State PCS Success Program (SPS)

UPPSC (Mains) - 2022

GS Paper #1 - Solution

Instruction to Students

Answers provided in this booklet exceed the word limit so as to also act as source of good notes on the topic.

Candidates must focus on the keywords mentioned in the answers and build answers around them. Elaborate answers are given with the purpose that candidates understand the topic better.

We have also adopted a grey box approach to provide context wherever necessary, which is not to be considered a part of the answer.

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Q.1) Highlight the contribution of Jainism and Buddhism towards the development of regional languages in India.

1.	Introduce with Why was there a need for local and regional languages during Buddhism and Jainism era?
2.	Contribution of Buddhism in literature
3.	Contributions of Jainism in literature
4.	Conclusion

Model Answer:

Jainism and Buddhism developed in response to rigidity of Brahmanical order of society. One of the tools of rigidity of Brahmanical order was the use of language to deprive the lower castes of education & thus, access to scriptures - thus strengthening their dominance by interpreting scriptures & their rituals. Both the religion focused on society that negates the rigidity of Brahmanical order and is inclusive in nature. This required development and use of local languages that can be easily read and understood by masses. Some of the examples of development of local languages can be viewed through the teachings and literatures of Buddhism and Jainism.

Buddhism:
- Early Buddhist scriptures were all written in Pali, perhaps the dialect spoken by Gautama Buddha himself.
- Although Pali, thus, acquired an important place in Buddhism, the Buddhist monks and scholars were encouraged to use the dialects and languages of the people whom they were trying to lead to the Buddha Marga.
- Gautama Buddha was a staunch supporter of instruction through mother tongue. He also said that "undue importance should not be attached to the dialect of a particular janapada, i.e., a monk should be accommodating to dialectical variations, and not insist upon the use of a particular word." There was no hesitation to produce early Buddhist Scriptures in the languages or dialects of the people.
- The Buddhist Canonical texts like 'Sutta Pitaka', 'Vinaya Pitaka' and 'Abhidhamma Pitaka' and several others were written in Pali language.

Jainism:
- Development of Sramana Literature which served as a counter to Brahmanical literature.
- Development of Prakrit Language, as it was the language which was used in teachings of Mahavira as well as in the Jainism texts Agamas.
- It is an established fact that the Jainism have enriched various regional languages and especially Hindi, Gujarati, Kannada, Tamil and Telugu.
- Jains alone utilized the prevailing languages of the different places, besides Sanskrit, Prakrit and Apabhramsha, for their religious propagation as well as for the preservation of knowledge. Thus, a vivid development of local languages with rise of Jainism and Buddhism took place. Further, the emperors and rulers converting to these religions patronized these local languages which led to their further growth.

Q.2) Highlight the differences in the approach of Rabindranath Tagore and Mahatma Gandhi towards India's freedom struggle.

Model Answer:

Rabindranath Tagore bestowed the title of 'Mahatma' ("Great Soul") on Gandhi in 1915. Gandhi called Tagore Gurudev ("Revered Master"). However, there were differences in their approach-

Views on	Mahatma Gandhi	Rabindranath Tagore
Nationalism and Patriotism	Was in favour of strong nationalist form of freedom struggle.	Was against the strong nationalist form that the independence movement took after Swadeshi movement and that's why he refrained from active politics.
Western values and Education	Wanted rejection of western values in favour of indigenous traditions. He thought that the western education was hampering the Indian culture	Was not in favour of rejection and considered that such isolation could turn into hostility to other influences from abroad. He wanted to combine the good aspects of it with the indian traditions.
Internationalism	Was more confined to nationalist ideas.	Was against geographical boundaries and wanted open global community without any barriers of nations, states, race, relgiion, caste etc
Methods of struggle	Believed in ideas of satyagraha, boycott, non-cooperation.	Did not support boycott without a meaningful alternative in place. E.g. foreign goods- he questioned as to how long the country could be kept away from world trade.
Science	His views on epistemology were heterodox. E.g. believed that the earthquake was a divine chastisement sent by God for sins - in particular	Believed that modern science was essential to understanding physical phenomena. Even wanted science and technology to be taught along with arts in Shanti Niketan.
Idolism	Defended idols, believing the masses incapable of raising themselves immediately to abstract ideas.	Was against idols
Charkha	Viewed it as a means of India's self-realization	Found the alleged economic rationale for this scheme quite unrealistic
Personal life and Social Policy	was keen on the virtues of celibacy and abstinence.	advocated contraception and family planning

Q.3) Trace the important events that led to the First World War.

Approach:
1. Introduction by writing about first World War, its occurrence, with facts.
2. List the long term and short term / immediate causes, and elaborate them.
3. List the events that preceded it such as Moroccan Crisis, Agadir Crisis, First Balkan Wars and Second Balkan Wars.

Model Answer:

Introduction:

- The First World War began in 1914 and lasted till 1918 and was essentially a war between European countries who controlled much of the world at that time.
- It was one of the deadliest conflicts in history, and paved the way for major political changes, including revolutions in many of the nations involved.
- The war drew in all the world's economic great powers assembled in two opposing alliances: the Allies (based on the Triple Entente of the Russian Empire, the French Third Republic, and the United Kingdom of Great Britain and Ireland) versus the Central Powers of Germany and Austria-Hungary.
- Although Italy was a member of the Triple Alliance alongside Germany and Austria-Hungary, it did not join the Central Powers, as Austria-Hungary had taken the offensive against the terms of the alliance.
- These alliances were reorganized and expanded as more nations entered the war: Italy, Japan and the United States joined the Allies, while the Ottoman Empire and Bulgaria joined the Central Powers. Events leading to the war
- The Moroccan Crisis: Britain and France had recently signed the entente cordiale wherein France recognized British claim on Egypt in return for Britain recognizing France's claim on Morocco. Germany wanted to test this pact and hence announced its support for the Sultan of Morocco. However, even Russia and Spain had come out to recognize France's claim on Morocco. This surprised Germany and made them seek new alliances and harden its stand against the Anglo-French alliance.
- The Agadir Crisis: Was sparked by the deployment of a substantial force of French troops in the interior of Moroccoin April 1911. Germany did not object to France's expansion, but wanted territorial compensation for itself. Britain was alarmed at Germany's aggressiveness towards France and relations between Britain and Germany remained sour. •First Balkan War: Was fought between the members of the Balkan League—Serbia, Bulgaria, Greece, and Montenegro—and the Empire. Serbia was not happy with the outcome of the war since it wanted Albania to itself. However, Austria with Germany's support ensured Albania remained an independent country. This caused much resentment in Serbia
- Second Balkan War: Began when Serbia, Greece, and Romania quarreled with Bulgaria over the division of their joint conquests in Macedonia. Serbia's victory further strengthened Serbian Nationalism and calls for a larger homeland for Serbs.
- Assassination of Franz Ferdinand: Assassination of Archduke Franz Ferdinand, heir to the throne of Austria by a group of terrorists. Austria suspected that Serbian Nationalists had the backing of the Serbian Government behind the assassination. Austria gave an ultimatum to Serbia and finally declared war on Serbia exactly 1 month after the assassination. This was backed by Germany who gave a blank cheque to the Austrians in taking military action against the Serbs.

Q.4) Explain the reasons behind the diversity of Indian society, discuss any four cultural elements of diversity.

> **Approach**: *Introduce by highlighting the diversity in Indian society and explain the reasons for it. Briefly define culture and discuss four cultural elements of diversity such as religion, language, caste, art and architecture. Conclude by mentioning the importance of diversity for our country.*

Model Answer:

India is a multi-cultural, multi-religious and multi- linguistic society. It is one of the most diverse societies of the world with plurality rooted in its social and cultural richness.

The reasons behind this multicultural society and diversity of India are:

1. Being one of the oldest civilizations, India had extensive time period to develop and evolve various social institutions and cultures resulting in diversity of society.
2. The foreign influence in the form of influx of various religions, ethnicities and cultures due foreign invasion (Turks, Mughals), proximity to trade routes to Central Asia and Europe and visit of travellers (Fa-Hien, Ibn Battuta, Hiuen Tsang) led to cultural interaction and assimilation of foreign features in our society.
3. Geographical barriers such as the Himalayas in the north, hill ranges (Vindhya and Satpura) in central India and presence of dense forests restricted free movement of people. It led to societies developing their unique identity and culture on the basis of food habits, dressing patterns, festivals and cultural activities across these divisions. For example- Cultural differences between the Aryan and Dravidian communities. Similarly, dense forests led to the isolation and a distinct growth of tribal culture.
4. The presence of numerous kingdoms since ancient times and their distinct set of policies led to the development of many local languages and diverse socio- cultural practices. For example: Bengali language developed under the patronage of the Pala kings.
5. The philosophy of Vasudeva-Kutumbakam, tolerance and open outlook of India have heavily contributed to the enrichment of India's diversity. For example- The persecuted communities such as Parsis and Jews were granted asylum in India and their culture influenced our social practices.

