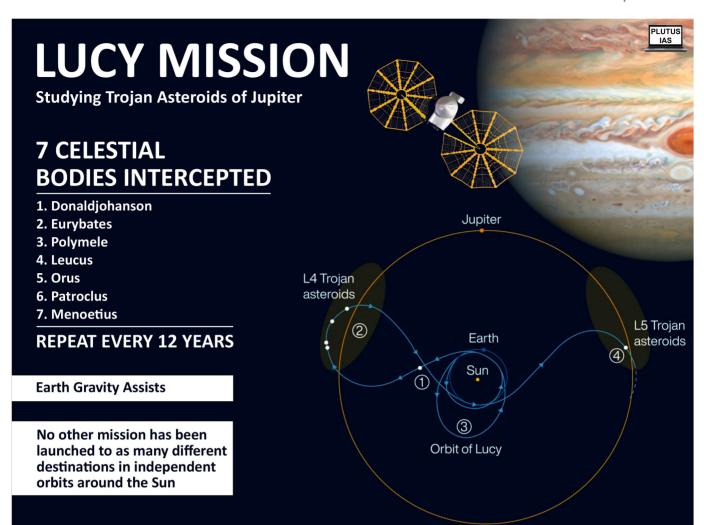
Trojan asteroids are asteroids that share Jupiter's orbit but are situated at the planet's Lagrangian points, specifically the leading (L4) and trailing (L5) points.

Key characteristics of Trojan asteroids include:

- Stable Orbits: These asteroids occupy stable Lagrangian points within Jupiter's orbit around the Sun, maintaining a stable position despite the gravitational forces at play.
- Ancient Remnants: Trojan asteroids are believed to be some of the oldest remnants from the formation of the solar system, dating back approximately 5 billion years.
- Two Groups: There are over 4,800 known Trojan asteroids associated with Jupiter, and they are categorized into two loose groups: the leading group ahead of Jupiter in its orbit and the trailing group, positioned at the same distance from the Sun as Jupiter.

Lagrange Points:

Lagrange points are positions in space where the



gravitational forces of a two-body system, such as the Sun and the Earth or Sun and Jupiter, create regions of enhanced attraction and repulsion. These points have significance for several reasons:

- Balanced Forces: At Lagrange points, the gravitational pull of two large masses precisely equals the centripetal force required for a smaller object to move with them, resulting in a state of equilibrium.
- **Spacecraft Utilization:** Spacecraft can use Lagrange points to reduce fuel consumption required to maintain a stable position in space, making them advantageous for missions like Lucy.

PRELIMS QUESTIONS

Q1. Which of the following options correctly describe the Bletchley Declaration?

- (a) It was issued by the parties to the United Nations Framework Convention on Climate Change (UNFCCC) at the COP27 summit.
- (b) It is a statement of principles on the safe development and use of artificial intelligence (AI).
- (c) It commits the African Union member states to working together to accelerate the digital transformation of Africa.
- (d) None

Q2. Consider the following:

- 1. Artificial Intelligence (AI) can analyze vast amounts of data much faster than humans.
- 2. Al has been used in medical diagnosis to assist doctors in identifying diseases.
- 3. Al is immune to biases and can make perfectly fair decisions.

How many of the statements are correct in the context of Artificial Intelligence?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Q3. Consider the following statements:

- 1. The Lucy Mission is led by the European Space Agency (ESA) in collaboration with NASA.
- 2. The mission aims to explore Jupiter's Trojan asteroids, which share the planet's orbit.

Which of the statements given above is/are correct?

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

Q4. Consider the following statements:

- 1. These asteroids have stable orbits, maintaining their positions despite the gravitational forces at play.
- 2. Trojan asteroids are believed to be among the youngest celestial bodies in our solar system, dating back just a few million years.

Which of the statements given above is/are correct?

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

ANSWERS

S. No.	Answers
1.	В
2.	В

3.	В
4.	Α

MAINS QUESTIONS

- Q1. Discuss the significance of international collaboration in ensuring the safety of Artificial Intelligence (AI) technologies.
- Q2. Discuss the significance of the Lucy Mission initiated by NASA in exploring the Trojan asteroids of Jupiter. Analyze the potential scientific and practical applications of the knowledge gained through this mission.

ECOLOGY AND ENVIRONMENT

TIPPING POINTS

Why in the news?

