90 Days UPSC Mains Optional Answer Writing Initiative

Geography – Paper 2

Question and Model Answers from Subject Experts
19-Nov-2018 - Question 1

Explain the pattern of winter rainfall in India. 150 words (2015)

Model Answer

Though, most of the rainfall in the Indian subcontinent is concentrated in the Monsoon months, winter precipitation is a significant phenomenon due to the following reasons:

1. North East Monsoons
2. Western Disturbances

North East Monsoons

North East trade winds pick up moisture while crossing over the Bay of Bengal and cause winter rainfall in Tamil Nadu, southern Andhra Pradesh, south-east Karnataka and south-east Kerala.
Western Disturbances

The sub-tropical westerly jet stream re-establishes along the base of the Himalayas and is responsible for inflow of depressions called western disturbances from the west that originate over the Mediterranean Sea and enter India from the north west. On their way, they pick up moisture content from the Caspian Sea and Persian Gulf. They are often in occluded form and intensify over Rajasthan, Punjab and Haryana. They move eastwards across the sub-Himalayan belt up to Arunachal Pradesh and cause light rainfall in the plains and snowfall in the hills.

Certain tropical cyclones originate in the Bay of Bengal and strike Tamil Nadu or cross the peninsula towards the Arabian Sea.

Thus, winter rainfall is brought about by change in wind direction as well as jet stream action on depressions.
19-Nov-2018 - Question 2

Bring out the distribution of Laterite soils in India and their specific use for agriculture. 300 words (2014)

Model Answer

Laterite is a formation peculiar to India and some other tropical countries with an intermittently moist climate. It is a compact to the vesicular rock composed essentially of a mixture of the hydrated oxides, titania, etc. It is derived from the atmospheric weathering of several types of rocks. Under the monsoon conditions of alternating wet and dry seasons, the siliceous matter of the rocks is leached away almost completely during weathering and a soil rich in oxides of iron and aluminium is left behind.

Distribution of Laterite soils

Laterite and lateritic soils are widely spread in India and cover an area of 2.48 lakh sq km. They are mainly found on the summits of Western Ghats at 1000 to 1500 m above mean sea level, Eastern Ghats, the Rajmahal Hills, Vindhyas, Satpuras and Malwa plateau. They also occur at lower levels and in valleys in several parts of the country. They are well developed in south Maharashtra, parts of Karnataka, Telangana, Andhra Pradesh, Odisha, West Bengal, Kerala, Jharkhand, Assam and Meghalaya.
Use in agriculture

Almost all laterite soils are very poor in lime and magnesia and deficient in nitrogen due to intensive leaching and low base exchange capacity. Potash is deficient but sometimes phosphate content is high. Thus, they are of little use for crop production in original form. However, when they are manured and irrigated, some laterites are suitable for growing plantation crops like tea, coffee, rubber, cinchona, coconut, arecanut etc.

In low lying areas, paddy is also grown. Some of the laterite soils in Kerala, Karnataka, Chota Nagpur region of Jharkhand, Odisha and Assam respond well to the application of fertilizers.
21-Nov-2018 - Question 1

Suggest the measures of wild-life conservation with reference to extinction of rare species. 250 words (2014)

Model Answer

India is one of the twelve mega-bio diverse countries of the world and as such is home to nearly 7% of the world’s flora and 6.5% of the fauna. Among them are located several rare species, which represent a group of organisms that are quite uncommon, scarce or infrequently encountered. They usually exist in a narrow range and are distinct from endangered or threatened species. Some examples are - red panda, musk deer, snow leopard, Indian flying squirrels, Nilgiri marten, Bengal Florican etc.

Rare species share the twin burden of already restricted ranges and low population as well as threats to their existence from natural and anthropogenic causes. The conservation efforts include:

1. **Targeted Government Programmes** such as Project Snow Leopard which was launched in 2009 to direct conservation and protection of range and species of snow leopard.

2. **Creation of protected areas** under the Wildlife Protection Act, 1972 in the form of National Parks and Wildlife Reserves. At present there are over 500 wildlife reserves in the country.

3. **International Co-operation** in the form of projects such as SECURE Himalaya with UNDP which seeks to integrate conservation efforts with livelihood development of people living in the range of snow leopards.

4. **Citizen groups** such as Hargilla Army which has worked to conserve the nesting sites of the Greater Adjutant.
Along with the above measures there is a need to:

1. **Complete baseline surveys** to determine the extent and reach of such species.
2. **Involvement of local population** to ensure ground level conservation efforts from pro-active groups.
3. **Strict ban on use of such animals in local medicinal practices** and other such customs.
4. **Strengthening in-situ conservation** and breeding efforts by demarcating no-go zones for humans in the ranges of rare species.

Apart from the above-stated measures, it is essential that human encroachment be reduced to ensure the continuation of habitat as well as reduction of man-animal conflict. These measures will help protect and sustain the rare species populations in India.
21-Nov-2018 - Question 2

Justify the inclusion of Meghalaya in peninsular India and discuss its vegetation and soil types. 250 words (2017)

Model Answer

The Meghalaya plateau is an extension of peninsular India. This is evidenced from the similarity in geological structure and composition of rocks on both sides.

The plateau has been separated from the peninsular block by a wide gap known as the Garo-Rajmahal Gap (Malda Gap) which was formed by down-faulting during the Tertiary period when the Indian plate collided with the Eurasian plate. This gap was later filled by sediment deposits of the Ganga and its tributaries. The plateau is largely formed by Archaean quartzites, shales and schists with granite intrusions and some basic silts similar to the peninsular region.
Soil types

Since the region experiences hot and humid climate along with excessive rainfall during the south west monsoons, it has an abundance of **laterite soils** towards the windward side. The soils on the leeward side sloping towards the Brahmaputra plains are **fertile alluvium** and are used for agriculture. In the higher reaches **forest and mountain soils** are found.

