

GENERAL STUDIES PAPER-1

SECTION-I

खण्ड-I

Q.The influence of Buddhism on Mauryan art and architecture.

Ans:

India during Mauryan period witnessed **renaissance in the field of art and culture**. Mauryan art and architecture mainly flourished under the royal patronage. But, side by side, folk art was also well developed during Mauryan period.

The influence of Buddhism on Mauryan art:

- Ashoka is said to have built more than 8000 **stupas** which has is a place of worship under Buddhist tradition
- **Use of Buddhist symbols in Mauryan arts:** Examples-
 - Inverted **lotus** in Pillars: in Buddhist tradition the Lotus symbolized purity and fertility.
 - **Wheel** in the Sarnath pillar- In Buddhist tradition symbolised the **creation & time** as well as **first sermon**.
 - **Lions** used in capitals- In Buddhist tradition symbolise the Buddha- Sakya Simha.
 - **Elephant sculpture** - Elephant in Buddhist tradition symbolised the descent of Buddha or Maya conception.
 - **Horse** in Sarnath Pillar capital symbolises the renunciation of Buddha.
- **Jataka Stories:** Later on, Jataka stories (stories associated with the previous birth of Buddha) were portrayed on the railings and torans of the stupas.
 - The Jataka stories that find frequent depiction are Chhadanta Jataka, Sibi Jataka, Ruru Jataka, Vessantara Jataka, Vidur Jataka and Shama Jataka.
- **The chief events** from Buddha's life which are **narrated in the arts** are birth, renunciation, enlightenment, the first sermon (dharmachakrapravartana) and mahaparinirvana (death).
- **Dhamma messages** inscribed on Pillars have influence of Buddhist teachings.
- The **places of Mauryan arts and architecture** are also associated with the important **places related to the Buddha's life**. e.g. Bodh Gaya Stupa, Sarnath Pillar, lumbini Pillars etc.

However, Mauryan arts were not only under influence of Buddhism. The caves were excavated for ajivika sects. Some historians like **D.B. Spooner** and **Ananda K. Coomaraswamy** has viewed that Mauryan pillars were prototype of Achaemeniam Columns. Further, folk architecture hardly had any Buddhist influence.

Q. The salient features of Pala Art.

Ans:

Pala dynasty ruled over Bihar and Bengal area from 8th to 12 century. Apart from being astute diplomats and military conquerors Pala rulers were also great patron of Art and architecture. The new style of Arts developed under their patronage are called Pala arts.

The Pala arts can be discussed under following heads:

- Sculpture
- Terracotta figurines
- Paintings
- Architecture

Sculpture:

- The Pala school of sculptural art is recognised as a distinct phase of the Indian art, and is noted for the artistic genius of the Bengal sculptors.
- A new style of **stone** and **bronze** sculpture emerged during Pala period.
- Main propounder of this school of art were **Dhiman** and **Vithpal**, who were **contemporary of Dharpal and Devpal respectively**.
- **Bronze sculpture:**
 - Bronze was casted by '**Cire perdue**' method.
 - The sculptures are generally Ornamented.
 - The Buddhist centre of **Kukrihar** and **Nalanda** are the main centers. In Nalanda, it appears to have formed the part of the Curriculum.
 - The **themes** of the bronze sculpture:
 - are **largely Buddhist**,
 - few of the **Brahmanical images of Tantrik influence** like that of Ganga, Balarama (also from Kukrihar) Vishnu and Surya have also been recovered from Nalanda.
 - The bronze image at Nalanda and Kukrihar mostly portray the Buddha and Bodhisattvas including Avalokitesvara, Manjushree, Maitreya and Vajrapani and other Buddhist gods and goddesses such as Jambhala, Haygriva, Tara, Prajnaparamita, Vasudhara, Hariti and Parnasavari.
 - **Buddha is represented:**
 - **standing with the right hand** held in the Varda (blessing) and '**Abhaya**' **mudra** (poise)
 - as **seated** in the '**dhumisparsa**' (enlightment) and **dharamchakra mudra** (first sermon).
 - **Examples:**
 - **Largest bronze image** has been recovered from **Sultanganj**, which presently is at Birmingham Museum, UK.



Sultanganj Buddha

- - From **Kukrihar**, **crowned images of Buddha** have been found.



Crowned image of Buddha, Kukrihar

- Standing Buddha from **Nalanda** with the right hand in **abhaymudra**, is one of the finest piece of bronze sculpture in the Eastern School because of its dignity, convincing modelling and inner poise.
- **Standing Tara** from Nalanda
- **Balarama**, bronze sculpture from **Kurkihar**
- **Stone Sculpture:**
 - Stone sculptures were also elegant in style, precise technically and harsh outline akin to metal work.
 - Main characteristic of these sculptures are as follow:
 - Mostly made of **black basalt stone**. These were readily available in the hills of Santhal Paragna region and Munger district.
 - Generally the **front part of the body has been tried to be shown**. Rear part of the Images has hardly been artistically built.
 - Most of the images are of **gods and goddesses** especially of **Bodhisattvas**. Important life events of Lord Buddha have been especially depicted.
 - **Brahmanical gods** like Vishnu, Shiva or Jain sculptures are also found but they are comparatively less in numbers.
 - All the images are excellent and exhibit the maturity of the artist especially regarding their craftsmanship. **Ornamental decoration** of these images has made them more attractive.
- **Limitations:**
 - Pala sculpture is **criticized for lacking originality**.
 - They **lack simple aesthetic sense** which are easily found in Gupta sculpture.
 - Images have been heavily **ordained with ornaments**, which confers them look like an artificial ones.
 - Even in the images of gods and goddesses, human beauty has been attempted to be interposed.
 - Even **Tantric influences** are also manifested on account of which female body has been intertwined, exhibiting apparent **sensuousness**.

Terracotta figurines:

- Terracotta images of this period are **artistic and charming**.
- Some noticeable images have been recovered from the remains of **Vikramshila Maha Vihar**.
- Such terracotta figurines were made **to adore the walls**.
- These depict the **scenes from religion as well as from day-to-day life**.
 - So, on the basis of these images, history of living standards, dresses, activities etc. of ordinary people of this period can be re-constructed.
- Along with **Buddha and Bodhisattvas**, images of **Vishnu, Varah, Sun, Hanuman** and Ardhnarishwar show the influence of Hindu religion.
- Artistic beauty has been shown on the terracotta **figure of a sitting lady**, who holding a mirror in one hand appreciating her own beauty and with fingers of another hand she is putting up vermilion on her head. Her body has been beautified successfully by not only ornamentation but also by innocence of face, slender waist and prominent breast.

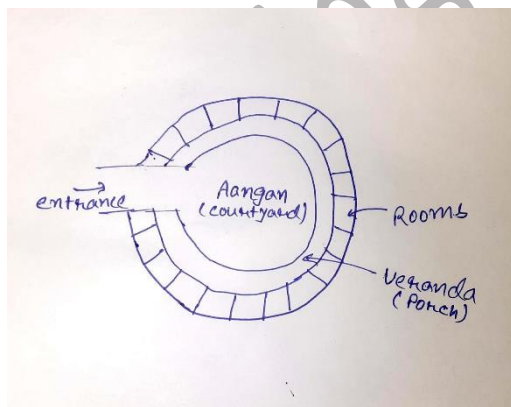
Paintings:

- Paintings of Pala period are available in **two forms**:
 1. Manuscript Painting
 2. Mural Painting
- **Manuscript Painting:**
 - Painted manuscript was generally written on **Palm leaves**.
 - Examples: (These are presently preserved in **Cambridge University**.)
 - **Ashtasahasrika**,

- **Pragya-parmita and Panchraksh.**
- Around one hundred miniature picture are made upon them.
- These not only depict the various scenes of Buddha but also contain the gods and goddesses of Mahayana sect in various pose.
- **Colors used:**
 - **primary colours** like red, white, blue, black.
 - **secondary colours** like green, violet, light pink and Grey.
- Painting of Pala period **perpetuates the tradition of Ajanta painting with sensuous bias of Eastern India.**
- The Pala School of painting is characterized by **delicate and nervous lines, sensuous elegance, linear and decorative accent.**
- The **impact of Tantric art** on these paintings are easily visible.
- Sometimes, it also resembles **some of the qualities of Nepalese and Burmese Art.**
- **Mural or Wall Painting:**
 - Mural Painting has been found at **Sarai Sthal at Nalanda.**
 - Here, at the bottom of a platform, made of granite stone, flowers of geometrical shapes, images of animals and humans are noticeable even after fading.
 - Certain images of elephants, horses, dancers, Bodhisattavas etc, can be noticed.
 - **Impact of Ajanta and Bagha Cave Painting** is easily noticeable because the way of making images and manner of paintings are almost the same.

Architecture:

- Pala Kings also contributed significantly in the field of architecture.
- **Mostly bricks** are made, some also use **stones.**
- Also **influenced by religion**, especially Buddhism [Pal dynasty ruler and Buddhist followers] and Hindu temples.
- **Monastery (Viharas):** They got built **Buddha vihar and temple** at Nalanda, Vikramshila, Odantpuri, Sompuri etc.
 - **Different styles** was adopted for making Vihara:



Structure of Vihara.

- The most important examples of Buddhist architecture in the Pala period appear in the context of "Monastery". These Viharas {Monasterys} were originally built from the residence of monks and from the academic point of view.
 - **Odantpuri Monastery** by Devapala.
 - this mahabihara was so significant that it served as a **model for the 1st monastery built in Tibet.**
 - **Vikramashila Monastery**(Most Important) by Dharmapala.