The diversity of the Indian society has led to a vibrant Indian culture. Culture is a way of life i.e. the general customs and beliefs of a particular group of people. The Indian cultural mosaic consists of various elements such as religion, castes, languages, traditions, races, art and architecture. Below are the four elements of cultural diversity of India:

1. Religious diversity is one the most important feature of our culture. All major religions from Hinduism, Islam to Sikhism and Jainism can be found in India. India has a history of accepting, nurturing and influencing different religious ideas and beliefs. For example- Sufism which is a broader, less conservative and transcending version of Islam has been deeply influenced by the liberal values that were prevalent in India.
2. India is a vibrant multilingual country with a variety of languages and dialects. Language is a source of cultural diversity as well as unity and a collective identity for Indians. A. R. Desai rightly calls India a spectacle of Museum of tongues. The 8th Schedule of the Constitution promotes this diversity by protecting major languages. The diversity is apparent from the presence of many languages like Hindi, Urdu, Punjabi (Indo-Aryan), Tamil, Telugu, Kannada and Malayalam (Dravidian), tribal languages of central India (Austric) and the tribal languages of North Eastern India (Sino-Tibetan languages).
3. Caste is a unique feature of Indian society and also an element of cultural diversity of India. There are more than 3,000 castes in India. The caste system is also prevalent among other communities like Muslims, Christians or Sikhs.
4. There is remarkable diversity and variation in art and architecture shown by the paintings of Ajanta and Ellora to the contemporary Madhubani and Kalamkari paintings. Similarly, we have the rock-cut Kailash temple at Ellora, the intricate pietra-dura present in Taj Mahal to the contemporary Indo-Gothic architecture of the Chhatrapati Shivaji Terminus.

Observing the rich diversity of India, Thomas Berry said "the greater the diversity, the greater the perfection". Thus, the presence of diversity in the Indian society has enriched our nation and made us tolerant and accommodative in outlook.

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Q.5) Explain societal discrimination against women across her life cycle.

Model Answer:
Women are not born but are made. With gender identity, as a woman, comes multiple forms of discriminations and constraints. Societal discrimination against women begins even before his birth and continues till she dies.

Before Birth:
1. Female feticide: Because of sex-selective abortion, many girls are killed even before they are born.
2. Unwanted Girls: Because of son meta-preference and strict diagnostic laws in India, parents keep reproducing until the desired number of sons are born. As a result, girls born are unwanted and treated as such.

Infancy and childhood:
1. Infanticide: If a girl somehow is born, she is killed once she is born. The difference is clearly visible in the declining child sex ratio at birth.
2. Poor Nutrition: A girl child nutritional needs are secondary and subject to any boy child receiving their nutrition.
3. Child sex abuse: A girl child is more vulnerable to sexual abuse. 99% of reported child abuse cases involves girl child as the victim.
4. Child marriage: The main reason for child marriage is societal notion of considering girl child as a burden on the family.

Adulthood
1. Poor LFPR: As per the NITI Aayog report the Female Labour Force Participation Rate (LFPR) remain meagre 26%.
2. Gender pay gap: The poor participation rate is accompanied by a high wage gap. As per ILO Report, the gender pay gap is 34%.
3. Glass ceiling: Women face several obstacles to get fair treatment and barriers in order to attain high managerial positions as compared to men.
4. Victim of crimes: Women also face higher degree of crimes such as domestic violence, rape and sexual harassment, acid attack etc.
5. No role in decision-making: They have no role in decision making in the family and have to rely upon other family members for their monetary resources. Most of the times they have no control over their hard-earned livelihood.

Old age
1. Women in old age faces issues like dependency on family, mental harassment by family members and are made to feel unwanted in their homes.
2. Widowhood: Women live longer and since there is usually age-gap with their husband, most women feel lonely and isolated.
3. Health Issues: Old age comes with its own health issues which require greater care and expenditure.
4. Abandonment and cases of desertion are common against old women.

Thus, it can be said that social discrimination of women continues through her entire life. There is a need to break gender stereotypes and prejudices through gender sensitization and awareness generation for an equal and discrimination free society.

Q.6) There is a close relationship between poverty and the structure of society. Explain the statement with references to Indian society.

Model Answer:
There is close relationship between poverty and social structure. Poverty can be eliminated not through economic measures alone but requires participation of the community in a way where historical wrongs are corrected and opportunities extended to help the disadvantaged sections to join the main-stream of development.

Relationship between structure of society and poverty -
1. Role of Gender - Patriarchal Value system - lower status of women; socially - discriminated/harassed/humiliated; Gender-based discrimination/segregation at workplace - low status, low paid informal jobs; low labour force participation rates; resulted in feminisation of poverty.
2. Caste system - dominant castes appropriating economic benefits; economic discrimination against lower castes in markets/nonmarket institutions - education/health/food; low paying menial jobs; manual scavenging.
3. Religion as a factor – Sachar committee pointed out that minorities especially muslims in India suffer from low per-capita income; low representation in IAS/MP etc.; low credit/entrepreneurship;
4. Vicious cycle of poverty - (a) fruits of economic progress, land reforms, green revolution cornered by influential/advantaged sections of society. (b) out of pocket expenses in health/education/food creates inability to move out of poverty.
5. Post-liberalization economic boom benefitted only a small section of society equipped to fulfill high skill requirement of services sector – urban, upper-class, upper-caste male population.

Q.7) Divide Uttar Pradesh into major physical regions and describe the geographical features of Gangetic plains.

Model Answer:
The state of Uttar Pradesh is bounded by Uttarakhand and Himachal Pradesh on the north-west, Haryana and Delhi on the west, Rajasthan on the south-west, Madhya Pradesh on the south, Chhattisgarh and Jharkhand on south-east and Bihar on the east. Situated between 23°52'N and 31°28'N latitudes and 77°3' and 84°39'E longitudes, this is the fourth largest state in the country in terms of area, and is first in terms of population.

Uttar Pradesh can be divided into three distinct geographical regions:
1. The Shivalik foothills and Terai in the north: Mountainous soil, tall grasslands, sal forests and clay rich swamps.
2. The Gangetic Plain in the centre: Highly fertile alluvial soils; flat topography broken by numerous ponds, lakes, and rivers.
3. The Vindhya Hills and Plateau in the south: Hard rock Strata; varied topography of hills, plains, valleys, and plateau; limited water availability.

The geographical features of the Gangetic Plains are:
1. It is the most important area for the state's economy and it which stretches across the entire length of the state from east to west.
2. The entire alluvial plain can be divided into three sub-regions.

a. The first is the eastern tract consisting of 14 districts which are subject to periodical floods and droughts and have been classified as scarcity areas. These districts have the highest density of population which gives the lowest per capita land.

b. The other two regions, the central and the western are comparatively better with a well developed irrigation system. They suffer from waterlogging and large-scale user tracts.

3. Rivers: The Gangetic plain is watered by the Yamuna, the Ganges and its major tributaries, the Ramganga, the Gomati, the Ghaghara and Gandak.

4. Soil: The whole plain is alluvial and very fertile. The chief crops cultivated here are rice, wheat, pearl millet, gram, and barley. Sugar cane is the chief cash crop of the region.

5. The southern fringe of the Gangetic is demarcated by the Vindhya Hills and plateau.

a. It comprises the four districts of Jhansi, Jalaun, Banda, and Hamirpur in Bundelkhand division, Meja and Karchhana tehsils of Allahabad district, the whole of Mirzapur district south of Ganges and Chakia tehsil of Varanasi district.

b. The ground is strong with low hills. The Betwa and Ken rivers join the Yamuna from the south-west in this region.

c. It has four distinct kinds of soil, two of which are agriculturally difficult to manage. They are rich in black cotton soil. Rainfall is scanty and erratic and water-resources are scarce. Dry farming is practiced on a large scale.

The Indus-Ganga belt is the world's most extensive expanse of uninterrupted alluvium formed by the deposition of silt by the numerous rivers. The plains are flat and mostly treeless, making it conducive for canal irrigation. The right policy environment for agriculture can bring the next green Revolution to Uttar Pradesh.