Vegetation

The geography at Meghalaya also tells that it has diverse natural vegetation - the Garo hills tropical mixed forests to the high-altitude pine forests:

1. In the western part of Meghalaya, the northern and southern foothills with warm and humid climate are characterised by dense **tropical mixed forests** with Sal and bamboo as main species of trees. The most important Bamboo species are Dalu and Muli.

2. In the higher altitudes, in the Tura range, **temperate forests** are found with pines and firs as common occurrence.

3. **Mixed tropical hardwood forests** are found in northern and southern parts of the central upland. The main species are Sal and Nahar etc. Bamboo thickets, Canes and wild bananas occur in many of the hill slopes in the region.

4. Rolling **grasslands** are found in abundance in the elevation ranging from 900m-1350m above sea level.

5. **Pine forests** are found above 1350m. Main species of pine are found mixed with willow, mangnolia, oak etc.

Thus, Meghalaya is a part of peninsular India and is seen to have a diverse vegetation as well as soil types.
23-Nov-2018 - Question 1

"Keeping the recent developments in view, how can the energy crisis of India be circumvented by harnessing non-conventional energy resources? 150 words (2018)"

Model Answer

India, and the world in general are looking at an imminent energy crisis as the use of conventional sources of energy cause serious environmental problems as well as economic and monetary burden on the people. To meet this threat India has been targeting the use of non-conventional energy sources (NCES):

Today, nearly 20% of the installed capacity in electricity generation is from NCES. Renewable energy sources have surpassed energy generation from large hydro.

National Solar Mission as well as India’s targets under the Paris Agreement to generate 40% of electricity from non-fossil fuel based sources as well as 175 GW from renewable sources is a major step in the area of energy generation. The National Solar Wind Hybrid policy and National Offshore Wind Policy are innovative means in this area.

In the field of mobility, FAME India (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) scheme and the introduction of M15, M100 (methanol blend) and biofuels are a step towards reducing the dependence on crude oil.

International cooperation in the form of International Solar Alliance to fund development of PV technology is essential to lower costs and increase production of PV panels.

Development of new implements to use at home for cooking such as biomass cookstoves.

Research in the use of wave, tidal energy as well as ocean thermal energy conversion techniques.

The use of NCES will ensure:

Reduced emissions from power generating units, vehicular and industrial exhausts.
Lower current account deficits as India imports a majority of its energy needs.

Energy security as import dependence will reduce and India and move towards self-sustainability in energy generation.

Thus, use of NCES will ensure that India can avoid the energy crisis and sustain the path of economic growth that it has set while meeting its social and environmental goals.
23-Nov-2018 - Question 2

Drainage Pattern in peninsular India is a result of its geological structure and topography. Elaborate. 250 words (2017)

Model Answer

Indian peninsula is traversed by a large number of rivers such as Mahanadi, Krishna, Godavari, Cauvery etc. and their tributaries. These rivers have existed for a much longer period than the Himalayan rivers and as such have reached mature stage and have almost reached the base level of erosion.

Most of the river systems are superimposed because the new drainage system evolved on the new surface formed due to cooling and solidification of lavas erupted during the late Cretaceous and early Tertiary and these rivers were superimposed on the lower formation after removal of lava covers.
The drainage pattern in peninsular India is a result of its geological structure and topography can be seen as:

1. The peninsula consists of a stable landmass with a **slope from West to East** giving the same direction of flow to a majority of rivers.

2. **Dendritic drainage pattern** is observed over large areas that have uniform lithology i.e. basins of Mahanadi, Godavari, Krishna and Cauvery which are extensive plateau surfaces.

3. The old folded mountains of the Singhbhum (Chotanagpur Plateau) have **drainage of trellis pattern** which is formed when two sets of structural controls occurs at right angles i.e. hard beds of peninsular rock with intervening soft beds of alluvium.

4. Due to the presence of hill ranges/ hills **radial pattern of drainage** is observed in several areas. For example, Amarkantak plateau has radial drainage with Narmada flowing westwards and Son northwards. The local upland situated to south-west of Ranchi city also exhibits radial drainage with South Koel, Subarnarekha, Kanchi and Karo rivers flowing outward.

5. The rift valleys of Narmada and son exhibit **pinnate drainage pattern** in the upper reaches due to narrowness and steep ranges.

6. Western coastal plain of India shows **parallel drainage pattern** where several short streams and rivers drain in straight courses towards the Arabian sea.
Thus, a variety of drainage patterns are observed on the peninsular plateau due to the diversity in topographic features and geological structure.
India has paid heavily for the achievement of Green Revolution in the form of economic, social and ecological cost. Discuss 250 words (2016)

Model Answer

Green revolution refers to the phenomenal increase in the production of food grains during the 1960s due to the use of high yielding varieties of seeds, fertilisers and pesticides. Though it had several benefits resulting in India attaining self sufficiency in food production, it was at a large economic, social and ecological cost:

Economic

1. **Inter-crop imbalances**: The effect of Green Revolution was primarily felt on food grains especially wheat which wrested areas from coarse cereals, pulses and oilseeds. This has led to excess of production of rice and wheat.

2. **Unemployment**: Farm mechanisation has led to widespread unemployment except in Punjab and some parts of Haryana.

