



GS – 1 2020 MAINS WITH MODEL ANSWERS

Q.1) The rock-cut architecture represents one of the most important sources of our knowledge of early Indian art and history. Discuss. (Answer in 150 words)

Rock cut architecture has served as an important means to decipher the culture, religion, customs and skills of our very talented artisans. Rock-cut architectures are a great reservoir of knowledge holding and carrying forward the legacy for centuries.

As important source of knowledge:

1. Society: The earliest caves were inhabited by the humans for the purpose of paintings, as shrines and for shelters.

The Bhimbetka caves (a World Heritage Site) on the Deccan Plateau, contains primitive tools and decorative rock paintings reflecting the interaction of humans with their environment. The interaction which till date holds an important part of survival.

2. Political: Kings patronised the caves in order to show their might, to increase their holdings and influence and for the purpose of providing facilities to the wanderers.

Examples:

- Barbara caves :Ashoka,
- Ellora caves : Rashtrakutas ,
- Badami : Chalukyas

3. Centers of Education: Many caves were used as centres for educating and for the purpose of preaching.

Example: In the western ghats, Kanheri caves were the biggest centres of education.

4. Environment Conservation: Water resources are prevalent at Kanheri which shows water harvesting was practiced at caves

5. Economic: Many caves were specially carved out at the famous trade routes to facilitate and regulate trade.

Example: Bhaja and Karle were at famous trade routes in western Ghats which used to connect seaports to interiors.

Conclusion: Thus the ample knowledge preserved by the rock-cut architectures provides insights into the life and times of ancient people and helps us decipher their society through their own prism as seen from their paintings and tools discovered from these caves.



GS – 1 2020 MAINS WITH MODEL ANSWERS

Q.2) Pala period is the most significant phase in the history of Buddhism in India. Enumerate. (Answer in 150 words)

The Pala dynasty ruled the region of Bengal and Bihar for about 400 years ago. Most of the subjects controlled by palas in the area were Hindus but pala-ruled areas became one of the last strongholds of Buddhism in India.

Contributions of Palas in spreading Buddhism:

1. Spreading Buddhism
 - Created an environment for Buddhism to thrive by helping setup and promote monasteries.
 - Sending missionaries to spread Buddhism in other parts of the world. Example: Tibet
 - Promoting peaceful exchange of Ideas between different faiths. Example: Vajrayana Philosophy.
2. Art and Architecture:
 - Various stupas, viharas and chaityas were constructed like in Nalanda and Vikramshila.
 - Various manuscripts related to Buddhism were constructed and promoted.
 - The earliest example of miniature painting in India is that from Buddhist religious text in the pala-period.

Under Pala patronage, a distinctive form of art arose, various sculptures were made that were taken to various parts of the globe which helped promote and spread Buddhism in various parts of the world. Thus, the significant contributions of the pala period are distinguishable.

Q.3) Evaluate the policies of Lord Curzon and their long term implications on the national movement. (Answer in 150 words)

Lord Curzon was the viceroy of India from 1899-1905. This was the formative phase of Indian National Movement. Lord Curzon with his policies tried to suffocate the INM in its early stage itself:

Reactionary policies of Lord Curzon:

1. Calcutta Corporation Act, 1899: reduced the no. of elected representatives, thus depriving Indians of self-governance.
2. Indian Universities Act, 1904: to increase official control over universities and to keep a check on increasing nationalism.
3. Partition of Bengal: It was a political masterstroke to break the growing nationalism by dividing Bengal on the basis of religion and language.

Instead these policies proved disastrous for the British as the imperialistic policies sparked political reactions in India. A strong feeling of nationalism began to take birth during this period.



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After the partition of Bengal in 1906, India's first mass movement took place in the form of the Swadeshi Movement. It intensified the nationalistic feelings in the whole of India and marked the beginning of the modern politics.

The social base of the movement widened with the masses including the women and students were brought into the movement's ambit.

Lord Curzon's reactionary policies stirred the Indian consciousness and provided an impetus to Nationalism. Thus, when leaders like Bal Gangadhar Tilak and Mahatma Gandhi emerged on the scene, people readily followed them.

Thus, Curzon's policies help kickstart the movement at a higher pace. The course and speed of the National movement would not have been the same if the Curzon's policies would not have been so imperialistic and reactionary.