Q.8) India is set to become the most populous country in next few years. Discuss the challenges in utilizing this demographic wealth as social capital.

Demand of the Question:
Introduction: Briefly about Population and demographic dividend with some facts.
Body: Challenges in utilising Demographic Wealth as Social Capital
Conclusion/ Way Forward: Suggest some measures to overcome Challenges.

Model Answer:
According to The World Population Prospects, published by the UN Department of Economic and Social Affairs India is set to Become most populous country in the world by 2024 with 1.44 billion population. India's population is projected to continue growing for several decades to around 1.5 billion in 2030 and approaching 1.66 billion in 2050. The working age group 15-59 years accounts for 62.5% of India's population. The working-age population will reach the highest proportion of approximately 65% in 2036. These population parameters indicate an availability of demographic dividend in India, which started in 2005-06 and will last till 2055-56.

CHALLENGES IN UTILISING DEMOGRAPHIC WEALTH AS SOCIAL CAPITAL

1. Unequal Distribution: India's demographic bulge is not uniformly distributed across the country; while the Northern states would have young population, the Southern states have already started aging. Northern states have low Gross State Domestic Product (GSDP), inadequate infrastructure for education and skill development and also offer one of the lowest employment opportunities.

2. Absence of National Vocational Education and Training Standards: Over 18 Ministries/Departments of the Government of India are implementing over 40 Skill Development Programmes. National Occupational Standards and Qualification Packs the Sector Skill Councils (SSCs) are narrow, are mostly of small (generally of 150-300 hours) duration and do not meet the real industry needs.

3. Lack of Formal Skilling: Around 93% of the Indian workforce is employed in the unorganized or informal sector, which lacks any kind of formal skill development system. According to World Bank only 2.3% of the Indian workforce has undergone formal skill training, as compared to 68% in UK, 80% in Japan and 96% in South Korea.

4. Shortage of Qualified Trainers and Assessors: A significant proportion of trainershaveneither the requisite teaching skills nor the relevant industry experience. Due to poor career growth prospects, attrition rate is also high among facultyin vocational institutes.

5. Inadequate monitoring and evaluation: Monitoring arrangements are inadequate, with little third-party monitoring of quality and outcomes.

There is no formal and active feedback mechanism in place to capture 'learning experiences' of and 'outcomes' for the beneficiaries.

MEASURES TO OVERCOME THE CHALLENGE

1. Expenditure on higher education needs to be on par with developed countries. Out the total expenditure on education, the government spends about 1 % of the GDP on higher education, which is much lower compared to the developed countries, like the United States (1.37%).

2. Sharda Prasad committee recommendations like having a separate stream for vocational education (in secondary education), creating vocational schools and vocational colleges for upward mobility, and having a Central university to award degrees and diplomas should be considered.3.Courses need align to international requirements, ensuring a basic foundation in the 3Rs, and lifelong learning. It implies national standards for an in-demand skill set with national/global mobility that translates into better job.

3. To overcome skill mismatch industry involvement needs to be there at various stages. For example: Industry-institute interface, role in course formulation, internships etc.

4. Governments need professional and technical assistance to develop a comprehensive end-to-end institutional and operational delivery model, and then to monitor and evaluate the rapidly scaling programmes at the district and block levels.

5. Given the limited capacity in government institutions, private entities need to be encouraged to take up vocational training and skilling activities. The incentives for such partners have to be carefully structured and should be linked to assessment and employment outcomes with sound monitoring and evaluation mechanisms.

6. Employment exchanges in districts need to be overhauled and transformed on a public-private partnership mode. Odisha's skill development programme is a fine example of this approach. Demographic dividend is a time-limited opportunity, and government should redouble their efforts to build social capital out of demographic wealth. Investing more and more efficiently in people will enable India to tap into its demographic dividend, and prepare the country for the future. There is a powerful link between these investments and economic growth, stability and security.

Q.9) Explain the scope of religious tourism in UP for spiritual and economic enrichment.

<u>Model Answer:</u>

Uttar Pradesh has many tourist spots, most famous of them being the Taj Mahal. UP also has many religious cities like Varanasi, Ayodhya, Allahabad, Sarnath, Lucknow etc. which are centres of religion and culture and thus have a huge scope for religious tourism in UP.

Religious tourism involves traveling with a core motive of experiencing and exploring religious places, forms, or the products religious places induce like art, traditions, culture, wellness tourism (health and healing) is also considered as a part of religious tourism. Scope of Spiritual tourism in UP:

1. **Pilgrimage:** Pilgrimage is spiritually or religiously-motivated travel. UP is land of many temples, mosques, and religious events like Kumbh Mela, Urs of Sufi Saints etc. take place from time to time.
2. **Religious sightseeing:** It can be motivated by any of several kinds of interest, such as religion, art, architecture or history. For example, Mathura, the birthplace of Lord Krishna, Ayodhya, the birthplace of Lord Rama, Sarnath-Khushinagar-Shravasti, the famous Buddhist pilgrimage sites receive large footfalls.
3. **Secular pilgrimage:** It consists of pilgrimage for yoga, spiritual retreats, health and wellness, and leisure which have some connection with faith. For example, Rishikesh has become a famous yoga retreat centre of the world.

Scope of economic enrichment through tourism in UP:

1. Local employment generation: Tourism is a labour-intensive industry, it will create large scale, high quality employment. It will also create local self-employment in form of shops, guides, transport, accommodation, food, ticketing, guiding, boating, rafting, trekking, maintenance of the tourist sites etc.
2. Infrastructure development: By developing the infrastructures in various tourism related activities, it enables better facilities for movement from one place to another for both incoming or outgoing tourists.
3. Development of hospitality and service sector: Developing of tourist destination brings private investment in those cities. Thus, it helps in growth of other allied economic sectors such as airlines, hotel, surface transportation, etc.
4. Greater revenue for the state: Tourism is the source of earning foreign exchange as well as domestic currency for the state. Revenue is generated through taxes on the income from tourism employment, business, and entry fee at various tourist sites/ monuments, toll taxes etc. More importantly, it provides employment to the local populace and is earned without loss of any natural resources or huge infrastructural expenditures.

UP has the potential to be the number one crowd puller provided the right steps are taken such as better connectivity, swachhata, infrastructure creation and a movement towards sustainable tourism to provide a holistic tourism experience.

Q.10) Explain the various types and patterns of rural settlement found in India.

<u>Model Answer:</u>

Rural settlements are most closely and directly related to land. They are dominated by primary activities such as agriculture, animal husbandry, fishing etc. The settlement size is small and depend upon factors such as water supply, land, building material etc.

The types of rural settlements may be classified on the basis of following criteria:

1. On the basis of setting: The main types are plain villages, plateau villages, coastal villages, forest villages and desert villages.
2. On the basis of functions: These could be classified as farming villages, fishermen's villages, pastoral villages etc.
3. On the basis of forms/shapes: There may be a number of geometrical forms and shapes such as linear, rectangular, circular star like, T-shaped village, double village, cross shaped village etc.

The various patterns of rural settlement could be studied as:

1. Linear pattern: In such settlements houses are located along a road, railway line, river, canal edge of a valley or along a levee.
2. Rectangular pattern: Such patterns are found in plain areas or wider inter montane valleys. The roads are rectangular and cut each other at right angles.
3. Circular pattern: Circular villages develop around lakes, tanks etc. Sometimes the village is planned in such a way that the central part remains open and is used for keeping the animals to protect them from wild animals.
4. Star like pattern: Where several roads converge, star shaped settlements develop by the houses built along the roads.

