INDIAN HERITAGE AND CULTURE

BBA – First Year | First Semester

Annamacharya University

Course Code: 26BBBA16T | Category: Value Added Course | Credits: 2

Course Objectives:

The course on Indian Heritage and Culture aims to introduce students to the richness and diversity of India's cultural traditions and heritage. It provides an understanding of the historical evolution of Indian values, practices, and traditions, while highlighting the nation's contributions in the fields of art, architecture, literature, philosophy, science, and technology. The course also seeks to create awareness about India's composite and pluralistic culture, its relevance in the contemporary global context, and to instil a sense of pride, responsibility, and ethical values rooted in the Indian heritage.

Course Outcomes:

At the end of the course, the student will be able to

1. Demonstrate knowledge of the salient features of Indian culture and civilization.
2. Analyze the influence of Indian heritage on modern business, ethics, and leadership.
3. Appreciate India's cultural diversity and its role in shaping national identity.
4. Apply learning from Indian values and traditions to personal and professional life.
5. Exhibit sensitivity towards cultural heritage and contribute to preserving it in society

Unit 1 : Introduction to Indian Heritage and Culture **6**

Definition and concept of culture and heritage-Features and characteristics of Indian culture and heritage, Unity, and diversity in India-Society in India through ages- ancient period- Varna and Jati, family and marriage in India, caste system, Position of women in Ancient India.

Unit 2 :Art and literature of India **6**

Development and evolution of Indian art – Major forms and styles of Indian art: Sculpture: Gandhara School and Mathura School of Art, Dance, Music, customs, Folk dance and music (popular forms only), Handicraft etc.,

Unit 3 : Philosophy and religion of India **6**

Major schools and systems of Indian philosophy and religion, Concepts and doctrines of Indian philosophy and religion – Pilgrimage destinations of important religions and faiths, Important Religious Festivals.

Unit 4 :Architecture of India **6**

Features and elements of Indian architecture -Types of Indian architecture, Hindu Temple Architecture, Buddhist Architecture, Medieval Architecture, Colonial Architecture etc.- Important tourism monuments of these styles. -Threats and risks to Indian culture and heritage

Unit 5 : Science, Technology, and Education in Ancient India **6**

Contributions in mathematics (Aryabhatta, Bhaskaracharya, Brahmagupta)-Developments in astronomy, medicine (Ayurveda, Sushruta, Charaka), and metallurgy-Indian contributions to linguistics and grammar (Panini)-Education in ancient India: Gurukul system, Nalanda, Takshashila, Vikramashila universities Knowledge transfer and influence on other civilizations.

Prescribed Textbooks:

1. A History of Ancient and Early Medieval India: From the Stone Age to the 12th Century-Upinder Singh – (Pearson)

Reference Books:

1. Harle, J.C. (1994). The Art and Architecture of the Indian Subcontinent. Pelican History of Art (2nd ed.). Yale University Press.

2. Michell, George, (1977) The Hindu Temple: An Introduction to its Meaning and Forms, 1977, University of Chicago Press

3. The Architecture of India: Hindu, Buddhist, and Jain – Satish Grover, Vikas Publishing

UNIT 1: INTRODUCTION TO INDIAN HERITAGE AND CULTURE

1.1 Meaning and concept of culture

Culture is the shared way of life of a group or society. It includes the ideas, beliefs, values, customs, language, art, food habits, dress, social practices, knowledge and institutions that people learn and pass from one generation to another. Culture is not limited to monuments or festivals; it is also reflected in everyday behaviour, relationships, work habits and ways of thinking.

Culture is learned rather than inherited biologically. A child learns language, manners, food practices and social expectations from family, school and the wider community. Culture is shared by members of a group, but it is not exactly the same for every individual. It changes over time through contact, education, migration, technology and new social conditions.

Important characteristics of culture

Characteristic	Explanation	Example
Learned	Acquired through socialisation and experience.	Learning a language or greeting elders respectfully.
Shared	Practised by a community, though individuals may differ.	Celebrating a regional festival together.
Transmitted	Passed from one generation to another.	Folk songs, stories and craft skills.
Dynamic	Changes in response to new circumstances.	Traditional crafts using modern designs and markets.
Integrated	Different elements such as religion, family and economy influence one another.	A festival may involve worship, food, trade and community gathering.
Symbolic	Uses symbols, gestures, objects and stories to express	The national flag and traditional motifs.

	meaning.	

1.2 Meaning of heritage

Heritage refers to the valuable cultural and natural legacy received from earlier generations and preserved for the present and future. It includes monuments, archaeological sites, manuscripts, paintings, music, dance, languages, rituals, traditional knowledge, crafts, landscapes and biodiversity. Heritage creates a link between the past, present and future.

Heritage is often classified into tangible, intangible and natural heritage. Tangible heritage consists of physical objects and places. Intangible heritage includes living traditions and knowledge. Natural heritage includes important natural landscapes, ecosystems and biodiversity.

Type	Meaning	Examples
Tangible cultural heritage	Physical objects and structures created or used by people.	Temples, forts, sculptures, manuscripts, paintings and historic buildings.
Intangible cultural heritage	Living practices, expressions, knowledge and skills.	Classical music, folk dances, oral traditions, festivals, yoga and craft techniques.
Natural heritage	Natural features and ecological areas valued for their significance.	Forests, wetlands, mountains, rivers and wildlife habitats.

PAST GENERATIONS → INHERITED LEGACY → CARE AND CONSERVATION → FUTURE GENERATIONS

1.3 Features of Indian culture and heritage

Indian culture has developed over a long period through interaction among communities, regions and traditions. It is not a single uniform culture. It is a broad cultural formation in which different languages, religions, customs and artistic forms coexist and influence one another.

- Antiquity and continuity: Indian cultural practices have roots in ancient periods, while many have adapted to changing times.
- Unity in diversity: People may follow different languages, religions, cuisines and customs while sharing wider civic and cultural identities.
- Spiritual and philosophical traditions: Indian thought includes debates on duty, knowledge, liberation, ethics, self-discipline and the nature of reality.
- Family and community orientation: Kinship, family networks, festivals and community relationships have played important roles in social life.
- Respect for knowledge: Learning, teachers, debate, scholarship and specialised skills have been valued in many Indian traditions.
- Artistic richness: Sculpture, painting, music, dance, architecture, textiles and crafts show regional variety and technical skill.

- Adaptability and exchange: Indian culture has been shaped by internal movements and interactions with Central Asian, Persian, European and other traditions.
- Pluralism: Multiple religious and philosophical traditions have developed within the subcontinent, sometimes in dialogue and sometimes in disagreement.

