



**Secure Synopsis compilation for January-2026**

**General Studies-1**

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## **Indian culture will cover the salient aspects of Art Forms, literature and Architecture from ancient to modern times.**

**Q. Outline the ideological and architectural foundations of Victorian architecture in India. Explain how Indo-Gothic architecture modified these principles. Assess the consequences of this transformation for the evolution of modern Indian architecture. (15 M)**

### **Introduction**

Colonial architecture in India functioned as a visual language of power, ideology, and adaptation. Victorian and Indo-Gothic architectural forms together laid the foundations of modern Indian architecture by combining imperial intent with local realities.

## **Body**

### **Ideological and architectural foundations of Victorian architecture in India**

- Imperial authority and administrative permanence:** Victorian architecture projected British dominance through monumentality, symmetry, and axial planning, reinforcing the image of a stable and permanent empire.  
**Eg: Writers' Building, Kolkata (originally 1777; expanded in the 1880s)** symbolised bureaucratic control and imperial continuity through its imposing neoclassical façade.
- Moral and cultural assertion through Gothic revival:** Gothic elements such as pointed arches, spires, and stained glass reflected Victorian moralism and the belief in civilising mission.  
**Eg: St. Paul's Cathedral, Kolkata (completed in 1847)** used Gothic Revival design to assert Christian and cultural supremacy in a colonial setting.
- Functional rationalism and governance needs:** Victorian buildings prioritised order, hierarchy, and regulation, aligning architectural design with colonial administrative efficiency.  
**Eg: Government House, Chennai (1799)** combined classical symmetry with controlled spatial planning for executive authority.
- Technological confidence and industrial materials:** The Victorian style relied on advances in engineering, iron frameworks, and prefabricated elements made possible by the Industrial Revolution.  
**Eg: Howrah Railway Station (1905)** reflected industrial scale, structural strength, and imperial mobility.
- Urban symbolism and spatial dominance:** Victorian architecture reorganised colonial cities around power centres such as courts, cantonments, and civic institutions.  
**Eg: Bombay Fort area redevelopment (mid-19th century)** spatially separated colonial authority from indigenous settlements.

### **Modification of Victorian principles through Indo-Gothic architecture**

- Synthesis with indigenous architectural vocabulary:** Indo-Gothic architecture blended Gothic forms with Indian elements such as domes, chhatris, and jalis to create a hybrid idiom.  
**Eg: Chhatrapati Shivaji Maharaj Terminus, Mumbai (1887)** integrated Gothic spires with Indian domes and decorative motifs.
- Climatic adaptation:** Indo-Gothic buildings modified Victorian rigidity by incorporating verandahs, high ceilings, and ventilation to suit tropical conditions.  
**Eg: Madras High Court (1892)** used open courtyards and red sandstone to manage heat and airflow.
- Use of local materials and craftsmanship:** Indigenous stone, carving traditions, and artisanal skills were incorporated, reducing dependence on European imports.  
**Eg: Victoria Memorial Hall, Kolkata (1906–1921)** employed Makrana marble and Indian artisans alongside European design principles.
- Political accommodation and legitimacy:** The hybrid style was intended to appear culturally inclusive while maintaining imperial dominance.

**Eg: Prince of Wales Museum, Mumbai (1905)** combined Islamic and Gothic elements to appeal to diverse audiences.

5. **Shift from imitation to contextual design:** Indo-Gothic marked a transition away from strict European replication toward situational architectural responses.

**Eg: Allahabad High Court (1916)** reflected a mature hybrid civic architecture.

### Consequences for the evolution of modern Indian architecture

1. **Foundation of architectural hybridity:** Indo-Gothic architecture normalised stylistic synthesis, influencing later nationalist and post-colonial designs.  
**Eg: Lutyens' Delhi (1911–1931)** incorporated classical planning with Indian symbols such as chhatris.
2. **Emergence of civic monumentalism:** Public buildings became enduring landmarks shaping urban identity and civic memory.  
**Eg: Mumbai and Chennai high courts** remain central to cityscapes and governance.
3. **Institutionalisation of architectural education:** Exposure to Indo-Gothic practices contributed to formal architectural training in India.  
**Eg: Sir J.J. School of Art, Mumbai (established 1857)** trained generations of Indian architects.
4. **Continuity in post-independence public architecture:** Modern Indian architecture retained the emphasis on scale, symbolism, and public presence.  
**Eg: Supreme Court of India (1958)** reflects monumentality rooted in colonial precedents, adapted to republican ideals.
5. **Heritage conservation consciousness:** Indo-Gothic structures now anchor debates on urban heritage, conservation, and adaptive reuse.  
**Eg: UNESCO World Heritage status for CSMT (2004)** strengthened conservation ethics.

### Conclusion

Victorian and Indo-Gothic architecture together shaped India's transition into architectural modernity by embedding hybridity, civic symbolism, and contextual design. Their legacy continues to influence India's urban form, heritage policy, and architectural imagination.

**Q. "Festivals act as informal institutions of social integration in Indian society." Explain the role of festivals beyond religious observance. Analyse how shared celebrations promote inter-community harmony. Examine contemporary threats to this social function. (15 M)**

### **Introduction**

In India, festivals function not merely as religious rituals but as **social institutions embedded in everyday life**, shaping interaction, cooperation and mutual recognition across communities. Their integrative role has historically sustained India's plural social fabric despite deep religious, linguistic and regional diversity.

Body

### Role of festivals beyond religious observance

1. **Social bonding and community participation:** Festivals create shared social spaces where participation cuts across religious and cultural boundaries, fostering interpersonal ties beyond formal identities.  
**Eg: Durga Puja in Kolkata** is recognised by **UNESCO (2021)** as Intangible Cultural Heritage for its community-driven nature involving people from **multiple faiths and occupations**, reflecting collective social life beyond worship.
2. **Cultural transmission and collective memory:** Festivals act as carriers of shared traditions, values and historical continuity, reinforcing social cohesion across generations.  
**Eg: Onam in Kerala**, centred on the legend of **Mahabali**, is celebrated by **Hindus, Christians and Muslims** alike, reflecting a shared regional identity rather than sectarian boundaries.
3. **Economic and occupational integration:** Festive cycles link diverse occupational groups through production, services and informal economies, reinforcing interdependence.  
**Eg: Ganesh Chaturthi** supports artisans, vendors and service workers across communities, as documented in **NITI Aayog informal sector studies**, highlighting festivals as economic-social institutions.
4. **Norm-building and moral regulation:** Festivals reinforce norms of sharing, charity and restraint, contributing to social regulation without coercion.  
**Eg: Ramzan and community iftars** promote charity and social inclusion, aligning with values of **fraternity under Article 51A(e)** of the Constitution.

#### How shared celebrations promote inter-community harmony

1. **Everyday secularism in practice:** Shared festive participation normalises religious diversity through routine social interaction rather than abstract ideology.  
**Eg: The Supreme Court in S.R. Bommai vs Union of India (1994)** affirmed secularism as a basic feature, reflected socially in inclusive festival participation rather than state neutrality alone.
2. **Creation of shared public spaces:** Festivals transform streets, markets and neighbourhoods into common cultural arenas, reducing social distance.  
**Eg: Eid and Diwali exchanges of sweets** in urban neighbourhoods are frequently cited in **CSDS Lokniti surveys** as markers of lived pluralism.
3. **Mutual recognition of identity:** Greeting and participating in others' festivals affirms dignity and equal belonging.  
**Eg: Celebration of Christmas in schools and workplaces** across India reflects cultural accommodation consistent with **Article 25**, which guarantees freedom of conscience.
4. **Conflict diffusion through social familiarity:** Regular interaction during festivals reduces stereotypes and fear of the "other".  
**Eg: Bijoe Emmanuel vs State of Kerala (1986)** underlined respect for conscience, a principle mirrored socially when communities respect each other's festive practices.

#### Contemporary threats to the integrative social function of festivals

1. **Communal politicisation of festivals:** Festivals are increasingly framed as markers of exclusionary identity rather than shared culture.  
**Eg: CSDS reports (2022–23)** note rising perception of festivals being politicised, affecting inter-community trust in some urban contexts.

2. **Moral policing and cultural gatekeeping:** Attempts to define “authentic” ways of celebration undermine inclusivity.  
**Eg:** Public controversies over **who may celebrate certain festivals** contradict the spirit of **Article 29**, which protects cultural plurality.
3. **Commercialisation and spectacle dominance:** Excessive commercialisation dilutes participatory and community-led aspects.  
**Eg:** **UNESCO cultural heritage guidelines** caution that over-commercialisation can erode the social cohesion function of festivals.
4. **Digital polarisation and misinformation:** Social media amplifies selective narratives, weakening shared festive meanings.  
**Eg:** **UNESCO Global Media and Information Literacy framework** highlights how online polarisation affects cultural coexistence.

## Conclusion

Festivals in India have long served as **informal institutions of social integration**, sustaining pluralism through everyday participation rather than imposed uniformity. Preserving their inclusive character is essential for nurturing **social harmony and constitutional fraternity** in an increasingly polarised society.

## Q. Discuss how Buddhist philosophical principles shaped artistic and architectural expressions in ancient India. Illustrate with examples. (10 M)

### Introduction

Buddhist philosophy consciously transformed art and architecture into instruments of ethical instruction and spiritual practice. In ancient India, abstract doctrines of the Dhamma were translated into visual symbols and spatial forms to communicate ideas to monks and lay followers alike.

### Body

#### Buddhist philosophical principles shaping artistic expressions

1. **Aniconism and doctrinal abstraction:** Early Buddhism avoided anthropomorphic representation of the Buddha, reflecting impermanence and non-attachment to form.  
**Eg:** **Bharhut and Sanchi reliefs (2nd century BCE)** represent the Buddha through **symbols such as the Bodhi tree, empty throne, footprints, and Dharmachakra**, prioritising doctrine over personality.
2. **Ethical didacticism through narrative art:** Art functioned as a visual pedagogy to transmit moral teachings to an illiterate population.  
**Eg:** **Jataka tales carved on Sanchi and Amaravati railings** depict **compassion, self-sacrifice, and righteous conduct**, aligning art with ethical instruction.
3. **Universal compassion and humanisation of the Buddha:** Later Buddhist philosophy emphasised Karuṇā, encouraging emotionally accessible imagery.  
**Eg:** **Mathura school Buddha images (1st–3rd century CE)** portray a **serene and compassionate expression**, reflecting Mahayana ideals.
4. **Meditative symbolism in gestures and postures:** Artistic conventions encoded philosophical meaning rather than decorative intent.

**Eg: Abhaya, Dhyana, and Dharmachakra mudras** in Gandhara and Mathura sculptures visually communicate **fearlessness, meditation, and teaching of the Dhamma**.

5. **Integration of philosophy with regional aesthetics:** Buddhism adapted artistic forms without diluting core principles.

**Eg: Gandhara art** combines **Greco-Roman stylistic elements** with Buddhist themes, demonstrating philosophical flexibility and cultural accommodation.

### **Buddhist philosophical principles shaping architectural expressions**

1. **Stupa as a metaphysical and ritual structure:** The stupa embodied Buddhist cosmology and the path to liberation.  
**Eg: Great Stupa at Sanchi** symbolises the **Mahaparinirvana of the Buddha**, with pradakshina enabling meditative circumambulation.
2. **Chaitya halls enabling collective devotion:** Architecture reflected Sangha ideals of shared worship and ethical reflection.  
**Eg: Chaitya halls at Karla and Bhaja** integrate an **apsidal plan with a central stupa**, facilitating congregational rituals.
3. **Viharas expressing monastic discipline and simplicity:** Residential architecture mirrored ascetic values and regulated community life.  
**Eg: Vihara caves at Ajanta** consist of **cells arranged around a central courtyard**, supporting meditation and communal living.
4. **Mahaviharas institutionalising wisdom and debate:** Large monastic complexes reflected Buddhism's emphasis on knowledge and dialogue.  
**Eg: Nalanda Mahavihara** combined **residential, ritual, and academic spaces**, embodying the pursuit of Prajñā.
5. **Sacred geography and pilgrimage networks:** Architecture helped transform philosophical ideas into lived religious landscapes.  
**Eg: Stupa–vihara complexes at Sarnath, Bodh Gaya, and Kushinagar** anchored Buddhist teachings within a spatial and ritual continuum.

### **Conclusion**

By embedding philosophy into form, Buddhism reshaped Indian art and architecture into enduring tools of ethical guidance and spiritual experience. This synthesis ensured that the Dhamma was not only studied, but visually encountered and spatially practiced across ancient India.

**Q. “The Kushan period marked a decisive spatial expansion of Buddhism beyond the Gangetic heartland.” Analyse this statement with reference to the north-western and trans-Himalayan regions. Briefly comment on the role of intermediary cultural zones in facilitating this expansion. (15 M)**

### **Introduction**

The early centuries of the Common Era witnessed Buddhism's transformation from a regionally anchored tradition into a trans-regional religious system. This shift was closely linked to political consolidation, expanding networks of interaction, and the emergence of connective cultural zones beyond the Gangetic plains.

## Body

### Kushan period as a turning point in spatial expansion

1. **Imperial stability and state support:** The Kushan polity created sustained political order across vast territories, enabling religious mobility and institutional continuity beyond earlier regional limits.  
**Eg: Kanishka (2nd century CE)** is associated with royal patronage to Buddhist institutions, which encouraged their spread into frontier and non-Gangetic regions.
2. **Facilitation of long-distance connectivity:** The Kushan realm integrated multiple regions under a common political framework, reducing barriers to movement.  
**Eg: Trans-regional routes under Kushan control** allowed monks and teachers to travel alongside traders without fragmentation.
3. **Institutional consolidation of Buddhism:** The period saw the strengthening of monastic organisation, making Buddhism portable and sustainable across regions.  
**Eg: Organised monasteries** functioned as stable centres of learning and ritual outside the Gangetic heartland.
4. **Ideological confidence and outward orientation:** Buddhism increasingly projected itself as a universal tradition rather than a locally bounded one.  
**Eg: Missionary activity during the Kushan phase** reflected a shift from regional consolidation to outward dissemination.

### Expansion into north-western and trans-Himalayan regions

1. **Strategic geographic positioning:** These regions lay at the intersection of multiple cultural and ecological zones, enabling cross-regional interaction.  
**Eg: Mountain passes and river valleys** acted as natural corridors linking South Asia with Inner Asia.
2. **Integration with urban and commercial centres:** Buddhism aligned itself with emerging urban nodes beyond the plains.  
**Eg: Urban settlements along trade corridors** supported monastic establishments that catered to merchants and travellers.
3. **Adaptation to diverse cultural environments:** Buddhism adjusted its practices to suit new social contexts outside its early heartland.  
**Eg: Localised forms of worship and teaching** helped Buddhism gain acceptance in varied frontier societies.
4. **Sustained presence beyond political centres:** Buddhist institutions established durable roots in regions distant from imperial capitals.  
**Eg: Long-lived monastic networks** indicate that expansion was structural rather than episodic.

### Role of intermediary cultural zones in facilitating expansion

1. **Function as cultural bridges:** Intermediary zones connected distinct civilisational regions and mediated exchanges.  
**Eg: Transitional cultural regions** transmitted ideas, practices, and texts across linguistic and social boundaries.

2. **Processes of cultural synthesis:** These zones blended Buddhist ideas with local traditions, easing transmission.  
**Eg: Syncretic religious practices** made Buddhism intelligible to non-Indic societies.
3. **Institutional staging grounds:** Monasteries in intermediary areas acted as hubs for training and onward movement.  
**Eg: Transit-zone monastic centres** prepared monks for further dissemination beyond the subcontinent.
4. **Launchpads for pan-Asian spread:** Intermediary zones enabled Buddhism's movement into wider Asian regions.  
**Eg: Missionary flows through these zones** later contributed to Buddhism's establishment in Central and East Asia.

### Conclusion

The Kushan period marked a decisive shift in Buddhism's spatial trajectory by combining political stability, regional integration, and intermediary cultural mediation. This synergy enabled Buddhism to transcend its Gangetic origins and emerge as a truly trans-regional tradition.

### Q. Material choice in Mughal architecture reinforced both imperial authority and cultural continuity. Elucidate. (10 M)

#### Introduction

Mughal architecture used material not merely for construction but as a deliberate medium to express political power and historical continuity. Stone and marble were carefully selected to project imperial legitimacy while rooting Mughal rule within India's long architectural traditions.