In a recent report by the United Nations University – Institute for Environment and Human Security (UNU-EHS), the world is edging closer to six interconnected risk tipping points. These points denote immediate and escalating threats on a global scale, encompassing various aspects of the environment and human security.

ABOUT TIPPING POINTS

- In environmental science, a tipping point represents a critical threshold. Once this threshold is crossed, it triggers substantial and often irreversible changes in an environmental system.
- A risk tipping point signifies the moment when a socio-ecological system can no longer effectively mitigate risks and fulfill its expected functions. Beyond this juncture, the potential for catastrophic impacts on these systems significantly increases.

IDENTIFIED TIPPING POINTS

- Extinctions: The risk of irreversible loss of species.
- Depleting Groundwater: Affecting the availability of this essential resource.
- Melting Glaciers: The accelerated retreat of glaciers due to climate change.
- Space Debris: The proliferation of debris in space, posing risks to satellites and space missions.
- **Unbearable Heat:** Escalating temperatures leading to heat-related challenges.
- **Uninsurable Future:** The point at which certain risks become uninsurable due to their extreme

nature.

ACCELERATED EXTINCTIONS

- Human-induced activities, such as land-use alteration, overexploitation, climate shifts, pollution, and the introduction of invasive species, have significantly hastened extinctions. While extinctions are part of Earth's natural evolution, the past century has witnessed the obliteration of over 400 vertebrate species.
- Shockingly, the survival of approximately one million plant and animal species remains at risk. Additionally, a substantial 32 million hectares of primary or regenerating forests vanished between 2010 and 2015.

DOMINO FFFFCT ON FCOSYSTEMS

- The disappearance of a single species can trigger a domino effect leading to the extinction of other dependent species, amplifying the strain on already fragile ecosystems. A prime example is the endangered gopher tortoise, which creates burrows used by more than 350 species, including the critically endangered dusky gopher frog.
- The absence of gopher tortoises could trigger the downfall of the dusky gopher frog, disrupting the balance in the entire forest ecosystem.

DEPLETING GROUNDWATER RESERVES

- Global aquifers, vital stores of groundwater, face a critical state, crucial for the primary freshwater source for over two billion people. Notably, 70% of this water is allocated for agricultural use. Alarmingly, 21 out of the world's 37 largest aquifers are depleting at a rate faster than they can be replenished.
- The complexity lies in the fact that aquifer water accumulation took millennia, rendering the resource effectively non-renewable, with recharging efforts demanding a similar timescale. In India, specifically in the state of Punjab,

an overwhelming 78% of wells have been excessively tapped or overdrawn. Moreover, the north-western region of the country anticipates critically low groundwater levels by 2025.

MELTING GLACIERS:

- One critical tipping point relates to melting glaciers, which serve as vital water sources for drinking, irrigation, hydropower, and ecosystems. Due to global warming, the world's glaciers are melting at a rate twice as fast as in the preceding two decades, posing risks to approximately 9 billion people.
- Between 2000 and 2019, glaciers lost a staggering 267 gigatons of ice annually, equivalent to the mass of approximately 46,500 Great Pyramids of Giza.
- Even if global warming is limited to 1.5 degrees Celsius, we are projected to lose around 50% of glaciers by 2100, excluding those in Greenland and Antarctica.

SPACE DEBRIS:

- Space debris, comprising objects ranging from tiny flecks of paint to sizable chunks of metal, presents another alarming tipping point. Among the approximately 34,260 objects orbiting Earth, merely a quarter are operational satellites, while the remainder consists of defunct satellites and discarded rocket stages.
- Additionally, an estimated 130 million fragments, measuring between 1 millimeter and 1 centimeter, are too small to track. Travelling at speeds exceeding 25,000 kilometers per hour, even the smallest debris can cause significant damage, including collisions among functional satellites.

UNBEARABLE HEAT:

The "unbearable heat" tipping point is associated with a "wet-bulb temperature" exceeding 35°C, which combines temperature and humidity. High humidity impedes sweat evaporation, exacerbating heat effects and resulting in organ failure and brain damage, making it a dire concern.

UNINSURABLE FUTURE:

The "uninsurable future" tipping point arises from the escalating frequency and severity of extreme weather events worldwide. These events have substantially increased damage costs, complicating the provision of insurance. Since the 1970s, losses from weather-related disasters have surged sevenfold, with 2022 alone witnessing \$313 billion in global economic losses.