3. Rise in prices of land and inputs: Due to increasing costs of production and remuneration the prices for land and other inputs were driven high as demands increased.

Social

1. **Regional Disparities**: It has so far benefitted only 40% of the total cropped area with Punjab, Haryana, western UP, Andhra Pradesh and Tamil Nadu being the biggest beneficiaries. It has not touched the Eastern region. This has led to regional disparities in yield and consequently income.

2. **Increase in inter-personal inequalities**: Big farmers have benefited more because they have the financial resources to purchase HYV seeds, fertilisers etc.
Ecological

1. **Deforestation**: More forest land has been brought under cultivation and has led to a decline in forest area. Both Punjab and Haryana have 3.09% and 3.59% forest area respectively.

2. **Depletion of ground water**: The excessive use of water needed to irrigate the HYV seeds in semi-arid areas of Haryana and Punjab has led to a fall in ground water table up to 1m/year.

3. **Environmental Pollution**: The use of fertilisers and pesticides has led to widespread pollution and destruction of useful microorganisms in the soil. These harmful chemicals also disperse in the air.

4. **Noise pollution**: Farm mechanisation has created larger noise pollution in rural areas.

5. **Health Hazards**: Indiscriminate use of chemicals on the field have created a condition where they enter the food chain and have long lasting affects on our health. High levels of irrigation has led to water logging and conditions for breeding of disease carrying mosquitoes.

Thus, green revolution has not only led to benefits but has also created conditions with costs which are quite significant for the economy.
03-Dec-2018 - Question 2

Why has agro and social forestry failed to achieve its objectives? 150 words (2014)

Model Answer

Social forestry means the management and protection of forest and afforestation of barren and deforested lands with the purpose of helping environmental, social and rural development while agro forestry is a land use management system that includes incorporating trees with agriculture. They have had limited success in achieving their objectives because:

1. **Multiple agencies regulate the practice** such as departments of forest, land revenue and other local bodies on felling and transit of trees which discourages agroforestry.

2. Until recently **Bamboo was classified as a tree** and its felling was subject to strict regulations.

3. **Failure of use of MGNREGA funds** for use for agro and social forestry purposes.

4. Poor participation of local people and lesser knowledge among the local government bodies.

5. Faulty species selection for planting and use of unscientific methods have made the practice ineffective.

6. Market oriented trees were preferred by the planters and fodder and fuelwood trees were neglected.

7. Poor integration of industries which could create demand for forest produce leading to greater incentives for people to take up the practice of social forestry.
These lacunae have been addressed by the **National Agroforestry Policy, 2014** which aims to strengthen this practice and achieve significant milestones in greening as well as improving the livelihood conditions of the rural population.
05-Dec-2018 - Question 1

Examine the ongoing process of agricultural diversification and its implications for food security in India. 300 words (2018)

Model Answer

Agriculture is a mainstay for the Indian economy as it not only provides food security but employment and income to nearly half of the population. The process of agricultural diversification refers to the shift of resources from the regional dominance of one crop or livestock to a large mix of crops or livestock.

The following diversification can be seen with respect to Indian agriculture:

1. Shift from farm to non-farm activities. Within agriculture, the share of output and employment in the non-crop sectors, i.e. animal husbandry, forestry and fisheries, has been gradually increasing.

2. Use of resources in a larger mix of diverse and complementary activities within agriculture

3. Shift in favour of high-value crops and livestock activities. Consumption patterns are fast changing from staple food such as rice, wheat and coarse cereals to high-value food commodities like fruits, vegetables, eggs, meat and fish products, mainly because of rising per capita income, fast growing urbanization, changing tastes and preferences of consumers and sustained economic growth. This shift in consumption patterns in favour of high-value food commodities is not only in the urban areas and in the high-income groups but also in rural areas among the poorest section of the population.

The changes in cropping pattern have been taking place as a result of substitution of low productivity crops by those which have shown impressive performance in productivity growth such as rice, wheat, maize, groundnut, sugarcane, rapeseed and mustard. The crop pattern changes, however, are the outcome of the interactive effect of many factors - resource, technology, household, price and institutional factors.
There has been a decline in cereal consumption with a subsequent rise in non-cereal consumption with the diversification of agriculture. This shows that food security remains even as quality of food and diet has increased. The change in production has also led to an increase in the income of farmers enabling greater economic access to food. Thus, food security continues to be a target under the National Food Security Act, 2013 even as dietary preferences change.
05-Dec-2018 - Question 2

Explain the contemporary agricultural scenario in the context of rapid urbanization in India. 250 words (2018)

Model Answer

Indian agriculture accounts for 14% of the GDP and nearly 50% of the employment. The country also shares most characteristic features of urbanisation in the developing countries. Today, its urban population stands at 30.1% of the total. The following observations can be made about the contemporary agricultural scenario in the context of rapid urbanization in India:

1. There has been a shift in dietary preferences towards commodities such as fruits and vegetables, eggs, meat and fish. This has led to a shift in the composition of the produce being grown in the farms with a shift from cereal to non-cereal crops and animal husbandry. This is particularly true for agricultural land closest to the cities.

2. With better storage and transport facilities, horticulture and other high value produce from remote regions is reaching the cities within hours creating additional demand even in these regions. The distance-decay principle as propounded by von Thunen’s model now stands modified due to technology.

3. Rapid urbanization has also led to the encroachment upon the land at the periphery of the cities. As cities expand into the rural-urban fringe, there is a shift in land use pattern from agricultural to non-agricultural activities or from cereal to horticultural activities. Thus, there has been a steady decrease in the per-capita availability of land for agriculture.