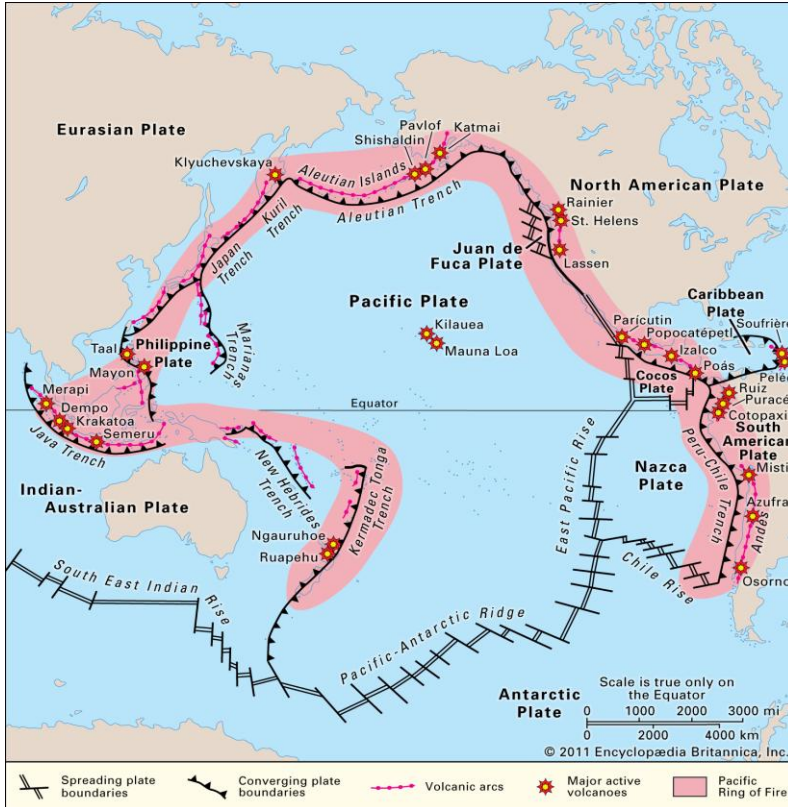
Q.4) Discuss the geophysical characteristics of the Circum-Pacific zone. (Answer in 150 words)
The circum-pacific belt also known as "ring of fire" is a path along the pacific ocean which is approximately 40000km long. It is a horseshoe shaped seismically active belt of volcanoes, earthquakes and tectonic plate boundaries.



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The Geographical Characteristics of Circum-pacific belt:

1. The belt is characterized by active volcanoes and frequent earthquakes. About 3/4th of the volcanoes are located in circum-pacific belt.

Example: Mt. Krakota, Mt saint helens etc.

2. The circum-pacific belt surrounds several tectonic plates like Nazca plates, pacific plates, Cocos etc. Many of these plates are subducting plates under the continental plates they border.

3. There are many island chains in this belt including island arcs such as tonga, the Indonesian archipelago, Japan, Alleutian islands etc.

4. There are a series of deep ocean trenches in the circum-pacific belt.

Example: Mariana Trench, Japan trench.



5. Around 90% of the earthquakes occur in these regions as this belt is the epicentre of many earthquakes that occur due to tectonic movement.
6. More than 75% of the volcanoes (more than 450) are located along this belt therefore, it is known as the ring of fire.

Thus, the circum-pacific belt is home to many geographical features like earthquakes, volcanoes, trenches, tectonic plate boundaries etc.

Q.5) The process of desertification does not have climatic boundaries. Justify with examples. (Answer in 150 words)

Desertification is defined as “ any progressive and unsustainable reduction in the ecosystem services provided by the soil”. The three most important processes for induced desertification are generally considered to be soil erosion, loss of soil fertility and long term loss of natural vegetation.

Desertification does not have climatic boundaries

Since the concept of desertification was identified for the Sahel region of Africa in the 1980s, a strong link has always been made between climate and loss of soil quality.

But climate change is likely to drive the boundaries of the arid, semi-arid and sub humid areas northwards into the Mediterranean region, thereby expanding the area susceptible to desertification.

Climate is not the only factor causing desertification. There are socio-economic drivers of desertification like the land mismanagement and unsustainable use of resources like pesticides and fertilisers , overgrazing by cattles, water etc., population increase is also a driver of desertification, although it's impacts vary widely according to the local conditions. Political context and politics and influence land use and resource management.

Human activities induced global warming has placed a havoc with climate zones, dry climates have increased while polar climate has decreased.

Unprecedented heat waves will further intensify in Europe, North America, South America, Africa, West Asia and Australia.

Already, incidents of droughts have increased in the mediteranean, North Africa, India, south east asia, and parts of North America.

The increase in the intensity and untimeliness of rainfalls have further led to degradation of land. Hence, it can safely be concluded that desertification is not limited by climate boundaries.

Q.6) How will the melting of Himalayan glaciers have a far-reaching impact on the water resources of India? (Answer in 150 words)

A report on climate change has warned that even if global warming is held at 1.5 degree Celsius, we will still lose one-third of the glaciers in the Hindu-Kush Himalayan region. This



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region is the home to the sources of important rivers that sustain close to 2 billion people in the region.

Impact of melting glaciers on water resources:

A) Short term impact:

- i). Floods: The melting of glaciers in the short term will lead to increased river flows causing floods.
- ii). Glacial Lake outburst: As glaciers retreat, lakes are commonly formed behind the newly exposed terminal moraine. The rapid accumulation of water in these lakes can lead to a sudden breach of the moraine dams causing glacial lake outburst.