1.4 Unity and diversity in India

Unity means a sense of shared belonging and common identity. Diversity refers to the existence of differences in language, religion, region, food, dress, customs and social practices. In India, unity does not require everyone to follow the same customs. Instead, unity is strengthened through shared institutions, constitutional values, historical interactions, economic relationships and participation in national life.

Area of diversity	Examples	Sources of unity or interaction
Language	Indo-Aryan, Dravidian and other language families; many regional languages.	Multilingual communication, education, literature and national institutions.
Religion and belief	Hinduism, Islam, Christianity, Sikhism, Buddhism, Jainism and many indigenous traditions.	Shared public spaces, dialogue, constitutional freedom and common civic life.
Food and dress	Regional cuisines, textiles and clothing styles.	Trade, migration, media and shared celebrations.
Art and performance	Different dance, music, theatre and craft traditions.	Patronage, festivals, artistic exchange and contemporary platforms.
Geography	Himalayas, plains, deserts, coasts, plateaus and islands.	Agriculture, trade routes, travel and environmental interdependence.

The idea of “unity in diversity” is useful because it recognises difference without treating difference as a barrier. It also reminds citizens that cultural diversity requires mutual respect, equality and protection of the rights of all communities.

1.5 Indian society through the ages: a broad overview

Indian society has never been static. Its institutions and social relationships changed across historical periods. The following overview is a broad framework; different regions experienced these changes at different times.

Period	Broad social developments
Prehistoric and early communities	Hunting, gathering, early agriculture, settlement, tools, exchange and community practices

	developed over long periods.
Indus or Harappan civilisation	Urban settlements, planned streets, drainage, craft production, trade and social organisation are visible in archaeological evidence.
Vedic and later Vedic periods	Vedic literature, ritual practices, pastoral and agricultural life, changing political institutions and evolving social classifications.
Mahajanapada and early historic periods	Growth of states, towns, trade, new religious movements, coinage and expanding intellectual debates.
Early and medieval periods	Regional kingdoms, temple networks, land relations, craft and trade organisations, devotional movements and Indo-Islamic cultural interaction.
Colonial and modern periods	Colonial administration, new education systems, reform movements, nationalism, constitutional democracy and modern social change.

1.6 Varna and Jati

Varna and Jati are related but distinct concepts used in discussions of historical Indian social organisation. Varna is a broad fourfold classification found in certain textual traditions. Jati refers to numerous birth-based social groups that were often connected with occupation, marriage networks, local status and community identity. Actual social organisation varied widely by region and historical period.

Varna category in the traditional model	**Textual association often described**
Brahmana	Learning, teaching and ritual functions.
Kshatriya	Ruling, protection and warfare.
Vaishya	Agriculture, cattle-rearing and trade.
Shudra	Service and labour in the traditional textual scheme.

The fourfold model should not be treated as a complete description of all Indian society. Many communities did not fit neatly into it, and local social relations were more complex. Jatis were numerous and varied. Occupations could change, and the social position of groups differed across regions and periods.

In an examination answer, clearly distinguish the terms: Varna is a broad ideological classification, whereas Jati refers to specific social communities. Also mention that caste-based hierarchy and

discrimination have had serious social consequences and are incompatible with the constitutional commitment to equality.

1.7 Family and marriage in India

Family is a primary social institution through which people receive care, identity, language, values and social support. Historically, Indian families have taken different forms depending on region, class, occupation, religion and period. The joint family is often associated with several generations living together or sharing property and responsibilities. The nuclear family generally consists of parents and their children. Both forms continue to exist, and many families combine features of both.

Aspect	Joint family	Nuclear family
Membership	May include grandparents, uncles, aunts, cousins and other relatives.	Usually parents and dependent children.
Responsibilities	Care and duties may be shared across a wider family network.	Responsibilities are more concentrated among household members.
Decision-making	May involve senior members and collective consultation.	Often handled by parents or adult partners.
Change over time	Can adapt to urban employment and migration through shared support.	Common in mobile and urban settings, but not universal.

Marriage is a social institution that establishes a recognised relationship between partners and often connects families and kinship groups. Indian marriage customs differ across communities. Historically, forms and rules of marriage were shaped by religion, local custom, property, kinship and social status. Modern India recognises legal frameworks that protect consent, age requirements and rights within marriage.

For a balanced answer, explain both continuity and change: family support and kinship remain important, while education, urbanisation, women's employment, legal reforms and individual choice have influenced family and marriage practices.

1.8 Caste system: historical development and social impact

The caste system refers to a historically developed form of social stratification in which birth-based groups were associated with status, social rules, marriage practices and, in many contexts, traditional occupations. It did not operate identically in every region. Its forms were shaped by local power, land ownership, religious ideas, political authority and economic conditions.

Caste hierarchy restricted opportunities and contributed to exclusion, untouchability and discrimination. Reformers, social movements and constitutional measures challenged these practices. The Constitution of India guarantees equality before the law, prohibits discrimination on specified grounds and abolishes untouchability under Article 17. Legal equality is essential, though social change also requires education, awareness and equal opportunity.

1.9 Position of women in ancient India

The position of women in ancient India cannot be described in one sentence because it varied across periods, regions, social groups and economic conditions. Literary sources, inscriptions and archaeological evidence provide different kinds of information, and each source has limitations. Some texts refer to women participating in religious and intellectual life; other sources reflect patriarchal restrictions and unequal access to property, education or public authority.

In early Vedic textual traditions, women such as Gargi and Maitreyi are remembered in philosophical discussions. Women also participated in household production, agriculture, crafts and religious practices. In later periods, social norms in many communities placed stronger emphasis on patriarchal authority, control over marriage and restrictions on women's independence. These patterns were not universal or identical everywhere.

A good answer should avoid presenting ancient India as either completely equal or uniformly oppressive. Instead, explain variation and change, cite examples cautiously, and distinguish literary ideals from the lived experiences of women.

1.10 Heritage, identity and responsible citizenship

Heritage gives communities a sense of continuity and identity. It can support education, tourism, local employment and creative industries. At the same time, heritage should not be used to justify discrimination or exclusion. Responsible heritage appreciation involves respect for different communities, evidence-based understanding of history, protection of monuments and support for living traditions.

UNIT 2: ART AND LITERATURE OF INDIA

2.1 Meaning and scope of Indian art

Art is a form of creative expression through which people communicate ideas, emotions, beliefs and experiences. Indian art includes sculpture, painting, architecture, dance, music, theatre, literature, textiles, pottery, metalwork, woodwork and other crafts. Art has served religious, social, political, educational and decorative purposes.

