

**GS PAPER 1- SOCIETY****Movement against patriarchy in Kerala**

The article discusses how a movement led by women in Kerala's film industry is challenging patriarchy. It highlights the need for gender justice and safer workplaces for women, emphasizing that governments must be pressured to take action on these issues.

**What was the first social revolution in Kerala?**

1. The first social revolution in Kerala happened in 1956. EMS Namboodiripad's government introduced land reforms that ended landlordism and feudalism. Agricultural laborers gained freedom to sell their labor.
2. Although it did not create a dynamic agricultural sector, it reduced the social distance between laborers and landlords.
3. However, patriarchy was left untouched, and men continued to dominate women in most aspects of life.

**What sparked the current movement against patriarchy in Kerala?**

1. The current movement against patriarchy in Kerala began in the film industry.
2. A group of women formed the Women's Collective in Cinema (WCC) to challenge misogyny.
3. WCC first addressed sexist dialogues in Malayalam films, spoken by top stars.
4. The movement gained momentum after a young actress was sexually assaulted.
5. WCC pressured the government to investigate women's working conditions in the film industry.
6. This led to the formation of the Hema Committee, which revealed widespread discrimination and sexual exploitation of women.
7. Delays in publishing the report led to public pressure, forcing the government to release it after a Right to Information ruling.
8. The report triggered resignations in the Kerala Chalachitra Academy and the Association of Malayalam Movie Actors (AMMA).

**Why must India update its labor laws for women?**

1. India's labor laws are outdated, with rules like prohibiting night shifts for women and requiring spittoons.
2. Female workforce participation is low, even lower than in Saudi Arabia, due to unsafe workplaces.
3. Cases like the Abhaya case in Kolkata show that lack of basic infrastructure, such as separate toilets and secure rest areas, endangers women.
4. Women are disadvantaged across all caste groups, with lower health, education, and financial independence.
5. The Women's Collective in Cinema (WCC) in Kerala highlighted sexual exploitation in the film industry, showing the urgent need for safer workplaces for women.

**GS PAPER 2- INTERNATIONAL RELATIONS-BILATERAL, REGIONAL AND GLOBAL GROUPINGS AND AGREEMENTS INVOLVING INDIA AND/OR AFFECTING INDIA'S INTERESTS****Risks of Increasing Chinese FDI in India**

The article discusses India's delicate relationship with China, noting unresolved border tensions and China's demands. It questions allowing Chinese investments in India, citing economic risks, trade deficits, and concerns about security and dependency on Chinese supply chains.

**What is the Current State of India-China Border Tensions?**

1. India's Minister of External Affairs, S. Jaishankar, stated that 75% of disengagement issues with China have been resolved.
2. However, the border remains heavily militarized, with no progress in critical areas like Depsang Plains and Demchok.
3. India insists peace along the Line of Actual Control (LAC) is necessary for normalizing relations.
4. Indian forces face challenges accessing at least 15 patrolling points in Ladakh.
5. Since the 2020 Ladakh transgressions, China has altered the status quo, and India is yet to restore earlier conditions along the LAC.

**How is the Economic Relationship Between India and China Evolving?**

1. India's 2024 Economic Survey suggests encouraging Chinese investments to integrate into global supply chains instead of relying on imports.
2. India's trade deficit with China increased to \$105 billion in 2023, up from \$64 billion in 2021.
3. India's exports to China fell from \$23 billion in 2021 to \$16 billion in 2023, highlighting worsening trade relations.
4. Chinese demands include equal treatment for their companies and resumption of normal relations, without addressing core border issues.

**What are the Risks of Increasing Chinese FDI in India?**

1. **Dependency on China:** Indian industries remain dependent on Chinese imports, which increases vulnerability. China has a history of weaponizing such dependencies.
2. **Low Value Investments:** Chinese investments may lead to low-value additions, hindering India's industrial development in key sectors.