- Vikramashila Monastery is the most Discussed and Excellent among Pal Monastery.
- At Vikramshila, ruins of a **temple** and a **stupa** have been found.
- **Sompura** Monastery(present-day Bangladesh) by Dharmapala (by not clear).
- **Temples:**
 - The temples are known to express the local Vanga style.
 - Mahipal got built hundreds of **temple and building at Kashi**.
 - **Vishnupada temple with hemispherical mandap** like umbrella **at Gaya**.
 - **Siva temple at Konch in Gaya** district is architecturally important because of its pinnacle and corbelled lattice window.
 - **Rock-cut temple at Kahalgaon** (Bhagalpur), dating from 9th century, is an interesting one as it has **gabled valuted roof**, which is the characteristic of South Indian Architecture.
 - The 9th century **Siddheshwara Mahadeva temple** in Barakar in Burdwan District shows a tall curving shikhara crowned by large amalaka is an example of early Pala style.
 - Many of the temples from the ninth to the twelfth century were located at Telkupi in **Purulia District**. They were submerged when dams were built in the region. These were amongst the important examples of architectural styles prevalent in the region which showed an awareness of all the known Nagara sub-types that were prevalent in the rest of North India.
 - However, several temples still survive in Purulia District which can be dated to this period. The temples used **black to grey basalt** and **chlorite stone pillars** and arched niches.
 - Many local vernacular building traditions of Bengal also inuenced the style of temples in that region. Most prominent of these was the shape of the curving or sloping side of the bamboo roof of a Bengali hut.
- **Other:**
 - Rampal got settled a **new town namely Ramavati** and built there several buidings and temples.
 - Remains of **Antichak** and some building of **Nalanda** exhibited the maturity of Pala architecture.
 - Besides, they also got **built pond** adjoined with chaitya and vihar.

Thus, Pala era through its quality sculpture, magnificent architecture and interesting painting especially manuscript one, provided continuity to the growth of art and culture in this eastern region.

Q. Nagara style of temple architecture.

Ans:

Nagara style of temple architecture became popular in northern India in ancient time. In North India it is common for an entire temple to be built on a stone platform with steps leading up to it. This style of temple architecture evolved during Gupta period.

- Another unique characteristic is that it does not usually have elaborate boundary walls or gateways.
- The garbhagriha is always located directly under the tallest tower.
- There are many subdivisions of Nagara temples depending on the shape of the shikhara.
- **Amalaka or Kalash** which is installed on Shikhara is another characteristic feature of this form of temple style
- **Kandariya Mahadev Temple in Madhya Pradesh** is an example for Nagara style of temple architecture

- Other examples of Nagara style of temples in India are- **Sun temple, Konark, Sun temple at Modhera, Gujarat and Ossian temple, Gujarat.**

Classification of Nagara style of temple architecture based on the style of Shikhara:

- **Rekha-Prasad or Latina:** These temples are characterized by a simple Shikara with a square base and inward curving walls that have a pointed top. Early medieval temples such as the Sun Temple at Markhera in Madhya Pradesh (MP). The Sri Jagannath Temple of Odisha has been constructed in the Rekha-Prasad Shikara style.
- **Shekari:** is a variation of the Latina where the Shikara comprises of a main Rekha-Prasad Shikara and one or more rows of smaller steeples on both sides of the central spire. Additionally, the base and corners also feature mini Shikaras. The Khajuraho Kandariya Mahadev Temple is one of the most prominent temples built in this style.
- **Bhumija:** Another type of Nagara temple that evolved from the Latina style was the Bhumija architecture developed in Malwa under the Paramara dynasty. These temples have a flat upward tapering projection comprising of a central Latina spire and miniature spires on the quadrant formed by the tapering tower. These mini Shikaras carved out both horizontally as well as vertically. The Udayeshwar Temple in MP is built in this style.
- **Valabhi:** style temples are rectangular in shape comprising of barrel-vaulted roofs. The vaulted chamber roof has earned them the moniker wagon vaulted buildings/structures. Teli Ka Mandir, a 9th Century temple at Gwalior has been built in this style.
- **Phamsana:** are shorter but broader structures comprising of roofs with numerous slabs that rise upwards in a gentle slope on a straight incline like a pyramid meeting at a single point over the mid-point of the building. The Jagmohan of Konark Temple is constructed in the Phamsana mode.

Sub-schools of Nagara style of temple architecture:

- **Odisha School** – The most prominent distinguishing feature is the Shikara (Deul) which rises vertically before curving inwards at the top. The main type is square while the upper reaches are circular. These temples have intricately carved exteriors and usually bare interiors. Unlike Nagara temples of the north, most Odisha temples have boundary walls.
- **Chandel School** – Unlike Odishan style, these temples are conceived as a single unit and have Shikaras that curved from bottom to top. There are a number of miniatures Shikaras rising from the central tower and towers that gradually rise up to the main tower cap both the porticos and halls.
- **Solanki School** – They are similar to the Chandel School except that they have carved ceilings that appear like a true dome. The distinguishing feature of these temples is the minute and intricate decorative motifs. Except for the central shrine, one can find carvings on both the inner and outer sides of the walls.

Nagara style, along with Dravida and Vesara styles, contributes to the rich diversity of temple architecture in India. Each style reflects the cultural, religious, and regional influences prevalent during its construction.

Q. India- a land of diversity.

Ans:

India, often referred to as "Unity in Diversity," is a land of unparalleled diversity, encompassing a rich tapestry of cultures, religions, languages, traditions, and landscapes. This diversity is deeply embedded in the fabric of the nation, making India a unique and multifaceted country.

Diversity in India:

- **Festivals:** India's diverse festivals are a testament to its inclusivity. Diwali, celebrated by Hindus, is also enjoyed by Sikhs and Jains. Eid, observed by Muslims, sees participation from people of various faiths who join in the spirit of celebration. Holi, the festival of colors, is embraced across communities.
 - **Eg: Initiatives like Ek Bharat Shresht Bharat**
- **Unity in Crisis:** During times of crisis, communities come together irrespective of their differences. Instances like natural disasters or communal tensions often lead to neighbours and strangers helping one another without regard for religious or cultural background.
- **Cultural Exchanges:** Various art forms and cultural practices are appreciated and shared across communities. Classical dance forms like Bharatanatyam and Kathak are admired beyond their originating regions. Music genres, culinary traditions, and traditional attire find enthusiasts across the country.
- **Interfaith Marriages:** In recent times, interfaith marriages are becoming more common, exemplifying individuals' willingness to embrace love and unity despite religious differences. Such unions often lead to cultural exchanges that enrich families and communities.
- **Historical Sites:** India's historical sites and monuments often reflect the synthesis of diverse architectural styles and cultural influences. The Qutub Minar in Delhi, for instance, exhibits both Islamic and Hindu architectural elements.
- **Language Bridges:** While India has a multitude of languages, English and Hindi serve as bridges between different linguistic groups, enabling communication and interaction across regions.
- **Cultural Heritage:** UNESCO's recognition of Indian cultural sites like the Taj Mahal, Jaipur's cityscape, and Ahmedabad's historic city center underscores the value placed on preserving and celebrating diverse heritage.
- **Education and Workplaces:** Educational institutions and workplaces often bring together people from different backgrounds, fostering understanding and cooperation. Students and professionals engage with peers from various regions, cultures, and languages, leading to a broader worldview.
- **Cuisine:** India's culinary landscape is a testament to its diverse culture. People from all community relish dishes from across the country, appreciating the variety of flavors and ingredients that different regions offer.
- **Constitutional Values:** India's Constitution enshrines the principles of equality, non-discrimination, and freedom of religion. Legal protections exist to ensure that individuals can practice their beliefs and cultures without fear of prejudice.
- **Civil Society Initiatives:** Various non-governmental organizations and community-driven initiatives work to promote understanding, tolerance, and collaboration among diverse groups. These efforts are visible in community projects, dialogues, and cultural events.

India's diversity is not a mere coexistence of differences but a celebration of them. The country's ability to embrace and thrive on this diversity is a testament to its resilience and unity.

Q. Development of caves in eastern India in ancient times.

Ans:

Cave development in eastern India during ancient times is associated with both natural and artificial caves. While natural caves were used by early humans and later societies for habitation or as shelters, artificial caves were created for religious, monastic, or architectural purposes. Here are some examples of cave development in eastern India:

Udayagiri and Khandagiri Caves (Odisha):

- Located near Bhubaneswar, these caves date back to the 2nd century BCE.
- The caves served as dwelling places for Jain monks and were carved out for religious purposes.
- The Rani Gumpha (Queen's Cave) at Udayagiri is particularly notable for its elaborate carvings and inscriptions.

Barabar Caves (Bihar):

- Situated in the Jehanabad district of Bihar, the Barabar Caves date back to the Maurya period (322–185 BCE).
- The caves are known for their polished surfaces and represent some of the earliest instances of rock-cut architecture in India.
- The Lomas Rishi Cave in Barabar is a notable example.

Vishwa Zopri (Vishnu's Cave) and Son Bhandar Caves (Bihar):

- Located in Rajgir, Bihar, Vishwa Zopri is believed to have served as a hermitage for ancient sages.
- Son Bhandar Caves are associated with legends and are believed to date back to the 3rd or 4th century CE.

Deur Kothar Caves (Jharkhand):

- These caves, located near Deoghar, Jharkhand, have archaeological significance and are believed to date back to the Gupta period.

Gupta Cave Temples (West Bengal):

- The Ajay River Valley in West Bengal contains Gupta period cave temples, which showcase elements of early Hindu art and architecture

Jhiri Cave Temple (West Bengal):

- Situated in the Purulia district, this cave temple is believed to be an ancient Buddhist site.

These examples highlight the diverse use of caves in eastern India for religious, residential, and artistic purposes during ancient times. The development of caves was influenced by various cultural, religious, and historical factors, contributing to the rich archaeological heritage of the region.

Q. Write an essay on the art and paintings of Bihar.

Q. What the salient features of Madhubani (Mithila) Paintings? Also discuss about its present status.

Ans:

Madhubani painting is an folk art form of Mithila region of Bihar. As it is practiced in the Mithila region of Bihar and Nepal, it is called Mithila or Madhubani art. Some of the initial references to the Madhubani painting can be found in the Hindu epic Ramayana when King Janaka, Sita's father, asks his painters to create Madhubani paintings for his daughter's

wedding. The knowledge was passed down from generation to generation and the paintings began to adorn the houses of the region. The women of the village practiced these paintings on the walls of their respective home. Their paintings often illustrated their thoughts, hopes and dreams. Slowly, this art attracted connoisseurs of art as many contemporary Indian artists like **Sita Devi, Jagdamba Devi, Satya Narayan Lal Karn and his wife Moti Karn, Mahasundari Devi** and so on took the art on global stage.