#### Body

##### Material choice as reinforcement of imperial authority

1. **Monumentality through red sandstone:** Extensive use of durable red sandstone conveyed permanence, stability and the empire's command over resources, labour and territory.  
**Eg: Humayun's Tomb (completed in 1570, Delhi)** employed massive red sandstone surfaces to assert dynastic legitimacy soon after Mughal political restoration, as recorded in **ASI conservation documentation**.
2. **White marble as a marker of sovereignty:** Selective use of white marble was reserved for spaces associated with the emperor, symbolising purity, exclusivity and supreme authority.  
**Eg: Diwan-i-Khas, Red Fort (1630s)** used white marble for the imperial pavilion, clearly demarcating the ruler's space from the rest of the complex, as noted in **ASI architectural studies**.
3. **Material hierarchy reflecting imperial order:** Differentiated materials were used to structure access and hierarchy within Mughal complexes.  
**Eg: Fatehpur Sikri (1571–1585)** employed red sandstone for public and administrative buildings, while refined stone detailing marked royal precincts, indicating graded authority.
4. **Durability as projection of timeless rule:** Preference for stone over impermanent materials projected an image of an enduring and unchallengeable empire.  
**Eg: Agra Fort (completed in 1573)** used thick sandstone ramparts to communicate strength and longevity, as highlighted in **UNESCO World Heritage dossiers**.

5. **State control over high-value materials:** Centralised sourcing and deployment of premium materials reflected strong administrative and economic control.  
**Eg:** The organised quarrying and transport of stone for Mughal monuments is documented in the **Ain-i-Akbari** and corroborated by **ASI research reports**.

### **Material choice as an instrument of cultural continuity**

1. **Adaptation of indigenous building traditions:** Use of locally available stone connected Mughal architecture with pre-existing Indian architectural practices.  
**Eg:** Red sandstone had been extensively used in **Delhi Sultanate architecture**, ensuring continuity rather than rupture, as observed by **Percy Brown**.
2. **Integration of regional craftsmanship:** Mughal monuments relied heavily on Indian artisans, allowing continuity of traditional skills and techniques.  
**Eg: Stone carving traditions** employed at Humayun's Tomb continue today through conservation projects led by the **Aga Khan Trust for Culture**.
3. **Continuation of symbolic architectural materials:** Familiar materials enabled social acceptance of Mughal rule by aligning with established cultural meanings.  
**Eg:** Use of carved stone screens and pillars reflected earlier temple and Sultanate idioms, documented in **ASI architectural surveys**.
4. **Transmission of construction knowledge:** Continued reliance on stone masonry ensured inter-generational transfer of building knowledge.  
**Eg: UNESCO conservation manuals** recognise Mughal monuments as repositories of living masonry and stone-working traditions.
5. **Material continuity in modern conservation:** Heritage conservation today prioritises original materials to preserve historical authenticity.  
**Eg: Recent restoration works at the Humayun's Tomb complex** reused original red sandstone fragments, as recorded in **UNESCO World Heritage Site reports**.

### **Conclusion**

By consciously combining durable imperial materials with indigenous traditions, Mughal architecture asserted political authority while sustaining cultural continuity. This dual strategy explains both the acceptance of Mughal rule and the enduring legacy of its monumental architecture.

**Q. Discuss the material and artistic features of Kathputli puppets. Bring out how these features reflect regional aesthetics and social life. Highlight their cultural symbolism. (15 M)**

### **Introduction**

Kathputli, the traditional string-puppet theatre of Rajasthan, represents a refined synthesis of **craft, performance, and oral tradition**. Its material simplicity combined with strong visual expressiveness enabled it to function historically as a mass cultural medium in a largely non-literate society.

## Body



### Material features of Kathputli puppets

1. **Lightweight wooden core and cloth-based body:** Kathputlis are carved from **locally available soft wood**, while the torso is covered with stitched cloth instead of full carving, making puppets easy to carry during travel.  
**Eg: Soft indigenous wood and fabric bodies** used by artisan families of **Kathputli Nagar, Jaipur**, documented by **Sangeet Natak Akademi**.
2. **String-controlled kinetic design:** Puppets are operated through a limited number of strings tied to the head and shoulders, prioritising vertical movement and rhythmic spins over anatomical realism.  
**Eg: Central-string movement system** suited for open-air performances at fairs and temple courtyards in Rajasthan.
3. **Compact size and portability:** The small size of Kathputlis allows performers to conduct shows in temporary spaces such as village squares and marketplaces.  
**Eg: Portable puppet sets** used by travelling performers near heritage zones like **Hawa Mahal, Jaipur**.
4. **Use of easily available pigments and materials:** Facial painting uses strong colours with minimal detailing to ensure durability and visual clarity.  
**Eg: Bold colour palettes** prepared using affordable pigments by women artisans inside household workshops.

### Artistic features reflecting regional aesthetics and social life

1. **Costumes inspired by Rajasthani folk and court culture:** Puppets wear ghagras, turbans, angarkhas, and ornaments mirroring desert traditions and royal imagery.  
**Eg: Rajput-style attire and bright desert colours** reflecting Mewar and Marwar aesthetics.
2. **Exaggerated facial expressions for dramatic effect:** Sharp noses, elongated eyes, and stylised features enhance visibility and emotional expression.  
**Eg: Overstated facial motifs** designed for long-distance audience engagement in open performances.

3. **Narratives rooted in local social structure:** Stories portray kings, warriors, villagers, saints, and tricksters, reflecting hierarchy and moral values of society.  
**Eg: Folk tales of Rajput valour and village satire** performed historically across rural Rajasthan.
4. **Integration of folk music and oral narration:** Performances combine puppetry with dholak rhythms, harmonium, and high-pitched narration.  
**Eg: Live folk music accompaniment** sustaining Rajasthan's oral storytelling tradition.

### Cultural symbolism of Kathputli puppets

1. **Representation of intangible cultural heritage:** Kathputli symbolises traditions transmitted through performance rather than written texts.  
**Eg: Recognition of such practices under UNESCO's 2003 Convention on Intangible Cultural Heritage**, ratified by India in 2005.
2. **Symbol of community-based knowledge systems:** The craft embodies family-led apprenticeship and collective memory.  
**Eg: Inter-generational transmission among nearly 250 artisan families** in Kathputli Nagar, Jaipur, noted by the **Ministry of Culture**.
3. **Medium of social communication and critique:** Puppets enable satire and moral instruction without direct confrontation.  
**Eg: Humorous social commentary** on authority and ethics embedded in folk performances.
4. **Cultural continuity amid change:** Kathputli symbolises resilience of folk traditions adapting to urban and tourist spaces.  
**Eg: Performances near heritage monuments and cultural festivals** sustaining relevance in contemporary settings.

### Conclusion

Kathputli puppets demonstrate how **material economy, regional aesthetics, and cultural symbolism** merge into a vibrant folk tradition. Strengthening artisan livelihoods and performance platforms can ensure this heritage continues as a living social practice rather than a static cultural relic.

**Q. Guru Nanak envisioned spirituality as a means to harmonise the spiritual and the temporal. Bring out this vision as reflected in his teachings. Explain its implications for social responsibility. Assess its relevance for contemporary society. (15 M)**

### Introduction

In late-medieval India, spirituality was often confined to ritual withdrawal or sectarian authority, disconnected from everyday social life. Guru Nanak (1469–1539) articulated a transformative vision in which spiritual realisation and worldly responsibility were inseparable, laying the ethical foundations of a socially engaged spiritual order.

### Body

#### Vision of harmonising the spiritual and the temporal in Guru Nanak's teachings

1. **Unity of divine truth with worldly existence:** Guru Nanak rejected the sacred–secular divide and asserted that spiritual truth must be lived within social and economic life.

**Eg: Verses in the Guru Granth Sahib emphasise living truthfully within society**, not renouncing the world, thereby redefining spirituality as socially embedded conduct.

2. **Kirat Karni as spiritual practice:** Honest labour was elevated to a moral and spiritual discipline, integrating economic activity with ethical living.

**Eg: The stress on dignified labour shaped early Sikh communities as productive householders**, not ascetics detached from society.

3. **Naam Simran as inner regulation of conduct:** Meditation on Naam was meant to discipline the mind while remaining active in social life.

**Eg: Guru Nanak practised Naam Simran alongside family life**, contrasting with contemporary yogic withdrawal and monastic isolation.

4. **Critique of ritualism divorced from ethics:** External rituals were rejected when they lacked moral substance and social responsibility.

**Eg: His rejection of empty pilgrimages and ritual purity redirected devotion towards ethical behaviour**, not symbolic observance.

5. **Universal moral order beyond religious boundaries:** Spirituality was framed as an ethical universalism rather than sectarian identity.

**Eg: Dialogues with Sufis and Siddhas during Udis reflected an inclusive moral vision**, transcending rigid religious boundaries.

### Implications for social responsibility

1. **Translation of spiritual equality into social equality:** The oneness of humanity implied the rejection of caste and gender hierarchies.

**Eg: Langar institutionalised eating together without caste distinction**, making equality a lived social practice rather than an abstract ideal.

2. **Ethic of sharing and collective welfare:** Material resources carried moral obligations towards society.

**Eg: Vand Chhakna encouraged redistribution of surplus**, embedding social justice into everyday economic behaviour.

3. **Moral accountability of authority:** Religious and social power were subjected to ethical scrutiny rather than birth or status.

**Eg: Guru Nanak's criticism of corrupt priests and rulers asserted ethical limits on authority**, reinforcing moral governance.

4. **Community-centred spirituality:** Individual spiritual progress was linked to responsibility towards the collective.

**Eg: The institution of Sangat functioned as a moral community**, fostering shared responsibility and mutual care.

5. **Resonance with constitutional morality:** His ethical vision aligns with modern principles of equality, dignity and fraternity.

**Eg: Articles 15 and 51A of the Constitution reflect similar commitments to social equality and human dignity**, echoing his moral outlook.

### Relevance for contemporary society

1. **Ethical foundation for inclusive development:** Integrating morality with material progress counters growth without justice.

**Eg: Community kitchens inspired by Langar principles during crises like COVID-19 relief efforts** demonstrated spirituality translating into social service.

2. **Antidote to religious polarisation:** Emphasis on ethics over identity helps address sectarian tensions.

**Eg: Inter-faith participation during the 550th birth anniversary celebrations in 2019** highlighted the universal appeal of his message.

3. **Strengthening civic responsibility:** His vision reinforces duties alongside rights in democratic life.

**Eg: Constitutional emphasis on fraternity and compassion aligns with Guru Nanak's ethical citizenship,** stressing responsible freedom.

4. **Moral compass for leadership and governance:** Harmonising values with authority strengthens trust and legitimacy.

**Eg: Contemporary debates on ethical governance and probity reflect similar expectations of moral leadership,** rooted in social responsibility.

5. **Response to materialism and alienation:** His synthesis offers balance in an era dominated by consumerism.

**Eg: Global discussions on ethical capitalism and stakeholder responsibility mirror his integration of morality with material life.**

### **Conclusion**

By dissolving the divide between inner spirituality and outer social life, Guru Nanak offered a timeless ethical synthesis rooted in responsibility, equality and compassion. In a fragmented and material-driven world, this vision remains vital for nurturing humane governance, inclusive development and social harmony.

**Q. Buddhist monastic sites functioned as both spiritual and institutional centres. Analyse this statement and illustrate how the Diamond Triangle exemplifies this dual role. (10 M)**

### **Introduction**

From the early historic period, Buddhist monasteries evolved as integrated spaces where religious practice was inseparable from organised education, administration and patronage. The archaeological record of Odisha's Buddhist Diamond Triangle clearly demonstrates this dual spiritual–institutional character over a long historical span.

### **Body**

#### **Buddhist monastic sites functioned as spiritual centres**



1. **Ritual and relic veneration:** Monasteries were centred on stupas and chaityagrihas that enabled collective worship, meditation and veneration of sacred relics.  
**Eg:** Lalitgiri, dating to the **2nd–3rd century BCE**, yielded a **relic casket of gold, silver and stone**, identified by the **ASI** as central to **Buddha relic worship** (Source: **ASI Excavation Reports, Odisha Circle**).
2. **Continuity of doctrinal practice:** Monastic sites ensured sustained spiritual transmission across centuries through daily rituals, monastic discipline and teaching.  
**Eg:** The Diamond Triangle uniquely records the progression from **Theravada to Mahayana and Vajrayana**, visible in ritual layouts and sacred imagery across the three sites (Source: **ASI and Odisha State Archaeology**).
3. **Sacred landscape and pilgrimage role:** Location on hills and strategic routes enhanced their sanctity and integration into pilgrimage networks.  
**Eg:** **Udayagiri**, known as the “Sunrise Hill”, developed as a major sacred centre between the **1st and 13th century CE**, reflected in repeated phases of religious construction (Source: **ASI Monographs**).

### Buddhist monastic sites functioned as institutional centres

1. **Organised centres of learning:** Monasteries operated as structured educational institutions with named viharas, teachers and students.  
**Eg:** Inscriptions at **Lalitgiri** mentioning “**Sri Chandraditya Vihara**” confirm a formally organised monastic institution active for several centuries (Source: **Epigraphia Indica**).
2. **Residential and administrative planning:** Planned monasteries, cells and courtyards indicate long-term residence and internal administration.  
**Eg:** **Udayagiri** contains a **double-storeyed monastery** and the **Madhavapura Mahavihara**, reflecting advanced spatial and administrative organisation (Source: **ASI Excavation Reports**).
3. **Institutionalised patronage systems:** Sustained operation required systematic management of resources, donations and royal support.

**Eg:** Copper plate records and architectural expansion at Diamond Triangle sites point to continuous patronage from local rulers and elites (Source: **Odisha State Archaeology**).

### **Diamond Triangle exemplifies the dual spiritual–institutional role**

1. **Integration of ritual, learning and administration:** The coexistence of stupas, viharas and monasteries within single complexes reflects functional integration.  
**Eg:** At **Ratnagiri**, stupas coexist with large monasteries, indicating parallel spiritual practice and institutional teaching (Source: **ASI Odisha Circle**).
2. **Vajrayana institutional consolidation:** Expansion of esoteric Buddhism required structured initiation systems and organised monastic hierarchy.  
**Eg:** **Ratnagiri** emerged as a major **Vajrayana centre**, comparable to **Nalanda**, reflecting advanced institutional depth (Source: **ASI Monographs**).
3. **Diverse and inclusive patronage base:** Institutional stability was strengthened by support from varied social groups, including women patrons.  
**Eg:** Evidence of **female patronage by Queen Karpurashri** at Ratnagiri highlights inclusive institutional networks sustaining both spiritual and material needs (Source: **ASI and Odisha State Archaeology**).

### **Conclusion**

The Buddhist Diamond Triangle vividly illustrates how monasteries harmonised sacred practice with durable institutional organisation. This synthesis enabled their survival for nearly fifteen centuries and underlines their outstanding cultural and historical significance in India’s Buddhist heritage.

**Q. India’s cultural heritage is predominantly living and community-based rather than monumental”. Examine the implications of this for heritage preservation in rural India. (10 M)**

### **Introduction**

India’s civilisation has been sustained not merely through monuments but through living traditions embedded in everyday social life. This understanding has gained renewed importance as heritage discourse increasingly recognises community practices, oral traditions and folk knowledge as core cultural assets.

### **Body**

#### **India’s cultural heritage as living and community-based**

1. **Centrality of intangible cultural heritage:** A large part of India’s heritage exists as practices, expressions and skills rather than physical structures.  
**Eg:** **UNESCO Convention on Intangible Cultural Heritage, 2003 (India ratified in 2005)** recognises oral traditions, performing arts and social practices as heritage, reflecting India’s folk arts and rituals.
2. **Community-driven transmission of culture:** Cultural knowledge in rural India is preserved through families, guilds and community institutions rather than formal agencies.  
**Eg:** **Guru–shishya parampara** in folk music and dance traditions such as **Pandavani and Yakshagana** sustains cultural continuity without monumental support.

3. **Everyday cultural landscapes over isolated monuments:** Villages function as integrated cultural units where belief systems, festivals and livelihoods intersect.  
**Eg: Sacred groves (Devrais)** documented by **ICFRE and State Forest Departments** reflect living ecological–cultural traditions rather than built heritage.
4. **Plurality and micro-diversity of traditions:** India’s heritage varies sharply across regions and communities, resisting standardised categorisation.  
**Eg: People’s Linguistic Survey of India (Bhasha Research Centre)** documents hundreds of living dialects sustained through community use.
5. **Dynamic and evolving nature of heritage:** Living heritage adapts to social and economic change, unlike static monuments.  
**Eg: Folk festivals such as local Jatras** evolve annually by incorporating contemporary themes while retaining ritual cores.

### **Implications for heritage preservation in rural India**

1. **Shift from monument-centric to community-centric preservation:** Heritage policy must prioritise safeguarding practices rather than only conserving structures.  
**Eg: National Mission on Cultural Mapping – Mera Gaon Meri Dharohar (Ministry of Culture)** focuses on village-level documentation of living traditions.
2. **Need for participatory preservation mechanisms:** Communities must be recognised as custodians, not merely beneficiaries, of heritage initiatives.  
**Eg: UNESCO safeguarding framework** emphasises community consent and participation in preserving intangible heritage.
3. **Decentralised documentation and mapping:** Preservation requires micro-level, village-wise documentation rather than state-wise cultural aggregation.  
**Eg: MGMD portal** organises cultural data village-wise, capturing localised traditions otherwise invisible in macro surveys.
4. **Constitutional responsibility to protect living cultures:** Preservation of community heritage flows from constitutional guarantees.  
**Eg: Article 29(1) of the Constitution** protects the right of any section of citizens to conserve their distinct culture, directly applicable to rural communities.
5. **Addressing vulnerability due to socio-economic change:** Migration, market integration and lifestyle shifts threaten living traditions more than monuments.  
**Eg: Ministry of Culture reports and UNESCO India studies** highlight declining inter-generational transmission of folk arts due to rural–urban migration.