Indian art developed through interaction among local traditions, royal and religious patronage, trade networks and cultural exchange. Its forms changed over time, but many artistic techniques and themes continued through adaptation. Art is therefore both a record of history and a living part of contemporary society.

2.2 Development and evolution of Indian art

Broad phase	Illustrative artistic developments
Prehistoric	Rock paintings and engravings depicting animals, hunting and community life.
Indus civilisation	Terracotta objects, seals, pottery, ornaments, figurines and the bronze “Dancing Girl” figure.
Mauryan period	Polished stone pillars, animal capitals, monumental architecture and early Buddhist art.
Post-Mauryan period	Stupas, railings, gateways, narrative reliefs and regional sculptural schools.
Gupta period	Refined sculpture, temple forms, religious images and developments in painting.
Early medieval period	Regional temple sculpture, bronze icons, mural traditions and sophisticated craft production.
Medieval period	Indo-Islamic artistic forms, miniature painting traditions, textiles, metalwork and regional performance styles.
Modern and contemporary	New media, modern painting, cinema, photography, design and renewed interest in folk and classical traditions.

LOCAL TRADITIONS + PATRONAGE + RELIGIOUS IDEAS + TRADE AND EXCHANGE → EVOLVING INDIAN ART

2.3 Sculpture in India

Sculpture is the art of creating three-dimensional forms by carving, modelling, casting or assembling materials. Indian sculpture has used stone, bronze, terracotta, wood and other materials. Sculptures

may represent deities, human figures, animals, guardians, rulers or narrative scenes. Their gestures, posture, clothing, ornaments and symbols often communicate specific meanings.

The Indus civilisation produced small sculptures and figurines. Mauryan art is known for polished stone pillars and monumental animal capitals. Buddhist sites such as Bharhut, Sanchi and Amaravati contain narrative reliefs. Later Hindu, Buddhist and Jain sculptures developed rich iconographic traditions.

2.4 Gandhara School of Art

The Gandhara School developed in the north-western part of the Indian subcontinent, especially in areas corresponding broadly to present-day north-west Pakistan and eastern Afghanistan. It flourished particularly during the early centuries CE under several political and cultural influences, including Kushana patronage. Gandhara art is especially known for Buddhist images and narrative reliefs.

- Material and technique: Grey schist was widely used, along with stucco in some contexts.
- Visual style: Drapery is often shown in deep, flowing folds; figures may have wavy hair and carefully modelled facial features.
- Influences: Artists drew upon local traditions and artistic conventions circulating through Hellenistic and Central Asian networks.
- Themes: The life of the Buddha, Jataka stories, Bodhisattvas and scenes connected with Buddhist teaching.
- Importance: Gandhara helped develop widely recognisable forms of the Buddha image.

2.5 Mathura School of Art

The Mathura School developed around Mathura in northern India and became an important centre of sculpture during the early centuries CE. It used the region's distinctive red sandstone and developed images of Buddhist, Jain and Brahmanical subjects. Its style is generally associated with strong volumes, a sense of bodily vitality and a visual language rooted in indigenous sculptural traditions.

- Material: Characteristic red sandstone, often with mottled appearance.
- Forms: Powerful, rounded bodies and a direct, frontal presentation in many images.
- Subjects: Buddha and Bodhisattva images, Jain Tirthankaras, yakshas and Hindu deities.
- Contribution: Mathura was a major centre in the development of religious iconography in northern India.

Feature	Gandhara School	Mathura School
Region	North-western subcontinent.	Mathura region, northern India.
Common material	Grey schist; also stucco.	Red sandstone.
Visual treatment	Flowing drapery folds; naturalistic modelling.	Fuller forms; strong bodily volume and indigenous idiom.
Cultural influences	Local, Hellenistic and Central Asian contacts.	Strong regional Indian sculptural traditions.
Subjects	Especially Buddhist images	Buddhist, Jain and

	and narratives.	Brahmanical subjects.

The two schools should not be treated as completely isolated or as simple opposites. They developed within wider networks of exchange and both contributed to the history of Indian religious sculpture.

2.6 Indian dance traditions

Dance combines movement, rhythm, expression, gesture and sometimes narrative. Indian dance traditions include classical forms with developed systems of technique and theory, as well as numerous folk and community dances. Dance may be performed in temples, courts, festivals, social gatherings and modern stages.

The classical dance forms commonly recognised in India include Bharatanatyam, Kathak, Kathakali, Kuchipudi, Odissi, Manipuri, Mohiniyattam and Sattriya. Each has its own history, movement vocabulary, music, costume and performance conventions.

Dance form	Region or association	General features
Bharatanatyam	Tamil Nadu	Structured footwork, expressive gestures, sculptural poses and Carnatic music.
Kuchipudi	Andhra Pradesh	Dance-drama tradition, expressive storytelling and rhythmic movement.
Kathak	North India	Footwork, spins, storytelling and interaction with Hindustani music.
Kathakali	Kerala	Dance-drama with elaborate costume, make-up and expressive facial movement.
Odissi	Odisha	Fluid torso movements, sculptural poses and devotional themes.
Manipuri	Manipur	Graceful movements, devotional themes and distinctive costumes.
Mohiniyattam	Kerala	Gentle, flowing movements and expressive performance.
Sattriya	Assam	Tradition associated with Vaishnavite monasteries or satras.

2.7 Folk dances and music

Folk dances and music arise from community life and are often connected with harvests, seasons, weddings, religious festivals, local histories and collective celebration. They are transmitted through practice and participation. Their forms can change while retaining local identity.

Folk form	Region commonly associated	Context or feature
Bhangra	Punjab	Energetic dance associated with harvest celebration.
Garba and Dandiya Raas	Gujarat	Community dances performed especially during Navaratri.
Ghoomar	Rajasthan	Circular group dance with flowing movements and colourful dress.
Bihu	Assam	Dance and music associated with the Bihu festival and seasonal celebration.
Lavani	Maharashtra	Song-and-dance form known for rhythm and expressive performance.
Dollu Kunitha	Karnataka	Drum-based group dance.
Perini Shivatandavam	Telangana	Traditional energetic dance associated with Shaiva themes.
Kolattam	Andhra Pradesh and other regions	Group dance using sticks in rhythmic patterns.

Folk music includes work songs, devotional songs, ballads, wedding songs, lullabies and festival songs. Examples include Baul songs of Bengal, Bihu songs of Assam, Pandavani storytelling in Chhattisgarh and regional devotional traditions. Local instruments, dialects and performance settings are important to their identity.