Salient features of the Madhubani or Mithila paintings:

- Madhubani art has five distinctive styles: **Bharni, Kachni, Tantrik, Godna and Kohbar.**
- Often characterized by **complex geometrical patterns**, these paintings are known for representing ritual content for particular occasions, including festivals, religious rituals, etc.
- **Wall painting:**
 - **Decoration of Gosani room-**
 - Figures of gods and goddesses are depicted- Durga, Kali, Ram, Sita, Radha and Krishna.
 - **The mythological characters** are depicted e.g. the life of **Hindu deities** like Krishna, Rama, Lakshmi
 - **Kohbara Room decoration-**
 - Kohbara room i.e. bedrooms of newly wed couple is decorated with erotic figures. e.g. figure of Rati and Kamdeva, figure of male and female genital.
 - Animal and birds figures are symbolically used. e.g.- Fish for arousal, Lion for power, Bamboo for fertility.
- **The Aripan floor painting:**
 - It is a variation of Rangoli drawn in various festivals. Lines drawing the floor of the house.
 - 5 categories of figures:
 - Depicting human, animal and bird.
 - Flowers, trees and fruits.
 - Tantrik symbol.
 - God and goddesses.
 - Swastik -> good luck figure.
- The colors used in Madhubani paintings are usually derived from **plants and other natural sources.**
 - Haldi for Yellow.
 - Banana leaves for Green.
 - Plas flower and Pipal tree bark for Red.
 - Kajal for Black.
 - Rice paste for White.
- These **colors are often bright and pigments like lampblack and ochre are used** to create black and brown respectively.
- **Instead of contemporary brushes, objects like twigs, matchsticks and even fingers are used** to create the paintings.
- The **traditional base** of plastered **mud wall** was soon replaced by **handmade paper, cloth and canvas** etc.
- There is **ritual content for particular occasions**, such as birth or marriage, and festivals, such as Holi, Surya Shasti, Kali Puja, Upanayana, and Durga Puja.

- Since the paintings have been confined to a **limited geographical range**, the themes as well as the style are more or less, the same.

Its present status:

- This art is quite old but came into eminence recently. After exhibition of these painting organised in Delhi in 1967, it got worldwide acclaim and fame.
- Madhubani art is an important part of the life of people in a **village called Ranti** in Bihar.
- Artists like **Karpuri Devi, Mahalaxmi and Dulari** are playing key roles in teaching other women the importance of Madhubani painting.
- Madhubani painting received official recognition in 1969 when **Sita Devi** received the State award by Government of Bihar.
- Sita Devi received the Padma Shri in 1981. Sita Devi was also awarded by Bihar Ratna in 1984 and Shilp Guru in 2006.
- **Mamta Devi** from the village Jitwarpur has also got National Award. **Jagdamba Devi** from Bhajparaul, Madhubani was given Padma Shri in 1975 and the National Award to **Sita Devi** of Jitwarpur village near Madhubani.
- In 1984 **Ganga Devi** was awarded by Padma Shri.
- **Mahasundari Devi** received the Padma Shri in 2011.
- **Baua Devi, Yamuna Devi, Shanti Devi, Chano Devi, Bindeshwari Devi, Chandrakala Devi, Shashi kala Devi, Leela Devi** etc. were also given the National award.
- In 2020, Madhubani artist **Dulari Devi** won the Padma Shri for contributions to art
- Although, traditionally practiced by women, now men also participate this art form.
- **International fame:**
- Mithila painting on the greeting card in Europe.
- At Tokamachi city in **Japan, Mithila painting museum** has been built by Mr. Tokio Hasegawa.
- Some NGOs like Mithila art organization and Mithila Samiti is involved in demand creation and brand making of Mithila painting.
- This art form **has been widely commercialised**- e.g. Indian Railway is buying Mithila painting on large scale. E.g. decoration of madhubani railway station, Patna railway station etc.
- It is also used for **conservation of tree** e.g. by depicting deities figure on the tree.
- Also, there are several institutions near Mithila that teach Madhubani paintings to young artists.
- Some of the major centers that teach this art form are **Benipatti in Madhubani district, Gram Vikas Parishad in Ranti** and **Vaidehi in Madhubani**. Artist Bharti Dayal owns a studio in New Delhi.

Challenges:

- In this fast technology run world, people have started to shift their attention from the traditional handicrafts and handloom to new innovations.
- The artists have very limited patronage compared to the patronage they enjoyed under the princely kingdoms of the past.
- Today, not many people want to buy these paintings, nor do they see any value in them nor do they understand the hard work and talent that goes into creating a piece of art like this.

- **Fragmented value chain:**
- **Lack of market linkages:** While consumers of crafts products are increasingly becoming urbanized, crafts continue to be sold through local markets; artisans have few opportunities to reach new consumers through relevant retail platforms such as department stores and shopping malls.
- **Dominance of middlemen:** Although middlemen are necessary to enable effective market linkages, they often, if not always, exploit artisans by paying them a fraction of their fair wages.
- **Lack of aggregation:** Crafts production typically takes places in scattered clusters in rural areas, while markets are usually in urban centers. Currently, there is a lack of organized systems to efficiently aggregate goods from small producers, carry out quality checks, store approved goods in warehouses, and supply them to wholesalers and retailers in urban areas.
- **Information asymmetry:** Due to their low education, artisans often cannot identify potential new markets for their products, nor do they understand the requirements for interacting with these markets.

To conclude, the Madhubani painting is an artistic gift we have received from our past. There are some efforts afoot to restoration, preservation and promotion of this art form. All these efforts has led to rise of this art form into eminence among the other folk art form of the country.

Q. Tracing the origin of Patna Kalam painting discuss its chief characteristic.

Ans:

Patna School of Painting (also known as Patna Qalaam/Patna Kalam/Company painting) is a style of Indian painting which existed in **Bihar**, India in the **18th and 19th centuries**. It was the **world's first independent school of painting which dealt exclusively with the commoners** and their lifestyle also helped Patna Kalam paintings gain in popularity. The Principal centers were **Patna, Danapur and Arrah**.

Origin:

- Patna Kalam is an off-shoot of Mughal painting.
- During the rule of Aurangzeb in the late 17th and early 18th century, artisans faced mass prosecution and aversion in art and painting. The **painters migrated** from Delhi looking for shelter in different places. One such group moved eastward and landed in Murshidabad under the patronage of the Nawab of Bengal and other local aristocrats.
- In the mid 18th century, after the fall of The Nawab of Bengal and subsequent decline of Murshidabad, the artisans started moving to the next biggest city in the east, Patna.
- In Patna they came under patronage of local aristocracy and often Indophile scions of the early East India and started a unique form of painting which came to be known as **the Company painting, or Patna Kalam**.
- By 1770, the style was firmly established and reached its **peak between the years 1850 and 1880**.

Salient Features:

- The **Patna Kalam** was built on the basic feature of Mughal painting. But their subject matter was quite different.
- It reflects the influence of **Mughal painting, Company (British) style and local specialty**. Thus, it is the synthesis of all the three.
 - The portraits can be clearly seen having colours and linings from Mughal style, and the shading can be seen to be adopted from the British style.
 - But, diverging from the Mughal style of wide and exquisitely decorated borders, Patna Kalam primarily focused on the subject of the painting.
- **Miniature painting:**
 - Patna Kalam painting comes under the category of miniature painting.
 - These were mostly made on **paper, glass, mica and Ivory sheets**.
- **Technique employed** in their mode of painting:
 - **For shading:** Unlike Delhi artists, they used the **slanting dot system**.
 - **For backgrounds** (though background rarely used), they mostly employed some such things as
 - a door overlooking a river,
 - a garden scene,
 - a partition of a room with pillars and curtain,
 - ornamented draperies and so on.
 - Painters painted straightway with the brush without marking with pencil to delineate the contours of picture and this technique of painting is known as **Kajli seahi**.
- **Themes:**
 - Mostly from **common daily life**. It was world's first independent school to do so.
 - Things as a **stone-cutter, a barber, a shoemaker, a palanquin bearer, a peddler, a butter-seller, a distillery, a bakery, maid-servant, mode of transportation** etc are figured in their work.
 - **Paintings of the various birds** found at Patna were also one of their specialities.
- **Less use of Background and landscapes:**
 - There is not much use of background and landscapes. Making landscapes and background would have been costly. So, they were avoided, they wanted to make their painting less expensive.
- **Indigenous style of colouring:**
 - Brushes of one or two hairs were used for making fine painting.
 - Hairs of domestic animals like squirrel, goat, pig, buffalo etc. were used in the brushes.
- **Different from Mughal Style:**
 - It lacks the splendor of Mughal style. It does not have the large painting of Kings and Courts as predominantly found in Mughal style of paintings.
- **Main painters:**
 - Earliest recorded names were: Sewak Ram (1770-1830), Hulash Lal (1795-1880)
 - Jai Ram Das, Jhumak Lal, Fakirchand and Tuni Lal.
 - The Patna style painting **reached its acme between the years 1850 and 1880**, The two principal and most widely reputed artists who built up the great reputation of the Patna School were **Shiv Lal** and **Shiv Dayalji** sons of Fakirchand Lal and Tuni Lal respectively.

- The **last two representatives** of the Patna style of paintings were **Babu Mahadeo Lal**, and **Shri Ishwari Prasad Verma** (Ex-Vice Principal of the Government School of Art, Calcutta.)
- They used the **extract colour** from plant, barks, flowers and metals.
- **Human paintings** has following characteristics:
 - Heavy eyebrows
 - pointed nose
 - thin face
 - deep-set staring eyes
 - big-mustaches of men
- The canvas, colours and brush were prepared by the painter themselves.
- Some **important paintings**:
 - Mahadev Lal's "Ragini Gandhari" and "Ragini Todi".
 - In the ragini smash, the artist has displayed the **Virhini heroine holding veena**.
 - the **picture of Muslim marriage** created by Shiv Lal.
 - **Bharat Mata painting** by Ishwari Prasad.
- **Collection in Bihar** are at three places:
 - Patna museum.
 - Khuda Baksh library, Patna
 - The collection of the State Art Gallery attached to the Government School of Arts and Crafts and
- Other collection exists in the National Museum, New Delhi.
- **Patna Kalam Today**:
 - There is currently no one to carry on the tradition. This style of painting flourished only as long as its Western patrons existed

The most important characteristic of Patna Kalam painting is its **liveliness** and its depiction of **common life scenes**. Miniature ivory painting of Patna Kalam is considered to be better than Mughal painting in its liveliness, precision, perfection and beauty. Hence, Patna Kalam style is still relevant and is one of the most glorious legacy of Bihar.