B) Long Term impact:

- i). Decrease in river flows: The glaciers regulate the flow of rivers during the non monsoon months. With the glaciers receding, the flow of rivers will decrease, harming the marine ecosystem.
- ii). Decrease in water availability for irrigation, domestic and industrial purposes: This will lead to food shortage, sanitation and health issues and decrease in industrial production.
- iii). Contamination of river water: Continuous flow of water in the river dilutes the contaminants and checks water pollution. But decreased water flow due to glacial melt in the long term will lead to increased concentration of contaminants and serve water pollution in the indo-gangetic plains.
- iv). Increased extraction of groundwater: Decreased flow of water in the river will prompt the people to extract groundwater for drinking, irrigation and other purposes. The technology if used wisely can help decrease the negative impact of the melting glaciers. The focus should be on the conservation of resources emphasising on the judicious use of water, reducing wastage and recycling.

Q.7) Account for the present location of Iron and steel industries away from the source of raw material, by giving examples. (Answer in 150 words)

The raw materials required for the Iron and steel industry are bulky and thus transportation would be expensive therefore, traditionally the iron and steel industries world over were located close to the sites of raw material.

Today, these industries are located away from the sources of raw material as well. Reasons:

1. Depletion of iron and coal: As the iron and coal deposits depleted, the need for imported coal and iron increased. This made the industries shift to the coastal region. These factories depended on the imported coal and iron and lowered the cost of transport from factory to port.

Example: Visakhapatnam Plant located near Visakhapatnam port.

2. Technology: New technologies available for making steel reduced the full factor of coal mines.

Example: Essar Steel India Ltd.- Hazira, Gujarat



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3. Open Hearth System: Industries began using scrap steel and this reduced dependency on mines. Even natural gas can now be used as fuel.
4. Electric Smelters: These used less energy and oxygen converter process and hence such mini steel plants could be located away from mines and near the cities.
5. Recycling Industries: The mini steel plants located near the cities used scrap iron/waste iron to make finished products. Hence, they could move away from iron mines.

With changing times, iron and steel industries adopted their ways to settle up near the areas where their demand for raw materials were timely met and it was more financially viable to function.

Q.8) Has caste lost its relevance in understanding the multi-cultural Indian society? Elaborate your answer with illustrations. (Answer in 150 words)

Caste refers to a broad hierarchical institutional arrangement along which basic social factors like birth, marriage and food sharing etc are arranged in a hierarchy of rank and status. These divisions have been linked to occupations and decide the social relations between people belonging to various castes.

The division of people into various castes was based on the distinction between 'purity' and 'pollution'. While the manifestation of the hierarchical order has changed to a large extent in recent times, the caste system itself has not lost its relevance in today's multicultural society. Example: Even though untouchability and caste based discrimination are barred in the constitution, manual scavenging is still practiced by the lower caste.

The caste system has assumed new forms and identities:

- A. Political form: Various castes today assert themselves by forming political associations.

Example: Bahujan Samaj Party.

- B. Economic Identity: Development policies targeting the backward classes like OBCs, SCs, STs etc have cemented the caste identities. The castes which do not benefit from such welfare policies have mobilised based on their caste identity and have been demanding reservations.

Example: Dominant castes like Marathas, Patidars and kapus have been demanding reservation.

- C. Inter-caste marriages: Today, the strict codes of some caste marriages have been diluted and more and more inter caste marriages are taking place daily. Caste groups like khap panchayats have also been brought under the scrutiny of the judiciary. However, the caste based identity has not completely vanished and it has assumed more subtle forms.

Example: Matrimonial advertisements in newspapers based on communities and caste.

- D. Class divisions: Instead of division on the basis of castes, the class, access to luxury and privileges, standard of living etc. divides the society into different classes.



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- E. Division on the basis of education: People prefer engaging themselves with those having equal intellect levels so as to have a better and meaningful conversations where interests and thoughts interact.

Considering that the caste based divisions offer a sense of solidarity and belonging to various marginalised sections, the caste based identity will be difficult to be erased.

Comment [1]: Questions asked for relevance in the modern world. Highlight class consciousness Increased inter dining, inter caste marriages, More divide based on education than caste.

Q.9) COVID-19 pandemic accelerated class inequalities and poverty in India. Comment (Answer in 150 words)

The COVID-19 pandemic has been a great leveler. Unlike TB, which is regarded as a poor man's disease, COVID has affected all irrespective of their socio-economic status. It has however also exacerbated various inequalities. It has also nullified significant progress achieved so far in poverty alleviation across the globe.

The inequalities exacerbated by the pandemic can be seen in the following areas/sectors:

1. Health care: Significant intra-state(rural/urban) and inter-state disparities in access to medical care.
 - Urban to rural doctor density ratio is just 3.8:1
 - Hospital Beds availability: States like Bihar are well below the national average of 0.55 beds in the public sector per 1000 population.
2. Gender Inequality:
 - With work from Home becoming the norm during the pandemic to maintain social distancing, women who work full time will also have to do household chores. This will lead to reduced efficiency.
 - There were reports of domestic violence and sexual abuses against women and children.
 - Women are also expected to be primary caregivers for sick family members, increasing their probability of infection.
3. Income inequality:
 - As the salaried and employed workforce working in information and technology had the luxury to work from home. The poor and unskilled migrants unable to find work and food had to return to their native places mostly on foot.
 - Most of the workers in the unorganised sector who did not have access to social security benefits had to suffer disproportionately.
4. Education: Children from well -to -do families had access to the online classes but those from the less fortunate sections had to miss on their studies.