### **Conclusion**

Recognising India’s heritage as living and community-based necessitates reorienting preservation from monuments to people. Sustainable safeguarding in rural India depends on empowering communities as active cultural custodians rather than passive subjects of conservation.

## Modern Indian history from about the middle of the eighteenth century until the present- significant events, personalities, issues.

Q. "Lord Ripon's tenure marked a shift towards liberalization in British colonial rule". Evaluate this in light of his key policies and their long-term implications. (10 M)

### Introduction

Lord Ripon's tenure as **Viceroy (1880-1884)** is remembered for its significant shift towards **liberal policies** in British India. His approach was progressive, promoting **local governance, press freedom**, and reforms that sought to involve Indians more in the administration.

### Body

#### Key policies of lord Rippon

1. **Local self-government (1882)**: Ripon introduced reforms promoting **local self-governance**, empowering local bodies with responsibilities for taxation, civic administration, and local issues. E.g.: **The Resolution of 1882** is considered the foundation of democratic decentralization in India.
2. **Ilbert bill (1883)**: This bill proposed to allow Indian judges to preside over cases involving Europeans, promoting **judicial equality**. Although it faced severe opposition from Europeans, it was a bold step toward reducing racial discrimination. E.g.: **The Ilbert Bill controversy became a landmark** event for early nationalist activism.
3. **Repeal of the vernacular press act (1882)**: Ripon repealed this restrictive law, restoring **press freedom**, particularly for Indian-language newspapers, which helped ignite national consciousness. E.g.: **Newspapers like Kesari flourished post-repeal**, encouraging public debate on colonial policies.
4. **Educational reforms**: Lord Ripon initiated the **Hunter Commission** in 1882 to recommend reforms for expanding education in India, particularly at the primary and secondary levels, making education accessible to a larger population. E.g.: **The commission emphasized government funding** for primary education and sought to create a system of grants for private institutions.
5. **Factory act (1881)**: Ripon's government introduced the **first labour laws** to improve working conditions for women and children, limiting working hours and mandating minimum safety standards. E.g.: **It was the first formal legislation addressing labour** welfare in British India.

#### Long-term Implications of Ripon's Policies

1. **Foundation of decentralized governance**: The local self-governance reforms laid the foundation for the future **Panchayati Raj system** and urban governance structures in India. E.g.: The **73rd and 74th Amendments** to the Indian Constitution institutionalized these local self-governance systems.
2. **Rise of Indian nationalism**: The **Ilbert Bill controversy** heightened nationalist sentiments, exposing the racial divide and rallying Indian leaders toward greater political demands. E.g.: **Figures like Surendranath Banerjee played a key role in mobilizing** public opinion against racial discrimination.
3. **Growth of the press**: The repeal of the **Vernacular Press Act** revitalized the Indian press, which became a key medium for spreading nationalist ideas and mobilizing the masses.

E.g.: Newspapers such as **Amrita Bazar Patrika** became instrumental in shaping the early nationalist discourse.

4. **Expansion of education:** The Hunter Commission's focus on education reforms fostered the rise of an educated middle class, which later played a vital role in India's freedom struggle.

E.g.: **Institutions like Presidency College produced many leaders** who contributed to the independence movement.

5. **Foundation of labour rights:** The **Factory Act** marked the beginning of labour reforms in India, serving as a precedent for future legislation that expanded labour rights and protections.

E.g.: **The Factories Act of 1948, passed post-independence**, built on the labour protections initiated by Ripon's reforms.

## Conclusion

Lord Ripon's reforms laid the groundwork for **Indian political and social awakening**. His policies on **self-governance, press freedom, education, and labour welfare** not only initiated liberalization but also set the stage for the **nationalist movements** that would eventually challenge colonial rule. His legacy is a critical milestone in India's journey toward self-rule.

**Q. "Vande Mataram represents the cultural synthesis of nationalism and artistic expression in modern India". Evaluate this assertion. Also explain its historical significance. (10 M)**

## Introduction

In colonial India, art and literature became instruments of political awakening when formal political space was constrained. Vande Mataram symbolised this fusion, converting cultural expression into a vehicle of nationalist mobilisation.

## Body

### Vande Mataram as a cultural synthesis of nationalism and artistic expression

1. **Literary imagination shaping nationalism:** The song blended poetic aesthetics with patriotic sentiment, presenting the nation as a cultural and emotional entity.  
**Eg: Written by Bankim Chandra Chattopadhyay in 1882** in Anandamath, the song used **Sanskritised Bengali** to evoke civilisational unity beyond regional identities.
2. **Music as a medium of mass mobilisation:** Its lyrical and musical form enabled collective participation, making nationalism accessible to the wider public.  
**Eg: Adoption at the 1896 Indian National Congress session** demonstrated how art entered organised political mobilisation.
3. **Cultural resistance to colonial authority:** The song challenged British rule symbolically by sacralising the motherland rather than advocating direct political confrontation.  
**Eg: Singing of Vande Mataram during the Swadeshi Movement (1905–08)** became an act of nationalist assertion against colonial policies.
4. **Fusion of tradition with modern political consciousness:** The song drew upon indigenous cultural idioms while articulating modern nationalist aspirations.  
**Eg: Invocation of the mother-goddess imagery** linked cultural tradition with the emerging idea of the nation-state.
5. **Emotional integration across diverse groups:** Its artistic appeal transcended literacy and regional barriers, aiding emotional unification.  
**Eg: Public singing in rallies and processions** helped create a shared nationalist culture across provinces.

## Historical significance of Vande Mataram

1. **Rallying symbol of the freedom struggle:** The song functioned as a unifying slogan that energised nationalist movements over decades.  
**Eg: British restrictions and prosecutions** for singing the song indicate its perceived political potency.
2. **Embedding nationalism in popular culture:** It shifted nationalism from elite discourse to everyday cultural practice.  
**Eg: Use in schools, meetings and protests** integrated patriotic sentiment into social life.
3. **Catalyst for political consciousness:** The song helped convert emotional attachment to the land into political awareness.  
**Eg: Its association with early mass movements** strengthened the emotional foundations of Indian nationalism.
4. **Recognition in independent India:** Post-Independence acceptance reflected its historical role in nation-building.  
**Eg: Constituent Assembly decision in 1950** to accord it the status of **National Song** acknowledged its contribution.  
**Source: Constituent Assembly Debates, NCERT Modern Indian History.**
5. **Enduring cultural legacy:** The song continues to symbolise the cultural roots of Indian nationalism.  
**Eg: Official commemorations and cultural programmes** reinforce its place in India's historical memory.

### **Conclusion**

Vande Mataram stands as a powerful example of how artistic expression nurtured political nationalism in modern India. Its historical significance lies in transforming culture into a lasting force for national unity and identity.

## **The Freedom Struggle — its various stages and important contributors/contributions from different parts of the country.**

**Q. “The participation of women in the freedom struggle was not merely symbolic but deeply organisational. Examine this statement with reference to grassroots mobilisation. Illustrate its significance in provincial India. (10 M)**

### Introduction

Women's participation in India's freedom struggle represented a decisive expansion of nationalist politics from elite leadership to mass organisation. Especially in provincial India, women acted as organisers and mobilisers who sustained movements at the grassroots level.

### Body

#### Women's participation was deeply organisational

1. **Grassroots cadre mobilisation:** Women built and sustained village-level nationalist networks by mobilising households, resources and volunteers, ensuring continuity of the movement.  
**Eg: Parbati Giri** mobilised rural and tribal communities in western Odisha during the **Quit India Movement (1942)**, sustaining Congress activity despite repression.
2. **Leadership in nationalist organisations:** Women assumed formal organisational roles rather than remaining passive supporters.  
**Eg: Sarojini Naidu** presided over the **Indian National Congress in 1925**, coordinating national-level political activities.

3. **Logistical and financial organisation:** Women managed funds, supplies and shelters that enabled prolonged resistance.  
**Eg:** Women activists organised **khadi production and boycott campaigns**, ensuring material support for nationalist programmes in provinces.
4. **Underground coordination during repression:** When leaders were arrested, women ensured communication and operational continuity.  
**Eg:** **Aruna Asaf Ali** played a key role in sustaining underground resistance networks after **August 1942**.
5. **Political socialisation at the local level:** Women acted as educators and mobilisers, spreading nationalist ideas within conservative social spaces.  
**Eg:** Women-led meetings in villages integrated nationalism into everyday social life, expanding political awareness.

### Significance of women's participation in provincial India

1. **Broadening the social base of nationalism:** Women's involvement drew peasants, tribals and lower social groups into the movement.  
**Eg:** Provincial regions like **Odisha and Bengal** witnessed wider rural participation due to women-led mobilisation.
2. **Democratisation of mass movements:** Their leadership normalised public protest and reduced social inhibitions about political participation.  
**Eg:** Large-scale women participation during the **Civil Disobedience Movement (1930–34)** enhanced mass legitimacy.
3. **Sustaining movements during state repression:** Organisational depth ensured movements survived arrests and bans.  
**Eg:** Provincial movements continued even after mass incarcerations during **Quit India (1942–44)**.
4. **Integration of social reform with nationalism:** Women linked political resistance with welfare and social reform.  
**Eg:** Campaigns against social evils and for education were combined with nationalist mobilisation in many provinces.
5. **Foundation for post-Independence civic leadership:** Organisational experience enabled women to contribute to nation-building after 1947.  
**Eg:** Many women freedom fighters transitioned into social service and public life in independent India.

### Conclusion

Women's organisational participation transformed the freedom struggle into a genuinely mass movement rooted in provincial India. Their leadership not only strengthened nationalist mobilisation but also shaped the inclusive and participatory character of India's post-Independence democracy.

### **Post-independence consolidation and reorganization within the country.**

**Q. Analyse the Emergency as a critical turning point in India's post-Independence political development. Discuss how it reshaped public attitudes towards state power, and its influence on later governance debates. (15 M)**

**Introduction**

The Emergency (1975–77) marked the first large-scale suspension of constitutional democracy in independent India, exposing the tension between popular mandate and constitutional restraint. It became a defining moment that reshaped India's political culture, citizen–state relations, and long-term governance discourse.

**Body**

**Emergency as a critical turning point in post-Independence political development**

- 1. Executive dominance over constitutionalism:** The proclamation of Emergency under **Article 352 in June 1975** led to unprecedented centralisation of power in the executive, sidelining Parliament and federal principles.  
**Eg: Suspension of Fundamental Rights under Article 359**, upheld initially in **ADM Jabalpur v. Shivkant Shukla (1976)**, demonstrated how constitutional safeguards could be neutralised during crises.
- 2. Erosion of judicial independence:** The period witnessed direct interference in judicial functioning, undermining the doctrine of separation of powers.  
**Eg: Supersession of senior judges in 1973 and post-Emergency judicial introspection**, later acknowledged in **Justice R.F. Nariman's writings**, highlighted the fragility of institutional autonomy.
- 3. Curtailment of civil liberties and political opposition:** Preventive detention laws were extensively used to silence dissent, fundamentally altering democratic practice.  
**Eg: Use of the Maintenance of Internal Security Act (MISA)** to detain opposition leaders like **Jayaprakash Narayan**, documented by the **Shah Commission (1978)**, marked a decisive break from liberal democratic norms.
- 4. Transformation of Centre–State relations:** States were subordinated to central authority, weakening federal balance.  
**Eg: Dismissal and control of state governments through centrally directed administration**, recorded in **Sarkaria Commission references to Emergency excesses**, showed the vulnerability of federalism.
- 5. Political re-mobilisation and electoral correction:** The Emergency ultimately triggered democratic self-correction through mass political mobilisation and electoral change.  
**Eg: The 1977 General Elections**, resulting in the first defeat of the Congress at the Centre, reaffirmed electoral accountability as a core democratic mechanism.

**Reshaping of public attitudes towards state power**

- 1. Rise of constitutional consciousness among citizens:** The experience generated widespread awareness about the importance of rights and limits on state authority.  
**Eg: Post-Emergency public discourse and civil society activism**, noted in **Bipan Chandra's analyses**, reflected deeper societal engagement with constitutional values.

2. **Enduring scepticism towards unchecked executive authority:** Citizens became more alert to authoritarian tendencies, shaping political behaviour.  
**Eg: Public resistance to later attempts at excessive centralisation,** discussed in **Lokniti-CSDS surveys on democratic attitudes**, shows a lasting imprint of Emergency memory.
3. **Strengthening of rights-based politics:** Political mobilisation increasingly centred on civil liberties and human rights.  
**Eg: Expansion of public interest litigation in the 1980s,** encouraged by the Supreme Court under **Articles 32 and 226**, reflected renewed emphasis on rights protection.
4. **Delegitimisation of coercive governance methods:** State coercion began to attract greater scrutiny and moral resistance.  
**Eg: Critical reassessment of forced sterilisation policies,** highlighted by the **Shah Commission Report**, shaped later welfare-oriented and consent-based governance.
5. **Deepening of democratic participation:** The Emergency reinforced the idea that democratic vigilance is a continuous civic responsibility.  
**Eg: Growth of grassroots movements and civil society organisations in the post-1977 period,** analysed by **Rajni Kothari**, underlined participatory democracy.

### Influence on later governance debates

1. **Constitutional safeguards against authoritarian misuse:** The Emergency directly led to institutional reforms aimed at preventing recurrence.  
**Eg: The 44th Constitutional Amendment Act, 1978,** restoring Fundamental Rights and tightening Emergency provisions under **Articles 352 and 359**, remains its most concrete legacy.
2. **Judicial course correction and rights jurisprudence:** Courts adopted a more activist and rights-protective stance after the Emergency.  
**Eg: Maneka Gandhi v. Union of India (1978)** expanded **Article 21**, explicitly rejecting the logic of **ADM Jabalpur**, as acknowledged by the Supreme Court itself in **2017**.
3. **Reframing debates on national security and liberty:** Policymaking increasingly balanced security concerns with constitutional morality.  
**Eg: Parliamentary debates on preventive detention laws and internal security legislation,** referenced in **Law Commission discussions**, reflect Emergency-era lessons.
4. **Greater scrutiny of executive discretion:** Governance reforms emphasised transparency and accountability.  
**Eg: Rise of institutions such as the CAG and later the RTI framework (2005)** draws intellectual lineage from post-Emergency accountability debates.
5. **Emergency as a moral reference point in political discourse:** The period continues to function as a cautionary benchmark in democratic debates.  
**Eg: Frequent references to the Emergency in parliamentary debates and judicial observations,** including **Justice D.Y. Chandrachud's speeches on constitutional morality**, show its enduring relevance.

### **Conclusion**

The Emergency was not merely an aberration but a formative rupture that deepened India's democratic self-awareness. Its enduring legacy lies in a vigilant citizenry, stronger constitutional safeguards, and a persistent caution against the concentration of state power in post-Independence India.

**Q. “The 1991 reforms marked a break in policy instruments but not in economic thinking.” Examine this statement in the context of post-independence reforms. Analyse continuities in state–enterprise relations. and assess their long-term implications. (15 M)**

### **Introduction**

India’s economic reforms unfolded within a historical continuum shaped by post-independence planning, political economy, and administrative culture. While **1991 dismantled key controls**, deeper assumptions about the role of the state vis-à-vis enterprise showed remarkable continuity.

### **Body**

#### **Break in policy instruments but not in economic thinking**

1. **End of licensing without end of discretion:** The reforms removed industrial licensing but retained administrative discretion in approvals and compliance.  
**Eg: Industrial Policy Resolution, 1991** abolished most licensing, yet sectoral permissions and clearances remained discretionary, noted in **Economic Survey 1992–93**.
2. **Markets as tools, not principles:** Liberalisation treated markets as efficiency mechanisms rather than autonomous allocators.  
**Eg:** Continued **price controls in fertilisers and power tariffs**, documented by **NITI Aayog discussion papers**, reflected ideological caution.
3. **Selective retreat of the state:** The state withdrew from production but not from command over rules.  
**Eg: Disinvestment since 1991** reduced public ownership, yet regulatory oversight expanded across sectors like telecom and energy.
4. **Welfare dominance over wealth creation:** Redistribution remained politically central even after liberalisation.  
**Eg:** Expansion of **subsidy-led welfare architecture post-1991**, highlighted in **Rangarajan Committee (2014)** on subsidies.