Some example:



Tamtam (Horse drawn carriage) -by Shiv Lal



Holi being played in the courtyard, ca 1795



Bhisti (Water seller)



GolGhar, 19th Century Painting



Snake charmer, 19th century



Durga Puja, 1809 watercolour painting.

Q. Write a note on the Folk songs and dances of Bihar.

Ans:

Singing, dances and various other cultural activities are common parts of the Bihar's culture and tradition.

Folk Songs of Bihar:

- Bihar's folk songs are associated with the various events take place in the life of a person and family occasions, such as marriage, birth ceremonies, festivals, etc.
- Sumangali is associated with wedding while Sohar is performed at the birth of the child. Ropnigeet is performed during the season of sowing paddy and Katnigeet is performed during the paddy harvesting season. Some of the other folk songs are *purbi, chaita, hori, bidesia, ghato, birha, kajari, irni/ birni, pachra, jhumar, jatsari, aalah, nirgun, and samdaun.*

Folk Dances of Bihar:

- **Jhijhian Dance:** This dance is done by village women in order to pray Lord Indra for rain, in times of drought when the lands cracks and becomes parched. The words of the song which the village women sung are "Haali-Huli Barshun Inder Deveta".
- **Kajari Dance:** The Shravan month i.e. the rainy season is welcomed by this dance and song. The ladies of the village start dancing like a peacock with the song "Bhijat awe Dhaniya Ho Rama ..."
- **Jat-Jatin Dance:** Jat-Jatin is the most popular folk dance, performed by a pair of man and woman in North Bihar, especially in Mithila and Koshi region.
 - Jat-Jatin is a folk dance in which the man goes out of the village to earn and when he comes back, the dance reflects their sweet and tender quarrel as well as some complaints between husband and wife apart from poverty and sorrow.
- **Holi Dance:**
 - In Bihar the people sing a typical style "Dhamar" on Holi and dance in groups with full joy on musical instruments like dholak, jhal-manjeera etc.
- **Jhumeri Dance:**
 - It is a folk dance of Mithilanchal of Bihar in the month of Kartik. The amusing words of Jhumeri are – "Kartik Mas na Aakashey Badari ..."
- **Harvesting Dance:**
 - In the harvesting season, male and female villagers do their work with dance and song in the field. Their happiness and joy is the symbol of good crop. The popular melodious tune of the harvesting song is "Chal Dhani Khetwa mei gay..."
- **Sohar-Khilouna Dance:**
 - This dance is associated with the birth of child.
 - In Bihar, the ladies sing Sohar on the occasion of birth ceremony of a child. The ladies compare the child with god. They sometime compare the child with Lord Rama sometime with Lord Krishna.

- **Launda Naach:**
 - Launda Naach is a unique folk dance form performed by men dressed as women. It is characterized by energetic and humorous movements.

The folk songs and dances of Bihar play a crucial role in preserving and promoting the state's cultural identity. They serve as a medium for storytelling, celebration, and expression of emotions, reflecting the diverse traditions and customs of the people of Bihar.

SECTION-II

Q. What are the contentious issues between India and Nepal? Explain.

Ans:

The contentious issues:

- **Territorial Disputes:** One of the main challenges in the Indo-Nepal ties is the **Kalapani boundary issue**. These boundaries had been fixed in 1816 by the British, and India inherited the areas over which the British had exercised territorial control in 1947.
 - While 98% of the India-Nepal boundary was demarcated, two areas, Susta and Kalapani remained in limbo.
 - In 2019, Nepal released a **new political map** claiming Kalapani, Limpiyadhura and Lipulekh of Uttarakhand and the area of Susta (West Champaran district, Bihar) as part of Nepal's territory.
- **Issues with Peace and Friendship Treaty:** The 1950 Treaty of Peace and Friendship was sought by the Nepali authorities in 1949 to continue the special links they had with British India and to provide them an open border and the right to work in India.
 - But today, it is **viewed as a sign of an unequal relationship**, and an Indian imposition.
 - The idea of revising and updating it has found mention in Joint Statements since the mid-1990s but in a sporadic and desultory manner.
- **China and Nepal signed up to China's Belt and Road Initiative (BRI) and signed an agreements for all-weather road connectivity** between Kathmandu and the Tibet Autonomous Region.
 - **BRI was rejected by India** and this move of Nepal was seen as an inclination towards China.
- **Trade:** India is Nepal's largest trade partner and the largest source of foreign investments, besides providing transit for almost entire third country trade of Nepal.
 - India accounts for over two-thirds of Nepal's merchandise trade, about one-third of trade in services, one-third of foreign direct investments, almost 100% of petroleum supplies, and a significant share of inward remittances on account of pensioners, professionals and workers working in India.
 - Nepal has discontent in bilateral trade due to huge trade deficit that it incur.
 - There have been various disputes over this agreement fuelled by floods in the Kosi region. India and Nepal have also had disputes over the **issue of compensation** of the Kosi dam. Moreover, Nepal had considered India's construction as an encroachment on Nepal's territorial sovereignty.
- **Water sharing:**
 - Another contentious issue between India and Nepal is the sharing of water from the rivers that flow between the two countries.
 - No project except the Kosi barrage has been completed yet. Smaller rivers have also been ignored. Since 1954, when the Kosi Agreement was signed between India and

Nepal, talks between the two governments have stalled and water rights issues have not been addressed.

- Overtime trust deficit has widened between India-Nepal because of the Indian reputation for **delaying implementation of various projects**.
- There is **anti-India feeling among certain ethnic groups in Nepal** which emanates from the perception that India indulges too much in Nepal and tinkers with their political sovereignty.
- **Geographical factor**: despite increasing connectivity of Nepal with China, the geography of the region is such that China can never be a substitute of India for Nepal. Nepal will continue to depend on India for its connectivity with the rest of world.

Overall, the issues between India and Nepal are complex and multi-faceted. While the two countries share a strong cultural and economic relationship, there are several areas of disagreement that need to be addressed through dialogue and diplomacy. It is important for both countries to work towards finding mutually acceptable solutions to these issues in order to build a strong and stable relationship

Q. What is Global South? Do you think that India is playing the role of the Voice of Global South?

Ans:

The term Global South in common parlance is used for the countries which have low levels of economic and industrial development, which are mainly located in the southern part of the world and are located to the south of the industrialized, developed nations. It includes countries in Asia, Africa and South America.

Feature of global south:

- **Lower-income countries**: The Global South is a term often used to identify lower-income countries on one side of the so-called global North–South divide, the other side being the countries of the Global North.
- **Beyond geographical south**: As such the term does not inherently refer to a geographical south; for example, most of the Global South is actually within the Northern Hemisphere.
- **Third World radicalism**: The term, as used by governmental and development organizations, was first introduced as a more open and value free alternative to “Third World” and similar potentially “valuing” terms like developing countries.
- **Newly industrialized**: Countries of the Global South have been described as newly industrialized or in the process of industrializing and frequently have a history of colonialism by Northern, often European, states.
- **Major countries**: The countries of Brazil, China, India, Indonesia, and Mexico have the largest populations and economies among Southern states. The overwhelming majority of these are located near the tropics.

India’s role of the Voice of Global South:

- India is often considered a leading voice of the Global South. India's position as a leader of the Global South is **reflected in its foreign policy and diplomatic efforts**. e.g Non-Aligned Movement, and voice for reforms in multilateral institutions like the United Nations, the World Trade Organization.
- As India assumed the presidency of the G20 group of countries for 2022 to 2023, our EAM said that India would be the “voice of the Global South that is otherwise under-represented in such forums”.
- India has also been pointing to the region’s historical exclusion from prominent international organisations – such as from the permanent membership of the UNSC, the UN and the IMF.

- India, with its enormous population and enormous economic capabilities, is working to unite the nations of the Global South into a powerful front so that an action-oriented approach can be adopted for the countries of the global south.
- India is also trying to bolster the south-south cooperation using regional institutions like BIMSTEC, SAARC etc. India act-east policy and neighbourhood first policy is also in line with this idea.
- India has been promoting the common interest of the global south at global rule making efforts like at discussions in COP meetings of UNFCCC, WTO etc.

However, the Global South is a diverse group of countries with different priorities and interests, and it's difficult to generalize about the role of any one country in representing its interests. There are other influential voices of like China, Brazil, South Africa and ASEAN etc.

Going forward, Championing the Global South today would demand more active Indian engagement with the messy regional politics within the developing world and a tailored Indian policy to different regions and groups of the developing world.

Q. Significance of inclusion of African Union in the G20.

Ans:

Recently, the African Union became a full member of the G-20. After the EU, African Union is the second regional bloc to join the G20.

Significance:

- **For the G20:**
 - The inclusion of the African bloc will enhance the effectiveness of the G-20.
 - **Utilize Africa's enormous potential in mitigating climate change:**
 - Africa is home to 60% of the world's renewable energy assets and more than 30% of the minerals important to renewable and low-carbon technologies.
 - **Boost credibility of its policies and decisions:**
 - AU's inclusion enhances G20's capacity to devise inclusive and equitable solutions that are truly beneficial to the global community.
 - **Reinvent its image:** It makes G20 more representative, repurposing the G20 to be the vehicle for building a fairer, more prosperous, and sustainable.
- **For India:**
 - **Championing the cause of global south:** India's successful endorsement for inclusion of AU in the G20 solidifies its image as the Voice of the Global South.
 - **Align with India's aspirations:** The step aligns with India's own global aspirations to foster a multipolar world and a more equitable and representative international order.
 - **Permanent seat in UNSC:** India is keen to garner support from AU for Permanent Membership of the UNSC.
 - **Africa is a Resource diversification:** resource-rich continent dominated by commodities like crude oil, gas, pulses and lentils, leather, gold, and other metals.
- **For Africa:**
 - **Inclusivity:** It gives more leadership and voice to African countries on issues like global tax reforms, debt relief, climate change discussions, etc.
 - **Correcting imbalance:** Africa has remained a passive receiver rather than an active contributor to discussions shaping its economic destiny. Signal toward Growth of Africa: It signals the rise of a continent- otherwise framed as a victim of war, extremism, hunger, and disaster.