CHARTING THE PATH FORWARD

In confronting these formidable challenges, a strategic way forward beckons. It necessitates a collective global effort encompassing the following actions:

- Global Cooperation: Prioritize and strengthen international collaboration to tackle the shared challenges faced by the world.
- Aggressive Emissions Reductions: Commit to robust measures to reduce greenhouse gas emissions, combat climate change, and limit the melting of glaciers and other environmental degradation.
- Invest in Sustainable Energy: Direct investments towards sustainable and renewable energy sources, reducing reliance on fossil fuels and mitigating environmental risks.
- Biodiversity Protection: Implement strategies to safeguard biodiversity and halt the accelerating rate of species extinction.
- Enhanced Global Health Systems: Strengthen and prepare global healthcare systems to cope with the consequences of unbearable heat and health-related challenges associated with extreme environmental conditions.
- Conflict Resolution Mechanisms: Enhance international mechanisms for resolving conflicts, as cooperation and diplomacy are essential in the face of shared environmental threats.

NORTH KOEL RESERVOIR PROJECT

Why in the news?

The Cabinet Committee on Economic Affairs has granted approval for the revised project cost, aiming to revive the stalled North Koel Reservoir Project situated in both Jharkhand and Bihar.

NORTH KOEL RESERVOIR PROJECT:

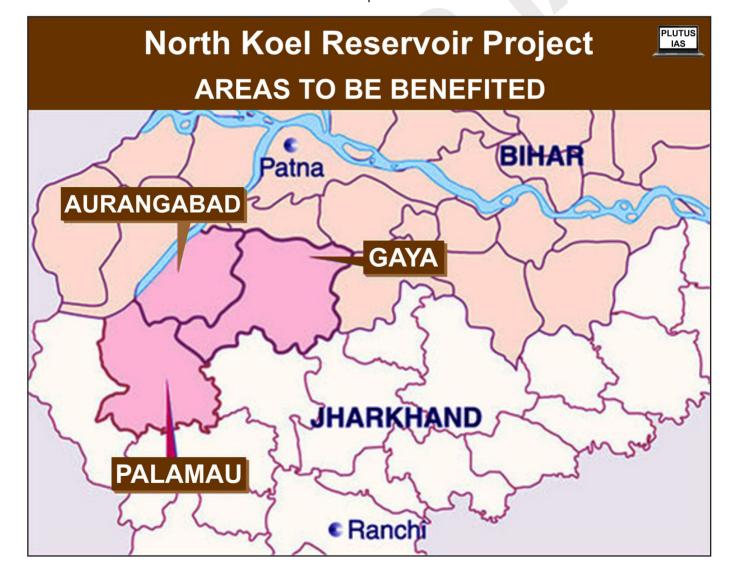
- Inter-State Major Irrigation Project: The North Koel Reservoir Project is a significant inter-state irrigation project with its command area spanning across the states of Bihar and Jharkhand.
- Project Components: The project includes a

dam built on the North Koel River near Kutku Village in Latehar District, Jharkhand. Additionally, it features a barrage situated 96 km downstream of the dam, located in Palamu district, Jharkhand. The project comprises a Right Main Canal and a Left Main Canal that divert water from the barrage for various purposes.

 Historical Background: The proposal for the dam dates back to 1927, and construction commenced in 1972. However, concerns emerged that the dam's water could potentially pose a threat to the Betla National Park and the Palamu Tiger Reserve.

NORTH KOEL RIVER:

 River Origin: The North Koel River is the second-largest right bank tributary of the River Sone. It originates in the Ranchi Plateau and



enters the Palamau division, located below Netarhat near Rud.

- Confluence: The North Koel River meets the Sone River in Haidargarh, Palamu district, Iharkhand.
- Tributaries: Notable tributaries of the North Koel River include the Auranga, Amanat, and Burha Rivers.
- Wildlife and Conservation: The North Koel River serves as the northern boundary of the Betla National Park, contributing to the conservation of the region's biodiversity.