#### **Continuities in state–enterprise relations**

1. **Compliance-centric governance:** The enterprise–state relationship continued to be enforcement-oriented rather than facilitative.  
**Eg:** Persistence of **inspector raj through labour and environmental laws**, noted by the **Second Administrative Reforms Commission**.
2. **Moral suspicion of profit:** Profit was often framed as socially suspect rather than development-enabling.  
**Eg:** Political narratives around **“crony capitalism” post-2012** reinforced adversarial state attitudes.
3. **Criminalisation of business risk:** Economic offences remained criminalised instead of civilly regulated.  
**Eg:** Enactment of **Jan Vishwas Act, 2023** to decriminalise minor offences shows long-standing regulatory excess.
4. **State as gatekeeper:** Entry and exit of firms continued to be mediated by state approval.  
**Eg:** **Delayed insolvency resolutions under IBC**, acknowledged by **Standing Committee on Finance (2021)**.

#### **Long-term implications**

1. **Weak structural transformation:** Incomplete shift in thinking slowed movement of labour out of agriculture.

**Eg: PLFS 2022–23** shows about **45 percent workforce still in agriculture**, reflecting post-independence inertia.

2. **Stagnant manufacturing employment:** Regulatory and ideological continuity constrained scale and competitiveness.

**Eg: Manufacturing employment around 11–12 percent**, reported by MoSPI, comparable to post-industrial economies.

3. **Entrepreneurship under-leveraged:** Risk aversion limited enterprise-led job creation.

**Eg: Only around 8 lakh PF-paying employers** despite over **6 crore enterprises**, cited in **EPFO and Economic Survey data**.

4. **Reform reversibility:** Absence of ideological consensus made reforms politically fragile.

**Eg: Repeated deferment of labour code implementation**, despite parliamentary approval.

## Conclusion

The legacy of post-independence economic thinking ensured that 1991 altered instruments more than attitudes. Completing India's reform journey requires a historical shift from control-based governance to trust-based state–enterprise relations.

**History of the world will include events from 18th century such as industrial revolution, world wars, redrawing of national boundaries, colonization, decolonization, political philosophies like communism, capitalism, socialism etc.— their forms and effect on the society.**

**Q. “The Monroe Doctrine symbolises the paradox of anti-colonial rhetoric and imperial practice”. Explain the original principles of the Monroe Doctrine. Analyse its transformation into an interventionist framework. Also evaluate its historical impact on Latin America. (15 M)**

## Introduction

Announced in **1823**, the Monroe Doctrine emerged when Latin America was breaking free from European empires and the United States was a relatively weak power. While framed as an anti-colonial safeguard, its later reinterpretations turned it into a vehicle for American dominance, revealing a deep paradox between principle and practice.

## Body

### Original principles of the Monroe Doctrine

1. **Rejection of new European colonisation:** The doctrine declared that further European colonisation in the Americas would be viewed as a hostile act against the United States.

**Eg: President James Monroe's Seventh Annual Message (1823)** explicitly warned European monarchies against reclaiming former Spanish colonies, as recorded in **US National Archives**.

2. **Recognition of Latin American independence:** It implicitly supported the sovereignty of newly independent Latin American republics emerging after the Napoleonic Wars.

**Eg: The doctrine aligned with US diplomatic recognition of Argentina (1822) and Mexico (1822)**, documented in **US State Department historical records**.

3. **Non-intervention in European affairs:** The US pledged not to interfere in internal European politics or existing European colonies in the Americas.  
**Eg:** The US avoided involvement in **British-controlled Canada** and **French Caribbean territories**, reflecting restraint noted in the **Oxford Handbook of American Foreign Relations**.
4. **Defensive rather than enforcement-oriented posture:** Initially, the doctrine lacked military enforcement capability and relied on British naval power for deterrence.  
**Eg:** **British Royal Navy dominance** indirectly upheld the doctrine during the 19th century, as highlighted in **Paul Kennedy's Rise and Fall of Great Powers**.

### Transformation into an interventionist framework

1. **Roosevelt Corollary and hemispheric policing:** The doctrine was expanded to justify US intervention to prevent European debt-collection interventions.  
**Eg:** **Roosevelt Corollary (1904)** justified repeated US occupations in **Dominican Republic and Haiti**, cited in **US Congressional Research Service reports**.
2. **Dollar diplomacy and economic penetration:** Economic control became a tool of political influence under the expanded doctrine.  
**Eg:** **US financial control over Nicaragua and Honduras** in the early 20th century is documented in **Walter LaFeber's studies on US–Latin America relations**.
3. **Cold War anti-communist reinterpretation:** The doctrine was reframed to oppose leftist governments perceived as Soviet-aligned.  
**Eg:** **US intervention in Guatemala (1954)** against land reforms under Árbenz was justified under containment logic, supported by **CIA declassified documents**.
4. **Institutionalisation through regional security frameworks:** The doctrine gained multilateral cover via regional organisations.  
**Eg:** The **Organisation of American States (OAS, 1948)** was used to legitimise US-led actions, noted in **UNESCO Latin America political histories**.

### Historical impact on Latin America

1. **Systematic erosion of sovereignty:** Recurrent interventions constrained independent foreign and domestic policy choices.  
**Eg:** Between **1898 and 1994**, the US intervened militarily or covertly **over 40 times**, as recorded by the **Latin American Studies Association**.
2. **Weakening of democratic institutions:** External interference often destabilised elected governments.  
**Eg:** **Overthrow of Chile's Salvador Allende (1973)** preceded prolonged military rule, analysed in **UN Human Rights Commission archival reports**.
3. **Entrenchment of authoritarian regimes:** US-backed regimes prioritised stability over democratic accountability.  
**Eg:** Support for **Somozas in Nicaragua** is detailed in **Inter-American Commission on Human Rights reports**.
4. **Rise of anti-American nationalism:** Interventionism fuelled political movements opposed to US influence.  
**Eg:** The **Cuban Revolution (1959)** explicitly framed itself against US dominance, documented in **Cuban revolutionary archives and UN debates**.

5. **Long-term regional mistrust:** The doctrine shaped Latin America's scepticism toward external involvement.  
**Eg:** Contemporary opposition to intervention is reflected in **CELAC and ALBA declarations**, cited in **UN General Assembly records**.

### Conclusion

The Monroe Doctrine's evolution reveals how power can hollow out principle, transforming protection into domination. Its historical legacy continues to shape Latin America's political consciousness and resistance to external control in the modern world order.

**Q. Examine the role of global power asymmetry in the Cold War international order. Analyse how weaker states navigated diplomatic pressures. Assess the historical impact of such asymmetries on national decision-making. (15 M)**

### Introduction

The Cold War international order that emerged after **1945** was defined by a sharp imbalance between two superpowers and a large number of militarily and economically weaker states. This asymmetry shaped the rules of diplomacy, constrained sovereign choices, and deeply influenced how newly independent nations made strategic decisions.

### Body

#### Role of global power asymmetry in the Cold War international order

1. **Bipolar concentration of military power:** The global system was dominated by two nuclear-armed superpowers, creating a rigid hierarchy that marginalised weaker states.  
**Eg: The United States' nuclear monopoly (1945–1949)** and subsequent **US–USSR nuclear parity after 1949** institutionalised strategic dominance through deterrence politics.
2. **Control over global security architecture:** Decision-making authority in international security was monopolised by major powers.  
**Eg: Permanent membership and veto power in the UN Security Council (established 1945)** allowed superpowers to block outcomes contrary to their interests.
3. **Economic asymmetry embedded in aid structures:** Economic dependency became a key mechanism of influence over weaker states.  
**Eg: The Marshall Plan (1947)** tied Western Europe to the US-led economic order, reinforcing strategic dependence without direct coercion.
4. **Ideological dominance shaping legitimacy:** Competing ideologies framed political legitimacy and governance models across regions.  
**Eg: Capitalist and socialist blocs after 1947** classified states based on ideological alignment, reducing neutral diplomatic space.
5. **Interventionism enabled by power imbalance:** Asymmetry lowered costs of intervention for superpowers in peripheral regions.  
**Eg: Cold War interventions in Asia, Africa and Latin America during the 1950s–70s** reflected the ability of major powers to act with limited accountability.

#### How weaker states navigated diplomatic pressures

1. **Non-alignment as a strategic response:** Weaker states avoided formal alliances to preserve autonomy amid bipolar rivalry.  
**Eg: Bandung Conference (1955)** and the founding of the **Non-Aligned Movement in 1961** institutionalised collective neutrality.
2. **Selective engagement with power blocs:** States cooperated pragmatically without surrendering long-term independence.  
**Eg: India's 1971 treaty with the Soviet Union** ensured strategic support without joining a military bloc.
3. **Use of multilateral forums for leverage:** International institutions were used to amplify influence beyond material capacity.  
**Eg: Active participation of newly independent states in the UN General Assembly during the 1950s–60s** on decolonisation issues.
4. **Regional cooperation to dilute pressure:** Collective regional platforms reduced vulnerability to bilateral coercion.  
**Eg: Afro-Asian solidarity initiatives after 1955** provided diplomatic cushioning against bloc pressures.
5. **Balancing ideological flexibility with national interest:** Many states adopted mixed economic and political models.  
**Eg: Post-colonial states combining state-led planning with limited market mechanisms during the 1960s–70s** to avoid ideological rigidity.

#### Historical impact of such asymmetries on national decision-making

1. **Constraint on strategic autonomy:** Major foreign policy choices were often shaped by external power equations.  
**Eg: Security and defence decisions in newly independent states during the early Cold War decades** reflected awareness of superpower reactions.
2. **Heightened focus on sovereignty and independence:** Asymmetry sharpened concerns about political survival.  
**Eg: Emphasis on territorial integrity and non-interference in Asian and African states after independence.**
3. **Influence on economic development strategies:** National planning was shaped by access to aid and technology.  
**Eg: Adoption of state-led development models in the 1950s–60s** to reduce dependence on external capital.
4. **Institutionalisation of cautious diplomacy:** Decision-making favoured gradualism over confrontation.  
**Eg: Preference for diplomatic mediation and negotiations in Cold War regional disputes** by weaker states.
5. **Long-term shaping of foreign policy doctrines:** Cold War experiences left durable strategic legacies.  
**Eg: Continuation of strategic autonomy as a guiding principle in post-Cold War foreign policies** of several developing nations.

#### Conclusion

Global power asymmetry during the Cold War produced a hierarchical international order that constrained weaker states but also encouraged innovative diplomatic strategies. The historical experience underscores how asymmetry not only limited choices but also shaped enduring traditions of strategic caution, autonomy, and multilateral engagement.

## Salient features of Indian Society, Diversity of India.

**Q. Explain the relationship between El Niño and the Walker circulation. How does its weakening affect tropical rainfall belts? (10 M)**

### Introduction

The **Walker circulation** is a key zonal atmospheric system over the equatorial Pacific that regulates the location of **tropical convection and rainfall belts**. **El Niño events weaken this circulation**, triggering large-scale redistribution of rainfall across the tropics with direct implications for monsoonal and equatorial climates.

### Body

#### Relationship between El Niño and the Walker circulation

- 1. Normal Walker circulation structure:** Under neutral conditions, strong **easterly trade winds** pile warm waters in the western Pacific, causing ascent and convection there, while cooler eastern Pacific waters support subsidence.  
**Eg: NOAA ENSO climatology** shows persistent low pressure and convection over the **Maritime Continent** during neutral ENSO years, maintaining high rainfall over Indonesia.
- 2. El Niño-induced weakening of trade winds:** El Niño is marked by **abnormal warming of the central and eastern equatorial Pacific**, which weakens the east–west pressure gradient driving the Walker circulation.  
**Eg: NOAA and IMD analyses of the 2015–16 El Niño** recorded significantly weakened Pacific trade winds alongside elevated sea surface temperatures.
- 3. Eastward displacement of rising limb:** The weakening circulation causes the **ascending limb of the Walker circulation** to shift eastwards towards the central and eastern Pacific.  
**Eg: NASA TRMM satellite rainfall data** during **2015 El Niño** showed enhanced convection near the **International Dateline**, with suppressed convection over Indonesia.
- 4. Flattening of the Pacific thermocline:** El Niño reduces the west–east tilt of the **Pacific thermocline**, weakening upwelling in the eastern Pacific and reinforcing atmospheric circulation changes.  
**Eg: IPCC AR6 Working Group I** notes that reduced thermocline slope during El Niño sustains warm SST anomalies and prolongs Walker circulation weakening.

#### Impact of weakened Walker circulation on tropical rainfall belts

- 1. Reduced rainfall over western Pacific and South Asia:** Suppressed convection over the western Pacific induces subsidence over adjacent tropical regions, weakening monsoon rainfall.  
**Eg: IMD monsoon reports** identify **2002 and 2015 El Niño years** as periods of significant **Southwest Monsoon deficit** over India.

2. **Enhanced rainfall over central and eastern Pacific:** Eastward-shifted convection increases rainfall over normally dry Pacific coastal regions.  
**Eg: NOAA climate summaries** document **abnormally high rainfall and flooding in Peru and Ecuador** during strong El Niño episodes.
3. **Disruption of tropical convergence zones:** Weakening of Walker circulation alters the position and intensity of the **Intertropical Convergence Zone (ITCZ)** across ocean basins.  
**Eg: IPCC AR6** highlights ENSO-driven ITCZ shifts affecting **rainfall variability in tropical Africa and northern South America**.
4. **Increased frequency of tropical drought–flood contrasts:** Redistribution of convection leads to simultaneous droughts and floods across different tropical regions.  
**Eg: World Meteorological Organization (WMO)** reports show El Niño years witnessing **drought in Southeast Asia** alongside **flooding in the eastern Pacific rim**.

### Conclusion

El Niño weakens the Walker circulation, not by eliminating it, but by **repositioning tropical convection**, producing sharp rainfall contrasts across the tropics. As climate variability intensifies, accurate understanding of this linkage is vital for **monsoon forecasting and climate resilience planning**.

**Q. Indian festivals function as living institutions rather than mere cultural events. Elucidate this statement. Discuss how festivals contribute to sustaining social cohesion and shaping collective identity in Indian society. (10 M)**

### Introduction

Indian festivals represent enduring social frameworks through which values, norms, and collective memories are transmitted across generations. Their continued relevance lies not merely in celebration, but in their institutional role in organising social life and shared identity.

### Body

#### Indian festivals as living institutions

1. **Normative regulation of social behaviour:** Festivals prescribe shared rituals, conduct, and moral expectations, functioning as informal institutions guiding community behaviour beyond religious practice.  
**Eg: Diwali's emphasis on cleanliness, charity, and restraint** institutionalises civic discipline and ethical conduct within households and neighbourhoods.
2. **Intergenerational transmission of values:** Festivals act as recurring social mechanisms for passing traditions, ethics, and cultural knowledge across generations.  
**Eg: Guru Nanak Jayanti celebrations**, through collective kirtans and langars, transmit values of **equality, service, and humility** to younger generations.
3. **Embedded community governance:** Many festivals are organised through local committees and customary norms, creating participatory community institutions.  
**Eg: Ganesh Chaturthi mandals** in urban India operate as **neighbourhood governance platforms**, coordinating finance, security, and public welfare.
4. **Institutionalised economic linkages:** Festivals sustain artisanal, agrarian, and service-based livelihoods, integrating culture with economic systems.

**Eg: Durga Puja in West Bengal** supports **artisan networks, idol-makers, and informal workers**, reflecting institutional economic interdependence.

5. **Cultural continuity through adaptation:** Festivals retain core meanings while adapting to social change, demonstrating institutional resilience rather than static tradition.

**Eg: Eco-friendly idol movements** within Ganesh Chaturthi show **institutional adaptation to environmental norms** without eroding cultural essence.

### Role of festivals in social cohesion and collective identity

1. **Collective participation across social boundaries:** Festivals create shared public spaces where caste, class, and regional distinctions are temporarily bridged.  
**Eg: Onam celebrations** emphasise **egalitarian participation**, symbolised by the **Onam sadya**, reinforcing social inclusiveness.
2. **Reinforcement of shared historical memory:** Festivals commemorate collective myths and histories, shaping a common cultural consciousness.  
**Eg: Ram Navami processions** reinforce **civilisational narratives** rooted in shared epics and moral ideals.
3. **Strengthening pluralistic identity:** Diverse festivals coexist, reinforcing India's composite cultural identity within a single social framework.  
**Eg: Article 29 of the Constitution** protects cultural expression, reflected in the **public celebration of Eid, Christmas, and Baisakhi** across regions.
4. **Emotional integration and solidarity:** Collective rituals generate shared emotional experiences that bind communities during both prosperity and crisis.  
**Eg: Community Iftar gatherings** foster **solidarity and mutual trust**, especially in urban multicultural settings.
5. **Civic and constitutional values reinforcement:** Festivals increasingly incorporate constitutional ideals such as unity, fraternity, and respect for heritage.  
**Eg: Article 51A(f)** is reflected when festivals promote **harmony and preservation of cultural heritage** through inclusive public celebrations.

### **Conclusion**

By functioning as adaptive social institutions, Indian festivals sustain cohesion in a diverse society while continuously reshaping collective identity. Their strength lies in balancing continuity with change, making them vital to India's cultural and social resilience.