Q. Operational and financial status of DISCOMs in Bihar.

Ans:

The two DISCOMs (NBPDC and SBPDCL) in Bihar undertake the activities of distribution of electricity to all consumers and trading of electricity.

The generation and purchase of power (net of central transmission loss) in Bihar increased from 29,974 MU in 2019-20 to 33,388 MU in 2021-22, implying a growth of 11.4 percent in two years. With increase in energy consumption, the revenue collection has also increased. The **cost coverage was 85.2 percent in 2019-20, which increased to 91.5 percent in 2021-22.** The financial loss has also decreased from 14.8% in 2019-20 to 8.5% in 2021-22.

The DISCOMs made all-out efforts to address this issue by improving the billing and collection system, along with metering of all consumer connections. These have resulted in **the reduction of Aggregate Technical and Commercial (AT&C) loss from 43.5 percent in 2015-16 to 29.4 percent in 2021-22.** There was an increase in AT&C loss in 2019-20 (35.9 percent), mainly due to the adverse impact of lockdown and other restrictions due to the Covid-19 pandemic. There has, however, been an improvement in the subsequent years — 2020-21 (32.1 percent) and further improvement in 2021-22 (29.4 percent) due to efforts made by the DISCOMs. The two DISCOMs are striving hard to bring down the AT&C Loss further to 15 percent.

In the context of improving the financial performance of the DISCOMs, the State government has been strongly pleading for the policy of '**One Nation, One Tariff.**' Now that the State government has transferred its own generation units to NTPC, Bihar gets nearly whole of its power supply from the Central government. But, Bihar gets it at a higher rate, compared to the other states. The provision of subsidy to the consumers at one hand and purchase of power at a higher rate from the Central government at the other together create substantial pressure on the financial position of DISCOMs. Earlier, the Central government used to justify varying power tariff across the nation in terms of varying transmission congestion in different regions. But, now the country has already synchronized its power grids and, as such, there is no hindrance to adopt the rational policy of 'One Nation, One Tariff. Once the gains made by the installation of smart meters by DISCOMs is supplemented by provisioning a uniform tariff by the Central government, the DISCOMs will gradually become financially strong.

Q. In light of completion of 10 years of the Belt and Road Initiative (BRI), examine its successes and shortcomings. What are the strategic concerns for India from the BRI?

Ans:

The Belt and Road Initiative, reminiscent of the Silk Road, is a massive infrastructure project that would stretch from East Asia to Europe. It was launched in 2013. The plan is two-pronged: **the overland Silk Road Economic Belt and the Maritime Silk Road**— The two were collectively referred to first as the One Belt, One Road initiative but eventually became the Belt and Road Initiative. The project involves creating a vast network of railways, energy pipelines, highways, and streamlined border crossings.

The Third Belt and Road Forum for International Cooperation that was convened in Beijing, China (October 17-18) has put the spotlight back on Chinese President Xi Jinping's signature initiative.

China's Belt and Road Initiative: Geopolitics

China has both **geopolitical and economic motivations** behind the initiative.

- The country has promoted a vision of a more assertive China, while slowing growth and rocky trade relations with the United States have pressured the country's leadership to open new markets for its goods.
- Experts see the BRI as one of the main planks of a bolder Chinese statecraft under Xi, alongside the **Made in China 2025** economic development strategy.
- The BRI also serves as pushback against the much-touted USA's "**pivot to Asia**," as well as a way for China to develop new investment opportunities, cultivate export markets, and boost Chinese incomes and domestic consumption.

Successes of BRI

- Since the launch of the **BRI in 2013**, the report estimated **China's total engagement at \$932 billion, with \$561 billion in construction contracts and the rest in other investments.**
- BRI has served as a vehicle for Xi Jinping to brand himself as a global statesman and project China's power and influence overseas.
- Over 200 BRI cooperation pacts had been inked with over 150 nations.
- The total two-way investment between China and partner countries from 2013 to 2022 touched \$380 billion.
- As Mr. Xi himself put it, the BRI would provide more public goods to the entire world, highlighting the massive infrastructure deficit.
- Under China's Marshall Plan, motorways, power plants, ports, railway networks, and digital infrastructure have been built.

Setbacks to BRI

- At the recently concluded summit 2022 of G-7 leaders in Germany, US and his allies unveiled their \$600 billion plan called the Partnership for Global Infrastructure and Intelligence.
 - This is being seen as a counter to China's Belt and Road Initiative (BRI), valued at a trillion U.S. dollars by some experts.
- **Setback in Pakistan:** Multiple reports have shown that shipping activities at the Gwadar Port is almost negligible so far, with only some trade to Afghanistan.
 - **Gwadar residents have also protested against the large security force** deployed to protect Chinese nationals involved in projects.
 - Chinese nations has also become the **target of multiple deadly attacks by Baloch freedom fighters.**
 - Coal plants were set up and managed by Chinese firms to improve the power situation in Pakistan.
 - **Chinese power firms closing down their operations as the latter did not pay dues worth 300 billion** in Pakistani rupees (approximately \$1.5 billion).
- **Maldives:** Most of China's investment in the Maldives happened under former President Abdullah Yameen, seen as pro-China. The reality is now changed
- **Bangladesh:** BRI projects include Friendship Bridges, special economic zones, the \$689.35 million-Karnaphuli River tunnel project, upgradation of the Chittagong port, and a rail line between the port and China's Yunnan province.
 - However, multiple projects have been delayed owing to the slow release of funds by China.

- **Fossil fuel usage:** While debt is a major concern driving the rejection of BRI projects, there is another growing concern over the fact that **China is pushing for coal-fired power plants on the global front while going green within its own borders.**
- **No local employment:** Further, the promise of trade and employment seems to have taken a hit, considering the discontent amongst partner countries regarding Beijing's move of using Chinese workers over locals for the BRI projects.
- A report from the ISEAS-Yusof Ishak Institute on the BRI has highlighted issues related to **ecological damage, displacement of people, disputes over payouts and labour unrest.** The findings detail case studies of Indonesia, where things came to a head over anxieties related to Chinese labourers filling up positions earmarked for locals.
- Several countries "saw no Chinese engagement" in the first half of the year, including **Russia, Sri Lanka and Egypt, while the figure in Pakistan was down by 56%.**

India's concerns

India has tried to convince countries that **the BRI is a plan to dominate Asia**, warning of what some analysts have called a **"String of Pearls"** geoeconomic strategy whereby China creates **unsustainable debt burdens** for its Indian Ocean neighbors in order to seize control of regional choke points.

- In particular, New Delhi has long been unsettled by **China's decades-long embrace of its traditional rival, Pakistan.**
- **The China-Pakistan Economic Corridor (CPEC)** passes through Pakistan-occupied Kashmir (PoK) and Baluchistan, both of which are home to a long-running insurgency where it faces terrorism and security risks.
 - CPEC would hamper India's strategic interests in the South Asian region and can aid Pakistan's legitimacy in the Kashmir dispute too.
 - Also, attempts to extend CPEC to Afghanistan may undermine India's position as economic, security and strategic partner of Afghanistan.
- **China's Strategic Rise in the Subcontinent:** Along with China-Myanmar Economic Corridor (CMEC) and CPEC, China is also developing the China-Nepal Economic Corridor (CNEC) which will link Tibet to Nepal.
 - The endpoints of the project will touch the boundaries of the Gangetic plain.
 - Thus three corridors signify the economic as well as strategic rise of China in the Indian subcontinent.

China, in order to go ahead and protect its own interests has put in place a network of investments which has led to several low and middle income countries in severe debt. There are ways to deal with it but any individual country cannot go ahead and provide an alternative to BRI but the larger and stronger economies can come together to find a way ahead.

Q. What is 'soft power'? Evaluate the prospects and limitations associated with India's soft power diplomacy.

Ans:

Soft power as a tool for foreign policy was conceptualized by Joseph Nye in the 1990s. It refers to the ability of a country to persuade others to do what it wants without force or coercion. In practice, it entails countries projecting their values, ideals, and culture across borders to foster goodwill and

strengthen partnerships. Soft power usually originates outside government in places like schools, religious institutions, and charitable groups. It is also formed through music, sports, media etc.

The prospects:

- India's spiritualism, yoga, movies and television, classical and popular dance and music, its principles of non-violence, democratic institutions, plural society, and cuisine have all attracted people across the world.
 - **International Day of Yoga** reflects yoga's immense popularity worldwide, underscoring its richness as a soft power resource.
- India's soft power is being leveraged alongside larger foreign policy initiatives such as the Look East Policy (now Act East). e.g. International **Dharma Dhamma conference in Rajgir, Bihar** aimed at increasing, people to people contact through the Buddhist roots in India.
- India is fortunate to have all the major religions of the world. Four were founded here: Hinduism, Buddhism, Jainism and Sikhism. Four came from outside: Zoroastrianism, Judaism, Christianity and Islam. Religion is a cohesive bond for Indian subcontinent. Various religions of India help it to connect with all the neighbouring countries. In 2015, Japanese PM was invited to Banaras, famous for hosting religious sites of Hinduism as well as Buddhism.
- India's soft power diplomacy, particularly in Afghanistan involves winning "hearts and minds" and strengthening its cultural as well as political relations with Afghanistan e.g. constructing the Parliament building, Salma (Friendship) dam and a hospital in Afghanistan.
- Indian diaspora is another important part of India's "soft diplomacy". For eg. Indian diaspora played a critical role in the frutification of Indo-US Nuclear deal.
- India was **ranked higher than China** in a survey wrt **trust and development initiatives** in Africa.
- India's track record of democracy, liberty and culture are main reason why nations like USA, France and Sweden have given advanced military equipment to India.
- India is also expanding its development assistance to African countries beyond its traditional relationships within the Commonwealth in an effort to secure access to natural resources as well as serve its broader strategic aims. e.g. developmental initiatives such as **Indian Technical and Economic Cooperation (ITEC), Team 9, and Pan Africa e-network** among others are aimed at building institutional and human capacity as well as enabling skills and knowledge transfer.
- India's foreign aid activities have now also extended to humanitarian assistance. e.g. in 2019, India was the first responder to the Cyclone Idai crisis in Mozambique. Recent humanitarian aid after earth quake in Turkey under **operation dost**.
- India has been inclined to sports diplomacy since independence and use it as a tool to showcase its foreign policy and to settle various disputes. e.g. **Cricket matches** are used as ice breakers and political signalling in the complex India-Pakistan relationship. For instance, during the 2011 Cricket World Cup, the semi-final is believed to have eased the relationship between India and Pakistan after the polarising 2008 Mumbai attacks.
- India is fortunate to have all the major religions of the world. Four were founded here: Hinduism, Buddhism, Jainism and Sikhism. Four came from outside: Zoroastrianism, Judaism, Christianity and Islam.