| Linear Pattern | Cross-shape Pattern | Star-like Pattern |
| T-Shape Pattern | Circular Pattern | Double Pattern |
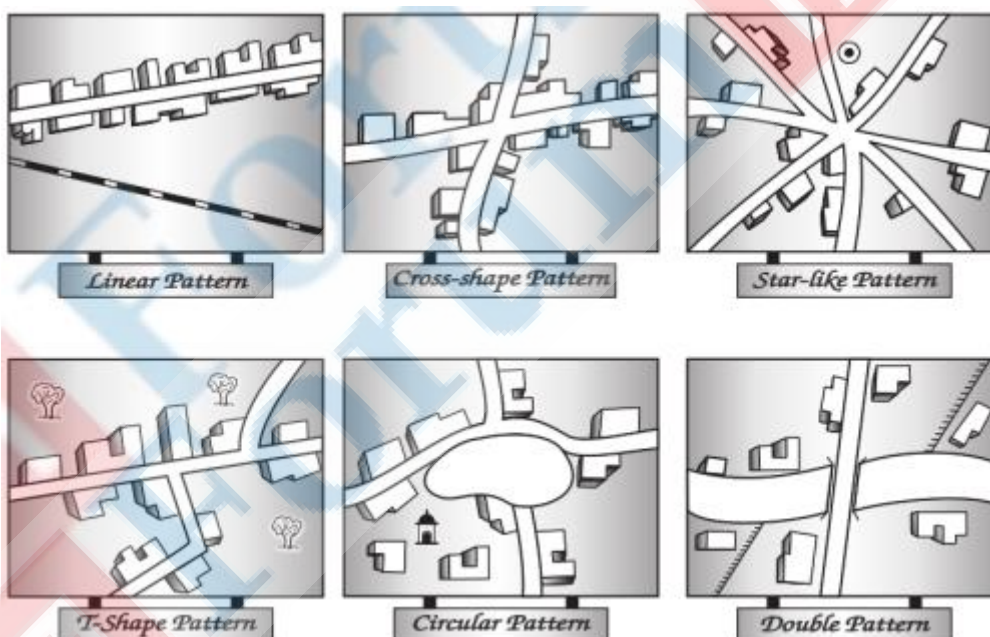
5. T-shaped, Y-shaped, Cross-shaped settlements: T-shaped settlements develop at tri-junctions of the roads while Y shaped settlements emerge at the places where two roads converge on the third one. Cruciform settlement develops on the cross roads and houses extend in all the four directions.
6. Double village: These settlements extend on both sides of a river where there is a bridge or a ferry.

Rural settlements present certain challenges such as:

1. Rural settlements in developing countries are large in number and very poorly equipped with physical or social infrastructure.
2. Supply of water to rural settlements is not adequate. People in villages, particularly in mountainous and arid areas have to walk long distances to fetch drinking water.

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3. The general absence of toilet and garbage disposal facilities cause health related problems. Water borne diseases such as cholera and jaundice tend to be a common problem.
4. The houses made up of mud, wood and thatch remain susceptible to damage during heavy rains and floods, and require proper maintenance every year.
5. Due to unmetalled roads and lack of modern communication network the settlements remain cut-off and pose serious difficulties in providing emergency services.

Rural settlements need to be upgraded in terms of social infrastructure, physical infrastructure and availability of robust communication networks. Still a substantial part of population in developing countries reside in rural settlements. Hence, their upkeep is an important imperative.

Q.11) What were the circumstances that led to the formation of the League of Nations? Critically examine its efficacy in meeting its stated objectives.

Approach:
1. Discuss the circumstances that led to the formation of the League of Nations.
2. Highlight few successes of the league.
3. Mention its failures.
4. Enumerate few reasons for its failure.

Model Answer:

- The International Peace Conference held in The Hague in 1899 established the Permanent Court of Arbitration, which started its work in 1902. It was the first medium for settling international disputes between countries. The outbreak of World War I in August 1914 and the carnage that followed showed the limits of this mechanism by the Permanent Court of Arbitration.
- It also signaled the final end of an international system-the so-called Concert of Europe-that had saved the old Continent from the scourge of a major war since Napoleon's adventures a century earlier.
- Between 1914 and 1918, Europe witnessed the worst killing spree of its already bloody history and a new world order emerged in these crucial years
- The utter devastation of the war led to support for the idea of an international organization. To many, an international organization with the power to settle disputes before they escalated into military conflicts appeared to be the answer.
- While the First World War was still underway, a number of governments and groups had already started developing plans to change the way international relations were carried out to try to prevent another such conflict.
- United States President Woodrow Wilson enthusiastically promoted the idea of the League as a means of avoiding any repetition of the bloodshed of the First World War, and the creation of the League was a centerpiece of Wilson's Fourteen Points for Peace. ϖThe League of Nations (LON) was founded as a result of the Paris Peace Conference that ended the First World War.

Mandate of league:

- It was the first permanent international organization whose principal mission was to maintain world peace.
- Its primary goals, as stated in its Covenant, included preventing war through collective security and disarmament, and settling international disputes through negotiation and

arbitration. Other issues in this and related treaties included labor conditions, just treatment of native inhabitants, human and drug trafficking, arms trade, global health, prisoners of war, and protection of minorities in Europe.

Success of the league:
- The international labor organization (ILO): One of the most successful was ILO. Its purpose was to improve conditions of labor all over the world by persuading governments to:
  - ✓ Fix a maximum working day and week
  - ✓ Specify adequate minimum wages
  - ✓ Introduce sickness and unemployment benefits etc.
- The Refugee organization solved the problem of thousands of former prisoners of war in Russia at the end of war, about half a million were returned home.
- The health organization did good work in investigating the cause of epidemics and it was especially successful in combating a typhus epidemic in Russia, which at time seemed likely to spread across Europe.
- Several political disputes were resolved by league like
  - ✓ Finland and Sweden over the Aaland Islands.
  - ✓ Germany and Poland over upper silesa.
  - ✓ Greeks invasion in Bulgaria etc.

Failures of league:
- It is significant that none of disputes resolved by league threated world peace and none of the decisions went against a major state, which might have challenged the leagues verdict.
- The league found itself over ruled by conference of Ambassadors based in Paris, Which had set up deal with arising out of the Versailles treaties. For instance, in 1920 the league supported Lithuania in her claim to Vilna, which had just been seized from her by the Poland; but when the conference of Ambassadors insisted on awarding Vilna to Poland, the league allowed it to go ahead.

Reasons for Leagues failure:
- It was too closely linked with the Versailles Treaties, it seems like an organization especially for the benefit of the victorious powers.
- The absence of the USA meant that league was deprived of powerful member whose presence would have been of great Psychological and financial benefit.
- The world economic crisis of 1929 contributed to the league's decline.

Q.12) Discuss the contributions of Raja Ram Mohan Roy in the arena of social and cultural awakening of India in the 19th century.

Approach: *Present a short introduction about Raja Ram Mohan Roy. Mention his contribution in the fields of social reform, spread of education, religion, journalism, etc. Conclude with the fact that his efforts provided impetus to the Social reform movement in India.*

Model Answer:
Raja Ram Mohan Roy was a social reformer, educationist and a rationalist. He pioneered the first wave of social reform in India. He is called the father of Indian renaissance and the maker of Modern India because of his contributions for social welfare, religion, education, politics and economy.

Five major contributions of Raja Ram Mohan Roy in social and cultural awakening of India are:

1. He fought against the social evils present in Indian society at that time. He played an important role in abolishing Sati and child marriage in India. He organized a movement against the inhuman custom of sati and helped William Bentinck to pass a law banning the practice (1829).
2. He established Brahmo Samaj which fought against polygamy, caste system, female infanticide, untouchability, superstitions and intoxicants. He also encouraged women's education, inter caste marriage and widow remarriage. He demanded more rights for women, including the right to inherit property.
3. He was a supporter of the introduction of modern western education for the social and cultural awakening of India. He was instrumental in establishment of Hindu College (1817) and Vedanta college (1825) in Calcutta.
4. He advocated religious reforms and fought against polytheism, priestly domination, meaningless rituals, and idol worship. He defined religion with reason and fought against orthodox Hindus. He encouraged monotheism. He translated Upanishads into Bengali to prove that ancient scriptures prescribed monotheism.
5. He contributed to social and cultural awakening through his journals and newspaper by spreading scientific, literary and political knowledge among the people. He brought out several journals such as 'Sambad Kaumudi', Mirat-Ul-Akbar' to propagate his views and bring socio economic change in the country. He also fought for the freedom of press.

Raja Ram Mohan Roy's contribution was not limited to the social and cultural sphere alone.

1. He also raised his voice for economic exploitation. The origin of drain theory can be traced back to his works. He fought for the rights of the tenants who were exploited by the Zamindars under the Permanent Settlement Act. He also opposed the heavy export duties imposed on Indian goods.
2. He opposed the racial discrimination of British. He also initiated public agitation on political questions of the country and stood for the values of enlightenment of liberty, democracy and humanism.

Raja Ram Mohan Roy contributions promoted progressive and positive thinking among people and gave impetus to the social reform movement in India. He saw social reform as a way to achieve social progress and national development. However, he did not blindly promote westernization but was also mindful of the value of traditional Indian culture. Raja Ram Mohan Roy sought reform of Indian society but also acknowledged the significance of yoga, vernacular language etc.