3. **No Reduction in Imports:** Experience from ASEAN shows that Chinese investments didn't reduce imports. ASEAN's imports from China rose from \$386 billion in 2021 to \$438 billion in 2023.
4. **Strategic Sectors at Risk:** China may dominate crucial industries like electric vehicles and solar equipment, preventing India from building its own manufacturing capacities.
5. **Security Concerns:** Increased Chinese investments in sensitive sectors could pose national security risks.

**How Should India Approach Its Economic Ties with China?**

1. India should be selective in allowing Chinese investments, focusing on sectors that align with its national security and industrial goals.
2. It's crucial for India to balance its economic ties with China while protecting its own strategic interests.

**GS PAPER 2 -INTERNATIONAL RELATIONS – BILATERAL, REGIONAL AND GLOBAL GROUPINGS AND AGREEMENTS INVOLVING INDIA AND/OR AFFECTING INDIA'S INTERESTS**

**Legal Framework in India Regarding Defence Exports**

The article discusses a Supreme Court ruling rejecting a plea to stop defense exports to Israel, citing foreign policy limits. It highlights India's lack of laws assessing international humanitarian law compliance in arms exports, suggesting amendments to ensure responsible defense trading.

**How Do Other Countries Handle Defence Exports?**

1. **Netherlands:** A Dutch court blocked the export of F-35 fighter jet parts to Israel. This decision was based on a European Union regulation that prohibits military exports to countries at risk of violating International Humanitarian Law (IHL).
2. **United Kingdom:** The UK government reviewed Israel's compliance with IHL. It found a clear risk that certain arms exported to Israel would facilitate serious IHL violations. This review was conducted under the UK's **Export Control Act**.
3. Both countries enforce legal measures to ensure military exports align with international law, preventing potential violations of IHL.

**What Is the Legal Framework in India Regarding Defence Exports?**

1. India regulates defense exports through the Foreign Trade Act (FTA), 1992, and the Weapons of Mass Destruction (WMDA) Act, 2005.
2. These laws allow the government to restrict exports for reasons like national security and international obligations.

**How Does International Law Influence India's Defence Exports?**

1. **Arms Trade Treaty (ATT):** The ATT prohibits exporting arms if there is knowledge they would be used to commit war crimes. India is not a signatory to the ATT, so it is not bound by its provisions. However, some ATT elements reflect customary international law.
2. **Geneva Conventions:** India is bound by Common Article I of the Geneva Conventions, requiring countries not to supply arms to nations likely to violate international humanitarian law (IHL).
3. **Case Example:** The International Court of Justice in *Nicaragua vs United States* highlighted the obligation to avoid supplying weapons if there is knowledge they may breach the Conventions.
4. **Legal Gaps in India:** India's current laws, like the Foreign Trade Act and Weapons of Mass Destruction Act, do not mandate IHL compliance checks for arms exports.

**What Should India Do to Improve Its Defence Export Policies?**

1. India should update its laws to include mandatory IHL compliance assessments for countries purchasing Indian defense goods.
2. The **Supreme Court** has previously incorporated **international law** into **domestic law** when gaps existed, such as in the **Vishakha vs State of Rajasthan** case, where international conventions on women's rights were used to address the absence of specific domestic laws on workplace harassment.
3. Similarly, in this defense export situation, the court could use **international humanitarian law** to fill gaps in Indian law regarding **arms export controls**, ensuring that India's exports comply with **international obligations**.
4. This approach shifts the issue from foreign policy to a legal matter, addressing India's international responsibilities.

**GS PAPER 2 – INTERNATIONAL RELATIONS-INDIA AND ITS NEIGHBOURHOOD- RELATIONS**

**Challenges in India's "Neighbourhood First" policy in 2024**

The article discusses setbacks in India's "Neighbourhood First" policy. It highlights political instability in Sri Lanka, Bangladesh, and Nepal, along with growing threats from Pakistan and Bangladesh. India must adapt to these challenges and strengthen regional economic and security ties.

**What are the challenges in India's "Neighbourhood First" policy in 2024?**

1. **Pakistan's Cross-Border Terrorism:** Pakistan has reverted to escalating cross-border terrorism, posing a serious security threat to India.