4. Rise in growth of cities has not had a significant impact on the employment structure as the employment in agriculture continues to be high and disguised employment has become a major issue in this sector.
5. Stronger rural-urban linkages have been created due to the flow of goods and people (mostly labour) between cities and villages in increasing numbers.

6. Organic farming is being promoted due to the rising health consciousness of the wealthy class in the cities, this has marked a shift in the use of chemicals in agriculture. This is especially true for horticulture farming.

7. Environmental concerns have also led to promotion of use of biofuels and ethanol blending leading to a growth in production of non-food crops such as jatropha and jojoba for fuel use. This is due to the pressure in Indian cities to shift to cleaner fuels.

8. Creation of big wholesale store chains in urban centres has also led to promotion of contract farming. The NITI Aayog has released a model law for the same.

Thus, it is observed that agricultural scenario today reflects a changing society where urban population takes prominence and whose demands channel the way agriculture sector grows.
07-Dec-2018 - Question 1

Land reform is a key to modern agriculture in India. Describe various measures taken in this direction after Independence. 250 words (2017)

Model Answer

India is a primarily agrarian economy with nearly 49% of the population still dependent on agriculture for income and nearly 80% of the farmers are small and marginal farmers. Thus, land reform is a key institutional factor necessary for the transformation of modern agriculture in India. The various measures taken in direction after Independence include:

1. **Abolition of Intermediaries**: The earlier system of intermediaries under the Zamindari, Ryotwari and Mahalwari systems set up by the British were removed and ownership rights were given to the tenants and sharecroppers. This led to the abolition of nearly 2,60,000 intermediaries and conferment of ownership rights of about 25 lakh hectares to the tillers.

2. **Tenancy Reforms**: These have been implemented partially across the country and include - security of tenure for the tenants, fixation of fair rent and grant of ownership rights to certain kind of tenants. Varied ownership models exist across states with regard to the return of land to the owner after the end of tenancy period. Example, Operation Barga

3. **Ceiling on Landholdings**: Restrictions were placed on the area of land that a particular farmer could hold based on the productivity of the land and the excess land was distributed among the landless labourers to meet their demand for land.

4. **Consolidation of Holdings**: Recognizing the fact that land holdings in India are fragmented and small and these in turn lead to poor economic benefits to the landowners, land consolidation has been undertaken. Laws to this effect have been passed in 15 states.

- **Modernization of Land records**: Land records are being modernized and computerized to ensure transparency and less litigation in courts.
Land reforms also form a part of various regional development initiatives as well as schemes for increasing agricultural productivity and efficiency. These reforms have seen varied success across the country due to several reasons such as political will, loopholes in the law, traditional inertia and cost of policy reform. These provisions need to be strengthened to achieve proper and just land reform in India.
07-Dec-2018 - Question 2

MAP QUESTION

Mark the following locations on an outline map of India. Write in your Booklet, the significance of these locations, whether physical / commercial / economic /geological/environmental/cultural, in not more than 30 words for each entry:

1. Chandikhole
2. Pakyong
3. Krem Puri
4. Vamsadhara
5. Dahej
6. Sela Pass
7. Sasthamcotta Lake
8. Chengalpattu
9. Changrabandha
10. Munsiyari

Model Answer

1. Chandikhole

Chandikhole is located in the Jajpur district in Odisha. It is a site for the expansion of Indian Strategic Petroleum Reserves (ISPR) with a design capacity of 4MMT. The reserve is to be developed under the PPP model.

2. Pakyong

Pakyong is the site of a greenfield airport and Sikkim’s first airport located near Gangtok. It is the first greenfield airport to be constructed in North East India. At 4500 feet, it is one of the five highest airports of the country.
3. **Krem Puri**

Krem Puri is the world’s longest sandstone cave near Laitsohum village in Mawsynram area of the East Khasi Hills district, Meghalaya. It has a complex cave system and is 24.5 kms long. Fossils of dinosaurs have also been found here.

4. **Vamsadhara**

Vamsadhara is an east-flowing river of Peninsular India. The river originates in the Kalahandi district of Odisha and flows into the Bay of Bengal in Andhra Pradesh. Dams on the river have been constructed to provide water for canals in North East Andhra Pradesh.

5. **Dahej**

Dahej is a port located in the Gulf of Khambat in Gujarat. It is a natural deep water port accommodating vessels of draft up to 25m. A roll on - roll off ferry service for goods vehicles as well as passengers has been started from Dahej to Ghogha.

6. **Sela Pass**

Sela Pass is a high altitude mountain pass in the Himalayas connecting Tawang to West Kameng district of Arunachal Pradesh. This is open all year round. The Budget 2018-19 carried a proposal to build a tunnel through the pass to ensure easy movement of troops to Tawang.

7. **Sasthamcotta Lake**

It is the largest freshwater lake in Kerala. It is designated as a wetland of international importance under the Ramsar Convention. The continuous degradation of the lake has resulted in the entry of nutrients into it. This will lead to a big change in the chemical composition of the lake, including the threat of salinity in the long run.

8. **Chengalpattu**

It is a town in the Kancheepuram district in Tamil Nadu. India’s first medical park is going to be set up in this town on an area of 330 acres. It aims to produce low-cost diagnostic devices and ensure delivery of affordable healthcare.
9. **Changrabandha**

Changrabandha is located on the Bangladesh- India border in the Cooch Behar district of West Bengal. An Integrated Check Post is going to be set up at this location to boost trade and business.