Q.13) Describe the legacy of the French Revolution for the world during the nineteenth and twentieth centuries.

Approach:
1. Briefly Introduce French Revolution.
2. Discuss its legacy for world in 19thand 20thcentury.
   → Substantiate with ideas of Equality, Fraternity, Liberty.
   → Give examples-USA constitution, Indian constitution, Women rights.
3. Conclude appropriately.

Model Answer:

A watershed event in modern European history, the French Revolution began in 1789 and ended in the late 1790s. During this period, French citizens razed and redesigned their country's political landscape, uprooting centuries-old institutions such as absolute monarchy and the feudal system.

Like the American Revolution before it, the French Revolution was influenced by Enlightenment ideals, particularly the concepts of popular sovereignty and inalienable rights.

The legacy of the French Revolution for the peoples of the world during the nineteenth and twentieth centuries was as follows —

- Ideas of equality and democracy spread from France to other European countries and feudalism was abolished.
- Colonial people reworked the idea of freedom from bondage into their movements to create sovereign nation states.
- It was the first movement to adopt the ideals of liberty, equality and fraternity.
- The declaration of the Rights of Man and Citizen gave rights such as right to life, freedom of speech, equality before law, etc.
- Women were given many rights. They could not be forced to marry against their will, divorce was made legal, schooling was made compulsory and they could train for jobs.

The ideas of liberty and democratic rights were the most important legacy of the French Revolution. Further these ideas spread to different colonies of the European nations and their colonies and were interpreted according to their respective needs:

- Modern nationalism began in France during the revolutionary decade and was spread by revolutionary and Napoleonic armies to the rest of Europe.
- After the fall of Napoleon and the remaking of European boundaries at the Congress of Vienna in 1815, nationalists turned their ire on foreign rulers: the Austrians in Italy, the Russians in Poland, and so on.
- Socialists and communists had a positive view of the French Revolution: they considered it an important harbinger of the future. However, they wanted to go beyond its tentative promises of individual rights and legal change within a constitutional order.
- The Napoleonic occupation of Spain in 1808 was the spark that ignited the independence movement in Latin America. Beginning with Mexico in 1810, Central and South American local elites declared their independence from Spain and Portugal.
- Twentieth-century revolutionaries in east Asia were interested not only in the potent ideology of nationalism, but also in the transformative power of revolutions on both society and the state. Exposed early to the model of the French Revolution, those espousing revolutionary change in China and Vietnam made the French Revolution of 1789 topical in a new part of the world.
- French revolution had impacted India in many ways:
  ➤ Raja Ram Mohan Roy was a huge admirer of the French Revolution.
  ➤ Tipu Sultan who was an ally of the French colonies against the English even joined the Mysore Jacobin Club.

French Revolution was probably like seed for an end of colonization in many countries. By the mid of 20th century major part of the world adopted democracy as the preferred mode of rule and the French Revolution can be termed as the initiation point for this development.

Q.14) Explain the concept of communalism. Elaborate on its evolution.

Model Answer:

Communalism in a broad sense means a strong attachment to one's own community. The community may refer to a region, religion, language or any other identity. Communalism in India refers to the attachment of a person to his religious identity. The following points describe the various facets of Communalism in India

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1. The religious identity plays a major role in people who are practising communalism.
2. Communalism also means that people from one group of a religion treat people from other religion with hatred and contempt.
3. The extreme form of communalism leads to violence between two communities. The problem of communal violence is widespread in India. For Example, the violence between Hindus and Muslims.

Communalism as a sectarian ideology could be seen as a result of giving more importance to one's own race/religion than wider society. In this light its evolution can be studied as:

1. Peaceful phase void of communal tensions
   a. During this phase Buddhism and Jainism originated as a protest movement against the predominant Hindu society.
   b. These religions prescribed peace and harmony and hence the unity of the country was maintained.
2. Second phase of evolution could be seen with the advent of medieval age, with arrival of Islam in India.
   a. Occasional occurrences of violence were present. For Example, Mahmud Ghazni's destruction of Hindu temples and Mahmud of Ghor's attack on Hindus, Buddhists, Jains
   b. There has been a broad tolerance towards the religious practices of one community towards another and the people of all religions coexisted with peace and harmony.
3. The third phase in evolution of communalism could be attributed to the British policy of divide and rule. They could play the Hindus against the Muslims because:
   a. Social causes: Differences in rituals and practices between the two communities. For example, Hindu considered cow sacred, while it was a common edible item for Muslims.
   b. Economic causes: Muslims were educationally backward and fare badly in terms of socioeconomic indicators.
   c. Political causes: Communalism also developed as a side effect of militant nationalism and socio-religious reform movements. Events like formation of Muslim league, demand for separate electorates, Jinnah's two nation theory etc., led partition of the country.
4. As a modern-day problem, communalism has acquired epic proportion due to factors such as lack of government control, rising inequality, political exigencies and communal consciousness. Contemporary communalism has following features:
   a. Communal riots are more politically motivated. The Madan Commission which looked into communal disturbances in Maharashtra in May 1970 had found the same.
   b. The possibility of recurrence of communal riots in a region where communal riots have already taken place once or twice is stronger than in a place in which riots have never occurred. For example, Communal riots seem to be more common in North India than in South and East India, such as, Muzaffarnagar riots.
   c. Communal riots are more common in Urban areas than rural areas. For example, Delhi riots, Ahmedabad riots etc.
   d. Many of the communal riots take place on the occasion of religious festivals. . For example, Purulia riots during the Ram Navmi procession.
   e. The use of deadly weapons in the riots is on the rise.

To check communalism, political reforms, social reforms and economic equality are of paramount importance. Recommendation of Committee on National Integration regarding joint celebration of festivals, respect for each other's customs, and forming peace and brotherhood communities should be followed.

Q.15) What do you understand by urbanization? What challenges does unplanned and rapid urbanization pose to the society?

Approach: *Introduce by defining urbanization with certain underlying traits. In the body, mention the growing rapid unplanned urbanization substantiated with appropriate facts. Then mention challenges posed to the society by specifically dividing into urban and rural challenges. Conclude, by mentioning viable India specific and global urbanization approach*

Model Answer:

Urbanization is the process of population shift leading to redistribution of people from rural to urban areas. It represents the confluence of various economic, social, cultural and political processes.

In western world, urbanization has been a result of rapid industrialization and development. The population shift occurred due to attractiveness of urban areas. However, Indian urbanization is regressive. Along with modernization and development, it is also a result of stressed rural areas forcing people to migrate from villages to cities.

As per 2011 census an area is classified as urban on basis of following three criteria:

1. High population density, at least 400 persons per square kilometre.
2. Development of non-farm employment opportunities. At least 75% of male working age population should be engaged in non-agriculture employment.
3. High population, at least 5000 people.

Current urbanization process has been rapid and unplanned evident from World Urbanization Prospects report,2014 which states that current urban population is 54% which is expected to rapidly rise to 66% by 2050. In case of India, World Bank has commented Indian urbanization to be messy and hidden.

This nature of urbanization has acted as a double-edged sword due to which it has created multiple challenges for both rural and urban society.

Urban social challenges

➢ Decline of social capital due to growth of individualism, anonymity, dehumanization in urban societies. Segregation and lack of integration with the host community due to creation of glaring divide between gated prosperous communities and impoverished ghettos with over 17% of Indian urban population living in slums like Dharavi slum, Bhalswa slum etc. Attitudinal change of urban population making them more impatient, intolerant and anxious triggered because of fast paced urban lifestyles. Erosion of native culture as a result of homogenising effect of urban cosmopolitan culture.

    1. Breakdown of joint families to nuclear families, geographically dispersed families, single parent families, live in relationships is witnessed in urban societies. Child neglect owing to double income house-holds with children left largely bereft of much needed parental attention.

    2. Double burden faced by women due to pressure of domestic chores along with work place pressure. Crime against women is higher due to clash between modern and conservative forces along with higher visibility of women in the public sphere. Hence, some critics have labelled the capital of India as the rape capital.

    3. Triple health burden

➢ High incidence of non-communicable diseases like lifestyle disorders- diabetes, heart diseases, hypertension obesity due to sedentary lifestyle.