Limitations of India's soft power diplomacy:

- India has a natural soft power appeal manifested through its cultural assets but lacks the required governmental efforts in transcending these resources into effective outcomes.
 - India has been ranked 28th in the Brand Finance's Global Soft Power Index for 2023.
- India's government and private sector have limited resources to invest in soft power initiatives, making it challenging to compete with other countries that have larger budgets for cultural and tourism promotion.
 - Different financial models such as public private partnerships need to be explored by agencies to supplement the grants received from MEA.

- India has a high number of UNESCO World Heritage sites, but still fares poorly on tourism and education on a per capita basis.
- Despite its vast cultural and linguistic diversity, India's soft power diplomacy primarily focuses on a few select cultural aspects, such as Bollywood and yoga, which may not resonate with all audiences.
- India is still having difficulties in changing its neighbors' behaviors by using soft power. For instance countries like Nepal and Maldives have used the China card against India. They still view India as a Big Brother.
- The soft power has not helped India deal with terrorism and radicalism. Along with soft power, hard power is equally important. In the 21st century it is the smart power (Hard and Soft power combined) along with speed and agility to adapt, that are the necessary tools for diplomacy.
- It has not helped India in WTO negotiations and not fetched FTA with EU or RCEP to its requirements and permanent membership in UNSC.
- India's soft power diplomacy can be affected by regional political tensions, such as the conflict with Pakistan over Kashmir, which can hinder its ability to engage with audiences in neighboring countries.
- Soft power cannot used as and when required and it takes very long time to become significant. Whereas hard power can be used instantaneously and the results are also immediately seen.
- India's soft power diplomacy can be hampered by ongoing domestic issues, such as poverty, corruption, and human rights violations, which can undermine its image as a democratic and stable nation.
- Although English is widely spoken in India, language barriers can still be a challenge in promoting Indian culture and values in other countries where Hindi or regional languages are not spoken or understood.

Overall, while India has made significant strides in soft power diplomacy, it still faces several challenges that must be addressed to enhance its effectiveness and reach a broader audience. Further, while soft power is increasingly important, it has to be backed by sufficient hard power capabilities and India needs to achieve higher economic growth levels to wield greater global influence.

Q. While India and the Association of Southeast Asian Nations (ASEAN) have developed a multifaceted partnership in various areas, there are several obstacles that can impede the full realization of their potential collaboration. Examine.

Ans:

India's relationship with ASEAN has emerged as a key cornerstone of our foreign policy. The relationship has evolved from the 'Look East Policy' enunciated in early 1990s, to Strategic Partnership in 2012. Since 2014, India is espousing 'Act East Policy' that has enhanced the partnership further.

ASEAN-India Strategic Partnership stands on a strong foundation of shared geographical, historical and civilizational ties. ASEAN is central to our Act East Policy and our wider vision of the Indo-Pacific. India and ASEAN will observe **30 years of their Dialogue Partnership in 2022.**

India's of strategic partnership with ASEAN

- India's relationship with ASEAN is a key pillar of her foreign policy and the foundation of Act East Policy. India and ASEAN already have 25 years of Dialogue Partnership, 15 years of Summit Level interaction and 5 years of Strategic Partnership with ASEAN.
- **Economic Cooperation:** ASEAN is India's fourth largest trading partner. India's trade with ASEAN stands at approx. 10.6% of India's overall trade.

- India's export to ASEAN stands at 11.28% of our total exports. The ASEAN-India Free Trade Area has been completed.
- ASEAN India-Business Council (AIBC) was set up in 2003 to bring key private sector players from India and the ASEAN countries on a single platform.
- **Socio-Cultural Cooperation:** Programmes to boost People-to-People Interaction with ASEAN, such as inviting ASEAN students to India, Special Training Course for ASEAN diplomats, Exchange of Parliamentarians, etc.
- **Delhi Declaration:** To identify Cooperation in the Maritime Domain as the key area of cooperation under the ASEAN-India strategic partnership.
- **Delhi Dialogue:** Annual Track 1.5 event for discussing politico-security and economic issues between ASEAN and India.
- **ASEAN-India Centre (AIC):** To undertake policy research, advocacy and networking activities with organizations and think-tanks in India and ASEAN.

Obstacles in India – ASEAN ties

- **Chinese hegemony:** The issue of ownership, control, use and exploitation of oil, gas, and mineral and fisheries resources in the South China Sea has emerged as a major dispute between China and several ASEAN nations like Vietnam, Philippines, Brunei and Malaysia.
 - This issue has divided ASEAN and there is no unanimity amongst them.
 - The South China Sea is of economic importance for India as more than 40% of trade is dependent on this region. Fossil fuel resources in this region are also being harnessed by India on a collaboration basis.
 - Maritime security is essential in this region for the protection of India's national interest.
 - However, India's effort in this regard is meagre when compared to China's dominance in the region.
- **Indo-Pacific Rivalry:** For a long time, the assumption of China as the primary economic partner and the US as the primary security guarantor has been at the heart of the ASEAN balance.
 - Today, that balance is falling apart and the Russia-Ukraine war has further aggravated this tension. This sharpening of major power rivalry in the Indo-Pacific region is threatening the underlying stability on which rested the regional growth and prosperity.
- **Economic challenges:** India has an unfavourable balance of trade with the ASEAN nations. India has pulled out of the RCEP deal, as it would deepen its trade deficit with China and the ASEAN nations.
 - Improving economic competitiveness at the domestic level and ease of doing business and promoting investment inflows can address this problem.
 - The domestic economic growth can be guaranteed by providing assistance to the MSMEs and improving domestic market connectivity.
 - India should address the issue of land and labour laws so that there is an ease in doing business within the country.
 - Improving infrastructure and promoting technological growth can also solve this problem exponentially.
- **Unstable Goeconomics:** The geopolitical tension in the Indo-Pacific is producing goeconomic consequences where issues of trade and technology cooperation as well as supply chain resilience is at peak.
 - And this is happening at a time when ASEAN remains a divided organisation internally on how to manage these challenges.
- **Ineffective Negotiations:** Many bilateral deals with these nations are yet to be finalised, leading to the halting of various aspects of diplomatic ties.
 - Increasing the flexible bilateral interaction based on the principle of quid pro quo can assure the win-win situation for both India and ASEAN.

Enhancing India-Asean relation further

- The recent loss of US market by the ASEAN nations can be compensated with the domestic demand in India which has been increasing with the rise of middle class in the country.
- In terms of security challenges, both ASEAN and India are faced with grave vulnerabilities with regard to terrorism and it is in their common interest to work together to build peace and security in the region.
- With the withdrawal of US troops from strategic locations in the region, ASEAN countries justifiably perceive India, with the largest Naval forces in the Indian Ocean and nuclear capabilities, a strategic partner to balance China's growing power in the region.
- While East Asia is on the verge of entering a phase of lower share of working age population India is entering a phase with a higher share of working age population which can prove to be a human resource base for East Asia.
- Along with East Asian specialization in manufactures, India's strength in services could result in a formidable strategic combination which may be mutually beneficial for both the sides.
- India has welcomed the Indo-Pacific document by ASEAN and is pushing for early conclusion of code of conduct on South China Sea by ASEAN and China.
- Improving connectivity would mean improved business and tourism ties with the ASEAN nations.
- Strong maritime connectivity between India and ASEAN nations can allow for the realisation of the full potential of India-ASEAN trade.
- Enhancing maritime connectivity would provide cheaper logistics and motivate increased trade of goods and services between the nations.

The region has become strategically important for India due to its growing importance in the world politics. And for India to be a regional power as it claims to be, continuing to enhance its relations with ASEAN in all spheres must be a priority.

Q. The decision to introduce a UCC is ultimately a matter of political, social, and constitutional considerations. It requires a careful balance between ensuring equality, protecting individual rights, respecting cultural diversity, and fostering social harmony. Critically analyse.

Ans:

A Uniform Civil Code is one that would provide for one law for the entire country, applicable to all religious communities in their personal matters such as marriage, divorce, inheritance, adoption etc. It proposes to replace the personal laws based on the scriptures and customs of each major religious community in the country with a common set of laws governing every citizen.

Article 44 of the Constitution lays down that the state shall endeavor to secure a Uniform Civil Code for the citizens throughout the territory of India.

Background

- The 22nd Law Commission of India has initiated a new consultation process on the Uniform Civil Code (UCC) and invited views of general public as well as recognised religious organisations on the same.
- The commission has given 30 days from the date of notice to present their views and feedback.
- The previous 21st Law Commission had said UCC is neither necessary nor desirable at this stage in the country

UCC helps in achieving the following

- **Promotion of secularism:** One set of laws to govern the personal matters of all citizens irrespective of religion is the cornerstone of true secularism. A **secular republic needs a common law** for all citizens rather than differentiated rules based on religious practices. It would help **end gender discrimination on religious grounds** and strengthens the secular fabric of the nation.
- **Protection of Vulnerable & Women's Rights:** It will protect the vulnerable sections of society. Women have been denied via personal laws in the name of socio cultural-religious traditions. Therefore, UCC could bring all communities together to ensure Women the Right to a dignified life and control over their life as well as body.
- **Gender justice:** The rights of women are usually limited under religious law, be it Hindu or Muslim. Many practices governed by religious tradition are at odds with the fundamental rights guaranteed in the Indian Constitution. Courts have also often said in their judgements that the government should move towards a uniform civil code including the judgement in **the Shah Bano case**.
- **Prevents religion-based discrimination:** Personal laws differentiate between people on grounds of religion. A unified law having the same provisions regarding marital affairs would provide justice to those who feel discriminated against.
- **Ending unjust customs and traditions:** A rational common and unified personal law will help eradicate many evil, unjust and irrational customs and traditions prevalent across the communities. For example, Law against Manual scavenging. It might have been a custom in the past but in a mature democracy like India, this custom cannot be justified.
- **Indian laws do follow a uniform code in most civil matters** –Indian Contract Act, Civil Procedure Code, Sale of Goods Act, Transfer of Property Act, Partnership Act, Evidence Act etc. States, however, have made hundreds of amendments and therefore in certain matters, there is diversity even under these secular civil laws.
- Justice Prathiba M Singh of Delhi HC stated that the modern Indian society was gradually becoming homogenous, the traditional barriers of religion, community and caste are slowly dissipating and thus UCC ought not to remain a mere hope.
- **Eases Administration:** UCC would make it easy to administer the huge population base of India.