10. **Munsiyari**

Munsiyari is a tourist destination located in the Kumaon Hills of Uttarakhand at a height of 2,200m at the base of the Greater Himalayas. It is a starting point for several treks and has snow cover during the winter months.
17-Dec-2018 - Question 1

Why does the pharmaceutical industry concentrate largely in the western region of the country? 150 Words (2015)

Model Answer

India is today considered the pharma capital of the world. Pharmaceutical production in the country has grown manifold and this industry has come to be concentrated in the western region even though it is a footloose industry. Under the Weberian industrial location model such industries are usually situated at the location of least cost of labour or the market. In this scenario, the specific locational factors include:

- **Proximity to chemical industries**: The western region has a heavy concentration of chemical industries due to the presence of petroleum sector in Gujarat.
- Proximity to ports: These allow easier access to markets of Africa, Europe and the West as well as ease of importing raw materials.
- Favourable government policies: State governments of Gujarat and Maharashtra have stayed at the top of the Ease of Doing business ranks and have had stable and promoting policies.
- Better infrastructure: Good rail, water and road connectivity to the hinterland and ports as well as better power availability.
- Availability of labour: Both skilled and unskilled labour are available in abundance either locally or from the rural hinterland.
- Easy availability of credit: This is due to the well developed financial markets in the region.
- Historical factors: The early set up of industries in the region has led to concentration of industries in the region.
- Spirit of entrepreneurship: This is quite firmly entrenched in the western region.

The pharma industry of India promises a good robust growth in the future that will ensure regional development as well as gains for the entire country.
Evaluate the contribution of Communication and Information Technology to the development of economy and society, and examine the relevance of the recently launched ‘Digital India’ programme. 200 words (2015)

Model Answer

Information and communication technology (ICT) has spurred development in the country ever since its introduction. Its contribution to the economy and society can be seen as under:

- **Growth of IT/ITeS sector**: This sector forms a major component of the service sector industry and contributes significantly to the exports as well as domestic GDP.
- Generation of employment: Not only in the ICT sector but in all the industries for which the ICT is the backbone. It has led to design of new university courses centered around the ICT industry.
- Gender equality: Gender disparities have reduced as the IT sector has more than 30% Labour Force participation rate for women as compared to the national average across sectors of 27%.
- Better governance: The setup of common service centres (CSCs) and digitized PDS systems has led to prompt and correct delivery of government services to the far flung regions of the country and reduced red tape.
- Enhanced ease of doing business: As application processes and registrations have gone online, the time for companies to get clearances has reduced significantly.
- Entrepreneurship: The growth of ICT has led to a ‘startup’ boom in the country and India today has the third largest startup ecosystem in the world.

However, it was observed that the benefits of the ICT sector were not reaching everyone due to lack of availability (digital penetration), affordability and illiteracy. Also, several processes had not been designed for use digitally...
hampering their output. To remedy this, Digital India was launched. It has nine pillars:

1. Broadband Highways
2. Universal Access to Mobile Connectivity
3. Public Internet Access Programme
4. e-Governance: Reforming Government through Technology
5. e-Kranti - Electronic Delivery of Services
6. Information for All
7. Electronics Manufacturing
8. IT for Jobs
9. Early Harvest Programmes

These will help ensure:

1. High speed digital access to all even in remote regions of the country.
2. Digital literacy enhancement through programmes such as PMGDISHA (PM Gramin Digital Saksharta Abhiyan)
3. Affordable access via public hotspots in public places
4. Government process reengineering (GPR) to ensure better suitability for the digital platform.
5. Vernacular access so that no one is denied access due to lack of learning in a particular language.
6. Creation of more job opportunities as well as infrastructure for more industries especially in the service and manufacturing sectors.

Digital India forms the backbone for the growth of India in the 21st century. It is critical for ensuring inclusive growth as well as attaining India’s goal of becoming a superpower and achieving its commitments under the sustainable development goals.
19-Dec-2018 - Question 1

Discuss the changing composition of international trade through major seaports of India. 200 words (2018)

Model Answer

India has a long coastline of 7516.6 km that is dotted with 13 major and over 200 minor ports. These ports carry nearly 95% of India’s trade by volume.

1. The composition of commodities in India’s international trade has been undergoing a change over the years with the share of petroleum, crude oil and other commodities rising and that of agricultural products decreasing.

2. The growth of manufacturing industries and SEZs near ports, for example, the vehicle manufacturing industry in Chennai has modified the trade carried out through the port as Chennai is now used to export manufactured vehicles to South and South-East Asia.
3. As demand for high value agri-produce rises worldwide, horticulture and floriculture products along with marine produce has seen an increase in their export.

4. Operationalization of National Waterway 1 recently allows for internal movement of high volume of goods from Haldia and Kolkata allowing these ports to feed the demand for manufactured imported goods in the region. This is marking a shift in trade through these ports.

5. Ports like Marmagao have seen decrease in trade in iron ore and increase in other commodities as production of the ore has been affected.