➢ High incidence of communicable diseases due to cramped unhygienic urban spaces leading to tuberculosis, recent COVID 19, dengue, cholera

➢ Violence and injuries like road accidents

4. Inhospitable living conditions like air pollution due to formation of urban dust domes, urban heat island effect, lack of green spaces, congested lanes, encroachment on urban water bodies. Proneness to urban disasters due to haphazard growth like flash floods (Mumbai floods 2005, Gurgaon floods 2016) , Lake fires (Bellandur lake fire, Bengaluru), Landfill fires (Ghazipur landfill fire, Delhi)

5. Urbanization of poverty due to high skill, high wage and low skill, low wage gap. Urban crimes like theft, pick pocketing, murder is higher than rural counterparts due to frustration and inequalities. Moreover, urban slums due to its inherent structure of illegal constructions and crowded lanes provide fertile ground for breeding urban criminals.

Rural social challenges

1. Feminisation of agriculture due to migration of males in the rural areas to urban areas
2. Feeling of empty nest syndrome and generation gap faced by rural elderly population left behind.
3. Creation of ghost villages that is uninhabited rural areas due to massive outflow from rural to urban areas. For example: Uttarakhand has over 700 ghost villages.

Thus, addressing these social challenges requires a paradigm shift in the urban strategies. Concepts like New Urbanism which focuses on creating transit-oriented development, open spaces, walkable neighbourhoods etc needs to be adopted.

India has already initiated steps in this direction by implementing Smart Cities Mission, AMRUT, HRIDAY, Shyama Prasad Mukerjee Rurban Mission, Swach Bharat Abhiyan, to create sustainable urban spaces.

Globally too there has been thrust to address urbanization specific challenges for which, UN has approved the New Urban Agenda at the Habitat III summit which will focus on realization of SDG 11 that is making cities inclusive, safe, resilient and sustainable.

Q.16) What is soil erosion? Which part of Uttar Pradesh is most affected with soil erosion? Discuss.

Model Answer:

Soil erosion refers to the wearing away of a field's top soil by natural or anthropological causes such as, forces of water/wind, deforestation, unscientific agricultural practices etc. Soil erosion due to erosion by rivers, rainfall and agricultural practices is common in Uttar Pradesh.

5.3% of the area of the state is affected by severe to very severe erosion problems. While 33.4% of the area is under slight to moderate soil erosion. The region affected by soil erosion are:

1. Flooding in the rivers make the areas in the Gangetic plains prone to the problem of soil erosion. This menace is more visible in the Eastern part of the state. The worst affected districts are, Mirzapur, Varanasi, Farukhahbad, Gazipur and Ballia.

2. Water erosion due to unscientific management and non-adoption of conservation practices results in the loss of top soil and terrain deformation. Banks of Chambal, Yamuna, Kuwari and Betwa are susceptible to this phenomenon. For example, Agra, Etawah, Kanpur, Ftehpur etc., districts are susceptible to soil erosion

3. Wind erosion, also presents as a major factor in the problem of soil erosion in Uttar Pradesh. The districts bordering the desert state of Rajasthan are specifically prone to soil erosion through forces of wind. For example, South West part of Agra, Mathura.

4. Faulty agricultural practices, have led to disturbing the hydrological balance of the areas under canal irrigation practices. These are typically the regions under command irrigation areas. For example, Mainpuri, Etah, Fatehpur, Aligarh, Varanasi, Allahabad etc.

Ways to control Soil erosion in the state:

1. Scientific farming techniques could be helpful in effective management of the problem of the soil erosion. For example, in plain areas strip cropping, where strips of grass are allowed to stand in between crops can check soil erosion.
2. Wind erosion can be checked by planting rows of trees along the farmland. This process can break the force of wind, effectively preventing soil erosion in the region.
3. Contour ploughing, building check dams etc., activities can help reduce the force of water as an erosional agent. This method could help prevent soil erosion in areas susceptible to flooding.
4. Prevention of deforestation and promoting afforestation will not only reduce the soil erosion as a factor of water run-off but will also enhance the quality of the soil.

Soil erosion is a major problem in Uttar Pradesh which causes loss to soil biodiversity and also presents a challenge to the food security. Anthropogenic and natural causes of soil erosion must be identified and checked in order to tackle this menace.

Q.17) Why are areas in circum-pacific regions more vulnerable to volcanoes? Also, write a descriptive account of distribution of volcanoes in the world.

Approach: *Introduce by explaining briefly what are volcanoes? Then go on to describe why circum-pacific regions are more vulnerable to volcanoes. Provide a descriptive account of distribution of volcanoes in the world. Conclude with commenting on scattered intraplate volcanoes.*

Model Answer:

A Volcano is an opening or vent through which magma, rock fragments, ash, water and gases erupt on to the earth surface from its interior. There is a high concentration of volcanoes around circum-pacific belt making it vulnerable because it is an active subduction zone. Due to high volcanic activity it is also known as the Ring of Fire. It is also seismically active and earthquakes are common in this region.
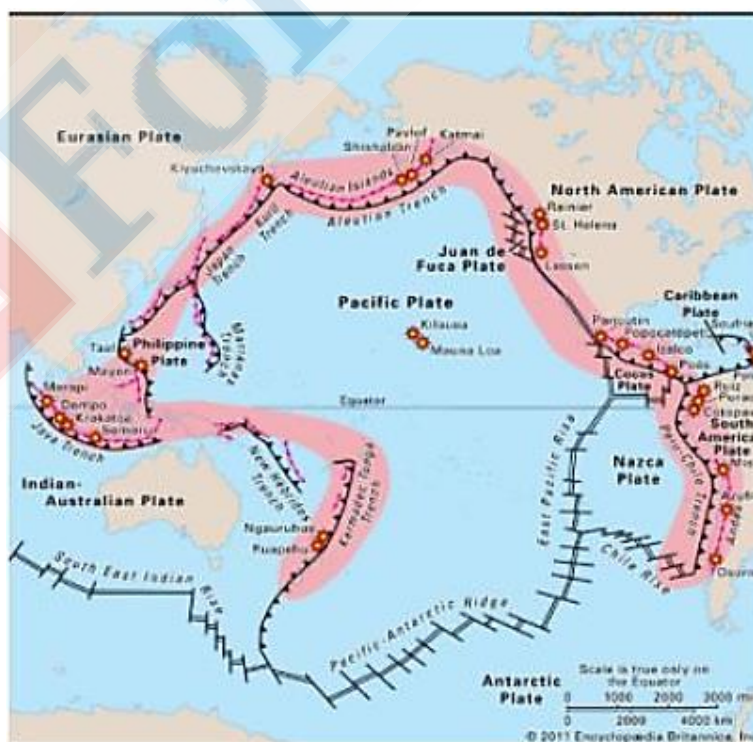

Figure 1: Circum-pacific Ring of fire and associated plates

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The areas in circum-pacific regions are more vulnerable to volcanoes due to the following reasons:
1. This area traces boundaries between several tectonic plates such as
   a. Convergence of Eurasian plate and Pacific plate in north west Pacific ocean.
   b. Convergence of Indian-Australian plate and Pacific plate in south west Pacific ocean.
   c. Convergence of north American plate and Pacific plate in north Pacific ocean.
   d. Convergence of South American plate and Nazca plate in south east Pacific ocean.
2. Convergence of plates creates a subduction zone where one oceanic plate is shoved under another plate. The down going plate is always oceanic one because the oceanic crust is heavier and less buoyant than continental plate.
3. As the subducted plate moves into a hotter mantle, the water and other volatiles in the plate boil off and the plate starts melting. This produces magma.
4. This magma rises up through overlying plates and erupts at the surface. If the overlying plate is continental then a chain of volcanoes is formed like in Andes. If the overlying plate is oceanic then a chain of volcanic islands is formed such as Aleutian Islands.

However, an exception to this ring of fire is plate interaction between pacific and north American plate in the North East Pacific which is characterized by a transform boundary. This area experiences earthquakes but no volcanoes.