Challenges facing the passage of UCC:

- **Violation of fundamental rights:** Religious bodies oppose uniform civil code on the ground that it would be interference into religious affairs which would violate fundamental rights guaranteed under article 25 of the constitution.
- **Reduces diversity:** It would reduce the diversity of the nation by painting everyone in one colour. Tribals have their unique customs and traditions as per their culture. Replacing their customs and traditions with a unified law may lead to the identity crisis of the tribals. This may further lead to social tension.
- **Communal politics:** It would be a tyranny to the minority and when implemented could bring a lot of unrest in the country.
- **Threat to Multiculturalism:** Indian society has a unique identity in the form of its being multiculturalism, and unified law might do away with these unique characteristics of this nation.
- **Affects Majority as well:** For example, even Hindus themselves have separate Hindu laws for themselves. Thus, it is not merely a question for minorities but it also affects the majority.
- **Lacking Political Will:** Bigger issues have been resolved by the BJP Government like Ayodhya Dispute, repeal of Article 370, so with adequate will from the political community, UCC could also be implemented
- **Sensitive and tough task:** Such a code, in its true spirit, must be brought about by borrowing freely from different personal laws, making gradual changes in each, issuing judicial pronouncements assuring gender equality, and adopting expansive interpretations on marriage, maintenance, adoption, and succession by acknowledging the benefits that one

community secures from the others. This task will be very demanding time and human resource wise. The government should be sensitive and unbiased at each step while dealing with the majority and minority communities. Otherwise, it might turn out to be more disastrous in a form of communal violence.

- **Time is not yet suitable for this reform:** Considering a major opposition from Muslim community in India over this issue overlapping with controversies over beef, saffronization of school and college curriculum, love jihad, and the silence emanating from the top leadership on these controversies, there needs to be given sufficient time for instilling confidence in the community. Otherwise, these efforts towards common will be counterproductive leaving minority class particularly Muslims more insecure and vulnerable to get attracted towards fundamentalist and extremist ideologies.

Way forward

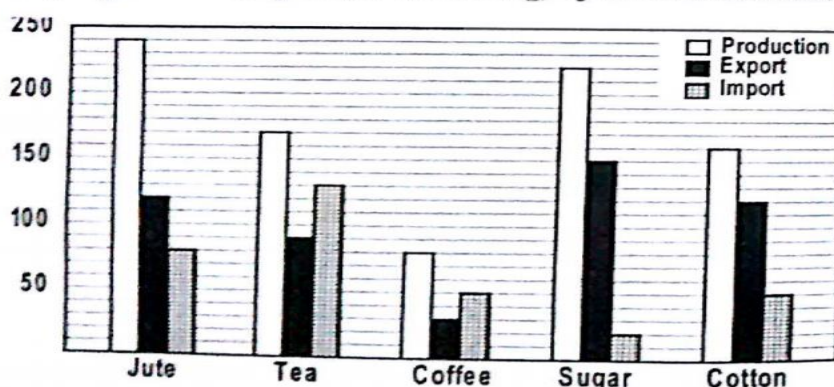
- Major sensitization efforts are needed to reform current personal law reforms which should first be initiated by the communities themselves.
- Current institutions need to be modernized, democratized and strengthened for this change. Sincere efforts towards women empowerment have to be taken for all women of all religions.
- UCC can only emerge through an evolutionary process, which preserves India's rich legal heritage, of which all the personal laws are equal constituents.
- The social transformation from diverse civil code to uniformity shall be gradual and cannot happen in a day. Therefore, the government must adopt a piecemeal approach and no knee-jerk decisions.
- There is need for deliberations and discussions among members of various communities to reach a common ground.

The guiding principles of the Constitution itself visualize diversity and have tried to promote uniformity among peoples of different denominations. A uniform law, although highly desirable but may be counterproductive to the unity and integrity of the nation. Hence, only those elements of customs and traditions should be brought into a unified law that causes injustice to individuals. In a democracy and rule of law, a gradual progressive change and order must be brought about.

SECTION-III

9. Study the data given in the following multiple bar chart which shows the production, export and import (in million kg) of various commodities by Country X and answer the questions given below:

Production, Export and Import (in million kg) of various commodities



(a) In the case of which commodities are the ratios of production to export highest and lowest? Give the two values also.

Ans:

Production and export ratio of:

$$\text{Jute} = 240/120 = 2$$

$$\text{Tea} = 170/90 = 1.8$$

$$\text{Coffee} = 80/30 = 2.6$$

$$\text{Sugar} = 220/150 = 1.4$$

$$\text{Cotton} = 160/120 = 1.3$$

So, max ratio = 2.6 for coffee and Min ratio = 1.3 for Cotton.

(b) In the case of which commodity is the highest percentage of its production exported? Give the percentage value also.

Ans:

For Cotton, highest percentage of its production was exported,

$$\text{Production} = 160$$

$$\text{Export} = 120$$

$$\% \text{age Exported} = 160 * x / 100 = 120 \Rightarrow x = 75\%$$

(c) What is the difference of percentage of tea and jute import of their respective production?

Ans:

Tea,

$$\text{Production} = 170$$

$$\text{Import} = 130$$

$$170 * x / 100 = 130 \Rightarrow x = 76.4\%$$

Jute,

$$\text{Production} = 240$$

$$\text{Import} = 80$$

$$240 * x / 100 = 80 \Rightarrow x = 80 / 24 = 33.3\%$$

So, the difference = $(76.4 - 33.3)\% = 43.1\%$

(d) If for the Country Y the ratio of production, export and import for cotton is 5 : 4 : 3 and production of cotton in Y is same as in X, what quantity of cotton will be exported and imported from the Country Y?

Ans:

Given that,

for the Country Y the ratio of production, export and import for cotton is 5 : 4 : 3

production of cotton in Y = production of cotton in X = 160

Because, $5k = 160 \Rightarrow k = 32$.

Therefore for the Country Y,

export = $32 * 4 = 128$ million kg

import = $32 * 3 = 96$ million kg

(e) By which quantity the export of sugar should be increased so that the difference between the production and export is 2.5 times its import?

Ans:

For Sugar,

Production = 220

Import = 20

Export = 150

$$220 - (150 + x) = 20 * 2.5$$

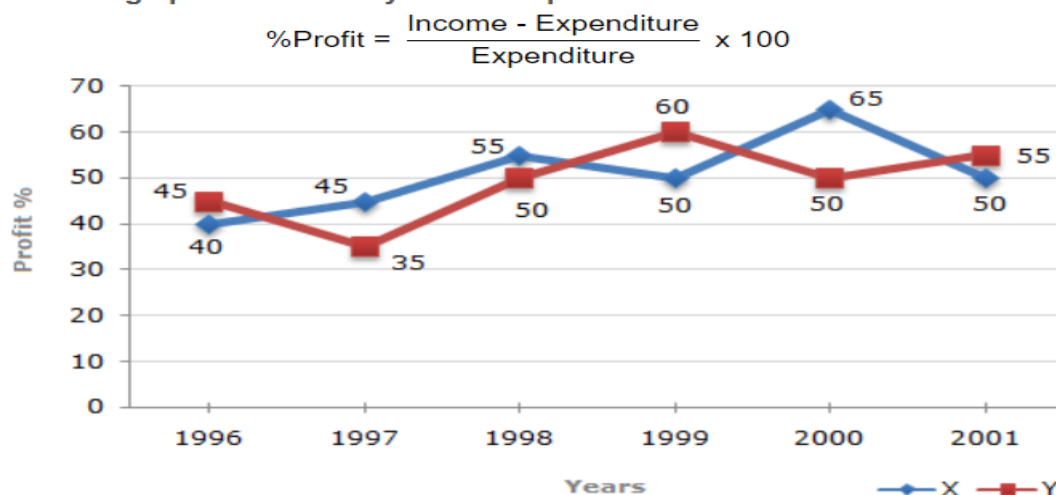
$$\Rightarrow 220 - 150 + x = 50$$

$$\Rightarrow 70 - x = 50$$

Therefore, $x = 20$ million kg

Q. The following line graph gives the percent profit earned by two Companies X and Y during the period 1996 - 2001.

Percentage profit earned by Two Companies X and Y over the Given Years



(a) The incomes of two Companies X and Y in 2000 were in the ratio of 3:4 respectively. What was the respective ratio of their expenditures in 2000? 9

Let the incomes in 2000 of Companies X and Y be $3x$ and $4x$ respectively.

And let the expenditures in 2000 of Companies X and Y be E_1 and E_2 respectively.

Then, for Company X we have:

$$65 = \frac{3x - E_1}{E_1} \times 100 \Rightarrow \frac{65}{100} = \frac{3x}{E_1} - 1 \Rightarrow E_1 = 3x \times \left(\frac{100}{165} \right) \dots (i)$$

For Company Y we have:

$$50 = \frac{4x - E_2}{E_2} \times 100 \Rightarrow \frac{50}{100} = \frac{4x}{E_2} - 1 \Rightarrow E_2 = 4x \times \left(\frac{100}{150} \right) \dots (ii)$$

From (i) and (ii), we get:

$$\frac{E_1}{E_2} = \frac{3x \times \left(\frac{100}{165} \right)}{4x \times \left(\frac{100}{150} \right)} = \frac{3 \times 150}{4 \times 165} = \frac{15}{22} \text{ (Required ratio).}$$

(b) If the expenditure of Company Y in 1997 was Rs. 220 crores, what was its income in 1997? 6

Profit percent of Company Y in 1997 = 35.