2.8 Indian music: classical traditions

Indian classical music has two major broad systems: Hindustani music, associated mainly with northern India, and Carnatic music, associated mainly with southern India. Both use melodic frameworks and rhythmic cycles, but their historical development, performance conventions and repertoire differ.

Aspect	Hindustani music	Carnatic music
Broad region	North India	South India

Melodic framework	Raga	Raga
Rhythm	Tala	Tala
Performance features	Alap, improvisation and varied gharana traditions.	Kriti-based repertoire, improvisation and strong compositional traditions.
Important instruments	Sitar, sarod, tabla, sarangi, bansuri.	Veena, violin, mridangam, ghatam, flute.

A raga is a melodic framework that uses selected notes and characteristic phrases to create a musical identity. Tala is a rhythmic cycle organised through beats and divisions. These concepts are central to understanding Indian classical music.

2.9 Customs and cultural practices

Customs are established practices followed by a community. They may relate to birth, naming, education, marriage, festivals, hospitality, food, dress, worship and death. Customs provide continuity and a sense of belonging, but they also change as communities respond to education, law, economic conditions and new ideas.

India's customs vary widely. A festival may be celebrated in different ways across states and even among neighbouring communities. Students should use examples carefully and avoid assuming that one regional practice represents the whole country.

2.10 Handicrafts of India

Handicrafts are objects made mainly through skilled manual work, often using traditional techniques and locally available materials. They include textiles, pottery, metalwork, wood carving, stone carving, jewellery, basketry, embroidery, toys and decorative objects. Handicrafts preserve technical knowledge and provide livelihoods to artisan communities.

Craft	**Region or centre often associated**	**Material or technique**
Kalamkari	Andhra Pradesh	Hand-painted or block-printed textile using pen or blocks.
Bidriware	Bidar, Karnataka	Metal inlay work, traditionally using silver on a dark alloy surface.
Blue pottery	Jaipur, Rajasthan	Glazed decorative pottery.
Channapatna toys	Karnataka	Lacquered wooden toys.
Pashmina weaving	Kashmir region	Fine wool weaving and textile craftsmanship.
Madhubani painting	Bihar	Folk painting with distinctive lines, motifs and colours.

Kanchipuram silk weaving	Tamil Nadu	Silk textiles with traditional motifs and borders.

2.11 Importance and challenges of Indian art

- Art preserves historical memory and gives evidence about beliefs, technologies and social life.
- It supports identity, education, tourism, employment and creative industries.
- Artistic traditions encourage creativity, discipline, teamwork and cultural exchange.
- Challenges include loss of patronage, declining artisan incomes, imitation products, inadequate documentation and changing tastes.
- Preservation requires training, fair market access, documentation, responsible tourism and respect for artists and communities.

UNIT 3: PHILOSOPHY AND RELIGION OF INDIA

3.1 Meaning of philosophy and religion

Philosophy is the systematic study of fundamental questions about reality, knowledge, reasoning, values, mind and human existence. Indian philosophical traditions include debates about the self, the world, suffering, duty, liberation and the sources of valid knowledge. Religion generally involves beliefs, practices, ethical teachings, rituals, communities and ideas about the sacred or ultimate reality.

Philosophy and religion overlap in many traditions, but they are not identical. Philosophical inquiry may question assumptions and examine arguments, while religious life may also include devotion, worship, ritual and community identity.

3.2 Broad classification of Indian philosophical systems

A traditional classification groups six influential orthodox (Astika) systems that recognise the authority of the Vedas in a broad philosophical sense, and several non-orthodox (Nastika) systems that do not accept Vedic authority as decisive. These labels describe philosophical positions; they should not be used as simple judgments about whether a tradition is religious or spiritual.

Orthodox (Astika) systems	**Central concern or contribution**
Nyaya	Logic, reasoning, debate and valid knowledge.
Vaisheshika	Categories of reality, substances and the analysis of the physical world.
Samkhya	Distinction between Purusha (consciousness) and Prakriti (nature).
Yoga	Discipline of mind and body; practices directed towards concentration and liberation.
Purva Mimamsa	Interpretation of Vedic ritual and duty.
Vedanta	Interpretation of the Upanishads and questions about Brahman, Atman and liberation.

Non-orthodox traditions	**Central teachings**
Buddhism	Four Noble Truths, Eightfold Path, impermanence, dependent origination and the possibility of ending suffering.
Jainism	Ahimsa, many-sidedness of reality, karma, self-discipline and liberation.
Charvaka/Lokayata	Materialist and this-worldly approach; emphasis on perception as a source of knowledge.

3.3 Important concepts in Indian philosophy

A. Dharma

Dharma is a broad concept that may refer to duty, moral order, right conduct, law or the principles that sustain social and cosmic order. Its meaning varies by text and tradition. In everyday ethical discussion, dharma is often connected with responsibility, fairness and appropriate conduct.

B. Karma

Karma refers to action and, in many Indian traditions, the moral consequences of action. Actions are understood to have consequences that may shape future experiences. Different schools explain karma in different ways. The concept encourages attention to intention, conduct and responsibility.

C. Samsara and Moksha

Samsara is the cycle of birth, death and rebirth in traditions that accept rebirth. Moksha means liberation from this cycle. Different schools describe the cause of bondage and the path to liberation differently, such as knowledge, disciplined practice, devotion or right conduct.

D. Atman and Brahman

Atman is commonly used for the self or inner principle, while Brahman refers in many Upanishadic and Vedantic contexts to ultimate reality. Vedantic schools interpret the relationship between Atman and Brahman in different ways. Advaita Vedanta, for example, teaches non-duality, while other Vedanta schools present qualified or theistic interpretations.

E. Ahimsa

Ahimsa means non-violence or the avoidance of harm. It is especially central in Jainism and is also important in Buddhism and Hindu traditions. It can guide personal conduct, compassion, social relations and approaches to conflict.

F. Yoga

Yoga is a disciplined path involving ethical restraints, self-discipline, posture, breath regulation, concentration and meditation in classical formulations. In modern contexts, yoga is also practised for physical and mental well-being. Its philosophical meanings are broader than physical exercise alone.

3.4 Hindu philosophical and religious traditions

Hindu traditions are diverse and include Vedic, Upanishadic, Puranic, devotional, philosophical and regional practices. There is no single founder or one uniform form of worship. Important concepts include dharma, karma, samsara, moksha, Atman and Brahman. Devotional traditions may focus on Vishnu, Shiva, Devi and other forms of the divine.

Bhakti movements emphasised personal devotion and often used regional languages, poetry and music to communicate spiritual ideas. They contributed to vernacular literature and widened participation in religious expression, although experiences and social effects varied across regions.