Distribution of volcanoes across the world is associated with areas of intense folding and faultingand thus follow a well-defined pattern. The major zones of volcanoes in the world are:
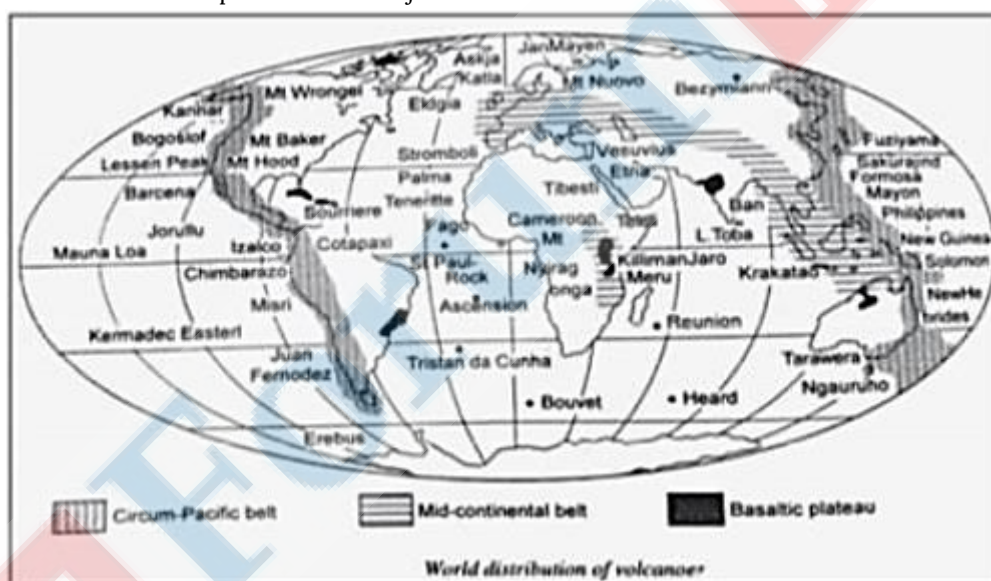

Figure 2: World distribution of Volcanoes

1. Circum-Pacific belt: The Circum-Pacific Belt is also called as the volcanic zones of the convergent plate margins. It accounts for approximately 80% of the Earth's active volcanoes. It includes three of the world's four most active volcanoes - Mount St. Helens in the USA, Mount Fuji in Japan and Mount Pinatubo in the Philippines
2. Mid-Continental Belt: It is also called as the volcanic zones of the convergent continental plate margins. It includes the volcanoes of Alpine mountain chains and Mediterranean Sea and the volcanoes of the fault zone of eastern Africa. It is caused due to the collision of the Eurasia Plates and African and Indian plates. For example: Vesuvius, Etna, Stromboli etc. in Africa some volcanoes are found along the East African rift valley.
3. Mid-Atlantic Belt: It includes the volcanoes mainly along the mid-Atlantic ridge which represents the splitting zones of the plates. Thus, volcanoes are mainly of fissure type. The

most active volcanic area in this region is located in Iceland along the mid-Atlantic ridge. For example: Azores, St. Helena, etc.

Besides the three specific zones, scattered volcanoes are also found in the inner parts of the continents called as intraplate volcanoes or hotspots for example: Hawaii hotspot in Pacific Ocean, Reunion hotspot in Indian Ocean. Although Plate tectonics theory satisfactorily explains the mechanism of most of the volcanic eruptions, the mechanism of eruption of intraplate volcanoes is not precisely known

Q.18) What are Agro-climatic Zones? How many main Agro-climatic zones are in Uttar Pradesh? Describe.

Model Answer:
Agro-climatic zone is a land unit in terms of major climates suitable for a certain range of crops and cultivars. Agro-climatic conditions refer to soil types, rainfall, temperature and water availability which influence the type of vegetation in a zone. The zoning is based on physiography, soils, geologicalformation, climate and cropping patterns which eventually determine the type of crop to be grown. India as a whole is divided into 15 Agro-climatic zone by ICAR under its National Agricultural Research Project. The State of Uttar Pradesh falls under three Agro-climatic zones of India:

1. Agro Climatic Zone IV: Middle Gangetic Plains region.
2. Agro Climatic Zone V: Upper Gangetic Plains region, and
3. Agro Climatic Zone VIII: Central Plateau and Hills region.

These Zones are further sub-divided into 9 Agro-climatic Zones which are discussed below:

1. Bhabar and Terai Region: The zone comprises Bijnore, Moradabad, Rampur, Bareilly, Pilibhit, Shahjahanpur, Lakhimpur, Bahraich, Shravasti and Some parts of the Saharanpur and Muzaffar Nagar districts. The zone is characterized by alluvial and clayey alluvial soil which is rich in organic materials. The average annual rainfall in the zone is 1150 mm.
2. Central Western Plains: The Saharanpur, Muzaffar Nagar, Meerut, Baghpat, Ghaziabad, Gautambudh Nagar and Bulandshahar districts are under this zone. The clayey-alluvial, alluvial, sandy alluvial and sandy are the main soil types and zone receives 600-965 mm annual rainfall.
3. Western Plains: The zone consists of Bijnore, Moradabad, Jyotiba phule Nagar, Rampur, Bareilly, Badaun and Pilibhit districts. The zone is very fertile region with sandy & clayey soil and receives 700-1000 mm annual rainfall.
4. Southern-Western Semi-Arid Region: This zone comprises Agra, Firozabad, Mainpur, Etawah, Aligarh and Mathura districts. The soil of the zone is sandy, sandy alluvial, alluvial and clayey type. The saline and sodic soils are also present at some places. The average rainfall of the zone is 700 mm.
5. Central Plain: The zone consists of Lucknow, Unnao, Rae Bareilly, Sitapur, Hardoi, Kanpur, Kannauj, Farrukhabad, Auraiya, Allahabad, Kaushambi, Fatehpur and Shahjahanpur districts of the state. The saline and sodic soil is the major problem of this zone. The average annual rainfall is 850-900 mm.
6. Bundelkhand Region: This zone consists of Jhansi, Lalitpur, Jalaun, Hamirpur, Mahoba, Chitrakoot and Banda districts fall under this zone. The soil type is mostly rocky. The average annual rainfall varies from 800 to 1000 mm.
7. Northern-Eastern Plain: It includes Gorakhpur division and regions of Gonda. The major soil types are sand-alluvial and clayey alluvial. The zone receives 1000-1200 mm annual precipitation.

8. Eastern Plain: it includes Varanasi, Faizabad, Azamgarh division and few states of Allahabad division. The sandy alluvial, clayey and sodic are the major soils of the zone. The zone receives 1000-1200 mm average rainfall.

9. Vindhya Region: It includes regions of Mirzapur, Sonbhadra and Southern Allahabad. The maximum area of the zone is undulated and rocky whereas soil of plain part of the zone is light black clay and red alluvial. Average annual rainfall is 1100 mm.

Agro-Climatic zones aims at scientific management of regional resources to meet the requirements of food, fibre, fodder and fuel wood without eroding the status of natural resources and environment which is the need of the hour to arrest climate change and its after effects.

Q.19) Examine the distribution of flood prone areas of India. What initiatives can be taken for controlling the menace of floods?

Model Answer:
Areas around the river streams which are prone to flooding are flood prone areas.
It also includes areas susceptible to flooding due to cyclonic rainfall, cloud bursts, extensive rain and urban areas which don't have proper drainage mechanism and lie in such areas.
Region prone to cloudbursts-Himalayan areas like Himachal Pradesh, Uttarakhand, North east India.
Region prone to flood-areas like in ganga flood plain, Nepal bordering Bihar and Assam.
Region prone to flooding in monsoon or retreating monsoon-western coastal areas like Mumbai, some parts of Gujarat, southern India near Chennai, Vizag etc.

Measures to be taken –
Institutional -Creation of national flood commission of India and Disaster Management Authority created in 2005 to tackle with flood and other disasters.
Policy Measures-Flood as a component in Master Urban Development Plan. Interlinking of rivers.
Structural Measures -creation of embankments and levees around river channels. Flood diversion through flush gates creation of dams and reservoirs.
Precautionary measures - Banning throwing plastic, garbage etc.in drains, river banks etc. Awareness and sensitization of people.
Curative Measures -early warning system, evacuation and rescue operation. Preventing spread of communicable diseases

Q.20) Discuss the concept of Jet Streams and explain their role in Indian Monsoon.

Model Answer:
Jet Stream: The jet stream is a river of wind that blows horizontally through the upper layers of the troposphere, generally from west to east, at an altitude of 20,000 -50,000 feet (6,100 -9,144 meters), or about 7 miles (11 kilometers) up.
A jet stream develops where air masses of differing temperatures meet.
For this reason, surface temperatures determine where the jet stream will form. The greater the difference in temperature, the faster the wind velocity inside the jet stream. Jet streams can flow up to 200 mph (322 km/h), are 1000's of miles long, 100's of miles wide, and a few miles thick.