## **Role of women and women's organization, population and associated issues, poverty and developmental issues, urbanization, their problems and their remedies.**

**Q. When aggression becomes a socially tolerated response, it signals a deeper crisis of socialisation. Evaluate this statement in the context of rising youth violence in India. Assess its implications for social cohesion. (10 M)**

### Introduction

Growing acceptance of aggression among young people reflects not momentary deviance but a deeper breakdown of socialisation systems that shape norms, empathy, and restraint. When violence becomes a tolerated response, it signals erosion in the moral and institutional foundations of society.

### Aggression as a crisis of socialisation

1. **Weakening of family-based moral conditioning:** Declining parental supervision and inconsistent discipline dilute early internalisation of empathy and self-control.  
**Eg: NCRB Crime in India 2022** records a steady rise in juveniles apprehended for violent offences, indicating early-stage socialisation failures.
2. **Erosion of school authority and value transmission:** Schools increasingly prioritise academic outcomes over behavioural correction, limiting character formation.  
**Eg: NEP 2020** explicitly identifies gaps in socio-emotional learning and recommends integrating ethics and life skills into curricula.
3. **Normalization of aggression through digital exposure:** Repetitive exposure to violent digital content reduces emotional inhibition and conflict-resolution capacity.  
**Eg: UNICEF State of the World's Children 2021** highlights how unsupervised screen use affects adolescent emotional regulation and impulse control.
4. **Peer-group reinforcement of aggressive norms:** Youth subcultures often valorise dominance and retaliation, displacing cooperative social norms.  
**Eg: NCERT Sociology texts** note that peer socialisation can override familial norms during adolescence when institutional guidance is weak.
5. **Diminished community oversight:** Decline of neighbourhood and community engagement weakens informal social control mechanisms.  
**Eg: Second Administrative Reforms Commission (ARC)** observed that weakening community institutions reduces moral accountability among youth.

### Implications for social cohesion

1. **Decline in interpersonal trust:** Persistent youth aggression fosters fear and suspicion, weakening everyday social cooperation.  
**Eg: India Human Development Survey (IHDS)** links social trust deficits with increased conflict-prone behaviour in urbanising regions.
2. **Strain on constitutional value of fraternity:** Normalised aggression undermines the constitutional promise of social harmony.  
**Eg: Preamble of the Constitution of India** explicitly enshrines fraternity as essential to national unity.
3. **Inter-generational moral disconnect:** Divergence between societal expectations and youth behaviour weakens continuity of shared values.  
**Eg: Kothari Commission (1966)** warned that neglect of moral education would erode civic consciousness over time.
4. **Increased burden on coercive institutions:** Social failures shift conflict resolution from community spaces to policing and courts.  
**Eg: NCRB Prison Statistics 2023** show growing youth representation in the criminal justice system.
5. **Risk of social fragmentation:** Persistent aggression deepens divisions across class, gender, and community lines.

**Eg: UNDP Human Development Report 2023** cautions that unmanaged youth violence accelerates social polarisation.

## Conclusion

Reversing youth violence requires restoring robust socialisation through families, schools, and communities rather than relying solely on punitive control. Strengthening empathy, discipline, and fraternity is indispensable for sustaining India's social cohesion in the long run.

## **Q. Discuss how rapid urbanisation has altered waste generation patterns in Indian cities. Bring out its impact on urban living conditions. (10 M)**

### **Introduction**

India's rapid urban transition has reshaped consumption, housing and mobility patterns, making waste generation a defining challenge of urban life. The changing scale and composition of waste now directly affect health, equity and everyday liveability in Indian cities.

### **Body**

#### **How rapid urbanisation has altered waste generation patterns**

- Increase in per capita and absolute waste generation:** Urban lifestyles characterised by higher incomes and convenience consumption have sharply increased waste volumes.  
**Eg: CPCB Solid Waste Management Status Report (2022)** records over **1.6 lakh tonnes of municipal solid waste generated daily**, with metros showing significantly higher per capita waste.
- Shift towards non-biodegradable and plastic waste:** Packaged food, e-commerce and disposable products have altered the waste mix.  
**Eg: MoHUA SBM-Urban data (2023)** highlights a rising proportion of **dry and plastic waste** in cities, increasing recycling complexity.
- Growth of construction and demolition waste:** Rapid real estate development and infrastructure expansion generate large volumes of inert waste.  
**Eg: MoHUA estimates** place **construction and demolition waste at around 12–14 million tonnes annually**, heavily concentrated in fast-growing cities.
- Emergence of electronic and hazardous urban waste:** Urbanisation and digitalisation have increased discarded electronics and hazardous household waste.  
**Eg: CPCB E-Waste Report (2023)** identifies major cities such as **Delhi, Mumbai and Bengaluru** as leading generators of **e-waste**, stressing urban waste systems.

#### **Impact of altered waste patterns on urban living conditions**

- Public health stress:** Unmanaged waste creates breeding grounds for vectors and contaminates air and water.  
**Eg: WHO urban health assessments** link open dumping and waste burning to higher incidence of **dengue, malaria and respiratory illnesses**.
- Environmental degradation and pollution:** Waste mismanagement worsens air, soil and water quality.

**Eg: CPCB air quality studies** identify **open waste burning** as a contributor to particulate pollution in Indian cities.

3. **Deepening urban inequality:** Waste burdens fall disproportionately on informal settlements and low-income neighbourhoods.

**Eg: UN-Habitat India reports** note irregular waste collection in slums, reinforcing spatial and social exclusion.

4. **Strain on urban governance and civic life:** Overflowing landfills and uncollected waste trigger citizen grievances and erode trust in local bodies.

**Eg: Repeated NGT interventions on urban dumpsites** reflect governance stress arising from poor waste management.

### Way forward

1. **Strengthening waste segregation at source:** Behavioural change and enforcement are central to reducing downstream waste stress.

**Eg: SBM-Urban 2.0 guidelines (MoHUA)** mandate **source segregation** as the foundation of garbage-free cities.

2. **Adopting circular economy practices:** Treating waste as a resource can reduce landfill dependence. **Eg: Mission LiFE**, articulated by India at **COP26**, promotes reduced consumption and recycling as lifestyle choices.

3. **Enhancing municipal capacity and accountability:** Urban local bodies require financial and technical strengthening.

**Eg: The 15th Finance Commission** recommended **performance-linked grants** for sanitation and waste management outcomes.

4. **Building citizen participation and civic culture:** Sustainable waste management depends on active public involvement.

**Eg: Swachh Survekshan results (MoHUA)** show better cleanliness outcomes in cities with strong community participation.

### **Conclusion**

Rapid urbanisation has transformed waste into a central determinant of urban health, equity and liveability. Aligning **municipal capacity, circular practices and civic responsibility** is essential to make Indian cities sustainable and dignified spaces to live.

**Q. Artificial intelligence can deepen existing gender inequalities if social structures remain unchanged. Examine this statement in the context of unpaid care work. Also assess its social implications. (10 M)**

### Introduction

Artificial intelligence is reshaping work and productivity, but its social consequences are mediated by existing inequalities. In India, entrenched gender norms around unpaid care work risk being algorithmically reproduced, deepening gender inequality rather than reducing it.

### Body

**How artificial intelligence can deepen gender inequality through unpaid care work**

1. **Time poverty limiting AI adaptation:** Women's disproportionate responsibility for unpaid care work reduces time available for reskilling, digital learning, and AI-related career transitions.  
**Eg: Time Use Survey 2024 (NSO)** shows working women spend significantly more hours on unpaid domestic and caregiving work, leaving around **10 fewer hours per week for self-development**, a critical disadvantage in an AI-driven economy.
2. **Algorithmic bias rooted in invisible labour:** AI systems evaluate productivity based on measurable outputs, systematically excluding unpaid caregiving responsibilities primarily borne by women.  
**Eg: UN Women reports on gender and digitalisation** highlight that algorithmic performance metrics ignore care burdens, indirectly penalising women in hiring, appraisal, and promotion.
3. **Automation risk in women-dominated jobs:** Occupations with higher female participation are often more routine and automation-prone, while care responsibilities limit mobility to higher-skilled AI-complementary roles.  
**Eg: ILO Global Employment Trends** indicate clerical and service roles with high female employment face higher automation exposure without parallel reskilling opportunities.
4. **Digital skill gap reinforced by social roles:** Limited discretionary time and mobility restrict women's access to advanced digital and AI skills.  
**Eg: NFHS-5 and PLFS data** show lower digital access and training participation among women, reflecting structural rather than capability deficits.
5. **Substantive equality compromised:** Formal equality in access to technology does not translate into real equality when unpaid work remains unequally distributed.  
**Eg: Article 15 and Article 21**, read with **Article 39(e)** of the Constitution, emphasise substantive equality and dignity, which are undermined when care labour remains invisible.

#### **Social implications of AI reinforcing unpaid care structures**

1. **Perpetuation of gendered division of labour:** AI-enabled flexibility may reinforce expectations that women balance paid work with primary caregiving roles.  
**Eg: Sociological studies cited by UNDP** show flexible work arrangements often increase women's unpaid workload instead of redistributing care.
2. **Widening skill and income inequality:** Reduced access to upskilling leads to occupational segregation and long-term earnings gaps.  
**Eg: World Economic Forum Gender Gap Reports** note that technological transitions widen wage gaps when reskilling access is unequal.
3. **Intergenerational transmission of inequality:** Persistent care burdens limit women's social mobility, reinforcing gendered aspirations across generations.  
**Eg: NITI Aayog discussions on human capital** emphasise how time poverty affects education and skill investments within households.
4. **Undervaluation of care in social recognition:** Continued invisibility of unpaid work weakens societal recognition of women's contribution.  
**Eg: System of National Accounts (UN)** excludes unpaid care work from GDP, reinforcing its marginalisation in policy discourse.
5. **Strain on constitutional vision of social justice:** Unequal distribution of unpaid care undermines the pursuit of social and economic justice.  
**Eg: Directive Principles under Articles 38 and 42** stress equitable social order and humane working conditions, challenged by persistent care inequities.

## Conclusion

Artificial intelligence will remain socially unequal unless unpaid care work is recognised, redistributed, and reduced. Aligning technological progress with gender justice requires restructuring social norms, not merely deploying smarter algorithms.

**Q. “The quality of urban life depends more on invisible systems than on iconic infrastructure. Examine its implications for social well-being. (10 M)**

## Introduction

Urban quality of life is determined less by symbolic urban markers and more by the reliability of essential systems that sustain health, safety, and dignity. These invisible systems directly operationalise constitutional guarantees in everyday urban living.

## Body

### Invisible systems over iconic infrastructure

- Foundational service primacy:** Invisible systems such as water supply, sewerage, drainage, and waste management form the base upon which all visible urban development rests.  
**Eg: World Health Organization urban health framework** identifies **safe water and sanitation** as the first-order determinants of healthy cities, preceding housing aesthetics or transport symbolism.
- Preventive public health role:** Invisible systems work continuously to prevent disease rather than respond after harm occurs, making their effectiveness socially decisive.  
**Eg: Ministry of Health and Family Welfare** recognises that improved **urban sanitation coverage** significantly reduces **diarrhoeal disease incidence**, demonstrating the preventive value of backend systems.
- Non-substitutable nature:** Iconic infrastructure cannot compensate for failures in invisible systems, as social well-being depends on daily functionality rather than episodic utility.  
**Eg: UN-Habitat World Cities Report** notes that cities with advanced physical infrastructure still face poor **human development outcomes** where basic services are unreliable.
- Universal dependence:** Invisible systems serve all citizens uniformly, unlike iconic projects that benefit limited sections or zones of a city.  
**Eg: NITI Aayog SDG India Index** uses **safe drinking water and sanitation indicators** as universal metrics applicable across all urban social groups.
- Low visibility, high impact paradox:** Because invisible systems operate out of public sight, their importance is often underestimated despite their decisive impact on daily life.  
**Eg: Second Administrative Reforms Commission, 6th Report on Local Governance (2007)** observed that neglect of core municipal services persists due to their low political visibility.

### Implications for social well-being

- Protection of the right to life:** Reliable invisible systems are essential for realising the substantive content of **Article 21**.  
**Eg: In Subhash Kumar vs State of Bihar (1991)**, the Supreme Court affirmed that **clean water is integral to the right to life**, linking backend systems directly to constitutional well-being.
- Reduction of social vulnerability:** Strong invisible infrastructure limits health risks among dense and marginalised urban populations.  
**Eg: National Health Profile (CBHI)** consistently links unsafe urban water and sanitation to higher disease burdens among vulnerable groups.
- Social equity in urban living:** Equitable access to invisible systems prevents spatial segregation of risk within cities.

**Eg: UN SDG 11 targets** emphasise **inclusive access to basic services** as central to equitable urbanisation.

4. **Institutional trust and civic stability:** Functional invisible systems strengthen citizen confidence in urban governance institutions.

**Eg: Second ARC** highlighted that consistent delivery of basic services is critical for sustaining **public trust in urban local bodies**.

5. **Everyday dignity and quality of life:** Invisible systems shape routine safety, hygiene, and psychological security more than visible urban symbols.

**Eg: UN-Habitat** identifies uninterrupted access to **safe water and sanitation** as a core element of **urban human dignity**.

## Conclusion

Cities become liveable not through what they display but through what they quietly sustain. Strengthening invisible systems is essential for translating constitutional rights into everyday urban well-being.

**Q. Discuss how economic restructuring has altered the role of small towns in India's urban hierarchy. Analyse the social and occupational profile of small-town urbanisation. Assess whether this trend can ease metropolitan pressures. (15 M)**

## **Introduction**

India's urban transition is being reshaped by deep economic restructuring marked by liberalisation, supply-chain reorganisation and agrarian stress. In this process, small towns have emerged as critical but uneven intermediaries between rural economies and metropolitan centres.

## **Body**

### **Economic restructuring and altered role of small towns in India's urban hierarchy**

1. **Decentralisation of production and logistics:** Post-1991 economic reforms encouraged spatial dispersal of warehousing, transport and ancillary manufacturing to small towns due to lower land and labour costs, altering their position from peripheral settlements to functional economic nodes.  
**Eg: Bhiwandi (Maharashtra)** has evolved into a major warehousing and logistics hub serving the Mumbai metropolitan region, as noted in **NITI Aayog logistics assessments**.
2. **Agro-processing and rural-urban linkage functions:** Small towns increasingly host agro-processing, storage and trading activities, strengthening backward and forward linkages with agrarian regions.  
**Eg: Hassan (Karnataka)** functions as a dairy and agro-processing service town supporting surrounding agricultural belts, reflected in **State economic survey data**.
3. **Construction- and infrastructure-led accumulation:** Expansion of highways, industrial corridors and public infrastructure has made small towns sites for capital absorption through construction and real estate.  
**Eg: Peri-urban growth along highways in Barabanki (Uttar Pradesh)** illustrates this trend, highlighted by the **High Powered Expert Committee on Urban Infrastructure, 2011**.
4. **Service sector spillovers from metros:** Rising metropolitan costs have pushed education, healthcare, retail and back-office services into smaller towns, upgrading their economic profile.  
**Eg: Growth of private educational and healthcare facilities in towns surrounding Bengaluru** is documented in **urbanisation studies by Census-linked research institutions**.

5. **Integration into regional urban systems:** Small towns increasingly operate as secondary nodes within regional economic corridors rather than isolated local markets.  
**Eg:** Towns along the **Delhi–Mumbai Industrial Corridor** have gained economic relevance through corridor-based connectivity.

### **Social and occupational profile of small-town urbanisation**

1. **Predominance of informal employment:** Employment is largely informal, concentrated in construction, petty services and small trade, with limited job security.  
**Eg:** **PLFS 2022–23 (MoSPI)** reports informal employment exceeding **80%** in non-metropolitan urban areas.
2. **Absorption of circular migrants and rural youth:** Small towns act as intermediate destinations for migrants displaced by agrarian distress or metropolitan costs, producing hybrid rural–urban livelihoods.  
**Eg:** Migration flows to towns like **Dhantari (Chhattisgarh)** are reflected in **Census 2011 migration data** and later **NSSO** analyses.
3. **Feminisation of home-based and informal work:** Women’s participation is largely confined to home-based piecework, informal services and self-employment.  
**Eg:** **PLFS gender-disaggregated data** shows high female participation in informal urban self-employment outside metros.
4. **Emergence of new local intermediaries:** Contractors, real-estate brokers and micro-finance agents increasingly mediate access to land and work, reshaping local class structures.  
**Eg:** **Centre for Policy Research** studies on small-town governance highlight the growing influence of such intermediaries.
5. **Persistence of rural social relations:** Caste, kinship and community networks continue to structure labour and housing markets, limiting social mobility.  
**Eg:** Sociological studies on small towns in **Uttar Pradesh and Madhya Pradesh** document the continuity of rural hierarchies in urban settings.

### **Can small towns ease metropolitan pressures?**

#### **Positive potential**

1. **Labour absorption outside metros:** Small towns can absorb surplus labour, reducing migration pressure on saturated metropolitan labour markets.  
**Eg:** Slower in-migration growth in metros like **Mumbai** after **2011 Census** coincides with expansion of nearby small towns.
2. **Decentralisation of services and consumption:** Expansion of education, healthcare and retail in small towns reduces exclusive dependence on large cities.  
**Eg:** Growth of district-level service centres noted in **State urban development reports**.