3.5 Buddhism

Buddhism emerged in the north-eastern part of the Indian subcontinent during the first millennium BCE and is associated with the teachings of Gautama Buddha. It focuses on understanding suffering and the path to its cessation.

Teaching	Explanation
Four Noble Truths	Life involves dukkha (unsatisfactoriness or suffering); craving is a cause; cessation is possible; and a path leads to cessation.
Eightfold Path	Right view, intention, speech, action, livelihood, effort, mindfulness and concentration.
Impermanence	All conditioned things are subject to change.
Non-self	There is no permanent, unchanging self in the sense rejected by Buddhist teaching.
Dependent origination	Phenomena arise in dependence on causes and conditions.

Buddhist traditions later developed into several schools and spread across Asia. Monasteries, stupas, universities, art and translation movements played important roles in the transmission of Buddhist ideas.

3.6 Jainism

Jainism is an ancient Indian religious tradition that teaches liberation through right faith, right knowledge and right conduct. It gives central importance to non-violence and self-discipline. Mahavira is recognised as the 24th Tirthankara in the present time cycle in Jain tradition.

- Ahimsa: Avoiding injury to living beings, with particular attention to careful conduct.
- Anekantavada: The doctrine that reality has many aspects and cannot be fully described from one limited viewpoint.
- Karma: Understood as a subtle form of bondage associated with actions and passions.
- Aparigraha: Non-possessiveness or limiting attachment to possessions.
- Three Jewels: Right faith, right knowledge and right conduct.

3.7 Sikhism

Sikhism developed in the Punjab region and is associated with Guru Nanak and the line of Sikh Gurus. It teaches devotion to one God, honest living, remembrance of the divine, equality and service. The Guru Granth Sahib is the central scripture and the living Guru in Sikh tradition. The institution of langar expresses the values of equality, hospitality and community service.

3.8 Islam and Christianity in India

Islam has been present in the Indian subcontinent for many centuries through trade, migration, scholarship, Sufi networks and political developments. Core Islamic beliefs include the oneness of

God, prophethood, prayer, charity, fasting and pilgrimage. Indian Muslim communities have contributed to literature, architecture, music, education, crafts and public life.

Christian communities have a long history in India, with traditions that include ancient communities in Kerala as well as later arrivals and missionary movements. Christianity teaches belief in one God and the life and teachings of Jesus Christ. Indian Christian communities have contributed to education, health care, literature, music and social service. Practices differ among denominations and regions.

3.9 Pilgrimage: meaning and significance

A pilgrimage is a journey to a place regarded as sacred. Pilgrimage may express devotion, fulfilment of vows, remembrance, penance, learning or participation in a religious community. Pilgrimage centres also support local economies through transport, accommodation, food, craft sales and related services. Responsible pilgrimage requires respect for local communities and protection of the environment and monuments.

Religion or tradition	Important pilgrimage destinations in India	Significance (brief)
Hindu traditions	Varanasi, Ayodhya, Mathura, Haridwar, Rameswaram, Tirupati, Puri, Dwarka.	Sacred rivers, temples, devotional traditions and religious narratives.
Buddhism	Bodh Gaya, Sarnath, Kushinagar, Sravasti.	Places associated with the Buddha's enlightenment, first teaching and final passing, and his life.
Jainism	Palitana, Shravanabelagola, Shikharji, Girnar.	Sacred sites associated with Tirthankaras, worship and ascetic traditions.
Sikhism	Harmandir Sahib (Amritsar), Anandpur Sahib, Patna Sahib, Hazur Sahib.	Gurdwaras associated with Sikh history and the Gurus.
Islam	Ajmer Sharif, Nizamuddin Dargah, important mosques and Sufi shrines.	Devotional visits, prayer and remembrance; practices vary.
Christianity	Velankanni, Basilica of Bom Jesus (Goa), St Thomas traditions in Kerala.	Churches and sites associated with Christian history and devotion.

3.10 Important religious festivals

Festival	Tradition/community	General significance
Diwali	Many Hindu, Jain and Sikh communities, with different	Festival of lights; meanings vary, including stories of

	meanings.	return, victory and spiritual renewal.
Holi	Hindu traditions and wider regional celebrations.	Spring festival associated with colours and narratives of renewal and devotion.
Dussehra/Vijayadashami	Hindu traditions.	Celebrates victory of good over evil in different regional narratives.
Pongal / Makar Sankranti	Regional harvest and solar-calendar traditions.	Gratitude for harvest, sun and agricultural life.
Eid al-Fitr	Muslim communities.	Marks the completion of Ramadan and includes prayer, charity and community celebration.
Eid al-Adha	Muslim communities.	Commemorates devotion and sacrifice; includes prayer and charitable sharing.
Christmas	Christian communities.	Celebrates the birth of Jesus Christ.
Baisakhi	Sikh and Punjabi communities.	Harvest festival and an important date in Sikh history.
Buddha Purnima	Buddhist communities.	Commemorates key events in the life of Gautama Buddha.
Mahavir Jayanti	Jain communities.	Celebrates the birth of Mahavira.
Onam	Kerala communities.	Harvest and cultural festival associated with the Mahabali tradition.

Festival dates, rituals and meanings can differ across regions and communities. Students should explain the general significance and give examples without claiming that every member of a religion celebrates in exactly the same way.

3.11 Religious pluralism and interfaith understanding

Religious pluralism means recognising the presence and legitimate participation of different religious communities in society. India's history includes dialogue, shared sacred spaces, philosophical debate, devotional poetry and cultural exchange. It also includes periods of conflict. A balanced understanding acknowledges both cooperation and disagreement, while supporting freedom of belief, equality and mutual respect.

UNIT 4: ARCHITECTURE OF INDIA

4.1 Meaning and importance of architecture

Architecture is the art and science of planning and constructing buildings and spaces. It reflects available materials, engineering knowledge, climate, religious beliefs, political power, social organisation and artistic preferences. Indian architecture includes homes, temples, stupas, monasteries, mosques, tombs, forts, palaces, stepwells, civic buildings and colonial structures.

Buildings are valuable historical sources. Their plans, materials, inscriptions, ornamentation and location can reveal information about technology, patronage, trade, religion and everyday life.