2. **Nepal's Political Instability:** Nepal has undergone another change in government, with K P Oli, known for worsening bilateral relations, returning as Prime Minister, creating diplomatic concerns for India.
3. **Bangladesh's Political Crisis:** Prime Minister Sheikh Hasina fled to India amid widespread protests against her government. India faces public resentment for being perceived as complicit in her governance. Radical Islamic groups like Jamaat and Pakistani influence are reviving.
4. **Sri Lanka's Political Shift:** Anura Kumara Disnayake's left-wing National People's Power (NPP) government may derail economic recovery. Indian investments like Adani's \$553 million container port project in Colombo face uncertainty.
5. **Northeast Security Risks:** Ethnic conflict in Manipur, Myanmar's civil war, and instability in Bangladesh could create a volatile security situation in India's Northeast.

#### **How has Sri Lanka's political landscape changed?**

1. Anura Kumara Disnayake has been elected President of Sri Lanka, leading the National People's Power (NPP) party. This marks the first time that none of the mainstream political parties are in power. The NPP's left-wing Janatha Vimukthi Peramuna (JVP) has historically been anti-India. Disnayake's populist policies may derail Sri Lanka's economic recovery.
2. He plans to renegotiate IMF terms and review key private sector projects, including India's Adani group's solar project and container port project.
3. India is economically interdependent with Sri Lanka, contributing \$4 billion during Sri Lanka's 2022 crisis. The economic viability of Colombo port relies on Indian transshipment. While there are concerns about Disnayake's policies, his balanced approach toward India and China offers some optimism for stable relations.

#### **How is the situation in Bangladesh affecting India?**

1. India has been criticized for supporting Sheikh Hasina's government without engaging with other political groups, such as the Bangladesh Nationalist Party (BNP) or Jamaat.
2. The political unrest in Bangladesh could lead to security threats in India's Northeast region, which is already facing ethnic conflict in Manipur and civil war in Myanmar.

#### **What should India's approach be in dealing with its neighbors?**

1. India needs a comprehensive strategy to handle its neighbors, focusing on both bilateral and regional relations.
2. Economic interdependence can be leveraged, as seen in India's role in Sri Lanka and the Maldives. India can also be the growth engine for the region and lead efforts on issues like climate change, beginning with its subcontinental neighbors.
3. Address regional security concerns in the Northeast, particularly with Bangladesh's instability, Pakistan's terrorism, and the Myanmar civil war.
4. India should avoid relying solely on ruling elites, as seen in Bangladesh with Sheikh Hasina. Engaging broader political groups can reduce anti-India sentiment.

### **GS PAPER 3 – INFRASTRUCTURE**

#### **Importance of India's investment in metro rail systems**

The article discusses the importance of India's investment in metro rail systems to improve urban mobility, job access, and economic growth. It highlights how Transit-Oriented Development (TOD) can help reduce congestion, enhance productivity, and support sustainable growth.

#### **How does public transportation benefit the economy?**

1. India is investing ₹3 trillion (2022-2027) in metro rail projects to improve urban mobility and unlock economic potential. These investments aim to reduce congestion and pollution while creating jobs and boosting economic growth.
2. Studies show that investment in public transportation can generate economic returns 5-7 times the initial cost and create thousands of jobs.
3. The National Transit-Oriented Development (TOD) Policy and Metro Rail Policy (2017) promote the development of sustainable, compact urban growth near transit systems.

#### **How Does Transit-Oriented Development (TOD) Impact Urban Areas?**

1. TOD integrates land use and transport to promote dense, mixed-use neighborhoods and sustainable transport options like walking and cycling.
2. It aims to reduce congestion and the environmental impact of urban growth.
3. In Bengaluru, for example, TOD can address the city's significant traffic issues, which cost ₹38,000 crore annually, or 5% of the city's GDP.