Thus, from the points mentioned above we can see how the Covid-19 had impacted the different sections of the society differently with the poor and destitutes suffering more than the



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fortunate sections of the society. Efforts need to be made and a proper plan be devised to ensure that such inequalities could be managed well if situations like this happen again in future.

Q.10) Do you agree that regionalism in India appears to be a consequence of rising cultural assertiveness? Argue. (Answer in 150 words)

Regionalism is the expression of a common sense of identity and purpose within a specific geographical region, united by it's unique language, customs and rituals etc.

Regionalism:

- Positive sense: Develop sense of Brotherhood.
- Negative sense: Threat to integrity and unity of nation.

Regionalism: as a consequence of cultural assertiveness:

1. Breed hatred: People of an area considering themselves to be the part of a group uniting against those who do not form a part of the grouping.

Eg. Violence against the North East people in Bangalore due to distinct culture.

2. Son of the Soil Doctrine: Where certain people of an area claiming to be it's original inhabitants puts their claims for the available resources and demands the outsiders to not compete with them.

Eg. Demands like Maharashtra for Marathis

3. Demand for Separate State: To have an official area designated specifically to a group who is culturally similar.

Example: Demand for Bodoland in Assam, Vidarbha demand in Maharashtra

4. Rise of militants and fundamentalists: Eg. NSC in Nagaland, ULFA in Assam to protect cultural identity.

Above are the few examples of how regionalism is a consequence of cultural assertiveness. But it is to be noticed that it is not just cultural assertiveness that leads to a demand for regionalism, various other factors also fuels the demand for regionalism like:

1. Economy: Some areas are well developed, some are backward. The limited availability of employment options and resources leads to competition that's where people demand and feel that their resources are being taken away by outsiders.
2. Political: To have a strong political standing and a unique political identity.
3. Social: To have a unique social identity, protect one's custom, language etc.



Q.11) Indian philosophy and tradition played a significant role in conceiving and shaping the monuments and art in India. Discuss (Answer in 250 words)

The art and monuments represent values and years old customs of Indian philosophy like plurality, Dharma, way of life etc. These beliefs have deeply influenced sculptures, paintings, arts and crafts etc.

This evident from the following examples:

1. Pluralism: Temples are devoted to various deities and represent various themes, each element in the temples represents some significant event and has a meaningful symbolism attached to it.
2. Cosmic elements: Cosmic elements that create and sustain life have been given prominence in the monuments. Example: Fire, water etc.

Sun temple at Konark is one such example.

3. Shakti: The due importance to the feminine characteristics have been provided through the temples, stories and statues devoted to Shakti.
4. Pillars and Statues display 4 important aspects of life.
 - Pursuit of : i. Dharma
 - ii. Karma
 - iii. Moksha
 - iv. Artha

5. Lotus: It is a symbol of purity, fertility, patience and beauty and is central to both buddhist and hindu philosophy.

6. The philosophy of Dharma is a key concept in Sikhism, Buddhism, Jainism and Hinduism.

Example: The "wheel of Dhamma" is depicted on Sarnath Pillar.

7. The dome shape of Stupas represents the meditative state of Buddha.

8. Cultural syncretism is seen through the Ellora caves where Shrines of Hinduism, Buddhism and Jainism all stand at a single place.

Comment [2]: Write elements that few came from outside too like British, islamic architecture



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Apart from the Indian philosophy and traditions, elements of the British, persian, greek, Islamic etc also put an impression in shaping the monuments and art in India.

Example:

1. Islamic architecture in India had adopted some features of earlier Indian architecture, such as the use of a high plinth, and often mouldings around its edges, as well as columns and brackets and hypostyle halls.
2. The amalgamation of Indo-Islamic and European styles led to a new style, known as the [Indo-Saracenic](#) style.
- 3.

Q.12) Persian literary sources of medieval India reflect the spirit of the age. Comment? (Answer in 250 words)

Medieval age was the age of syncretic intermixing and fusion of culture, religion, music and way of life of persian rulers and native India.

The Persian rulers also got the literary sources of native India like Upanishads translated into Persian to better understand the religion, beliefs, values and customs of the native Indians. The literature of the period reflected the history, philosophy, and polity of medieval India.

Some of the important literary sources of the period are:

1. Tareeq-i-firoz-shahi written by Ziyadduin Barani preserved the history of Delhi Sultanate containing the various administrative work and order assigned to the officials and designations granted to them.
2. Ain-e-Akbari by Abul Fazl reflected the administrative and statistical records of Akbar's rule.
3. The works of Amir Khusro are well known for the representation of the period with a philosophical prism.
4. Rumi's works reflected upon the divinity in Human Beings.
5. Ganga Jamuni tehzeeb emerged during this period which is a well known and age long preserved way of life which is a fusion of persian and Indian philosophy.



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6. Travellers such as Ibn Battuta and Al Beruni who wrote Rihlah and Kitab ul Hind respectively represented in detail the society, economy and polity of the state of that time.
7. Dara Sheikh got many Sanskrit books translated into Persian. A compendium of 50 upanishads were translated into Persian by the name sir-i-akbar.