Jet streams in the upper air system influence the climate of India in the following ways:
   a) Westerly Jet stream and its Impact: During Winter, at about 8 km. above sea level, a westerly jet stream blows at a very high speed over the subtropical zone. This jet stream is bifurcated

by the Himalayan ranges. The northern branch of this jet stream blows along the northern edge of this barrier. The southern branch blows eastwards south of the Himalayan ranges along 25° N latitude. It is believed by meteorologists that this branch of jet stream exercises a significant influence on the winter weather conditions over India. This jet stream is responsible for bringing western disturbances from the Mediterranean region into Indian sub-continent. Winter rain and hail storms in northwestern plains and occasional heavy snowfall in hilly regions are caused by these disturbances. These are generally followed by cold waves in whole of northern plains.

b) Easterly Jet and its Influence: During summer, due to the apparent shift of the sun in northern hemisphere, the reversal in upper air circulation takes place. The westerly stream is replaced by easterly jet stream which owes its origin to the heating of the Tibetan plateau. This leads to the development of an easterly cold jet stream centered around 15°N latitude and blowing over peninsular India. This helps in the sudden onset of monsoons.

Indian Monsoon Mechanism –Role of Sub-Tropical Jet Stream (STJ)

Sub-Tropical Jet stream plays a significant role in both hindering the monsoon winds as well as in quick onset of monsoons.
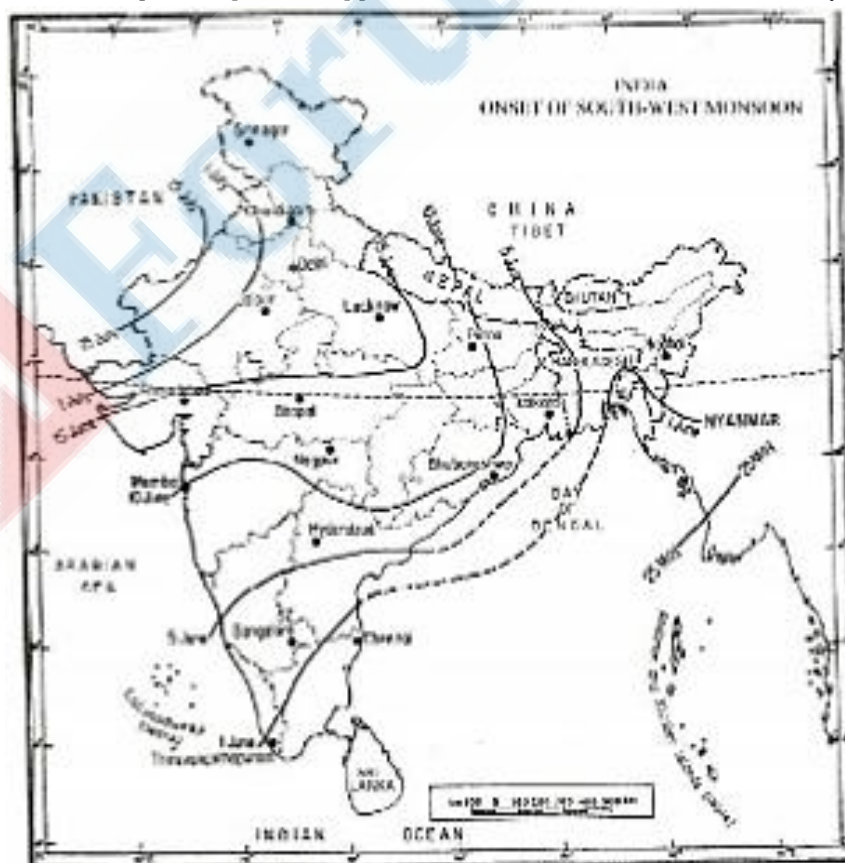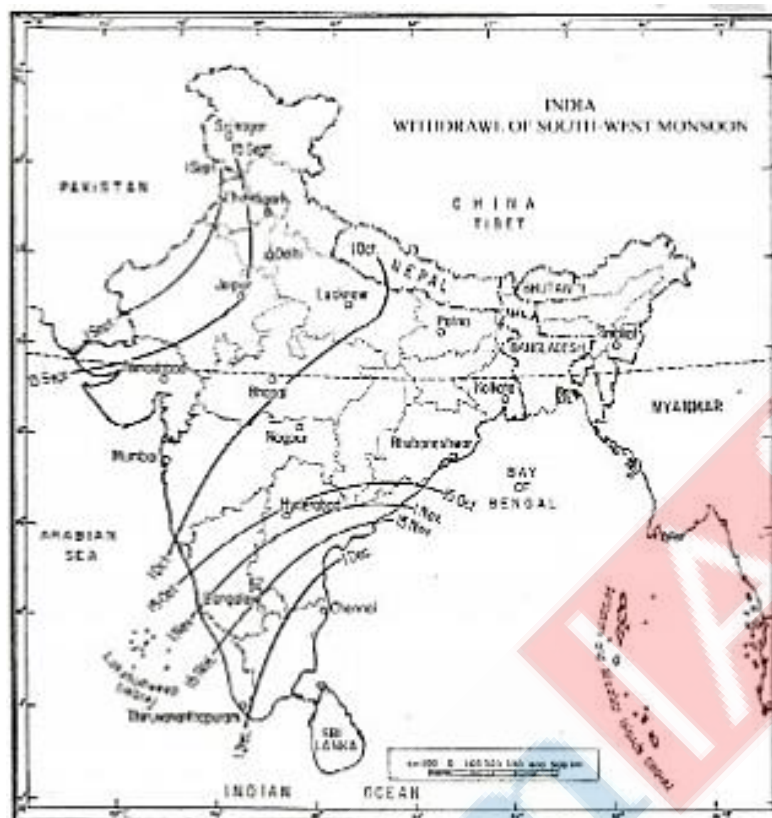
Sub-Tropical Jet stream:

Sub-Tropical Jet stream (STJ) is a narrow band of fast-moving air flowing from west to east [Westerlies]. STJ in northern hemisphere flows between 25° to 35° N in the upper troposphere at a height of about 12-14 km.

(Here we will consider STJ only. Polar Jet has no influence on Indian monsoons).

The wind speeds in a westerly jet stream are commonly 150 to 300 km per hour. with extreme values reaching 400 km per hour.

The burst of monsoons depends upon the upper air circulation which is dominated by STJ.

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Seasonal Migration of Sub-Tropical Jet Stream:

In winter STJ flows along the southern slopes of the Himalayas but in summer it shifts northwards, rather dramatically, and flows along the northern edge of Himalayas in early June and in late summer (July-August) along the northern edge of the Tibetan Plateau. The periodic movement of the Jet stream is often the indicator of the onset (STJ shits to the north of Himalayas in a matter of days) and subsequent withdrawal (STJ returns back to its position –south of Himalayas) of the monsoon. Northward movement of the subtropical jet is the first indication of the onset of the monsoon over India.

STJ in winter: Westerly jet stream blows at a very high speed during winter over the sub-tropical zone. This jet stream is bifurcated by the Himalayan ranges and Tibetan Plateau. The two branches reunite off the east coast of China. The northern branch of this jet stream blows along the northern edge of the Tibetan Plateau. The southern branch blows to the south of the Himalayan ranges along 25° north latitude. A strong latitudinal thermal gradient (differences in temperature), along with other factors, is responsible for the development of southerly jet. The southern branch is stronger, with an average speed of about 240km compared with 70 to 90 kmphof the northern branch. Air subsiding beneath this upper westerly current gives dry out blowing northerly winds from the subtropical anticyclone over northwestern India and Pakistan.

STJ in summer: With the beginning of summer in the month of March, the STJ [upper westerlies] start their northward march. The southerly branch of STJ remains positioned south of Tibet, although weakening in intensity. The weather over northern India becomes hot, dry and squally due to larger incoming solar radiation and hot winds like loo. Over India, the Equatorial Trough (ITCZ) pushes northwards with the weakening of the STJ [upper westerlies] south of Tibet, but the burst of the monsoon does not take place until the upper-air circulation has switched to its summer pattern. By the end of May the southern jet breaks and later itis diverted to the north of Tibet Plateau and there is

sudden burst of monsoons (the ridge moves northwards into Central Asia = high pressure over north-west India moves northwards into Central Asia = makes way for south-west monsoon winds). An Easterly jet emerges over peninsular India with the northward migration of STJ.

The upper air circulations are reversed with the emergence of Easterly jet [convergence in upper layers is replaced by divergence == divergence in lower layers is replaced with convergence == high pressure at lower layers is replaced by low pressure system]. The easterly winds become very active in the upper troposphere and they are associated with westerly winds in the lower troposphere (south-west monsoon winds).

Western and eastern jets flow to the north and south of the Himalayas respectively. The eastern jet becomes powerful and is stationed at 15° N latitude. This results in more active south-west monsoon and heavy rainfall is caused.

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