BETLA NATIONAL PARK:

- Jharkhand's Sole National Park: Betla National Park is the only national park within the state of Jharkhand, India.
- Geographical Location: Situated on the western part of the Chhotanagpur plateau, Betla National Park showcases diverse landscapes and natural beauty.
- A section of Betla National Park was designated as the Palamu Tiger Reserve, which was one of the first nine Tiger Reserves declared in 1974. This reserve remains the sole Tiger Reserve in Jharkhand.
- The northern region of Betla National Park is traversed by the River Koel and its tributaries, enhancing the park's ecological significance.
- Flora: The national park features a rich flora, including tropical wet evergreen forests in lower regions, mixed deciduous forests in the middle, and temperate alpine forests in higher altitudes.
 Sal and bamboo forests dominate a significant part of the park's landscape.
- Fauna: Betla National Park is home to a diverse range of wildlife, such as elephants, leopards, panthers, monkeys, Indian civets, chital, bison, sloth bears, sambhar, nilgai, langurs, mouse deer, porcupines, and chinkara.
- Indian Grey Wolf: Notably, Betla National Park and Palamu Tiger Reserve are dedicated to the conservation of the Indian Grey Wolf, with a thriv-

- ing population. It is the only wildlife sanctuary with a specific focus on the Indian Grey Wolf.
- Historical Significance: The first-ever tiger census through pug mark counting was conducted within these forests in 1934, contributing to India's wildlife conservation efforts.
- Netarhat Hill Station: The famous hill station of Netarhat is located on the southern fringes of Betla National Park/Palamu Tiger Reserve.

PALAMU TIGER RESERVE:

 Chero Dynasty Forts: Within the Palamu Tiger Reserve, there are forts built by the Chero dynasty. The Cheros, also known as the Chyavana dynasty, ruled over regions encompassing Bihar, Uttar Pradesh, and Jharkhand from the 12th to the 19th century.

MUSHROOMS

Why in the news?

A newly discovered mushroom species has been identified in the Western Ghats by researchers.

ABOUT MUSHROOMS

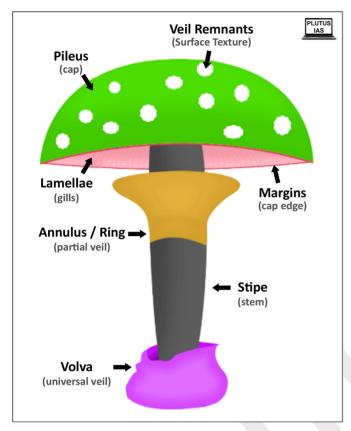
- Mushrooms, also known as toadstools, are fleshy and spore-bearing fruiting bodies of fungi. They are typically found above ground, growing on soil or their food source.
- The word 'toadstool' is commonly used to describe fungi considered toxic, whereas "mushroom" is typically used to categorise fungi that are safe to eat.
- They lack chlorophyll and, unlike plants, do not engage in photosynthesis.
- Instead, they derive nutrients through the decomposition of organic matter or by forming symbiotic relationships with plants, particularly through mycorrhizal fungi.

MORPHOLOGY OF MUSHROOMS:

• The standard mushroom morphology includes



- a stem (stipe), a cap (pileus), and gills (lamellae) on the underside of the cap.
- These gills produce microscopic spores, aiding the fungus's spread across the ground or surrounding surface.



NUTRITIONAL PROFILE:

- Mushrooms offer several nutritional benefits.
 They are low in calories and fat and a good source of protein, fibre, vitamins and minerals.
- They contain essential nutrients such as B vitamins (riboflavin, niacin, and pantothenic acid) and minerals (selenium, potassium, and copper).
- Mushrooms also contain various beneficial compounds, including antioxidants and anti-inflammatory compounds.
- These compounds may help to protect against chronic diseases such as heart disease, cancer, and Alzheimer's disease.
- Certain mushroom species, like shiitake mushrooms, are also known for their potential health benefits.

MEDICINAL PROPERTIES:

- Certain mushrooms have been used in traditional medicine for their potential medicinal properties.
- For example, reishi mushrooms (*Ganoderma lucidum*) are believed to boost the immune system and have anti-inflammatory properties.
- Lion's mane mushrooms (*Hericium erinaceus*) may enhance brain function and promote nerve regeneration.

SOME INTERESTING FACTS:

- Some mushrooms can glow in the dark. This
 phenomenon is called bioluminescence, caused
 by a chemical reaction that produces light.
- The largest living organism on Earth is a fungus: It is a honey fungus in Oregon that covers an area of over 2,200 acres.
- There are an estimated 3.8 million species of fungi worldwide, but only a small fraction of these have been identified and classified.
- Mushrooms play an essential role in the ecosystem by breaking down dead organic matter. This process of decomposition helps to recycle nutrients back into the soil.

DEBRIGARH WILDLIFE SANCTUARY

Why in the news?