#### **What Are the Job Trends Near Metro Areas in Bengaluru?**

1. A study by WRI India in Bengaluru found about 0.2 million registered enterprises employing around 4.6 million people, mostly in service industries.
2. Large enterprises, though only 2% of all businesses, provide 60% of the jobs.
- 3

- Currently, 28% of jobs are within 500 meters of a metro station, but many are still too far for convenient access, highlighting the need for better pedestrian infrastructure and feeder services.

#### **What Challenges Do Businesses Face in Locating Near Metro Stations?**

- Limited Property Availability:** In developed inner-city areas, large businesses struggle to find suitable properties, especially legally compliant Grade-A buildings.
- Regulatory Barriers:** Development regulations, such as road widths, setbacks, and parking norms, hinder high-density redevelopment near metro stations.
- High Property Prices:** Smaller businesses are deterred by elevated property prices near metro stations, unlike larger established ones.
- Community Resistance:** Local communities often resist increased commercial activity near metro stations.

#### **What Steps Can Enhance Job Densities Near Transit Stations?**

- Set job density targets:** Bengaluru's master plan revision can set targets for job growth near transit hubs, like Hong Kong, where 57% of jobs are within 500m of transit stations.
- Encourage businesses:** Incentives such as additional development rights or tax subsidies can encourage companies to relocate near metro stations.
- Improve infrastructure:** Redevelopment should address regulations on land use, setbacks, and parking.
- Expand last-mile connectivity:** Invest in pedestrian infrastructure and feeder services, as 85% of Bengaluru's jobs are within 2km of metro stations.

#### **Pact for the Future – UNSC Expansion**

The United Nations General Assembly (UNGA) adopted a “Pact for the Future” which calls for the expansion of the UNSC, to make the body more representative of the 21st century.

#### **About “Pact for the Future”**

- **Pact for the Future:** A “landmark declaration” adopted by the UNGA to enhance global governance, accelerate sustainable development, and address key international issues.
- **Objective:** To make the UN more relevant and effective in the 21st century, addressing criticisms of the organisation's failure to prevent conflicts and enforce accountability.

#### **Key Components**

- **Sustainable Development Goals (SDGs):** The pact reaffirms commitment to speeding up progress towards achieving the SDGs and the Paris Climate Agreement.
- **Human Rights and Gender Equality:** Strengthens commitments to human rights, with a focus on women's rights and protection of vulnerable populations during humanitarian crises.
- **Conflict Resolution and Peacekeeping:** Calls for reviewing UN peacekeeping operations and addressing the root causes of conflicts.
- **Disarmament:** Promises to revitalise efforts toward **nuclear and biological weapons disarmament**, though details remain rhetorical.
- **Digital and Future Generations:**
  - **Global Digital Impact:** Focuses on regulating **artificial intelligence (AI)**.
  - **Declaration on Future Generations:** Aims to secure the **well-being of future generations** by aligning national and international decision-making accordingly.

#### **Challenges and Criticisms**

- **Lofty Goals, Thin Implementation Plans:** The pact outlines ambitious objectives (e.g., ending hunger, achieving gender equality, protecting the environment) but lacks clear, actionable steps for implementation.
- **Security Council Reforms:** Pledges to address **historical injustices against Africa** and improve **representation for Asia-Pacific, Latin America, and the Caribbean** in the UNSC.
  - However, **no specific roadmap** is provided for speeding up reforms.
- **Financial Architecture:** Calls for reform of international financial systems and responses to global shocks, but concrete steps are missing.

#### **Opposition**

- **Countries in Opposition:** **Russia, Iran, North Korea, Belarus, Syria, and Nicaragua** opposed the pact, citing concerns over national sovereignty and the influence of external entities on domestic affairs.
- **Amendments:** **Russia** proposed **amendments** to assert **intergovernmental decision-making and to prevent UN intervention in domestic matters**, which were rejected by the majority of UN members

#### **About United Nations Security Council**

The United Nations Security Council, **established under the UN Charter in 1945**, constitutes one of the UN's six principal organs.