These developments can be seen by observing the major exports and imports from each of the major ports:

<table>
<thead>
<tr>
<th>Port</th>
<th>Major Exports/Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mumbai</td>
<td>Export items include cotton textiles, leather, tobacco, manganese machinery, chemicals etc while import include crude oil, raw cotton, machinery and drugs.</td>
</tr>
<tr>
<td>Jawaharlal Nehru Port (JNPT)</td>
<td>Item basket for exports and imports similar to Mumbai as the hinterland is same.</td>
</tr>
<tr>
<td>Kandla</td>
<td>It includes trade in crude oil, petroleum products, fertilizers, food grains, salt, cotton, cement, sugar, edible oils and scrap.</td>
</tr>
<tr>
<td>Marmagao</td>
<td>It is important for export of iron ore from Goa and also trades in manganese, coconut and other nuts, cotton etc.</td>
</tr>
<tr>
<td>New Mangalore</td>
<td>Agricultural produce, iron ore, granite are major exports, crude oil, coal, iron ore, LPG, limestone, wooden logs, cement, liquid chemicals, fertilizers, edible oils are major imports.</td>
</tr>
<tr>
<td>Kochi</td>
<td>Trade items include tea, coffee, spices, mineral oil and fertilizers</td>
</tr>
<tr>
<td>Kolkata</td>
<td>Jute, tea, coal, steel, iron ore, copper, leather, textiles, crude oil, paper, fertilizers etc. are major trade items.</td>
</tr>
<tr>
<td>Port</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Haldia</td>
<td>Item basket is similar to Kolkata as they serve the same hinterland.</td>
</tr>
<tr>
<td>Paradip</td>
<td>It mainly handles iron ore and other mineral trade</td>
</tr>
<tr>
<td>Visakhapatnam</td>
<td>It exports ores of iron, manganese, spices and wood and imports mineral oil, coal, industrial products and luxury items</td>
</tr>
<tr>
<td>Chennai</td>
<td>Its trade basket consists of agricultural produce, ores of manganese, cotton, paper, crude oil, coal, vehicles, machinery and fertilizers</td>
</tr>
<tr>
<td>Ennore</td>
<td>The major items are coal, iron ore, petroleum and its products, chemicals etc.</td>
</tr>
<tr>
<td>Tuticorin</td>
<td>It handles traffic in coal, salt, food grains, edible oils, sugar and petroleum products.</td>
</tr>
</tbody>
</table>

Thus, composition of international trade through the Indian ports is changing due to change in demand of the population and stage of the economy as it transits from an agrarian economy to a service and consumerist one.
Account for the persisting negative trade balance of India. 200 words (2018)

Model Answer

Trade balance refers to the difference of exports over imports for a country. It is negative if imports exceed exports thus pulling the current account into the negative zone. India’s trade balance has been negative persistently due to the following reasons:

- **Import of oil and natural gas**: India imports 80% of its oil and natural gas. This figure has been increasing due to the increasing dependence on fossil fuels for growth.

- **Increasing demand for vegetable oil**: Though India is the largest producer of vegetable oil, it still has a large dependence on imports. Sustained increase in consumption against stagnating production widened India's import dependence to 67 percent for 2016-17, with an estimated demand of 24.5 mt.

- **Imports of gold and other precious metals** to fuel the cultural demands.

- **Imports of capital goods and machinery** due to lack of effective manufacturing processes in the country.

- **Low value addition in global value chains** as manufacturing industry in India does not add significantly to the manufactured product and is limited to either after sales service or joining designed parts outside India.

- **Poor competitiveness of exports** due to ineffective policy measures like inverted duty structures, delay in processing of benefits to the exporters.

- **Poor connectivity from the manufacturing zones to the ports** increasing cost of logistics due to fragmented connectivity. The logistics cost stands at 14% of the GDP which is nearly double that of other competing countries.

- **Poor performance of MSME sector** due to policy ineffectiveness leading to slower growth.
Thus, India’s persistent negative trade balance is a result of culmination of several shortcomings in policy as well as lack of resources. It leads to other consequences such as - weakening of home currency adding to the import bill, need for foreign investments to bridge the deficit and loss of jobs in the face of rising competitiveness.

Thus, there is an urgent need to redesign processes and ensure convergence of programmes such as Make in India, Skill India, FAME India, Sagarmala and other such policy efforts to improve India’s trade balance.
21-Dec-2018 - Question 1

Discuss the problems and prospects of National Waterway No.1. 200 words (2014)

Model Answer

The National Waterway 1 (NW1) is an inland navigable waterway on the Ganga-Bhagirathi-Hoogly rivers that runs from Prayagraj in Uttar Pradesh to Haldia in West Bengal for a total of 1,620 km. It traverses four states - UP, Bihar, Jharkhand and West Bengal.
The problems and prospects of the NW 1 can be seen as follows:

Problems:

- **Silting of navigable channel** as the Ganges river system carries a high silt load, leading to reduction in depth of channel making it harder for heavier vessels to navigate.
- Damming and diversion of river at intervals along its course creates impediments for continuous shipment and reduces the flow of water in the river.
- Changes in course of river due to the heavy silt deposition especially during summer and monsoon months.
- Absence of transshipment hubs creates problems of loading and unloading of goods along the major cities on the course of the river.
- Lack of adequate mechanised shipping vessels as most of the vessels available are small non mechanised boats.
- Lack of technically advanced navigation facilities for the vessels plying on the river making it difficult for ply at all times of the day and year.
- Presence of bridges of low height as well as pontoon bridges along the course of the river.

However, considering the immense stretch and expanse of NW1, it has several prospects as well:

- **Reduction in greenhouse gas footprint** and dependence on fossil fuels as ship based transport is not only economical but more environment friendly than road or rail.
- Decongestion of road and rail transport along this major route that runs from Delhi to Kolkata.
- Creation of employment at new ships, shipbuilding yards, maintenance and repair workshops, Ro-Ro ferries and transshipment hubs along the waterway.
- Potential for tourism with river cruise services among others.
- Aid regional development and supplement the Eastern Dedicated Freight Corridor for movement of goods.
- Strengthening connectivity with the north east as well as South East Asia.