Wildlife enthusiasts have been thrilled by a rare sighting of a pair of elusive wild dogs, commonly known as Dholes, in the Debrigarh Wildlife Sanctuary located in Bargarh district, Odisha.

ABOUT DEBRIGARH WILDLIFE SANCTUARY:

- Location: Debrigarh Wildlife Sanctuary, located in the state of Odisha, is situated near Mahanadi River's Hirakud Dam and its reservoir.
- Establishment: This wildlife sanctuary was declared as such in the year 1985.



- Historical Significance: Debrigarh Wildlife Sanctuary holds historical significance due to its association with the renowned freedom fighter, Veer Surendra Sai. During his resistance against British colonial rule, Veer Surendra Sai used "Barapathara," a location within the sanctuary, as his base of operations.
- Fauna: The sanctuary is known for its diverse wildlife, making it relatively easy to spot animals like Indian Bison, Wild Boars, and Sambhar.
- Flora: The sanctuary features a dry deciduous forest that attracts a wide variety of bird species, particularly during the winter months.

KEY FACTS ABOUT DHOLE (WILD DOGS):

 Distribution: Dholes, also known as wild dogs, are found in the forests of central, south, and southeast Asia. They inhabit a vast range, from as far north as Siberia to as far south as some

- Malaysian islands and as far west as the Indian peninsula. In India, they are clustered in three primary regions: the Western and Eastern Ghats, the central Indian landscape, and North East India. The Western and Eastern Ghats are particularly strongholds for dhole populations.
- **Habitat:** Dholes can be found in various habitats, including dense jungles, steppes, mountains, scrub forests, and pine forests.

Conservation Status:

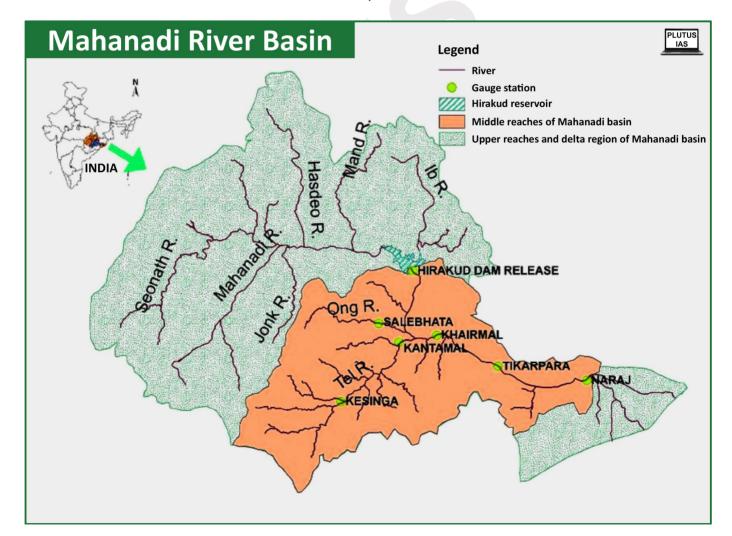
IUCN: Endangered

CITES: Appendix II

The Wildlife Protection Act 1972: Schedule II

KEY POINTS ABOUT MAHANADI RIVER:

• Overview: The Mahanadi River system is the third largest river system in peninsular India,



following the Godavari and Krishna rivers. It holds the distinction of being the largest river in the state of Odisha.

- Catchment Area: The river's catchment area extends across multiple states, including Chhattisgarh, Madhya Pradesh, Odisha, Jharkhand, and Maharashtra.
- Geographic Boundaries: The basin of the Mahanadi River is demarcated by geographical features, including the Central India hills to the north, the Eastern Ghats to the south and east, and the Maikala range to the west.
- Source: The Mahanadi River originates near Sihawa, close to Raipur in the state of Chhattisgarh, to the south of Amarkantak.
- Major Tributaries: The river is fed by several significant tributaries, including the Seonath, Hasdeo, Mand, and Ib, joining from the left side, and the Ong, Tel, and Jonk, joining from the right.
- Mahanadi River Dispute: In 2018, the Central Government established the Mahanadi Water Disputes Tribunal to address issues related to the river's water usage and allocation.
- Major Dams/Projects: Notable dams and projects on the Mahanadi River include the Hirakud Dam, which is the longest dam in India, as well as the Ravishankar Sagar, Dudhawa Reservoir, Sondur Reservoir, Hasdeo Bango, and Tandula projects.
- Urban Centers: Within the basin of the Mahanadi River, three significant urban centers are Raipur, Durg, and Cuttack.
- Industries: The Mahanadi basin is conducive to industrial development due to its rich mineral resources and ample power resources. Industries in the region encompass iron and steel plants in Bhilai, aluminum factories in Hirakud and Korba, a paper mill near Cuttack, a cement factory in Sundargarh, and other agro-based sectors such as sugar and textile mills. Additionally, the basin supports coal, iron, and manganese mining activities.