4.2 Features and elements of Indian architecture

- Plan and layout: The arrangement of rooms, courtyards, halls, sanctums, gateways and circulation spaces.
- Materials: Stone, brick, timber, lime, mortar, metal and locally available building materials.
- Structural systems: Pillars, beams, arches, domes, vaults, corbelled structures and load-bearing walls.
- Decoration: Carvings, sculpture, paintings, geometric patterns, calligraphy and narrative panels.
- Religious symbolism: Sacred geometry, orientation, iconography and ritual movement in religious buildings.
- Climate and environment: Courtyards, shaded spaces, ventilation, water structures and local adaptation.
- Patronage: Kings, merchants, religious institutions, guilds, communities and colonial administrations supported construction.

4.3 Broad types of Indian architecture

Type	General features	Examples
Indus/Harappan urban architecture	Planned streets, drainage, wells, public structures and standardised bricks.	Mohenjo-daro, Harappa, Dholavira.
Hindu temple architecture	Sanctum, shrine superstructure, mandapa and sculptural programme.	Brihadisvara Temple, Khajuraho temples, temples at Pattadakal.
Buddhist architecture	Stupas, chaityas, viharas and monastic complexes.	Sanchi Stupa, Karle caves, Ajanta.
Jain architecture	Temples, carved pillars, domes and detailed marble or stone work.	Dilwara Temples, Ranakpur.
Medieval Indo-Islamic architecture	Arches, domes, minarets, courtyards, geometric and calligraphic decoration.	Qutub Minar complex, Humayun’s Tomb, Taj Mahal.
Colonial architecture	European styles adapted to	Victoria Memorial, Mumbai’s

	Indian climate, materials and local design traditions.	Gothic Revival buildings, Rashtrapati Bhavan.

4.4 Hindu temple architecture

A Hindu temple is a sacred structure designed for worship and ritual. Although regional styles differ, many temples include a sanctum, an entrance or porch, halls and a superstructure over the sanctum. The temple is not merely a building; its plan, images and ritual spaces can represent ideas about the cosmos and the divine.

Main elements of a Hindu temple

Element	Meaning or function
Garbhagriha	The innermost sanctum where the principal deity's image or symbol is installed.
Shikhara / Vimana	The superstructure above the sanctum; terminology and form vary by region.
Mandapa	A pillared hall used for gathering, ritual or movement towards the sanctum.
Antarala	An intermediate vestibule between sanctum and hall in many temple plans.
Pradakshina patha	Circumambulatory passage for ritual movement around the sanctum.
Gopuram	A monumental gateway tower, especially prominent in many South Indian temple complexes.
Temple tank	A water body associated with ritual use and temple activity in many complexes.

4.5 Nagara, Dravida and Vesara styles

Three broad labels are often used to describe major temple architectural traditions. They are useful for comparison, but actual temples show regional variations and mixtures of features.

Feature	Nagara	Dravida	Vesara
Broad region	Northern India	Southern India	Deccan region; often described as combining or adapting features.
Sanctum superstructure	Curvilinear shikhara is a common feature.	Pyramidal or tiered vimana is common.	Varied forms combining regional elements.

Gateway	May be less dominant than the main shrine in many examples.	Large gopurams are prominent in many later complexes.	Varies by site and period.
Examples	Khajuraho temples; Lingaraja Temple.	Brihadisvara Temple; Shore Temple.	Temples at Pattadakal show important Deccan developments.

4.6 Important Hindu temple monuments

Monument	Location	Importance
Brihadisvara Temple	Thanjavur, Tamil Nadu	Major Chola temple, noted for its monumental vimana and stone architecture.
Shore Temple	Mamallapuram, Tamil Nadu	Pallava-era coastal temple complex.
Khajuraho Group of Monuments	Madhya Pradesh	Temples known for their architectural composition and sculptural programmes.
Lingaraja Temple	Bhubaneswar, Odisha	Important example of the Kalinga temple tradition.
Virupaksha Temple	Pattadakal, Karnataka	Important early medieval temple associated with Chalukya patronage.

4.7 Buddhist architecture

Buddhist architecture developed around places of worship, relics, teaching and monastic life. Three important forms are the stupa, chaitya and vihara.

Form	Description	Example
Stupa	A mound-like structure associated with relics and Buddhist worship; often includes a dome, harmika, central mast and circumambulatory path.	Great Stupa at Sanchi.
Chaitya	A prayer or worship hall, often with a stupa at the end.	Karla (Karle) caves in Maharashtra.
Vihara	A monastery or residence for Buddhist monks, often	Monastic caves at Ajanta.

	arranged around cells and a common space.	

The Great Stupa at Sanchi is known for its dome, harmika, chatra and carved gateways (toranas). Its reliefs depict stories and symbols associated with Buddhist tradition. Ajanta is famous for rock-cut caves, monasteries and paintings. Karle is known for its large rock-cut chaitya hall.

4.8 Medieval architecture

Medieval Indian architecture includes a wide range of regional temple, fort, palace, mosque, tomb and civic traditions. Indo-Islamic architecture developed through interaction among local building practices and architectural ideas associated with Persian, Central Asian and other regions. It is not a single uniform style.

- Arches and domes: Used in many mosques, tombs and gateways, with different construction techniques across periods.
- Minarets: Tall towers associated with some mosque complexes and monumental architecture.
- Courtyards: Open spaces used for gathering, circulation and environmental comfort.
- Decoration: Geometric patterns, calligraphy, floral motifs, stone inlay and carved screens.
- Fortification: Defensive walls, bastions, gates and strategic siting in forts.
- Regional adaptation: Local materials, artisans and earlier building traditions shaped the final forms.

Monument	Location	Architectural importance
Qutub Minar complex	Delhi	Early Indo-Islamic monumental complex with a prominent minaret and associated structures.
Humayun’s Tomb	Delhi	Major Mughal garden-tomb with a symmetrical plan and dome.
Fatehpur Sikri	Uttar Pradesh	Mughal planned city with palaces, courtyards and monumental gateways.
Taj Mahal	Agra, Uttar Pradesh	Mughal mausoleum known for its symmetrical composition, marble work and garden setting.
Gol Gumbaz	Vijayapura, Karnataka	Deccan monument famous for its large dome and acoustic gallery.
Charminar	Hyderabad, Telangana	Iconic four-minaret structure and urban landmark.

4.9 Colonial architecture

Colonial architecture refers to buildings constructed under European colonial rule, often combining European architectural styles with Indian materials, climate responses and local craftsmanship. It includes Gothic Revival, Neoclassical, Indo-Saracenic and other forms.