Medieval age was the beginning of a new era, a new society whose foundation was laid upon the fusion between the Persian and Indian way of life which popularly came to be known as Ganga Yamuna tehzeeb.

Q.13) Since the decade of 1920's, the national movement acquired various ideological strands and thereby expanded its social base. Discuss. (Answer in 250 words)

The national freedom struggle activity in the 1920s decade got new strands like:

- The rise of left within the congress.
- Caste based movements.
- Movement of Labour class
- Increased partition of women in the freedom struggle

The rise of left:

- Communist Party of India came into existence in Tashkent under M.N Roy.
- They mobilised labours in Bombay labour strikes, strikes at TISCO and southern railway.
- When British banned the CPI in 1934, they joined hands with congress to widen their base.
- They supported peasant movements like the Eka movement, Tebhaga movement etc.

The Labour Class:

- They participated in the non-cooperation movement through cotton mills workers strike in Bombay (1919 and 1920).
- The legalisation of Trade Union Act, 1926 boosted their activity.
- Labour Strikes during the civil disobedience movement were a major blow to the British.
- Their participation in the Indian Naval Revolt of 1946 in large numbers contributed to the success of the revolt.

Caste Based Movement:

- They rose as a response to caste based atrocities.
- Justice Party, self respect movement, vaikom satyagraha were movements to raise voice against the inhumane practices followed on the basis of caste.



- They participated in round table conferences to register their voices and demands advocating their rights.

Women

- In the 1920s the women came forward in large number to participate in the national movement.
- The active participation in the congress by leaders like Sarojini Naidu gave a new perspective to the congress and changed the attitude of the masses for the women, this also helped attract women's massive participation.
- They also participated in revolutionary activities.

Example: Kalpana Dutt, Pritilata Waddedar.

- They became more vocal for their rights and took help of the press and organisations like Bharat Stree Mandal.

The massive participation from all the sections of the society and with the amalgamation of multiple ideologies, the era of 1920s was a game changer for the Indian national movement which gave new ways and forms of struggle against the British. With the fire of nationalism reaching to the grassroots, it became difficult for the British to rule and at the end they had to bow down to the demands of the Indians and the long fight for freedom finally came to its conclusion.

Q.14) The interlinking of rivers can provide viable solutions to the multidimensional interrelated problems of droughts, floods and interrupted navigation. Critically examine (Answer in 250 words)

Climate change has led to erratic rainfall patterns in India leading to uneven distribution of water resources creating situations of water surplus in some areas and deficit in the other, interlinking of rivers can help maintain equilibrium and also provide viable solution to multiple other problems like:

1. Controlling droughts: Areas with deficit water availability can get the excess water from the areas of surplus water availability by interlinking the rivers and ensuring the rivers with high flow get linked with rivers with no or very low water flow.
2. Controlling Floods: Some rivers receive water either from rainfall or melting glaciers more than their carrying capacity which yearly leads to overflow causing floods every year bringing havoc in the lives of many and causing destruction to the property and vegetation. Inter-linking can help solve the problem by shifting this surplus water to the other rivers.
3. Navigation: The inter-linking of rivers will make way for navigation opening extra and new routes for the purpose of travel and cargo shipment helping cutting down on the cost of travel and transportation.



Other Benefits:

- Agricultural productivity shall increase owing to regular and timely supply of water.
- With increased water availability, vegetation in the area shall also prosper
- New venues for hydroelectricity generation can be planned helping solve the electricity crunch.

Roadblocks:

1. Environmental Degradation: Deforestation will lead to loss of habitat for the wild which may trigger their extinction.

Example: Ken-betwa project threatens Panna National park.

2. Land submergence: It will force rehabilitation of the residents of the area which will lead to loss of way of living, making sustenance difficult.
3. The threat of invasive alien species entering the system adversely affects biodiversity.
4. Loss of marine life.
5. Hamper the natural movement of the wild.
6. Inter-state water disputes will arise, adding more tension and cases between the river sharing states.
7. The cost required for this project is massive. It is to be seen if the project is actually viable or not.

So the inter-linking of river projects for sure promises to solve the problem of water deficit and to manage floods but it is to ensure that proper Environmental Impact Assessment procedure is followed before finalising the project taking into consideration the views of all the stakeholders. The routes shall be planned as such that the negative impacts are as minimum as possible.

Q.15) Account for the huge flooding of million cities in India including the smart ones like Hyderabad and Pune. Suggest lasting remedial measures. (Answer in 250 words)

Urban Flooding has wreaked havoc in major Indian cities like Pune, Chennai, Mumbai, Gurugram etc. It is mainly a result of:

- Untimely rains:
 1. Climate change led to extreme weather events.