#### **Limitations and risks**

1. **Weak urban governance capacity:** Under-funded and understaffed municipalities limit sustainable growth; **Article 243W** under the **74th Constitutional Amendment (1992)** remains unevenly implemented.  
**Eg:** **CAG reports** repeatedly highlight fiscal and staffing deficits in small urban local bodies.

2. **Infrastructure and ecological stress:** Poor water, sanitation and waste systems risk reproducing metropolitan dysfunctions at smaller scales.  
**Eg:** Groundwater over-extraction in towns like **Shahdol (Madhya Pradesh)** reported by the **Central Ground Water Board**.
3. **Risk of informalisation rather than decongestion:** Without planned investment, small towns may merely redistribute urban poverty instead of easing metropolitan pressures.  
**Eg:** Expansion of informal settlements in rapidly growing census towns noted in **Town and Country Planning Organisation studies**.

### Conclusion

Small towns have moved up India's urban hierarchy due to economic restructuring, but their ability to ease metropolitan pressures is conditional rather than automatic. Strengthening municipal capacity, implementing the spirit of the **74th Constitutional Amendment**, and integrating economic growth with social and ecological planning will determine whether they become solutions or replicas of metropolitan stress.

### **Q. Analyse the role of parental presence in shaping a child's emotional and moral development. Examine the social factors that limit such presence today. (10 M)**

#### **Introduction**

Early childhood is the most formative phase of human development, where emotional patterns and moral frameworks are shaped through daily interaction rather than formal instruction. Parental presence during this stage functions as the primary institution of socialisation, deeply influencing how a child understands trust, empathy and responsibility.

#### **Body**

#### **Role of parental presence in shaping emotional and moral development**

1. **Secure emotional attachment and trust formation:** Regular and responsive parental presence enables secure attachment, which is essential for emotional regulation, resilience and healthy interpersonal relationships later in life.  
**Eg:** **UNICEF State of the World's Children Report 2023** links consistent caregiver presence in early childhood with lower incidence of anxiety and conduct disorders in later years.
2. **Moral learning through behavioural modelling:** Children acquire moral values primarily by observing parental conduct, making presence critical for internalising honesty, empathy and self-restraint.  
**Eg:** **Article 39(f) of the Constitution** stresses conditions of dignity and healthy development for children, implicitly recognising the role of nurturing parental environments.
3. **Development of empathy and prosocial behaviour:** Active parental engagement helps children recognise emotions in others, fostering compassion and cooperative behaviour.  
**Eg:** **National Policy for Children, 2013** highlights family-based care as central to emotional sensitivity and moral growth.
4. **Positive discipline and moral reasoning:** Presence allows guidance through explanation and example rather than fear-based punishment, strengthening moral reasoning capacities.  
**Eg:** **Juvenile Justice (Care and Protection of Children) Act, 2015** discourages harsh disciplinary practices and promotes child-friendly care environments.

5. **Formation of self-worth and identity:** Affirming parental presence helps children develop self-esteem and moral confidence, shaping responsible social identities.  
**Eg: ICDS early childhood care framework** emphasises caregiver interaction as vital for holistic personality development.

### **Social factors limiting parental presence today**

1. **Work intensity and economic compulsion:** Long working hours, dual-income households and informal employment reduce quality time between parents and children.  
**Eg: Periodic Labour Force Survey 2022–23** shows a dominant informal workforce with irregular hours, constraining caregiving availability.
2. **Gendered care burden and parental stress:** Unequal distribution of caregiving responsibilities places disproportionate emotional strain on women, affecting attentive parenting.  
**Eg: Time Use Survey 2019** records women performing nearly three times more unpaid care work than men in India.
3. **Urbanisation and nuclear family structures:** Migration and nuclearisation weaken extended family support systems that earlier supplemented parental presence.  
**Eg: Census 2011 household data** indicates a steady rise in nuclear households in urban India.
4. **Inadequate institutional childcare support:** Limited access to affordable and quality crèches restricts parents' ability to balance work and caregiving.  
**Eg: NITI Aayog review of ICDS, 2023** highlights gaps in early childcare infrastructure despite wide scheme coverage.
5. **Digital distraction and time fragmentation:** Excessive screen exposure and work-from-home blurring boundaries reduce attentive, emotionally responsive parenting.  
**Eg: WHO guidelines on screen time for children (updated 2023)** caution against reduced caregiver interaction due to digital overuse.

### **Conclusion**

Parental presence remains indispensable for nurturing emotionally secure and morally grounded individuals, yet contemporary social structures steadily erode it. Addressing this gap requires supportive workplace policies, strengthened childcare institutions and a cultural reevaluation of caregiving as essential social labour.

**Q. Examine the social causes behind worsening congestion in Indian metropolitan cities. Analyse its implications for urban inequality. Suggest measures rooted in social planning. (15 M)**

### **Introduction**

Rapid urbanisation in India has transformed cities into hubs of opportunity but also of everyday stress, with congestion emerging as a defining social experience of metropolitan life. Beyond infrastructure gaps, congestion reflects deeper social structures, behavioural patterns and governance choices shaping how cities function and whom they serve.

### **Body**

#### **Social causes behind worsening congestion in Indian metropolitan cities**

1. **Unbalanced urbanisation and spatial mismatch:** Employment opportunities are concentrated in limited urban cores while affordable housing is pushed to distant peripheries, forcing long daily commutes.  
**Eg: Bengaluru's IT corridors** draw workers from peripheral zones like **Yelahanka and Hosur Road**, increasing peak-hour traffic (Source: **Census of India 2011; NITI Aayog urbanisation reports**).
2. **Rising private vehicle aspiration as social mobility marker:** Personal vehicles are increasingly seen as symbols of status, safety and reliability amid weak public transport trust.  
**Eg: Ministry of Road Transport and Highways (2023)** data shows sustained growth in **two-wheeler and car ownership** in metros despite stagnant road space.
3. **Fragmented daily mobility due to informal employment:** A large informal workforce depends on multiple daily trips for livelihood, intensifying non-peak congestion.  
**Eg: Periodic Labour Force Survey (PLFS)** highlights high informal employment in cities like **Delhi and Mumbai**, linked with all-day traffic loads.
4. **Gendered and care-related travel burdens:** Women's unpaid care work requires frequent, short-distance trips at varied hours, often ignored in transport planning.  
**Eg: Time Use Survey 2019** shows women undertake disproportionate care-related mobility, contributing to dispersed congestion patterns.
5. **Weak metropolitan governance and coordination:** Overlapping authorities and poor integration of land-use and transport planning worsen congestion outcomes.  
**Eg: Second Administrative Reforms Commission (2008)** flagged fragmented urban governance as a core urban service delivery failure.

#### **Implications of congestion for urban inequality**

1. **Time poverty for low-income groups:** Longer commutes disproportionately affect informal workers who cannot afford housing near workplaces.  
**Eg: Centre for Science and Environment (CSE) – How India Moves (2025)** reports daily travel times doubling for urban poor in several metros.
2. **Unequal access to employment and services:** Congestion reduces effective access to jobs, education and healthcare for peripheral residents.  
**Eg: World Bank urban mobility studies** show peripheral commuters in Indian cities face higher job-search and dropout risks.
3. **Health and environmental injustice:** Low-income communities are more exposed to vehicular pollution and accident risks.  
**Eg: National Clean Air Programme (NCAP)** data links traffic density with poorer air quality in dense, low-income urban zones.
4. **Gendered safety and exclusion effects:** Prolonged and unpredictable travel increases harassment risk and discourages women's labour participation.  
**Eg: National Commission for Women** reports identify unsafe commuting as a barrier to women's urban employment.
5. **Intergenerational inequality and social stress:** Time lost in traffic reduces family interaction, learning support and social capital for urban households.  
**Eg: UN-Habitat urban well-being frameworks** highlight mobility stress as a driver of urban social fragmentation.

## Measures rooted in social planning

1. **Transit-oriented development (TOD) and inclusive zoning:** Align housing, employment and transit to reduce compulsory long commutes.  
**Eg: National Transit Oriented Development Policy 2017** advocates mixed-use, high-density development around transit corridors.
2. **Strengthening public transport as a social service:** Prioritise affordability, reliability and last-mile connectivity over road expansion.  
**Eg: National Urban Transport Policy 2014** emphasises moving people, not vehicles, as the core planning principle.
3. **Metropolitan-level democratic governance:** Empower elected metropolitan planning committees for integrated mobility decisions.  
**Eg: Article 243ZE of the Constitution** mandates **Metropolitan Planning Committees** for coordinated urban planning.
4. **Gender-sensitive and care-aware mobility planning:** Incorporate women's travel patterns and safety needs into transport design.  
**Eg: UN Women urban mobility guidelines** stress care-based trip recognition in city planning.
5. **Decentralisation of workplaces and services:** Promote polycentric cities to reduce peak-direction congestion.  
**Eg: NITI Aayog's urban strategy papers** recommend secondary business districts to ease core-city pressure.

## **Conclusion**

Urban congestion in India is fundamentally a social challenge rooted in inequality, aspiration and governance, not merely a transport issue. Embedding social planning principles into urban mobility can transform cities from congested corridors into equitable spaces of everyday life and opportunity.

## **Effects of globalization on Indian society.**

**Q. "The rise of AI companions reflects a deeper transformation in the nature of social relationships rather than merely a technological shift". Examine this statement in the context of changing patterns of loneliness. Analyse its implications for contemporary society. (15 M)**

## **Introduction**

The rapid normalisation of AI companions signals a profound shift in how social bonds are formed, sustained and experienced in contemporary societies. Rather than merely reflecting technological innovation, this trend mirrors deeper structural changes in family life, community institutions and everyday social interaction.

## **Body**

### **Rise of AI companions reflects a deeper transformation in social relationships**

1. **Erosion of face-to-face social bonds:** Traditional relationship spaces such as neighbourhoods, workplaces and extended families have weakened, reducing everyday human interaction.

**Eg: NFHS-5 (2019–21)** notes rising single-person households and migration-driven nuclear families, limiting sustained social contact.

2. **Instrumentalisation of relationships:** Social ties are increasingly valued for emotional utility and convenience rather than mutual obligation, making AI companionship socially acceptable.  
**Eg:** Platform-driven interactions in urban India prioritise efficiency over reciprocity, as discussed in **UN Habitat World Cities Report 2022**.
3. **Preference for low-friction interactions:** AI companions offer affirmation without conflict, aligning with a broader cultural shift towards avoiding emotional labour.  
**Eg:** Increased reliance on digital communication during and after the **COVID-19 pandemic (2020–21)** reduced tolerance for complex interpersonal engagement, noted by **WHO mental health assessments**.
4. **Redefinition of intimacy and care:** Emotional support is increasingly detached from physical presence, altering the meaning of companionship.  
**Eg:** Growing acceptance of virtual relationships among youth is highlighted in **UNICEF State of the World's Children 2023** on digital lives.
5. **Commodification of emotional life:** Social connection is increasingly mediated by market-driven platforms that monetise attention and intimacy.  
**Eg:** Expansion of the global “loneliness economy” is documented in **OECD Social Policy Division reports (2023)**.

#### **Changing patterns of loneliness as the social context**

1. **Loneliness as a structural phenomenon:** Loneliness is no longer episodic but embedded in urbanisation, migration and precarious work patterns.  
**Eg: WHO (2023)** identifies loneliness as a major public health concern, comparable to lifestyle risk factors.
2. **Weakening of community institutions:** Decline of local associations, unions and religious spaces reduces collective belonging.  
**Eg: India Human Development Survey-II (2011–12)** shows declining participation in community organisations, especially in urban areas.
3. **Generational vulnerability:** Young adults and the elderly experience loneliness differently but intensely, increasing receptivity to AI companionship.  
**Eg: UN Population Fund (2022)** highlights social isolation among ageing populations and urban youth.
4. **Digital substitution for social care:** Online platforms increasingly fill emotional gaps left by overstretched welfare and mental health systems.  
**Eg:** Limited mental health professional density in India, noted by **National Mental Health Survey (2015–16)**, amplifies reliance on digital support.
5. **Crisis-driven dependence:** Personal crises often accelerate emotional reliance on AI companions rather than creating it.  
**Eg:** Increased digital emotional engagement during lockdowns was recorded in **MoHFW and WHO pandemic impact studies**.

#### **Implications for contemporary society**

1. **Transformation of socialisation processes:** Reduced exposure to negotiation and disagreement may weaken empathy and social resilience.  
**Eg:** NCERT social science curriculum reviews (2023) emphasise concern over declining civic engagement among youth.
2. **Strain on the social contract:** One-sided AI interactions dilute norms of mutual responsibility essential for democratic societies.  
**Eg:** Article 51A of the Constitution underscores duties towards fellow citizens, which require lived social interaction.
3. **Deepening social inequalities:** AI companionship may disproportionately attract socially vulnerable groups, reinforcing exclusion.  
**Eg:** OECD (2023) warns of digital technologies amplifying social divides when used as substitutes for social policy.
4. **Ethical and regulatory challenges:** Emotional data extraction raises concerns over autonomy, privacy and manipulation.  
**Eg:** Ongoing debates around the Digital Personal Data Protection Act, 2023 highlight risks of misuse of intimate personal data.
5. **Redefinition of care and welfare:** Over-reliance on AI risks normalising reduced public investment in human-centred care systems.  
**Eg:** Global policy discussions on elder care in UN Decade of Healthy Ageing (2021–2030) caution against replacing human care with automation.

### **Conclusion**

The rise of AI companions reflects a deeper social transformation rooted in loneliness, weakened institutions and market-mediated relationships. Addressing its societal implications requires rebuilding human-centred social infrastructure rather than outsourcing intimacy to technology.

## **Social empowerment, communalism, regionalism & secularism.**

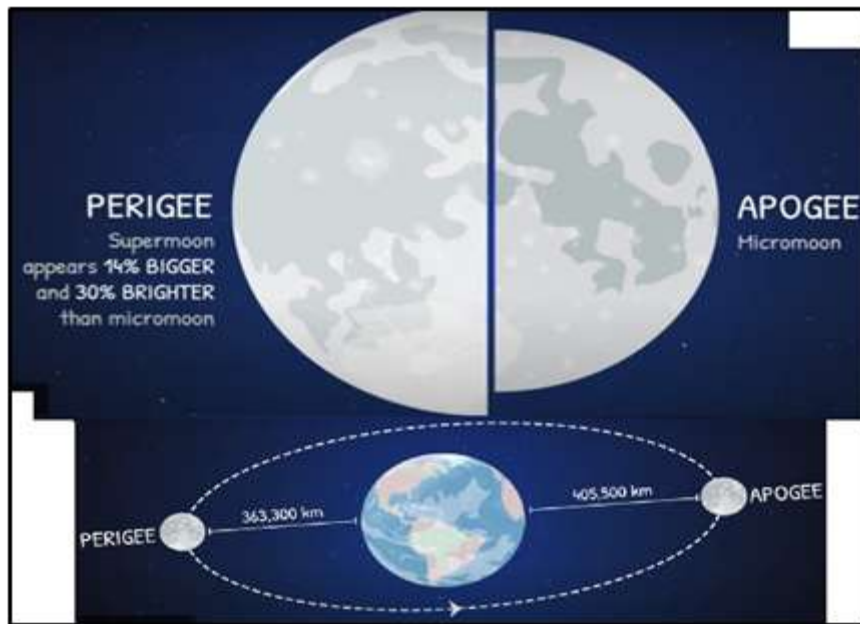
### **Salient features of world's physical geography.**

**Q. What is a supermoon? Explain the orbital conditions required for its occurrence. How does it differ from a micromoon? (10 M)**

### **Introduction**

The Earth–Moon system follows precise orbital mechanics that subtly alter how the Moon appears from Earth. Events such as supermoons highlight how changes in distance, rather than size, shape human observation of celestial bodies.

### **Body**



### What is a supermoon

1. **Full moon near perigee:** A **supermoon** occurs when a **full moon coincides with the Moon's perigee**, the closest point in its elliptical orbit around Earth, making it appear slightly larger and brighter than a typical full moon.  
**Eg:** NASA states that during a supermoon, the Moon can appear **up to 7% larger and 15% brighter** compared to an average full moon, though the difference is subtle to the naked eye.
2. **Enhanced apparent brightness:** The reduced Earth–Moon distance during perigee increases the **apparent luminosity** of the Moon due to the inverse-square relationship between distance and brightness.  
**Eg:** NASA **observational data** shows that perigee full moons reflect more sunlight toward Earth, leading to measurable increases in apparent brightness without any intrinsic change in the Moon.