Style or feature	Description	Illustrative example
Gothic Revival	Pointed arches, ribbed vaults, tall windows and vertical emphasis.	Chhatrapati Shivaji Maharaj Terminus, Mumbai.
Neoclassical	Symmetry, columns, pediments and classical proportions.	Some colonial-era public and institutional buildings.
Indo-Saracenic	Combination of European planning with selected Indo-Islamic and Indian motifs.	Mysore Palace; Victoria Memorial is often discussed in the wider colonial architectural context.
Imperial civic planning	Large avenues, administrative buildings and planned public spaces.	New Delhi's central administrative area.

4.10 Architecture and tourism

Historic monuments attract domestic and international visitors. Heritage tourism supports guides, hotels, transport, local food businesses, craftspeople and cultural institutions. It can create awareness of history and encourage conservation. However, tourism must be managed so that monuments are not damaged by overcrowding, littering, vandalism or inappropriate construction.

4.11 Threats and risks to Indian culture and heritage

Threat	Possible impact	Preventive measures
Pollution and climate effects	Weathering of stone, corrosion, fading of paintings and damage to structures.	Monitoring, suitable cleaning, pollution control and climate-sensitive conservation.
Urbanisation and construction	Loss of historic settings, encroachment and vibration damage.	Heritage-sensitive planning, buffer zones and enforcement.
Neglect and inadequate maintenance	Water seepage, vegetation growth, structural weakness and decay.	Regular inspection, documentation and planned maintenance.
Vandalism and theft	Loss of sculptures, inscriptions	Security, public awareness,

	and movable objects.	inventories and legal action.
Unregulated tourism	Wear, litter, crowd pressure and damage to fragile sites.	Visitor management, signage, trained guides and carrying-capacity planning.
Loss of living traditions	Decline in languages, oral knowledge, crafts and performance skills.	Support for practitioners, apprenticeships, documentation and fair livelihoods.
Disasters and conflict	Sudden damage or destruction of monuments and collections.	Risk assessment, emergency plans, digitisation and disaster preparedness.

4.12 Role of citizens and institutions in preservation

- Respect monuments and follow visitor rules; do not write on or remove parts of historic structures.
- Support local artisans, performers and traditional knowledge holders.
- Promote responsible tourism and avoid littering or damaging heritage sites.
- Document family and community histories with consent and accuracy.
- Encourage heritage education in schools and colleges.
- Support conservation by trained professionals and relevant public institutions.

UNIT 5: SCIENCE, TECHNOLOGY AND EDUCATION IN ANCIENT INDIA

5.1 Introduction

Ancient India developed traditions of observation, calculation, debate, practical skill and systematic learning. Knowledge was produced in different settings, including households, craft communities, scholarly circles, monasteries, courts and specialised centres of learning. Contributions in mathematics, astronomy, medicine, metallurgy, language and education formed part of wider networks of exchange across Asia.

The history of science should be studied carefully. Ancient achievements deserve recognition, but claims should be based on reliable historical evidence. Knowledge developed over centuries, and individual scholars built upon earlier work.

5.2 Mathematics in ancient India

Indian mathematicians made important contributions to arithmetic, algebra, geometry, number systems and astronomical calculation. The development and transmission of place-value notation and the use of zero as a number were especially significant in the history of mathematics. These ideas later travelled through scholarly networks and influenced mathematics beyond India.

Aryabhata

Aryabhata, who composed the Aryabhatiya in 499 CE, was an influential mathematician and astronomer. His work discussed arithmetic, algebraic methods, geometry, trigonometry and astronomical calculations. He used a systematic approach to numerical problems and gave an approximation for pi. He explained that the apparent daily movement of the stars is related to the rotation of the Earth, an important idea in the history of Indian astronomy.

Brahmagupta

Brahmagupta, a seventh-century mathematician and astronomer, wrote the Brahmasphutasiddhanta in 628 CE. He gave rules for calculations involving zero and negative numbers and developed methods for solving certain algebraic problems. His work influenced later mathematical traditions, including those beyond India through translation and scholarly exchange.

Bhaskaracharya (Bhaskara II)

Bhaskara II, a twelfth-century mathematician and astronomer, authored the Siddhanta Shiromani, which includes the Lilavati and Bijaganita. His writings addressed arithmetic, algebra, geometry and astronomical topics. Lilavati is known for presenting mathematical problems in an engaging literary style. His work reflects the advanced mathematical learning of his period.

Scholar	Period/work	Major contribution commonly associated
Aryabhata	5th–6th century CE; Aryabhatiya	Mathematics and astronomy; approximation of pi; trigonometric tables and Earth’s rotation explanation.

Brahmagupta	7th century CE; Brahmasphutasiddhanta	Rules involving zero and negative numbers; algebraic procedures.
Bhaskara II	12th century CE; Siddhanta Shiromani	Arithmetic, algebra, geometry and astronomical calculation.

5.3 Place-value system and zero

The decimal place-value system assigns value to a digit according to its position. For example, in 505, the first 5 represents five hundreds and the last 5 represents five units. Zero functions as a placeholder and, in developed arithmetic, as a number with rules of operation. Indian mathematical traditions played a major role in the development of these ideas, which later spread widely through transmission across regions.

NUMERICAL SYMBOLS → PLACE VALUE → USE OF ZERO → EFFICIENT CALCULATION → WIDER MATHEMATICAL TRANSMISSION

5.4 Astronomy in ancient India

Astronomy involved observing and calculating the movements of the Sun, Moon, planets and stars. It was connected with calendars, seasons, timekeeping, navigation, ritual schedules and mathematical study. Indian astronomers developed methods for predicting eclipses, calculating planetary positions and preparing calendars.

- Aryabhata explained the apparent daily motion of the sky through the rotation of the Earth and discussed eclipses in terms of shadows.
- Brahmagupta wrote on planetary calculations, eclipses and mathematical astronomy.
- Later scholars refined astronomical tables and computational methods.
- Observational and mathematical traditions were transmitted and adapted through contact with other scholarly cultures.

Students should distinguish astronomy from astrology. Astronomy is the systematic study of celestial objects and phenomena. Historical Indian texts sometimes combined astronomical calculations with astrological interpretation, but the two should not be treated as identical modern disciplines.

5.5 Medicine: Ayurveda

Ayurveda is a traditional system of Indian medicine whose name is commonly interpreted as “knowledge of life”. It developed through texts, teaching lineages and practical traditions. Ayurveda emphasises health maintenance, prevention, diet, daily routine, diagnosis and treatment. Classical explanations include the concepts of doshas, dhatus, malas, agni and the balance of bodily functions.

The three doshas are commonly described as Vata, Pitta and Kapha. In Ayurvedic theory, health is associated with their balanced functioning, while imbalance is linked with illness. These are concepts within a traditional medical framework and should be understood historically and culturally; they are not the same as modern biomedical categories.