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2. Heavy rains impeding the drainage system of the cities.
- Unplanned urbanisation:
 1. Ill-managed drainage system.
 2. Encroachments
 3. Poor solid waste control

The recurring floods take a huge toll on the human lives and resources:

1. Health: Containment of water promotes grounds for breeding of mosquitoes which leads to spread of diseases.
2. Economy:
 - Damage to buildings, roads and other infrastructure.
 - Disruption to industries
 - Disruption in utility services
 - Damage to archaeological and heritage sites.
3. Transport and Communication:
 - Increase in traffic congestion
 - Disruption in network lines and internet services.
4. Impact on Environment
 - Loss of tree cover and habitat.
 - Will badly affect stray animals.

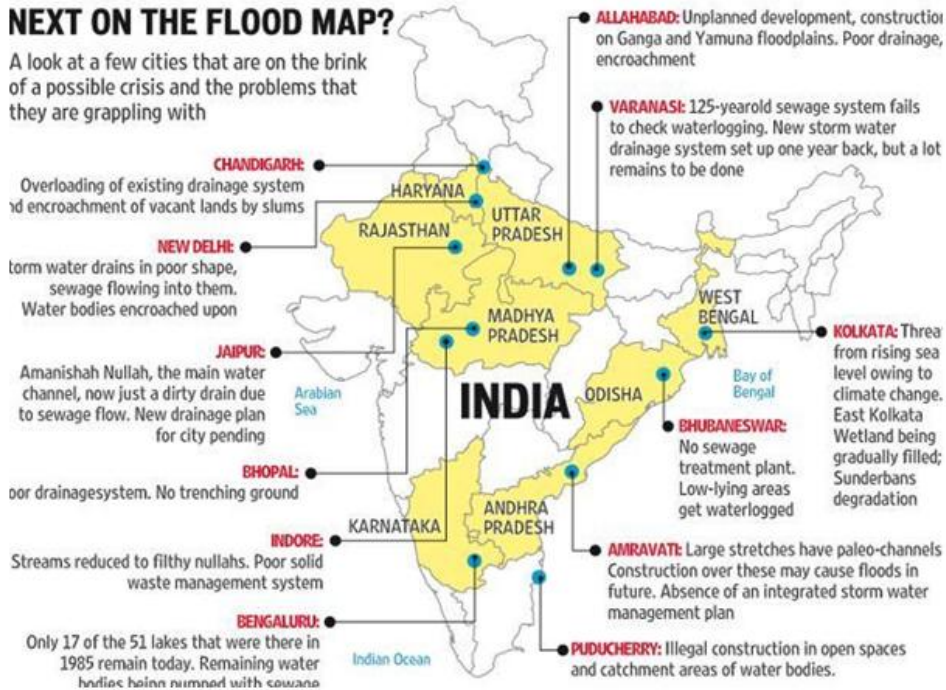
Long Term remedial measures:

1. Climate resilient infrastructure: innovative approaches like SPONGE cities, flushing systems using rooftop water etc can be applied.
2. Early warning system: Tools like predictive precipitation modelling can give real-time data and link it with adaptive capacity of urban land use.
3. Improve urban drainage system:
 - making vulnerability assessment as a part of city master plans.
 - Regular cleaning of the drainage system to ensure free flow of water.
4. Rainwater Harvesting: would serve the dual purpose, lowering the peak runoff and increasing the ground water table.
5. NDMA guidelines suggest creation of a National Hydro-meteorological Network to cover urban centres dealing with floods.



NEXT ON THE FLOOD MAP?

A look at a few cities that are on the brink of a possible crisis and the problems that they are grappling with



It is necessary that the long lasting measures are timely taken to ensure that the loss to the lives and property be contained and that the resources are not wasted yearly. The urban floods bring the daily activities to a halt and this leads to a huge economic loss. Therefore, it becomes necessary to adopt measures that can decrease these economic losses and lives of the inhabitants are not affected.

Q.16) India has immense potential for solar energy though there are regional variations in its development. Elaborate

As a part of its efforts under the 2015 Paris agreement, India has committed to reduce its emission by one third by 2030 at 2005 levels. Solar energy- harnessing its potential will be a significant achievement ensuring access to uninterrupted electricity supply to all, cutting down on production cost hence also helping curb inflation.

India's Potential of Solar Energy:

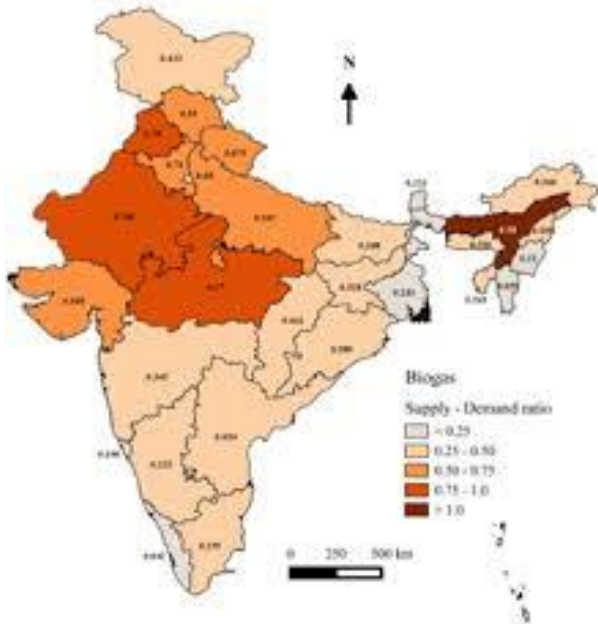
- Owing to its location, India receives over 5000 trillion KWh/year of solar energy; which is far more than our total energy consumption.
- India is one of the few countries to receive such plenty of sunshine on long days.
- The National Institute of Solar Energy has assessed the Country's solar potential of about 748 GW assuming 3% of the wasteland area to be covered by Solar PV modules.