- **First Session:** It held its first session on **17th January 1946 in Westminster, London**.

- **Headquarters:** New York City
- **Mandate:** It has primary responsibility, under the UN Charter, for the **maintenance of international peace and security.**
- **Members:** Comprising **15 members**, it includes **5 permanent members (P5)** and **10 non-permanent members** elected for two-year terms.
  - **Permanent members:** They are the **United States, Russian Federation, France, China, and the United Kingdom.**
  - **10 non-permanent Members:** Seats are distributed on a **regional basis:**
    - **Five for African and Asian States**
    - **One for Eastern European States**
    - **Two for the Latin American and Caribbean States**
    - **Two for Western European and other States**
  - **An informal understanding reserves one seat for an Arab country in the Africa-Asia group.**
- **Decision Making:** Decisions of the Security Council are **binding**
- **Majority:** It must only be passed by a majority of **nine out of the 15 members**, as well as each of the **five permanent members.**
- **“Veto power”:** It refers to the **power of the permanent member to veto (Reject)** any resolution of the **Security Council.**
- **Criticism:** The **unconditional veto** possessed by the **five governments** has been seen as the **most undemocratic character of the UN.**
  - Critics also claim that **veto power** is the **main cause for international inaction on war crimes and crimes against humanity.**
- **Supporters of the Veto Power:** They regard it as a **promoter of international stability**, a check against military interventions, and a critical safeguard against U.S. domination.
- **Chapter VI of the UN Charter:** When the **Security Council** considers a **threat to international peace**, it first explores ways to **settle the dispute peacefully** under **Chapter VI**
- **Chapter VII of the Charter:** Council can also take measures to enforce its decisions.
- It can **impose economic sanctions** or order an **arms embargo.**
- On rare occasions, the **Security Council has authorised member states** to use all necessary means, including **collective military action**, to see that its **decisions are carried out.**

### PRELIM FACTS

#### 1. Koodiyattom

Cholliyattam is a collection of young Koodiyattom artists in Kerala, for preserving the art form and sharing techniques from various Koodiyattam schools.

#### **About Koodiyattam**

- One of the oldest traditional theatre forms of Kerala and is based on Sanskrit theatre traditions.
- In **2001** it was recognized as a **UNESCO Masterpiece of the Oral and Intangible Heritage of Humanity.**
- In its stylized and codified theatrical language, **Netra abhinaya (eye expression)** and **Hasta abhinaya (the language of gestures)** are prominent.
- Focus of the dance remains on the thoughts and feelings of the main character.
- Traditionally performed in theaters called **Kuttampalams**
- Performed by Male actors called **Chakyars** and Female performers called **Nangiars**
- Assisted by drummers called **Nambiars**
- **Pakarnattam** is an aspect of Kutiyattam that involves embodying and emoting male and female roles.
  - Switching between the masculine and feminine and interpreting multiple roles at the same time

#### 2. Innovations for High-Altitude Operations in the Indian Army

The Indian Army is adopting innovative technologies mules, drones, and Peak Pods to enhance operations in high-altitude regions.

#### **About Key Army's New High-Altitude Innovations**

- **Robotic Mules Inducted:**
  - These mules are designed for high endurance, can navigate obstacles, cross rivers, and operate in temperatures ranging from  $-40^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$ .
- **Logistics Drones Under Trial:**
  - The CargoMax 4000Q drone, capable of carrying 50 kg over 10 km, was tested at an altitude of 18,000 feet during the Drone-A-Thon 2 competition.

- **High-Altitude Tent (Peak Pod):**
  - A new high-altitude tent, the Peak Pod, is under evaluation for deployment in areas as cold as  $-40^{\circ}\text{C}$ .
  - This shelter maintains an inside temperature of  $15^{\circ}\text{C}$  without fuel or electricity and comes with a built-in bio-toilet.
  - Trials are being conducted at Leh, Daulat Beg Oldie, and Durbuk.