PRELIMS QUESTIONS

Q1. Consider the following statements regarding tipping points:

- 1. Tipping points trigger substantial, but reversible changes in an environmental system.
- 2. A risk tipping point denotes when a socio-ecological system can no longer mitigate risks effectively.

Which of the statements given above is/are correct?

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

Q2. Regarding wet-bulb temperature, consider the following statements:

- 1. Wet bulb temperature is the highest temperature to which air can be heated by the addition of water vapor at a constant pressure.
- Wet bulb temperature represents the point beyond which humans can no longer tolerate high temperatures due to the combined effects of heat and humidity.

Which of the statements given above is/are correct?

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

Q3. Consider the following statements regarding the Koel River:

- 1. The Koel River is the largest left bank tributary of the River Sone.
- 2. It originates in the Ranchi Plateau.
- 3. Notable tributaries of the North Koel River in-



clude the Auranga, Amanat, and Burha Rivers.

How many of the above statement/s is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Q4. Consider the following statements about Betla National Park:

- 1. Betla National Park is situated in the state of Assam, India.
- 2. Betla National Park is renowned for its population of Asiatic lions.

Which of the statements given above is/are correct?

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

Q5. With reference to mushrooms, consider the following statements:

- 1. The 'toadstool' is commonly used to describe toxic fungi.
- 2. Mushrooms are low in calories, proteins and fats.
- 3. They have anti-cancer characteristics and can protect against chronic diseases such as heart disease.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) None

Q6.Consider the following statements:

1. Some mushrooms have medicinal properties.

- 2. Some mushrooms have psychoactive properties
- 3. Some mushrooms have insecticidal properties
- 4. Some mushrooms have bioluminescent properties.

How many of the above statements are correct? (UPSC CSE 2023 PYQ)

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Q7. Which of the following statements regarding Debrigarh Wildlife Sanctuary is accurate?

- 1. Debrigarh Wildlife Sanctuary is situated near the Brahmaputra River's Hirakud Dam.
- 2. Veer Surendra Sai, a famous freedom fighter, used the sanctuary as his base during his resistance against the British colonial rule.

Which of the statements given above is/are correct?

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

Q8. Which of the following statements regarding the Mahanadi River and its features are correct?

- 1. The Mahanadi River's catchment area includes the states of Chhattisgarh, Madhya Pradesh, Odisha, Jharkhand, and Maharashtra.
- 2. The Mahanadi River originates near Amarkantak in the state of Madhya Pradesh.
- 3. The Hirakud Dam is the longest dam in India and is built on the Mahanadi River.

How many of the above statement/s is/are correct?

- (a) Only one
- (b) Only two



- (c) All three
- (d) None

ANSWER

S. No.	Answers
1.	В
2.	В
3.	В
4.	D
5.	В
6.	D
7.	В
8.	В

MAINS QUESTIONS

- Q1. Environmental tipping points represent a critical juncture in the balance between human activities and the Earth's ecosystems. Elucidate.
- Q2. Discuss the significance and impact of hydropower projects. Analyze the measures required to mitigate adverse effects and promote sustainable hydropower projects in the context of a country's energy strategy and environmental conservation.
- Q3. Explain the significance of river drainage systems in shaping the physical and human geography of a region.

SOCIAL DEVELOPMENT

UNESCO'S CREATIVE CITIES NETWORK (UCCN)

Why in the news?

Kozhikode, Gwalior added to Unesco 'creative cities' for literature, music

About UNESCO's Creative Cities Network (UCCN):

- The UNESCO Creative Cities Network (UCCN)
 was established in 2004 to promote collaboration among cities that prioritize creativity as a
 strategic element for sustainable urban development. This global network includes 350 cities
 spanning over a hundred countries.
- The UCCN aligns with UNESCO's goals of promoting cultural diversity and strengthening urban resilience in the face of challenges like climate change, inequality, and rapid urbanization.