Regional Variations:

The varied geographical conditions determines the varied amount of insolation received by different parts of the country, affecting solar power potential:

- Rajasthan: has maximum insolation as well as barren unculturable land. As a result it has the maximum potential as well as the highest share of solar projects.
- Most identified solar projects lie in the state of Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, U.P and Madhya Pradesh.
- The Eastern Himalayan States of Arunachal Pradesh, Assam, Nagaland etc receive average insolation below 4kwh/m² per day which is the lowest



Addressing the regional variations:

- Can be through Concentrated Solar Plants (CSP) where storing heat is an option.
- In 2016, Tamil Nadu was not able to use all the solar energy generated simply due to connectivity and distribution issues. So, it is equally important that the distribution network is well developed and modernised to contain distribution losses.

Other Challenges

- Technological Barriers.
- Expensive Technology
- Policy and regulation barriers
- Transmission and distribution challenges
- Land acquisition and other infrastructure challenges.



Yet, India is taking various initiatives to upgrade it's solar energy potential:

- International Solar Alliance: This could help us get access to world class technology and also channelise investment.
- Solar Based pumps: to promote the use of solar energy and cut down on cost, Govt. is promoting use of solar pumps at subsidised prices to farmers.
- National Solar Mission: Aims to upscale technology generation from 22GW to 100 GW by 2022.
- Kerala's Floating Solar energy Plant is a way forward solving the issue of land acquisition.

India has the potential and will to upgrade the share of solar energy in the total energy mix of the country. Being a renewable source, it can be a promising achievement which is not only environmentally friendly but also pocket friendly in the long run.

Q.17) Examine the status of forest resources of India and its resultant impact on climate change.

Forests help mitigate the adverse impacts of climate change, provide economic benefits and help meet the aspects of India's Sustainable development goals.

Status of forests according to the State of Forest report of Government of India -2019:

- The Total Forest cover is 7,12,249 sq km which is 21.67% of the geographical area of the country.
- The Tree cover is 2.89% of the geographical area of the country.
- Forest area and forest cover vary from state to state. Lakshadweep has 0% forest cover, Andaman and Nicobar island has 86% forest cover.
- Most of the states with less than 10% forest cover lies in north and north western parts of the country. These are Rajasthan, Punjab, Gujarat, Haryana.

Reasons for decreasing forest resources:

- Unsustainable exploitation of forest resources.

Eg. The Mollem forest area was cleared for an electricity project.

- Commercial Farming: Forest areas being cleared for agricultural purposes.
- Construction of dams and reservoirs.
- Clearing of vegetation for construction buildings for human habitats.
- Forest fires are both natural and man-made.

Impact:

- Forest Degradation undermines their ability to act as carbon sinks, leading to further rise in temperature.
- According to TERI, forest degradation is depriving the country of 1.4% of its GDP annually.



GS – 1 2020 MAINS WITH MODEL ANSWERS

- Dense tropical forests have the largest ability of carbon sequestration, but these forests in North-eastern states have degraded the most in the last 30 years.
- Deforestation in turn leads to soil erosion, reduction in soil organic carbon, reduction in ground water table, precipitation levels etc.
- India's forest ecosystem also supports the economy and livelihood of approx. 300million tribes and local people.
- Trees also help mitigate effects of drought, floods, landslides and increase coastal infrastructure resilience.
- These are the least expensive and most effective ways to deal with climate change.

India's Efforts:

- National Mission on Green India.
- National Afforestation Programme.
- Funding through CAMPA.
- Commitment to BONN challenge- restoring 13million hectares of deforested land by 2020.
- Plantation drives across states.

The above efforts need effective implementation as:

- India is amongst the most vulnerable countries to climate change.
- Degraded forests would only exacerbate the impact of disasters.
- India's resource-dependent nature would have far-reaching ramifications for food, economy, water security and climate solutions.

Not only the government but general public at large should contribute towards increasing the forest cover and reach the target of achieving the target of having 33% geographical area of the country under the forest cover.

Q.18) Is diversity and pluralism in India under threat due to globalisation? Justify your answer.

Globalization refers to free flow of thoughts, goods, services, people, cultures across around the world. It is similar to the centuries old practice and belief of "Vasudev Kutumbakam"- the world is a single family.

Is diversity and pluralism under threat?

Arguments For:

1. Family system: Trends and analysis suggest that the family system in India is changing from joint family system to nuclear families. As the nuclearisation grows, the customs, rituals etc of the families starts to fade away. The trend today is that nuclear families are better and happier.
2. English as a medium: We live in the era where those who speak english more fluently are considered superior and literate and those using local dialects are looked upon as inferior or less worthy. The race is to focus on excelling in english language.