Let the income of Company Y in 1997 be Rs. x crores.

$$\text{Then, } 35 = \frac{x - 220}{220} \times 100 \Rightarrow x = 297.$$

∴ Income of Company Y in 1997 = Rs. 297 crores.

(c) If the expenditures of Company X and Y in 1996 were equal and the total income of the two Companies in 1996 was Rs. 342 crores, what was the total profit of the two Companies together in 1996? 9

Let the expenditures of each companies X and Y in 1996 be Rs. x crores.

And let the income of Company X in 1996 be Rs. z crores.

So that the income of Company Y in 1996 = Rs. $(342 - z)$ crores.

Then, for Company X we have:

$$40 = \frac{z - x}{x} \times 100 \Rightarrow \frac{40}{100} = \frac{z}{x} - 1 \Rightarrow x = \frac{100z}{140} \dots (i)$$

Also, for Company Y we have:

$$45 = \frac{(342 - z)}{x} \times 100 \Rightarrow \frac{45}{100} = \frac{(342 - z)}{x} - 1 \Rightarrow x = \frac{(342 - z) \times 100}{145} \dots (ii)$$

From (i) and (ii), we get:

$$\frac{100z}{140} = \frac{(342 - z) \times 100}{145} \Rightarrow z = 168.$$

Substituting $z = 168$ in (i), we get : $x = 120$.

∴ Total expenditure of Companies X and Y in 1996 = $2x =$ Rs. 240 crores.

Total income of Companies X and Y in 1996 = Rs. 342 crores.

∴ Total profit = Rs. $(342 - 240)$ crores = Rs. 102 crores.

(d) The expenditure of Company X in the year 1998 was Rs. 200 crores and the income of company X in 1998 was the same as its expenditure in 2001. What was the income of Company X in 2001? 6

Let the income of Company X in 1998 be Rs. x crores.

$$\text{Then, } 55 = \frac{x - 200}{200} \times 100 \Rightarrow x = 310.$$

\therefore Expenditure of Company X in 2001 = Income of Company X in 1998
= Rs. 310 crores.

Let the income of Company X in 2001 be Rs. z crores.

$$\text{Then, } 50 = \frac{z - 310}{310} \times 100 \Rightarrow z = 465.$$

\therefore Income of Company X in 2001 = Rs. 465 crores.

(e) If the incomes of two Companies were equal in 1999, then what was the ratio of expenditure of Company X to that of Company Y in 1999? 6

Let the incomes of each of the two Companies X and Y in 1999 be Rs. x .

And let the expenditures of Companies X and Y in 1999 be E_1 and E_2 respectively.

Then, for Company X we have:

$$50 = \frac{x - E_1}{E_1} \times 100 \Rightarrow \frac{50}{100} = \frac{x}{E_1} - 1 \Rightarrow x = \frac{150}{100}E_1 \dots (i)$$

Also, for Company Y we have:

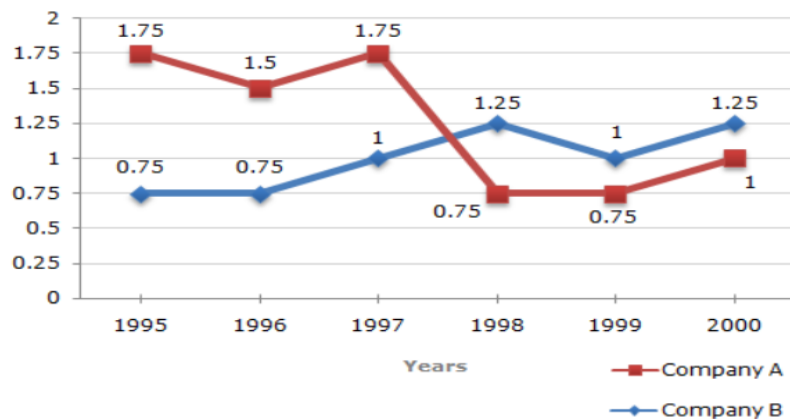
$$60 = \frac{x - E_2}{E_2} \times 100 \Rightarrow \frac{60}{100} = \frac{x}{E_2} - 1 \Rightarrow x = \frac{160}{100}E_2 \dots (ii)$$

From (i) and (ii), we get:

$$\frac{150}{100}E_1 = \frac{160}{100}E_2 \Rightarrow \frac{E_1}{E_2} = \frac{160}{150} = \frac{16}{15} \text{ (Required ratio).}$$

10. Answer the questions based on the given line graph.

Ratio of Exports to Imports (in terms of money in Rs. crores) of Two Companies Over the Years



Ans:

(a) In how many of the given years were the exports more than the imports for Company A?

Ans:

The exports are more than imports in those years for which the exports to imports ratio are more than 1. For Company A, such years are 1995, 1996 and 1997.

Thus, during these 3 years, the exports are more than the imports for Company A.

(b) If the imports of Company A in 1997 were increased by 40 percent, what would be the ratio of exports to the increased imports?

Ans:

In 1997 for Company A we have:

$$\frac{E}{I} = 1.75 \quad \text{i.e.,} \quad E = 1.75I$$

where E amount of exports, I = amount of imports of Company A in 1997.

Now, the required imports $I_1 = I + 40\% \text{ of } I = 1.4I$.

$$\therefore \text{Required ratio} = \frac{E}{I_1} = \frac{1.75I}{1.4I} = 1.25.$$

(c) If the exports of Company A in 1998 were Rs. 237 crores, what was the amount of imports in that year?

Ans:

Let the amount of imports of Company A in 1998 be Rs. x crores.

$$\text{Then, } \frac{237}{x} = 0.75 \Rightarrow x = \frac{237}{0.75} = 316.$$

∴ Amount of imports of Company A in 1998 = Rs. 316 crores.

(d) In 1995, the export of Company A was double that of Company B. If the imports of Company A during the year was Rs. 180 crores, what was the approximate amount of imports of Company B during that year?

Ans:

In 1995 for Company A we have:

$$\frac{E_A}{I_A} = 1.75 \dots \text{(i)}$$

[where E_A = amount of exports, I_A = amount of imports of Company A in 1995]

In 1995 for Company B we have:

$$\frac{E_B}{I_B} = 0.75 \dots \text{(ii)}$$

[where E_B = amount of exports, I_B = amount of imports of Company B in 1995]

Also, we have $E_A = 2E_B \dots \text{(iii)}$

Substituting $I_A = \text{Rs. } 180 \text{ crores}$ (given) in (i), we get:

$$E_A = \text{Rs. } (180 \times 1.75) \text{ crores} = \text{Rs. } 315 \text{ crores.}$$

Using $E_A = \text{Rs. } 315 \text{ crores}$ in (iii), we get:

$$E_B = \frac{E_A}{2} = \text{Rs. } \left(\frac{315}{2} \right) \text{ crores.}$$

Substituting $E_B = \text{Rs. } \left(\frac{315}{2} \right) \text{ crores}$ in (ii), we get:

$$I_B = \frac{E_B}{0.75} = \text{Rs. } \left(\frac{315}{2 \times 0.75} \right) \text{ crores} = \text{Rs. } 210 \text{ crores.}$$

i.e., amount of imports of Company B in 1995 = Rs. 210 crores.

(e) In which year(s) was the difference between imports and exports of Company B the maximum?

Ans: —

We shall try to find the difference between the imports and exports of Company B for various years one by one:

For 1995: We have

$$\frac{E}{I} = 0.75$$

where E = amount of exports, I = amount of imports in 1995.

$$\Rightarrow E = 0.75I$$

$$\therefore I - E = 0.75 \times I = 0.25I.$$

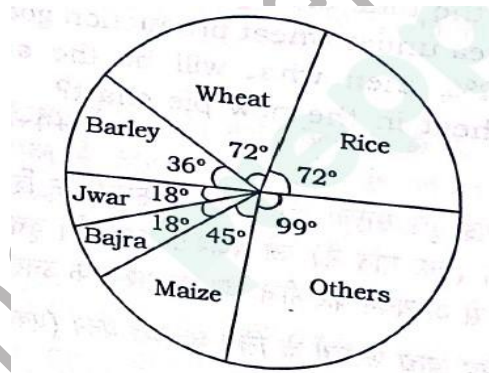
Thus, the difference between the imports and exports of Company B in 1995 is dependent on the amount of imports of Company B in 1995.

Similarly, the difference for other years can be determined only if the amount of imports for these years is known.

Since the imports or exports for various years are not known, the differences between imports and exports for various years cannot be determined.

Q. The pie chart provided below gives the distribution of land (in a village) under various food crops. Study the pie chart carefully and answer the questions given below:

Distribution of Area (in acres) under various food crops.



(a) Which combination of three crops contributes to 50% of the area under the food crops?

Ans:

Rice = 72° ; Wheat = 72° ; Barley = 36°.

Combined area of these three crops = 180° = 50% of 360°.

(b) If the total area under jwar was 1.5 million acres, then what was the area (in million acres) under rice?

Ans:

Given that area under Jwar = 1.5 million acres.

Total area = $1.5 \times (360/18) = 30$ million acres.

Area under rice = $(72/360) \times 30 = 6$ million acres.

(c) If the production of wheat is six times that of barley, then what is the ratio between yield per acre of wheat and barley?

Ans:

Let the production of barley = x .

Then production of wheat = $6x$.

Percentage area under Wheat = $(72/360) \times 100 = 20$ percent

„ „ „ barley = $(36/360) \times 100 = 10$ percent

Required ratio = $(6x/20)(10/x) = 3:1$

(d) If the yield per acre of rice was 50% more than that of barley, then the production of barley is what percent of that of rice?

Ans:

So, the yield of rice = $(150/100)$ the yield of barley = $(3/2)$ the yield of barley.

The production of rice to production of barley = $(3 \times 72)/(2 \times 36) = 3:1$

The required percentage = $(1/3) \times 100 = 33.33$ percent.

(e) If the total area goes up by 5% and the area under wheat production goes up by 12%, then what will be the angle for wheat in the new pie chart?

Ans:

Let, total area = 100.

After increase of 5% = total area = 105.

The new area under wheat production = $(72/360) \times 100(1+12/100) = 112/5$ areas

New angle = $(112/5) \times (1/105) \times 360 = 76.80^\circ$