### **3. Wildlife Habitats Development Scheme**

The Union Cabinet has approved the Integrated Development of Wildlife Habitats scheme for the 15th Finance Commission cycle.

1. The scheme supports key initiatives like Project Tiger, Project Elephant, and Development of Wildlife Habitat.
2. The initiative focuses on boosting technological interventions, including the use of AI, camera traps, and conservation genetics for wildlife monitoring.
3. Additionally, it supports projects like Project Dolphin and Project Lion, leveraging advanced tools for species conservation.
4. The scheme benefits 55 tiger reserves, 33 elephant reserves, and 718 protected areas, contributing to both wildlife conservation and climate resilience.

### **4. The Food Import Rejection Alert portal**

The Food Safety and Standards Authority of India (FSSAI) has launched the Food Import Rejection Alert (FIRA) portal, which will notify authorities about food consignments rejected at Indian borders due to safety concerns.

- The portal, unveiled at the Global Food Regulators Summit 2024, will facilitate quick information sharing to prevent health risks from rejected food.
- In the past year, over 1,500 imported food items were rejected by FSSAI for failing to meet Indian standards.
- Other government healthcare achievements include expanding the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PMJAY) to cover all senior citizens aged 70 and above, benefiting 60 million people.
- The U-WIN portal has digitized vaccination services, registering 64 million beneficiaries so far.
- Additionally, a new TB treatment regimen and diagnostics have been introduced to shorten treatment time, with plans for nationwide rollout.

### **5. International Chess Federation (FIDE) Chess Olympiad**

The Indian chess team celebrated a historic victory at the 2024 FIDE Chess Olympiad by winning double gold in both the men's and women's categories.

#### **About the International Chess Federation (FIDE) Chess Olympiad:**

- The International Chess Federation (FIDE) Chess Olympiad is a biennial chess tournament in which teams from countries worldwide compete against each other.
- Organized by FIDE, the governing body of chess, the Chess Olympiad is one of the most prestigious team events in the chess world.
- It includes both an open section and a women's section, and teams compete over several rounds in a Swiss-system format, where each player faces an opponent of comparable skill from another team.
- The event promotes international camaraderie and high-level competition, and it has become a major platform for showcasing top chess talent from across the globe.

### **ANSWER WRITING**

**Q. India's upcoming mission to Venus represents a major leap in its space exploration capabilities. Discuss the scientific significance of studying Venus and the potential lessons it holds for understanding Earth's evolution.**

India's upcoming mission to Venus, planned for launch by ISRO in 2028, represents a significant leap in the country's space exploration capabilities. After the success of missions to the Moon and Mars, the Venus mission seeks to study the planet's atmosphere, surface, and geological features. This mission is vital for deepening our understanding of planetary evolution and space weather dynamics in our solar system.

#### **How India's Upcoming Mission to Venus Represents a Major Leap in Space Exploration Capabilities:**

- **Interplanetary Mission Expansion:** The Venus mission marks India's **second interplanetary** venture after the **Mars Orbiter Mission** in 2013, expanding ISRO's expertise in deep space exploration.  
**For example:** The mission's use of **aero-braking** for orbit adjustment highlights advanced orbital techniques.
- **Development of Synthetic Aperture Radar (SAR):** The mission will use an **L and S band SAR** for high-resolution surface imaging, marking an upgrade in India's space exploration toolkit.  
**For example:** This radar will help reveal Venus's **geological and volcanic** activities, which are hidden beneath thick clouds.
- **Complex Manoeuvres:** The use of **sling-shot manoeuvres** and aero-braking for Venus's orbit insertion signifies the sophistication in ISRO's engineering capabilities.  
**For example:** The mission will employ Venus's upper atmosphere to reduce speed and conserve fuel, a high-risk but **fuel-efficient** technique.