### Orbital conditions required for a supermoon

1. **Elliptical lunar orbit:** The Moon revolves around Earth in an **elliptical orbit**, not a circular one, resulting in periodic variation in Earth–Moon distance that makes supermoons possible.  
**Eg:** According to **NASA Lunar Reconnaissance Orbiter data**, the Moon's distance ranges from about **363,300 km at perigee to 405,500 km at apogee**, creating the physical basis for supermoons.
2. **Phase–distance synchronisation:** A supermoon requires the **alignment of two independent cycles**—the lunar phase cycle and the perigee–apogee cycle—occurring simultaneously.  
**Eg:** **January 2026**, as reported by **NASA and international observatories**, witnessed a full moon occurring close to perigee, leading to its classification as a **wolf supermoon**.
3. **Non-monthly occurrence:** Despite monthly full moons, supermoons do not occur every month because perigee does not always coincide with the full moon phase.  
**Eg:** **Astronomical Almanac records** show that only **3–4 supermoons typically occur in a year**, depending on orbital timing.

### Difference between supermoon and micromoon

1. **Perigee versus apogee positioning:** A **micromoon** occurs when a full moon coincides with the Moon's **apogee**, the farthest point from Earth, making it appear smaller and dimmer.  
**Eg: NASA side-by-side comparisons** demonstrate that a micromoon can appear **about 14% smaller** than a supermoon, despite the Moon's actual diameter remaining constant.
2. **Brightness contrast:** The difference between supermoon and micromoon is more pronounced in **brightness than size**, due to changes in reflected light reaching Earth.  
**Eg: NASA photometric studies** indicate that a micromoon can appear **up to 30% dimmer** than a supermoon under identical atmospheric conditions.

### **Conclusion**

Supermoons and micromoons are products of orbital geometry rather than dramatic celestial transformations. Recognising this distinction helps separate scientific reality from visual perception, strengthening geographical understanding of Earth–space interactions.

**Q. Explain the geomorphic processes responsible for the formation and maintenance of river deltas. Analyse how human interventions disrupt these processes. Assess the consequences for delta sustainability. (15 M)**

### **Introduction**

River deltas are dynamic landforms sustained by a fine balance between riverine sediment delivery, marine reworking and vertical land-building processes. This balance allows deltas to remain productive and habitable, but it is increasingly being destabilised by intensive human interventions.

### **Body**

#### **Geomorphic processes responsible for the formation and maintenance of river deltas**

1. **Fluvial sediment supply and deposition:** Deltas form where rivers lose carrying capacity on entering seas or lakes, leading to large-scale deposition of suspended and bedload sediments that build delta plains over time.  
**Eg: The Ganga–Brahmaputra delta** has historically been sustained by enormous sediment loads derived from active Himalayan erosion, enabling continuous delta progradation and surface renewal.
2. **Distributary channel bifurcation:** Splitting of the main river into multiple distributaries disperses sediments laterally, ensuring widespread delta growth and stability.  
**Eg: The Mahanadi delta's distributary network**, including the **Kathajodi–Birupa system**, historically redistributed sediments across coastal Odisha, maintaining fertile deltaic tracts.
3. **Overbank flooding and vertical accretion:** Seasonal floods deposit fine alluvium over floodplains, allowing deltas to build vertically and keep pace with gradual sea-level rise.  
**Eg: Natural monsoon flooding in the Godavari delta** deposited nutrient-rich silts annually, aiding levee formation and long-term elevation maintenance.
4. **Tidal reworking and sediment trapping:** In tide-influenced deltas, tidal currents redistribute sediments and promote wetland stability along delta fronts.  
**Eg: The Sundarbans delta** benefits from tidal sediment trapping within mangrove root systems, which stabilises low-lying surfaces against erosion.
5. **Organic matter accumulation through wetlands:** Vegetation growth and peat formation add organic material, contributing to surface elevation and resistance to erosion.

**Eg: Mangrove and marsh growth in the Krishna delta** has historically supported natural land-building through organic accretion.

### **Human interventions disrupting deltaic geomorphic processes**

1. **Upstream dams and sediment trapping:** Large reservoirs intercept sediments that would otherwise nourish downstream deltas, leading to sediment starvation.  
**Eg: Hirakud dam on the Mahanadi** has reduced sediment delivery to the delta, contributing to coastal erosion and delta retreat.
2. **Excessive groundwater extraction and subsidence:** Over-extraction causes compaction of unconsolidated deltaic sediments, resulting in irreversible land subsidence.  
**Eg: Parts of the Brahmani and Mahanadi deltas** are sinking at rates exceeding several millimetres per year due to intensive groundwater use.
3. **Embankments and flood-control structures:** Artificial embankments prevent natural flooding, cutting off overbank sediment deposition essential for vertical accretion.  
**Eg: Extensive embankment systems in the lower Ganga plains** have restricted floodplain sedimentation, increasing relative sea-level rise locally.
4. **Land-use change and wetland reclamation:** Conversion of wetlands for agriculture, aquaculture and settlements weakens natural sediment trapping and buffering functions.  
**Eg: Expansion of shrimp aquaculture in the Cauvery delta** has led to wetland loss, reducing geomorphic and ecological resilience.
5. **Channelisation and navigation interventions:** Artificial deepening and straightening of channels alter flow velocity and sediment deposition patterns.  
**Eg: Navigation-focused channel modifications in deltaic river stretches** have disrupted natural distributary dynamics and sediment dispersal.

### **Consequences for delta sustainability**

1. **Accelerated relative sea-level rise:** Combined effects of subsidence and global sea-level rise increase effective inundation even without extreme marine events.  
**Eg: Large areas of the Ganga–Brahmaputra delta** now experience relative sea-level rise faster than global averages due to land sinking.
2. **Higher flood frequency and intensity:** Lowered land elevation amplifies vulnerability to cyclones, storm surges and river floods.  
**Eg: Cyclone Amphan (2020)** caused severe flooding in subsiding deltaic regions of West Bengal due to reduced surface elevation.
3. **Salinity intrusion and freshwater stress:** Sinking land allows seawater to penetrate further inland, degrading soils and aquifers.  
**Eg: Salinity ingress in Krishna–Godavari delta aquifers** has affected drinking water availability and agricultural productivity.
4. **Loss of deltaic ecosystems:** Wetland drowning and mangrove degradation reduce natural coastal protection and biodiversity.  
**Eg: Sections of the Sundarbans** show mangrove stress and wetland loss in areas affected by subsidence and altered sediment supply.
5. **Livelihood insecurity and displacement:** Declining geomorphic stability undermines agriculture, fisheries and settlement safety.

**Eg: Out-migration from low-lying delta islands in eastern India** has increased due to land loss, flooding and livelihood erosion.

### **Conclusion**

The long-term sustainability of river deltas depends on restoring geomorphic balance through sediment continuity, controlled groundwater use and ecosystem-based approaches. Without aligning human development with natural delta-building processes, deltas risk irreversible degradation in the coming decades.

**Q1. Explain the formation and seasonal behaviour of the polar vortex. Bring out how its weakening alters continental weather systems. Illustrate this with reference to recent extreme winter events. (15 M)**

### **Introduction**

Extreme winter conditions across continents are shaped primarily by upper-air circulation rather than surface temperature alone. The polar vortex acts as a key atmospheric mechanism linking polar dynamics with mid-latitude weather systems.

### **Body**

#### Formation and seasonal behaviour of the polar vortex

- 1. Thermal gradient–driven low-pressure system:** The polar vortex forms due to the sharp temperature contrast between the extremely cold polar region and warmer mid-latitudes, generating a persistent low-pressure circulation over the poles.  
**Eg: Intense Arctic radiative cooling during winter strengthens the temperature gradient,** allowing the vortex to consolidate and intensify over high latitudes.
- 2. Coriolis force and cyclonic circulation:** Earth’s rotation deflects moving air masses, causing cold air to rotate cyclonically around the pole rather than flowing southward directly.  
**Eg: Counter-clockwise circulation in the Northern Hemisphere** helps confine Arctic air within polar latitudes during a stable vortex phase.
- 3. Vertical structure across atmospheric layers:** The polar vortex extends through both the **troposphere and stratosphere**, with the stratospheric vortex being stronger and more coherent in winter months.  
**Eg: A well-developed stratospheric vortex during winter enhances overall vortex stability,** reinforcing cold air containment.
- 4. Seasonal strengthening and weakening:** The vortex is strongest in winter due to maximum polar cooling and weakens in summer when temperature gradients reduce significantly.  
**Eg: Near disappearance of the stratospheric vortex during summer** reflects reduced thermal contrast between poles and mid-latitudes.
- 5. Jet stream confinement role:** A strong polar vortex keeps the **polar jet stream zonal and circular**, limiting meridional air movement.  
**Eg: Stable jet stream paths during strong vortex phases** prevent southward penetration of Arctic air masses.

#### Impact of polar vortex weakening on continental weather systems

1. **Jet stream waviness and meridional flow:** Weakening of the vortex reduces pressure gradients, causing the jet stream to become wavy and unstable.  
**Eg: Large southward meanders of the jet stream** allow cold Arctic air to spill into temperate regions.
2. **Southward displacement of polar air masses:** Dislodged cold air lobes move deep into mid-latitudes, triggering severe cold waves.  
**Eg: Sub-zero temperatures extending into southern United States and parts of Europe** during weakened vortex episodes.
3. **Persistence of extreme weather:** Weakened circulation slows atmospheric movement, prolonging cold spells over affected regions.  
**Eg: Extended freezing conditions lasting several days** increase snow accumulation and infrastructure stress.
4. **Interaction with surface pressure systems:** Cold air outbreaks intensify when polar air interacts with mid-latitude high-pressure systems.  
**Eg: Blocking highs over North America and Eurasia** trap cold air masses over continental interiors.
5. **Energy and mobility disruptions:** Sudden temperature drops strain energy systems and disrupt transport networks.  
**Eg: Frozen power grids and large-scale travel shutdowns** during intense cold wave events.

#### Recent extreme winter events explained through polar vortex dynamics

1. **North American deep freeze episodes:** Weak vortex conditions have repeatedly allowed Arctic air to plunge southward.  
**Eg: Widespread snowfall across multiple US states in recent winters**, with temperatures falling well below seasonal averages.
2. **European cold outbreaks:** Vortex weakening has contributed to harsh winters across continental Europe.  
**Eg: Severe cold waves affecting Central and Eastern Europe**, disrupting transport and energy supplies.
3. **Increased frequency of cold extremes:** Greater variability in vortex strength has raised the occurrence of winter anomalies.  
**Eg: Recurring cold spells despite long-term global warming trends** highlight circulation-driven extremes.
4. **Amplified socio-economic impacts:** Extreme cold increasingly affects populations unaccustomed to such severity.  
**Eg: Disproportionate impacts on infrastructure and public health** in mid-latitude regions.
5. **Climate variability context:** Winter extremes coexist with global warming due to atmospheric circulation instability.  
**Eg: Cold waves occurring alongside record global temperatures** demonstrate non-linear climate behaviour.

#### **Conclusion**

The polar vortex illustrates how atmospheric circulation governs extreme weather far beyond polar regions. Understanding its behaviour is essential for anticipating winter risks in a warming yet increasingly unstable climate system.

**Q. Explain the formation and seasonal behaviour of the polar vortex. Bring out how its weakening alters continental weather systems. Illustrate this with reference to recent extreme winter events. (15 M)**

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**Distribution of key natural resources across the world (including South Asia and the Indian sub-continent); factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).**

**Q. Discuss the geographical significance of critical minerals in the context of energy transition and strategic industries. Explain why India faces challenges in securing them domestically. (10 M)**

**Introduction**

The accelerating transition towards clean energy and advanced manufacturing has transformed critical minerals into strategic geographical assets. Their uneven spatial distribution now shapes global energy systems, industrial competitiveness and national security.

**Body**

**Geographical significance of critical minerals**

- 1. Core inputs for clean energy systems:** Critical minerals form the material backbone of renewable energy, electric mobility and energy storage, linking physical geography with decarbonisation pathways.  
**Eg: Lithium, cobalt and nickel** are indispensable for **lithium-ion batteries** used in **electric vehicles and grid storage**, making mineral-rich regions pivotal to the global energy transition.
- 2. Highly uneven global spatial distribution:** Critical minerals are concentrated in a few geological belts, creating regional monopolies and strategic chokepoints.  
**Eg: Rare earth elements** are geographically concentrated and processing-dominated by **China**, influencing global supply chains for **wind turbines and electronics**.
- 3. Low substitutability and strategic importance:** Many critical minerals lack viable substitutes, magnifying the importance of their geographical control.  
**Eg: Neodymium and dysprosium** are essential for **high-performance magnets** used in **EV motors and defence technologies**.
- 4. Link with industrial and technological geography:** The location of critical minerals increasingly determines the geography of advanced manufacturing clusters.  
**Eg: Battery and semiconductor manufacturing hubs** tend to cluster near secure mineral supply routes rather than near consumer markets alone.
- 5. Geopolitical leverage and resource diplomacy:** Control over critical mineral geography provides strategic leverage in global geopolitics and trade negotiations.  
**Eg: Export restrictions or supply dominance** by mineral-rich countries directly affect **clean-tech and defence industries** of importing nations.

**Why India faces challenges in securing critical minerals domestically**

- 1. Limited geological exploration coverage:** Large parts of India's potentially mineral-rich terrain remain insufficiently explored, delaying resource discovery.  
**Eg: Hard-rock and sedimentary regions in central and eastern India** remain under-explored for lithium, cobalt and rare earths.
- 2. Unfavourable exploration-to-mining transition:** The absence of assured mining rights after exploration reduces incentives for private risk-taking.  
**Eg: Junior exploration firms** face uncertainty after discovering minerals, discouraging sustained exploration activity.
- 3. Regulatory and procedural complexity:** Multiple clearances and long approval timelines raise costs and delay mineral project development.  
**Eg: Environmental, forest and land approvals** significantly lengthen the discovery-to-production cycle in India.
- 4. High fiscal and cost burdens:** Elevated royalties and statutory levies reduce the economic viability of domestic mining projects.

**Eg: High effective tax incidence on mining** makes domestic extraction less competitive compared to imported minerals.

5. **Mismatch between mineral and industrial geography:** India's industrial demand centres are often far from potential mineral zones, raising logistical and infrastructural challenges.

**Eg: EV and electronics manufacturing clusters** depend on imported minerals despite domestic geological potential.

### Conclusion

Critical minerals now shape the geography of energy transition and strategic industries worldwide. For India, bridging exploration gaps, easing institutional rigidities and aligning mineral geography with industrial needs is vital to secure long-term economic and strategic resilience.

**Q. Explain the role of physiography in determining the spatial distribution of hydropower potential in India. Discuss how changing energy needs are reshaping the functional importance of such regions. (10 M)**

### Introduction

India's hydropower potential is a direct outcome of its diverse physiography marked by sharp relief contrasts, varied drainage patterns and climatic regimes. As India's power system increasingly integrates variable renewable sources, these physiographically endowed regions are acquiring new functional relevance.

### Body

#### Role of physiography in determining spatial distribution of hydropower potential

- Steep relief and elevation difference:** Large vertical drops enable efficient conversion of potential energy into electricity, making high-relief regions naturally suitable.  
**Eg: Himalayan states such as Arunachal Pradesh and Uttarakhand** possess sharp gradients along river courses, leading to high concentration of hydropower projects.
- Perennial river systems:** Continuous water availability from snowmelt and monsoonal rainfall ensures dependable generation throughout the year.  
**Eg: Rivers of the Indus and Brahmaputra systems** maintain year-round flows unlike seasonal rivers of the peninsular plateau.
- Narrow valleys and confined gorges:** Restricted valley widths reduce dam length requirements and enhance storage efficiency.  
**Eg: Lesser Himalayan valleys** provide narrow gorges that have historically favoured large hydropower installations.
- High rainfall regions:** Heavy and reliable precipitation sustains river discharge even without snow-fed sources.  
**Eg: The Western Ghats**, receiving intense orographic rainfall, support multiple hydropower projects in **Maharashtra and Karnataka**.
- Stable geological formations:** Hard and relatively stable rock structures improve dam safety and longevity.  
**Eg: Sections of crystalline rock zones** in mountainous regions have been preferred for major hydropower structures.

## Changing energy needs reshaping functional importance of hydropower regions

1. **Shift from base-load to flexible generation:** Hydropower regions are increasingly used for rapid response to demand fluctuations rather than continuous supply.  
**Eg:** Projects in **Himalayan and Western Ghat regions** are now frequently operated during peak demand hours.
2. **Balancing variability of solar and wind energy:** Intermittent renewable generation has increased reliance on water-based energy regions for grid stability.  
**Eg:** Reservoir-backed regions complement **solar-rich western India** during non-generation periods.
3. **Support for long-duration energy requirements:** Hydropower regions are being utilised to manage prolonged demand-supply gaps.  
**Eg:** Existing reservoir systems are increasingly aligned with peak-hour electricity management.
4. **Rising strategic value of reservoir-rich areas:** Regions with storage capacity are gaining importance in national energy planning beyond their installed capacity.  
**Eg:** Areas with large reservoirs are emerging as critical nodes in renewable-heavy power networks.
5. **Reintegration of remote physiographic regions:** Previously underdeveloped mountainous and plateau regions are gaining economic and strategic relevance.  
**Eg:** **Eastern Himalayan and Deccan regions** are now viewed as essential for supporting India's clean energy transition.