5.6 Charaka and the tradition of internal medicine

Charaka is associated with the Charaka Samhita, a major classical Ayurvedic text. It discusses causes of disease, diagnosis, prevention, diet, medicines, clinical reasoning and the responsibilities of a physician. The text also emphasises the importance of careful observation, patient examination and ethical conduct. It is an important source for understanding the history of Indian medical thought.

5.7 Sushruta and surgery

Sushruta is associated with the Sushruta Samhita, a major text in the history of Indian medicine and surgery. It describes surgical instruments, procedures, training, anatomy and the treatment of injuries. The text is particularly noted for its discussion of surgical techniques, including procedures related to reconstruction of the nose. It also stresses practical training and disciplined preparation.

Scholar/text tradition	Area of contribution	Historical significance
Charaka Samhita	Medicine, diagnosis, prevention, diet and physician ethics.	Important source for classical Ayurvedic internal medicine.
Sushruta Samhita	Surgery, instruments, procedures and training.	Important source for the history of surgical knowledge in India.

Historical medical texts should be studied as evidence of earlier knowledge systems. Modern medical decisions should be based on qualified healthcare professionals and current evidence-based standards.

5.8 Metallurgy in ancient India

Metallurgy is the science and technology of extracting metals from ores, refining them and making useful objects. Ancient Indian metalworkers developed skills in ironworking, copper and bronze casting, gold and silver work, alloy production and the manufacture of tools, weapons, ornaments and ritual objects.

- Iron technology: Iron tools and objects supported agriculture, construction and craft production.
- Wootz steel: High-quality crucible steel produced in parts of India became known through trade and was associated with advanced metalworking.
- Zinc production: Evidence from sites such as Zawar in Rajasthan is important to the history of zinc distillation.
- Bronze casting: Skilled casting techniques were used to produce images and other objects.
- Iron pillar of Delhi: The pillar is well known for its corrosion resistance and provides evidence of sophisticated ironworking.

Metallurgical achievements depended on knowledge of ores, furnaces, temperature control, fuel, alloy composition and skilled labour. These technologies supported trade, agriculture, construction, warfare and artistic production.

5.9 Linguistics and grammar: Panini

Panini was an ancient Indian grammarian traditionally dated to around the middle of the first millennium BCE, though exact dating is debated. His work Ashtadhyayi is a highly systematic grammar of Sanskrit. It contains concise rules organised in a carefully structured way and uses technical devices to describe how linguistic forms are generated.

Panini's grammar is important because it demonstrates sophisticated analysis of sounds, word formation and grammatical structure. Its rule-based organisation has attracted attention from scholars of linguistics and the history of formal systems. It also helped preserve and analyse the Sanskrit language.

5.10 Education in ancient India

Education in ancient India took place in varied settings. Learning could occur within families, through craft apprenticeship, in scholarly communities, at temples, in monasteries and in organised centres of higher learning. Subjects included language, grammar, philosophy, logic, mathematics, astronomy, medicine, statecraft, arts and religious studies. Access to education was not equal for all groups and varied by period, region, gender and social status.

A. Gurukul system

The Gurukul system is associated with a teacher-centred form of learning in which students lived with or near the teacher (guru) and learned through instruction, practice, discussion and daily discipline. The relationship between teacher and student was central. Learning could include memorisation, recitation, ethical conduct, practical tasks and specialised knowledge.

- Residential or close teacher-student relationship in many descriptions.
- Emphasis on discipline, respect, self-control and responsibility.
- Oral teaching, memorisation, discussion and practical learning.
- Curriculum varied according to the teacher, tradition and student's course of study.
- The model should not be assumed to have been identical everywhere or accessible equally to all.

B. Takshashila (Taxila)

Takshashila, located in present-day Pakistan, was an important ancient centre of learning. It attracted students and teachers from different regions. It was not necessarily a university in the modern institutional sense; learning was often organised around individual teachers and specialised instruction. Subjects associated with the centre include medicine, grammar, philosophy, statecraft and other fields.

C. Nalanda

Nalanda, located in present-day Bihar, became a major Buddhist monastic and scholarly centre, especially from the Gupta and post-Gupta periods onward. It attracted students and scholars from different parts of Asia. It was known for Buddhist philosophy, logic, grammar, medicine and other fields. Its institutional life included monasteries, teaching spaces, libraries and scholarly debate.

D. Vikramashila

Vikramashila was an important Buddhist monastic university established under the Pala rulers in present-day Bihar. It became known for advanced Buddhist studies and the training of scholars. It

was connected with transregional networks, including links with Tibet. Its history illustrates the role of monastic institutions in the circulation of knowledge.

Centre	Location today	Main character and significance
Gurukul	Various regions of the subcontinent	Teacher-centred learning, discipline, oral instruction and close mentorship.
Takshashila	Taxila, Pakistan	Ancient centre with specialised teachers and students from different regions.
Nalanda	Bihar, India	Major Buddhist monastic and scholarly institution with international connections.
Vikramashila	Bihar, India	Pala-period Buddhist learning centre with strong links to transregional scholarship.

5.11 Knowledge transfer and influence on other civilisations

Knowledge travelled through trade, migration, religious missions, translation, scholarly visits and the movement of manuscripts. Indian mathematical ideas, including the decimal place-value system, were transmitted through scholarly networks into the Islamic world and later into Europe. Buddhist teachers and texts travelled to Central, East and Southeast Asia. Indian medical, astronomical and linguistic works were also studied, translated or adapted in wider networks.

- Mathematics: Indian numerals and place-value methods were transmitted through Arabic-language scholarship and became part of global mathematical practice.
- Buddhism: Monks, translators and pilgrims carried texts and artistic traditions across Asia.
- Astronomy: Indian astronomical calculations interacted with other traditions through translation and scholarly exchange.
- Medicine: Medical texts and practices circulated through regional networks and were interpreted in different contexts.
- Language and literature: Sanskrit and other Indian languages influenced literary, religious and scholarly traditions beyond the subcontinent.

Knowledge transfer is not a one-way process. Ideas were translated, debated, corrected and adapted by scholars in different societies. The history of science is therefore a history of interaction and cumulative learning.

5.12 Relevance of ancient knowledge today

Ancient Indian knowledge is relevant as a subject of historical study, cultural understanding and intellectual heritage. It can encourage curiosity, respect for evidence, interest in mathematics and language, appreciation of traditional crafts and awareness of knowledge exchange. At the same time, historical claims should be evaluated critically. Ancient texts may contain valuable

observations and ideas, but they should not automatically be treated as equivalent to modern scientific evidence.