- **Collaborative Scientific Payloads:** The mission includes **17 Indian** and **7 international payloads**, showcasing global collaboration in space science.  
**For example:** A **thermal camera** developed by Indian scientists will study the planet's extreme surface temperatures.
- **Exploring Venus's Atmosphere:** ISRO aims to study Venus's atmosphere, including its **cloud composition and high-energy particles**, marking the first such attempt by India.  
**For example:** The mission's focus on understanding the **runaway greenhouse effect** could offer insights into climate change.
- **Innovative Spacecraft Design:** The spacecraft's design to survive in **harsh conditions**—such as extreme temperatures and pressures—demonstrates ISRO's growing technological prowess.  
**For example:** Venus's surface pressure is **90 times** that of Earth, requiring specialised spacecraft materials.

#### Scientific Significance of Studying Venus:

- **Understanding Climate Change:** Venus's extreme **greenhouse effect** offers a real-world example of runaway climate processes, helping scientists understand similar potential risks on Earth.  
**For example:** Studying how Venus lost its water can provide critical data on **global warming** impacts on Earth.
- **Planetary Atmosphere Analysis:** Venus's thick atmosphere of **carbon dioxide and sulfuric acid** clouds provides insights into atmospheric dynamics and chemistry.  
**For example:** Analysing **cloud formations** on Venus can aid in modelling **Earth's upper atmospheric conditions**.
- **Geological Insights:** Venus is thought to have **volcanic activity** beneath its dense atmosphere, and studying these processes can help us understand the tectonic activities of rocky planets.  
**For example:** The **Venera missions** by the **Soviet Union** indicated volcanic activity, and further studies can confirm these findings.
- **Astrobiology:** Venus may have had **liquid water** in its early history, raising the possibility that it once harboured life.  
**For example:** Discoveries of **phosphine gas** in the atmosphere have raised questions about possible microbial life forms.
- **Comparative Planetology:** By comparing Venus to **Earth and Mars**, scientists can develop models for planetary evolution and how atmospheres change over time.  
**For example:** Venus is often termed as Earth's "**twin**," making its study crucial for understanding Earth's past and future.
- **Space Weather Research:** The study of **high-energy particles** in Venus's atmosphere can offer insights into how planets are impacted by solar winds and space weather.  
**For example:** Venus's interaction with the **solar wind** can shed light on the impact of space weather on Earth's magnetosphere.

#### Potential Lessons for Understanding Earth's Evolution:

- **Greenhouse Effect Lessons:** Studying Venus's runaway **greenhouse effect** can offer crucial lessons on the potential future of **Earth's climate** under increasing carbon dioxide levels.  
**For instance:** Venus's history of water loss provides a warning for Earth about unchecked climate change.
- **Atmospheric Pressure and Composition:** Venus's high atmospheric pressure offers a glimpse into how Earth's atmosphere could evolve under certain conditions.  
**For instance:** Understanding **Venus's carbon dioxide-dominated atmosphere** could help predict the long-term consequences of fossil fuel emissions on Earth.
- **Volcanic Activity:** Venus's geological activity offers clues to Earth's **tectonic history**, helping scientists understand how volcanic processes shape planetary atmospheres.  
**For example:** Active **volcanoes** on Venus could provide a model for studying similar phenomena on Earth's surface.
- **Water and Planetary Habitability:** The loss of **water on Venus** may provide insights into the sustainability of water on Earth and the conditions that can lead to its depletion.  
**For example:** Venus's transition from a possible **water-rich planet** to its current dry state is key to studying water retention.
- **Planetary Magnetic Fields:** Studying Venus, which lacks a **global magnetic field**, helps us understand the role of magnetospheres in protecting planets from solar radiation.  
**For example:** Earth's **magnetosphere** shields the planet from harmful solar radiation, a protection Venus does not enjoy.

India's Venus mission will not only mark a significant advancement in the country's space exploration but will also offer valuable insights into planetary science and Earth's own evolution. By comparing Venus's atmosphere, geology, and climate, India's mission could help the world better understand how planetary environments evolve and how Earth's future might unfold under various environmental stresses.