Aim and Objectives:

- The UCCN focuses on harnessing the creative, social, and economic potential of cultural industries to drive urban development.
- It encourages a culture of creativity in urban planning and seeks innovative solutions to urban challenges.
- Member cities are encouraged to recognize creativity as a fundamental aspect of urban development, forging partnerships that involve the public and private sectors as well as civil society.
- The UCCN aims to create hubs of creativity and innovation, expanding opportunities for professionals in the cultural sector and contributing to the UN's sustainable development agenda.

Areas of Action:

• The objectives of the UCCN are implemented at both the city level and the international level.

This involves sharing experiences, knowledge, and best practices. Activities include professional and artistic exchange programs, research, and evaluations of the experiences of creative cities.



Annual Conference of Network Cities:

- A highlight of the UCCN is the annual conference, where mayors and other stakeholders from network cities gather. This event provides a unique opportunity to strengthen ties between creative cities worldwide.
- The previous conference was held in Santos, Brazil, while the most recent was in Istanbul.
 The upcoming conference is scheduled for July 2024 in Braga, Portugal.

Responsibilities of Member Cities:

 Member cities within the UCCN are required to submit a Membership Monitoring Report every four years. These reports demonstrate their commitment to implementing the UCCN Mission Statement. They present an action plan for the following four years, highlighting achievements, lessons learned, and the impact of the UCCN designation.

Indian Cities in the Network:

 Several Indian cities have joined the UNESCO Creative Cities Network, including Kozhikode, Gwalior, Varanasi (music), Srinagar (crafts and



- folk arts), and Chennai (music).
- These cities are actively contributing to the network's objectives and leveraging their cultural richness for sustainable urban development.

Kozhikode's Literary Tradition:

- Kozhikode, a city in India, has a rich literary heritage, with notable contributions such as the first Malayalam novel, Kundalatha, authored by Appu Nedungadi in 1887.
- The city has produced renowned writers and cultural figures, as well as professionals in the film and theater industry, strengthening its position within the UNESCO Creative Cities Network.

UNESCO

- UNESCO, which stands for the United Nations Educational, Scientific and Cultural Organization, is a specialized agency within the United Nations (UN) system.
- Established with a constitution that came into force in 1946, UNESCO has played a pivotal role in promoting international collaboration in the field of education, science, and culture.
- Headquartered in Paris, France, it operates under the purview of the United Nations Economic and Social Council.
- UNESCO's fundamental goals revolve around fostering peace, security, sustainable development, and intercultural dialogue.

Key Areas of Focus:

- Education: UNESCO places a strong emphasis on advocating for quality education accessible to all. Its efforts encompass facilitating access to education, enhancing teacher training, and promoting global citizenship.
- Natural Sciences: The organization supports scientific research and the application of science to address pressing global challenges such as climate change, biodiversity loss, and sustainable development.

- Culture: UNESCO is dedicated to safeguarding and promoting cultural heritage, both tangible and intangible, including monuments, sites, traditions, and languages. It also champions cultural diversity and intercultural dialogue.
- Communication and Information: UNESCO actively promotes freedom of expression, the development of media, and access to information. It strives to create a free, independent, and pluralistic media environment.
- World Heritage Sites: One of UNESCO's notable responsibilities is the designation and maintenance of a list of World Heritage Sites. These sites are recognized as having outstanding universal value and are protected for future generations.

Key UNESCO Reports:

- Global Education Monitoring Report
- The United Nations World Water Development Report
- World Trends in Freedom of Expression and Media Development
- Global Ocean Science Report

PRELIMS QUESTIONS

Q.1 Which of the following statements regarding UNESCO's Creative Cities Network (UCCN) is/are correct?

- UCCN was established to promote creativity as a strategic factor for sustainable urban development.
- 2. Member cities within UCCN are not required to submit periodic reports demonstrating their commitment to its mission.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only



- (c) Both 1 and 2
- (d) Neither 1 nor 2

Q.2 Consider the following reports:

- 1. Global Education Monitoring Report
- 2. The United Nations World Water Development Report
- 3. World Trends in Freedom of Expression and Media Development
- 4. Global Ocean Science Report

How many of the above reports are published by UNESCO?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

ANSWERS

S. No.	Answers
1.	Α
2.	D

MAINS QUESTIONS

Q1. Discuss the significance of UNESCO's Creative Cities Network (UCCN) in promoting sustainable urban development and cultural diversity. Provide examples of Indian cities in the network and their contributions to this global initiative.