### Conclusion

While India's physiography determines where hydropower is feasible, evolving energy needs are redefining how these regions function within the power system. This transformation underscores the enduring role of physical geography in shaping a resilient renewable future.

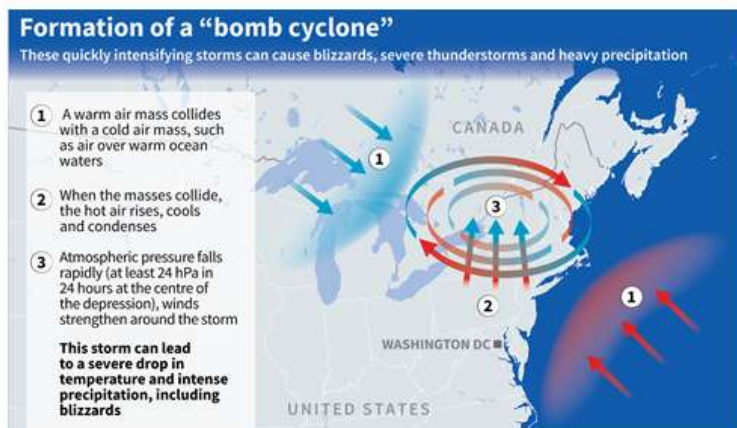
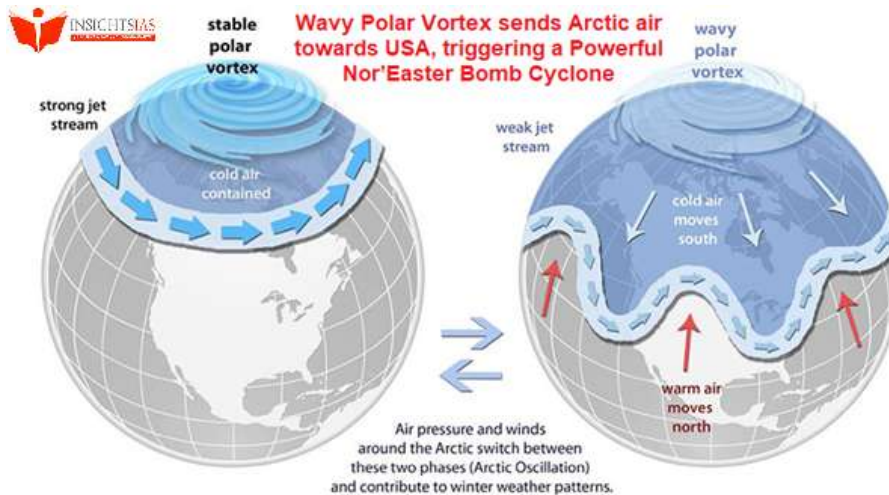
**Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.**

**Q. Explain the phenomenon of bomb cyclones in the context of mid-latitude weather systems. Analyse the atmospheric and oceanic conditions responsible for bombogenesis. Discuss the range of hazards associated with such storms. (15 M)**

Introduction

Mid-latitude regions are periodically affected by rapidly intensifying extratropical storms that disrupt weather systems over vast areas. Bomb cyclones represent an extreme form of such systems, where sudden energy release in the atmosphere converts ordinary disturbances into high-impact weather events.

Body



### Phenomenon of bomb cyclones in mid-latitude weather systems

1. **Explosive cyclogenesis in extratropical systems:** Bomb cyclones are rapidly intensifying mid-latitude low-pressure systems where central pressure drops by at least **24 millibars within 24 hours**, leading to violent winds and severe weather.  
**Eg: North Atlantic winter storms affecting the eastern United States** frequently undergo bombogenesis, intensifying within a day and expanding across multiple states.
2. **Baroclinic nature of mid-latitude cyclones:** These storms derive energy from strong horizontal temperature gradients between cold polar air and warm subtropical air.  
**Eg: Clashes between Arctic air masses and warmer Atlantic air** during winter months provide ideal baroclinic conditions for explosive development.

### Atmospheric and oceanic conditions responsible for bombogenesis

1. **Strong temperature contrasts:** Sharp thermal gradients accelerate instability, enabling rapid uplift and pressure fall at the storm core.  
**Eg: Cold continental air from Canada interacting with warm oceanic air** over the western North Atlantic intensifies cyclonic circulation.
2. **Upper-level jet stream support:** Divergence in the upper troposphere enhances surface pressure drop by evacuating rising air.

**Eg: Polar jet stream alignment over developing storms** has been observed during intense North Atlantic bomb cyclones.

3. **Warm ocean currents as energy sources:** Warm sea surface temperatures supply latent heat, strengthening vertical convection.

**Eg: The Gulf Stream**, with its sharp temperature contrast, acts as a key energy reservoir for bomb cyclones along the US East Coast.

4. **Rapid pressure gradient amplification:** Steep pressure differences between the storm centre and surroundings accelerate wind speeds dramatically.

**Eg: Pressure deepening in recent US winter storms** produced gale to hurricane-force winds across large regions.

### **Range of hazards associated with bomb cyclones**

1. **Destructive winds:** Intensified pressure gradients generate winds capable of uprooting trees and damaging infrastructure.  
**Eg: Wind speeds exceeding 70–80 kmph** during recent bomb cyclones led to widespread power outages in the northern US.
2. **Blizzard conditions and heavy snowfall:** Rapid uplift results in intense precipitation, often as snow in winter.  
**Eg: Whiteout blizzard conditions in the US Midwest** disrupted road and air transport during December 2025 storms.
3. **Coastal flooding and storm surge:** Strong onshore winds and low pressure raise sea levels along coastlines.  
**Eg: Lakeshore flooding along the Great Lakes** has been reported during intense bomb cyclone events.
4. **Transport and economic disruption:** The spatial scale of these storms amplifies their socio-economic impact.  
**Eg: Thousands of flight cancellations and delays** during recent bomb cyclones highlight their disruption potential.

### **Conclusion**

Bomb cyclones illustrate how ocean–atmosphere interactions can transform mid-latitude weather into extreme events. Improving forecasting accuracy and regional preparedness is crucial as such high-impact storms increasingly challenge infrastructure and livelihoods in temperate regions.

**Q. Rising night-time temperatures are redefining India’s climate risk profile more than rising daytime extremes. Examine the climatological basis of this trend. Assess its implications for seasonal heat stress and rainfall variability in India. (15 M)**

### **Introduction**

India’s contemporary warming pattern reveals a decisive shift where **rising minimum (night-time) temperatures are altering atmospheric behaviour across seasons**, extending climatic stress beyond daytime heat. This asymmetric warming is redefining India’s **heat–rainfall hazard geography**.

### **Body**

## Climatological basis of rising night-time temperatures

- Enhanced greenhouse forcing and nocturnal heat retention:** Increased **carbon dioxide and water vapour** reduce outgoing long-wave radiation at night, limiting surface cooling and steadily raising minimum temperatures across regions.  
**Eg: IMD Annual Climate Statement 2025** records **minimum temperatures increasing by 0.47°C per century**, confirming sustained night-time warming.
- Urbanisation and land-atmosphere feedbacks:** Expansion of built-up areas, reduced evapotranspiration and anthropogenic heat emissions intensify **urban heat island effects**, especially during nights.  
**Eg: IPCC AR6 (2021)** identifies Indian urban clusters as hotspots of **elevated night-time thermal stress** due to altered surface energy balance.
- Increased cloud cover and aerosol interactions:** Higher cloudiness and aerosol concentrations trap outgoing heat during night hours, suppressing radiative cooling.  
**Eg: IPCC AR6 WG1** highlights South Asia's **aerosol-cloud interactions** as a contributor to asymmetric warming between day and night.
- Reduced wintertime radiational cooling:** Warmer background temperatures weaken winter inversion layers, limiting night-time heat loss even during traditionally cold months.  
**Eg: IMD (2025)** reported **India's warmest winter in 124 years**, driven largely by elevated minimum temperatures.

## Implications for seasonal heat stress

- Prolonged physiological heat stress beyond daytime extremes:** Elevated night-time temperatures prevent bodily recovery, increasing cumulative heat stress even without extreme daytime maxima.  
**Eg: IMD Heat Index assessments (2024–25)** show rising **warm-night events** amplifying heat stress risks.
- Blurring of seasonal thermal boundaries:** Rising minimum temperatures weaken winter cooling, leading to **early heatwave onset and compressed seasonal transitions**.  
**Eg: IMD documented India's first February heatwave in 2025**, an unprecedented winter-season occurrence.
- Expansion of heat stress into non-summer months:** Persistent warm nights extend heat stress into **winter and pre-monsoon periods**, increasing vulnerability of outdoor workers.  
**Eg: CSE analysis (2025)** reports **warm-night conditions emerging in March**, nearly two weeks earlier than historical norms.
- Increased heat stress in humid coastal regions:** Elevated night temperatures combined with high humidity raise **apparent temperatures**, intensifying discomfort and health risks.  
**Eg: IMD coastal observatories (2025)** recorded sustained **high minimum temperatures along the west coast**, worsening thermal stress.

## Implications for rainfall variability

- Enhanced atmospheric moisture retention:** Warmer nights increase **atmospheric water-holding capacity**, strengthening convection and short-duration intense rainfall.  
**Eg: IMD (2025)** reported **record all-India May rainfall**, driven by moisture-rich pre-monsoon conditions.

2. **Multi-seasonal flood and landslide risk amplification:** Persistent warm nights destabilise circulation patterns, producing extreme rainfall outside the monsoon core months.  
**Eg: CSE-DTE Extreme Events Atlas (2025)** shows floods and landslides occurring across **winter, pre-monsoon and monsoon seasons**.
3. **Shift from rainfall totals to rainfall intensity:** Elevated night-time temperatures favour **cloudbursts and high-intensity rainfall**, increasing flash-flood risk even without excess annual rainfall.  
**Eg: IMD and NDMA reports** highlight **short-duration extreme rainfall** as the dominant flood trigger in recent years.
4. **Increased regional rainfall unevenness:** Warmer nights modify monsoon dynamics, producing **spatially uneven rainfall distribution** across India.  
**Eg: IMD Monsoon Summary 2025** shows **surplus rainfall in northwest India and deficits in east and northeast regions**.

## Conclusion

Rising night-time temperatures signal a **qualitative transformation of India's climate system**, intensifying heat stress and rainfall extremes across seasons. Future climate resilience must integrate **minimum-temperature trends and rainfall intensity**, not merely daytime heat or annual rainfall averages.

**Q. Planned urban expansion in fragile mountain regions often deepens social vulnerability. Assess the socio-economic consequences of such planning in Himalayan states. Evaluate its implications for rural livelihoods. (10 M)**

## Introduction

Urban expansion in Himalayan regions unfolds within ecologically fragile terrains and socially dense rural landscapes. When planning prioritises spatial growth over social context, it often amplifies vulnerability instead of delivering inclusive development.

## Body

### Socio-economic consequences of planned urban expansion in fragile mountain regions

1. **Displacement-driven social vulnerability:** Planned urban projects in hill regions frequently require land acquisition that destabilises long-settled village communities and kinship networks.  
**Eg: Jathiya Devi satellite township near Shimla (2025)** has triggered village-wide resistance due to fears of displacement and loss of ancestral land, as highlighted in the **Social Impact Assessment process**.
2. **Deepening rural–urban inequality:** Urban expansion disproportionately benefits incoming urban populations and investors, while local residents bear social and economic costs.  
**Eg: Tourism-led growth in hill towns of Uttarakhand** has inflated land prices and rents, marginalising locals, noted in **state planning and academic studies on mountain urbanisation**.
3. **Stress on common property resources:** Urban settlements exert pressure on forests, water sources, and grazing lands traditionally shared by village communities.

**Eg: Recurring water shortages in Shimla** during peak urban demand periods illustrate how urban expansion strains local water commons, documented in **state water supply reports**.

4. **Cultural landscape disruption:** Planned layouts often overlook sacred sites, customary access paths, and culturally embedded spaces central to mountain societies.

**Eg: SIAs for Himalayan projects** have recorded risks to **temples, village commons, and traditional pathways**, reflecting cultural dislocation.

5. **Ecological risks translating into social costs:** Slope cutting, road widening, and construction heighten disaster vulnerability, directly affecting local populations.

**Eg: Increased landslide incidents in expanding hill towns** have been linked to unregulated construction, reported by **geological and disaster management studies**.

### Implications for rural livelihoods

1. **Loss of agriculture and orchard-based livelihoods:** Conversion of terraced fields and orchard land reduces farm incomes in regions with limited livelihood alternatives.

**Eg: Proposed land acquisition in Himachal hill villages** threatens subsistence farming and horticulture, as noted in **state-level SIA findings**.

2. **Weak livelihood transition opportunities:** Displaced rural households often lack skills required for urban or industrial employment in hill towns.

**Eg: Limited absorption of hill farmers into urban jobs** has been observed in **ICSSR-supported Himalayan livelihood studies**.

3. **Fragmentation of landholdings and compensation dilution:** Joint and fragmented land ownership reduces effective compensation per household, weakening livelihood security.

**Eg: Joint family land systems in hill villages** result in divided compensation amounts, reducing post-acquisition income stability, highlighted during **public hearings**.

4. **Gendered and age-based livelihood impacts:** Women and elderly depend more on local agriculture and commons, making them disproportionately vulnerable.

**Eg: Women's dependence on nearby forests and farms** for fuel, fodder, and subsistence increases livelihood stress after land loss, noted in **mountain gender studies**.

5. **Erosion of diversified livelihood systems:** Urban expansion disrupts the mixed livelihood base of farming, livestock, and forest use typical to hill economies.

**Eg: Decline in livestock rearing near expanding hill towns** due to reduced grazing land has been recorded in **regional rural economy studies**.

### **Conclusion**

Planned urban expansion in Himalayan regions can deepen social and livelihood vulnerability when it disregards ecological limits and rural socio-economic systems. Sustainable mountain urbanisation must be grounded in livelihood continuity, cultural sensitivity, and terrain-specific planning to protect fragile hill societies.

**Q. Describe the geographical factors influencing the occurrence of forest fires in Himalayan regions. Evaluate why fire control operations are particularly challenging in such terrains. (10 M)**

### **Introduction**

The Himalayan region, once considered relatively fire-resilient due to cold and moist conditions, is increasingly witnessing forest fires because of changing geographical and climatic controls. The complex mountain environment not only shapes fire occurrence but also severely constrains suppression and control operations.

### **Body**

#### **Geographical factors influencing forest fires in Himalayan regions**

- 1. Climatic drying and reduced snowfall:** Rising temperatures and declining winter snowfall reduce surface moisture, making forest floors highly combustible.  
**Eg: Western Himalayas experiencing snow-deficit winters since the 2010s**, as noted by IMD, have led to early-season forest fires in **Uttarakhand and Himachal Pradesh**.
- 2. Vegetation type and fuel load:** Dominance of **chir pine forests**, dry grass and leaf litter increases fire susceptibility due to resin-rich and flammable biomass.  
**Eg: Chir pine belts between 1,000–2,000 m in Uttarakhand**, identified by **Forest Survey of India (FSI)** as high fire-prone zones.
- 3. Steep slopes and aspect:** South-facing slopes receive higher insolation, accelerating drying and upward fire spread due to convection.  
**Eg: Repeated fires on sun-facing slopes in Garhwal Himalaya**, where flames move rapidly upslope.
- 4. Wind regimes and valley effects:** Mountain–valley winds intensify fire spread by channelising flames along narrow corridors.  
**Eg: Valley wind amplification in Chamoli district**, contributing to lateral fire spread near alpine zones.

#### **Fire control operations are particularly challenging in Himalayan terrains**

- 1. Extreme topographic inaccessibility:** Sheer rock faces, narrow ridges and high relief prevent ground-based firefighting.  
**Eg: Pulna–Bhyundar forest fire near Valley of Flowers (2026)**, where teams repeatedly retreated due to unsafe terrain.
- 2. Limited infrastructure and connectivity:** Sparse road networks and fragile bridges delay mobilisation of fire crews and equipment.  
**Eg: Remote alpine beats in Uttarakhand**, where temporary bridges and foot trails are the only access routes.
- 3. Operational limits of aerial firefighting:** High altitude, strong winds and thin air reduce helicopter payload efficiency.  
**Eg: NDMA guidelines on forest fires (2019)** highlight reduced effectiveness of water bombing above **3,000 m elevation**.
- 4. Ecological sensitivity of protected areas:** Suppression measures must avoid secondary damage to fragile ecosystems.

**Eg: Valley of Flowers National Park**, where aggressive intervention is constrained due to **UNESCO World Heritage** status.

### **Conclusion**

Himalayan forest fires are shaped by a unique interaction of climate, vegetation and terrain, while the same geography obstructs effective control. Addressing this challenge requires **terrain-specific fire management**, early warning systems and ecological sensitivity rather than conventional plains-based firefighting models.

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