**MCQ**

- Consider the following statements regarding Robotic MULE (Multi-Utility Legged Equipment):
  - The primary purpose of introducing Robotic Mules in the Indian Army is to enhance combat and surveillance missions.
  - Global Positioning System (GPS) and satellite communication enable robotic mules to navigate obstacles and recognize objects.
 Which of the statement(s) given above is/are correct?  
 a) **1 only**                      b) 2 only  
 c) Both 1 and 2                d) Neither 1 nor 2
- Which of the following statement(s) is/are correct?
  - The Economic Survey 2024 suggests that India should rely on imports from China instead of integrating into Chinese supply chains through Chinese investments.
  - India is ranked highest among emerging and developing countries as a potential alternative investment destination to China.
 Select the correct answer using the codes given below:  
 a) 1 only                          b) **2 only**  
 c) Both 1 and 2                d) Neither 1 nor 2
- Consider the following statements:
  - Transit-Oriented Development (TOD) aims to reduce reliance on private vehicles by promoting the use of public transit, walking, and cycling.
  - India's National Transit-Oriented Development Policy, 2017 encourages cities to become growth hubs through economic and transit planning.
 Which of the statement(s) given above is/are correct?  
 a) 1 only                          b) 2 only  
 c) **Both 1 and 2**                d) Neither 1 nor 2
- With reference to the 'Pact for the Future', recently adopted by the United Nations, consider the following statements:
  - It emphasizes the importance of reforms in the United Nations Security Council (UNSC).
  - Under the Pact, Global Digital Compact is an agreement to standardize global digital currencies.
  - The Pact aims to completely eliminate nuclear weapons.
 How many of the statements given above are correct?  
 a) Only one                      b) **Only two**  
 c) All three                        d) None
- Consider the following statements regarding the India-Myanmar border:
  - The India-Myanmar border spans four Indian states: Mizoram, Manipur, Nagaland, and Arunachal Pradesh.
  - The trijunction between India, China, and Myanmar is yet to be officially agreed upon.
  - The border includes geographical features like the Mishmi Hills and the Tiau River.
 Which of the statements given above is/are correct?  
 a) 1 and 2                        b) 1 and 3  
 c) 2 and 3                        d) **1, 2, and 3**
- Consider the following pairs:
  - Koodiyattam: Karnataka
  - Mohiniattam: Odisha
  - Yakshagana: Karnataka
 Which of the pairs given above is/are correctly matched?  
 a) **3 only**                        b) 2 and 3 only  
 c) 1 and 3 only                d) 1, 2 and 3
- Consider the following statements regarding the United Nations Security Council (UNSC):
  - The UNSC has the primary responsibility for the maintenance of international peace and security.
  - The UNSC has 10 members, including 5 permanent members and 5 non-permanent members.
  - Non-permanent members elected by the General Assembly for a five-year term.
  - A retiring Non-permanent member is not eligible for immediate re-election.
 Which of the statements given above are correct?  
 a) 1 and 2 only                b) 1, 2 and 3 only  
 c) 2, 3 and 4 only              d) **1 and 4 only**
- What distinguishes a futures contract from an option contract?  
 a) **A futures contract is binding, while an option is a right without obligation.**  
 b) A futures contract involves physical commodities, while an option involves financial assets.  
 c) Futures Contract are more flexible than Options Contract  
 d) A futures contract is used only for speculation.
- With respect to trend in Labour Force Participation Rate (LFPR) for persons of age 15 years and above from 2017-18 to 2023-24, consider the following statements:
  - LFPR for male of age 15 years above in usual status (ps+ss) witnessed a consistent increase
  - LFPR for female of age 15 years above in usual status (ps+ss) witnessed a consistent decrease
 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**
- Consider the following statements:
  - India's legal framework does not require the government to review international humanitarian law (IHL) compliance of countries receiving defense exports.
  - India is a signatory to the Arms Trade Treaty (ATT).
  - The Geneva Conventions, which is binding on India, obligates all states to respect and to ensure respect for IHL.
 How many of the statements given above are correct?  
 a) Only one                      b) **Only two**  
 c) All three                        d) None