Realising these prospects, the Jal Marg Vikas Project has been launched with the aid of the World Bank to develop National Waterway 1. It includes components for infrastructure creation, river dredging, maintenance, overhaul and repair of ships and development of human resource.
21-Dec-2018 - Question 2

Critically examine the feasibility of development of a comprehensive network of airways in India. 200 words (2017)

Model Answer

Indian aviation industry is the third largest in the world and the fastest growing. Seeing this buoyancy, the feasibility of development of a comprehensive network of airways can be ascertained:

The strengths include:

- **Large, growing middle class population** with rising incomes that can afford to travel on air routes.
- Fastest growing large economy which makes it essential for agents of economic change to travel between cities quickly and reliably.
- Loss in competitiveness of railway fares making air travel far more attractive than certain sections of railway coaches.
- Increasing tourist inflow from abroad as well as increased movement of domestic tourists.
- Focus on regional connectivity by the Government to ensure that good infrastructure is present even in the remote corners of the nation so that there is ease of movement for all e.g. development of Pakyong airport in Sikkim.
- Utilisation of not only airplanes but helicopters for connectivity especially in hilly states.
- Favourable government investment policy with attractive FDI policy as well as UDAN scheme that provides for viability gap funding for regional routes to make them sustainable.
However, there are significant challenges to its implementation:

1. Majority of Indian population still cannot afford basic airfares and hence cannot take the luxury of air travel.
2. The financial health of certain airlines, including the national carrier, has often put the aviation sector under stress. This needs to be rectified.
3. Increase in fuel prices (Aviation turbine fuel) with the change in crude oil prices has adverse affects on the functionality of the airlines.
4. There are certain routes that may become unviable after the Viability gap funding is withdrawn under UDAN and it will be a challenge to make them sustainable.
5. Acquisition of land for greenfield projects is a challenge due to competing nature of several land use plans.

Thus, though there is a positive indication for the development of a robust and comprehensive aviation network, there are several challenges that need to be addressed before it can be achieved. The National Civil Aviation Policy, 2016 and Open Sky Policy with SAARC are a step in this direction and they need to be implemented completely for its benefits to show.
21-Dec-2018 - Question 3

MAP QUESTION Mark the following locations on an outline map of India. Write in your Answer Booklet, the significance of these locations, whether physical/commercial/economic/geological/environmental/cultural, in not more than 30 words for each entry:

1. Barmer
2. Kishenganga
3. Nathu La
4. Mount Saramati
5. Mangalajodi
6. Kutku Dam
7. Palakkad
8. Havelock Island
9. Lonar Lake
10. Hogenakkal Falls

Model Answer
1 Barmer - Barmer is a city located in Western Rajasthan. Culturally, it is an important tourist destination and is famous for Mallinath cattle festival. Economically, this region has a huge oil block which is today being used to produce and supply crude oil.

2 Kishenganga - It is a tributary of the Jhelum river that originates near Sonamarg. It merges with the Jhelum near Muzaffarabad in Pakistan. The Kishenganga Hydroelectric project has been a cause of dispute between India and Pakistan.

3 Nathu la - It is a mountain pass situated at an altitude of 4310m on the Indo-China Border in Sikkim connecting it to Tibet and is an important land trade route between India and China. It forms a part of the offshoot of the ancient Silk Route.

4 Mount Saramati - It is a peak in the Naga Hills of the Purvachal Range. At 3,840 metres it is the highest peak in Nagaland.

5 Mangalajodi - It is a village located on the northern edge of the Chilka Lake in Odisha. It is famous for its ecotourism. Mangalajodi Ecotourism Trust in Odisha has won United Nations World Tourism Organisation (UNWTO) Award for Innovation in Tourism Enterprise.

6 Kutku Dam - It is a dam on the North Koel River in Jharkhand. It is part of the North Koel Reservoir Project. It is expected to provide irrigation to areas in Jharkhand and neighbouring Bihar. The creation of the dam reservoir is expected to flood part of the core area of the Palamu Tiger Reserve.

7 Palakkad - It is a city in Kerala located on the Palakkad gap or Palghat Gap. This is a gap in the hills of the Western Ghats in southern India between Nilgiri and Anamalai Hills. The destination is famous for tourism.

8 Havelock Island - It is located in the Ritchie’s Archipelago in the Andaman Islands. It is famous for scuba diving and coral reefs. Radhanagar beach is located on this island.

9 Lonar Lake - It is a lake created in the impact crater of a meteorite during the Pleistocene period in the state of Maharashtra. It is a saline and alkaline lake.
10 Hogenakkal Falls - It is a waterfall on the Cauvery river in Tamil Nadu. It is called the ‘Niagara Falls of India’ due to its width. It is the location for the Hogenakkal Integrated Drinking Water Project of the Government of Tamil Nadu to provide safe drinking water to the districts of Dharmapuri and Krishnagiri.
31-Dec-2018 - Question 1

Highlight the implications of declining child sex ratio in India. 150 words (2014)

Model Answer

The Child Sex Ratio is defined as the number of females per thousand males in the age group 0–6 years in a human population. As per the Census, 2011 the child sex ratio (0-6 years) has shown a decline from 927 females per thousand males in 2001 to 919 females per thousand males in 2011.

The implications of this decline can be seen as under:

Social implications

1. Discrimination against the girl child as well as increased neglect.
2. Increase in incidence of crimes against women.
3. Forced abductions for marriage, trafficking, polyandry and such practices for the continuation of lineages in regions where sex ratio is heavily skewed.
4. Reinforces patriarchal control over society.
5. It will eventually lead to a decline in the reproductive population base with time.