GS – 1 2020 MAINS WITH MODEL ANSWERS

3. Food : The age of McDonald's and Pizza Hut, where youngsters prefer fast food more than their traditional or local cuisines.
4. Festivals: The festivals of the western world are rejoiced more like Halloween, Valentines Day and our own festivals are considered more of a nuisance.
5. Fashion and clothing: The western attire both by men and women is more preferred and considered elegant and comfortable. Traditional attires like kurta-dhoti, sarees are now meant for only rare occasions.
6. Entertainment: The movie from Hollywood and other nations have earned more prominence with local sources of entertainment taking a back seat. OTT platforms have further assured unhindered and easy access to the shows and movies of the west.

Arguments Against:

1. Music: Indian Music is rejoiced world over both by Indians and foreigners abroad, shows like Ghazals are still popular and no party is complete without the Indian music.
2. Food Joints like McDonald's and KFC have customised their menu to include the taste of local cuisines. This shows that preference for local taste is still intact and in demand.
3. Festivals like Diwali and Holi are still celebrated with much joy with the family and loved ones.
4. Foreign movies are being dubbed into local languages to increase their views. Movies from south India have gained popularity and are praised equally in north India.

In India where 60% of the population still resides in the rural areas, the culture, diversity and pluralism is considered a way of life which is to be preserved and sustained and passed on to future generations. Thus, though globalisation has brought in new ideas, fashion and food choices, it doesn't threaten the diversity and pluralism in India.

India has always welcomed new ideas and ways of life and accumulated the same in itself since the ancient times. Thus, globalisation only enriches our culture and does not threaten it.

Q.19) Customs and traditions suppress reason leading to obscurantism. Do you agree?

Customs and traditions guide our way of life dictating what's expected and what's not in the society. Customs and traditions are sustained for ages and have religious backing. Customs make us believe that we ought to follow and believe what is believed by the society.

Cases where blindly following the traditions has lead to obscurantism:



GS – 1 2020 MAINS WITH MODEL ANSWERS

1. The Kanjarbhat community in Maharashtra socially boycotts a family if they oppose the virginity test.
2. Abortion is considered a sin in christianity. So, in circumstances where there are anomalies and there is a threat to mother or baby, the practice costs a life. Also, in rape victims, this brings more psychological burden.
3. Female genital mutilation is another such horrible custom.
4. Caste discrimination is perpetrated even today in some places in the name of customs and purity.
5. Superstitions have also cost lives of many suffering from snake bites, left at the mercy of prayers rather than medical treatment.
6. Stereotypes get solidified due to customs and traditions.

Example: Girl is considered a burden due to the practice of dowry and “big fat wedding” expenses.

But some customs are meant to maintain harmony, celebrate togetherness and brotherhood, spread happiness and share sorrows:

1. Ceremonies like weddings and fairs are meant for social gatherings that encourage community participation irrespective of castes, religion and creed etc.
2. The tradition of greeting by “Namaste” means “ the divinity in me respects the divinity in you”.
3. Marriage vows lead the foundation of happiness, trust, faith and a promise of togetherness for lifetime.

Thus, the customs and traditions needs to be modified with the demands of the present day. Following them blindly with no scientific or logical backing does more harm than good. “ change is the only constant” thus, nothing remains and need to evolve with time.

Q20. How have digital initiatives in India contributed to the functioning of the education system in the country? Elaborate your answer. (Answer in 250 words, 15 marks)

The COVID-19 pandemic forced the educational institutions to move on online. The Government has been promoting the digital education for long now through the various initiatives and schemes like:

1. SWAYAM: Offers online courses from 9th std onwards upto postgraduate level.
2. National Digital Library.
3. FOSSEE: Free open source software for Education.
4. E-yantra: for education across engineering colleges on the embedded system of robotics.

Digitalisation has boosted education in following ways:

1. Continuity in education: Learning from homes continued even at the time of lockdown.



GS – 1 2020 MAINS WITH MODEL ANSWERS

2. Breaking barriers of religion, caste or classes making education accessible to all.
3. Inclusive education: Increased accessibility, making it possible and accessible for the differently abled to continue their learning at their comfort.
4. Fun learning: Infographics and animation backed learning makes it more interesting and easy to learn and remember.
5. Adaptive learning: With the help of AI, training modules suitable for one's learning are easy to include.
6. Cost-effective: Less costly compared to the traditional learning.

Challenges:

1. Digital Divide: over 70% of the rural population lacks access to internet and gadgets like computers, laptops, tablets etc.
2. Health issues: Constant contact with screen causing health issues like dry eyes syndrome and insomnia.
3. Special attention and assistive learning is required by some students, this is not possible through the online learning system.
4. Unhindered access to technology or internet exposes students to pornography, abuse, black-mailing and threats.

Way ahead:

- Projects like WANI and Bharat Net should be completed at a faster pace.
- Use of CSR to make digital learning aids accessible to all.

Online education in a way helps in furthering the Right to Education (A-21). Hence emphasis should be on accessibility. But also it is true that it is just complementary to traditional education and not a substitute to it.