Economic implications

1. Lesser women will enter the working age group which will affect the productivity of the economy, especially sectors where female labour force participation rate is high e.g. textile, agriculture etc.
2. It will negatively affect the existing women in the working age group as they will continue to be discriminated against as their numbers reduce.

Thus, there is an urgent need to take rectifying steps under the legal as well as social system. Government initiatives such as Beti Bachao, Beti Padhao as well as strengthening of the PCPNDT Act are steps in the right direction.
Emigration refers to the act of leaving one’s own place of residence to settle in another. Within the country emigration has happened between states usually due to economic opportunities or marriages. India has seen the emigration of its residents for millennia due to its active linkages with the rest of the world. The major thrusts of emigration can be seen in the three phases through modern Indian history:

**Phase I:** The first wave took place during the British period when a large number of labourers were sent to Mauritius, Fiji, the Caribbean islands and other parts of the world by the imperial powers. Their descendants continue to reside in these countries as many did not return.
Phase II: The second wave of migrants went to settle in the neighbouring countries like Thailand, Malaysia, Singapore, Indonesia, Brunei and some African countries. This is a recent development under which professionals, artisans, traders, factory workers went out of the country in search of a better quality of life. This trend is still continuing. In the 1970s there was an oil boom in west Asia and a large number of skilled and semi skilled workers went there to avail of the opportunity. Some entrepreneurs, store owners, professionals, businessmen etc. went to the western nations as well.

Phase III: The third wave started in the 1960s and still continues to operate. In this period, high profile professionals like doctors, engineers etc. migrated out of India. In 1980s, software engineers, management consultants, financial experts, media persons etc. moved out of the country to work in countries like the U.S.A., Canada, U.K., Australia, New Zealand, Germany etc. After liberalisation in 1991, education and knowledge based Indian migration has made Indian diaspora most powerful in the world. The global recession in 2007-08 was a setback and several Indians had to return due to the heavy cutback in job opportunities in the west.

Thus, India has seen continuous emigration and today Indian diaspora is the largest in the world at 15.6 million people according to the UN World Migration report 2018.
Peri urbanization has created enormous environmental problems. Discuss their causes and consequences with reference to the national capital region (N.C.R.) of India. 250 words (2018)

Model Answer

Peri-urban areas (also called rurban space, outskirts or the hinterland) are defined by the structure resulting from the process of peri-urbanisation. It can be described as the landscape interface between town and country, or also as the rural—urban transition zone where urban and rural uses mix and often clash.

The National Capital Region (NCR) extends around Delhi in the states of Haryana, Uttar Pradesh and Rajasthan. Change in land use in this region has led to enormous environmental problems. This is due to the following reasons:

1. Unplanned development of peri-urban areas as builders rapidly move outward to convert land use on large tracts of land.
2. Increased exploitation of the groundwater table due to the rise in population settling in this region.
3. Large scale deforestation that is occurring especially on the Aravalis.
4. Dumping of municipal solid waste in landfill sites, for example, the landfill site located in the Aravalis caters to both Faridabad and Gurugram.
5. Increased sewage discharge into rivers and canals due to rise in population pressure.
6. Creation of basic infrastructure including several greenfield projects such as the Eastern Peripheral Expressway has led to diversion of agricultural and forest land.
7. Rise in number of industries and households in peri-urban areas has also led to a rise in number of vehicles.

All these causes have caused a severe strain on the environment in the region:

1. Increased instances of water pollution, both surface and groundwater pollution.
2. Depletion of the ground water table as most of the peri-urban areas are not connected to the municipal water supply.

3. Rise in air pollution due to increased industrial and vehicular activity. The region around Delhi is extremely polluted with Faridabad being ranked the second most polluted city with respect to PM 2.5 levels by WHO in 2018.

4. Loss of biodiversity in the forested areas due to loss of tree cover as well as encroachment of human settlements.

5. Increased man-animal conflict, like the monkey menace that plagues peri-urban society today.

Thus, peri-urbanisation has resulted in multiple environmental issues which need urgent address. The NCR Planning Board needs to formulate a plan that not only caters to the urban centres but the peri-urban areas in between.
02-Jan-2019 - Question 2

Discuss the socio-economic problems associated with the left behind families of international migrants from India. 150 words (2018)

Model Answer

Several people emigrate annually from India due to various push and pull factors. This leads to socio-economic problems for their families who are left behind. These problems include:

1. Neglect and abandonment of old age parents as the children migrate abroad leading to a risk for these people. This is one of the leading factors leading to rise in population of old-age homes and shelters.
2. Increase in vulnerability of women who are often left behind as men migrate abroad due to economic factors. They may be subject to social discrimination and increased incidence of crimes.
3. Abandonment of brides by their spouses who only return to India to marry and then do not come back.
4. Legal custody of the children issues among families where spouses live in different countries.
5. Absence of regular remittances especially by low income wage workers from abroad leaves their families exposed to economic uncertainties.
6. It can lead to weakening of the family ties as people stay away from their families for longer periods of time. This can adversely affect the upbringing of children.

Thus, even though emigration brings in remittances in large amounts it poses several risks and problems for the families of the people emigrating. There is a need to develop mechanisms to ensure minimization of such risks to ensure security and socio-economic safety for these families.
04-Jan-2019 - Question 1

Religious minorities are largely concentrated in border states of India. Discuss its causes and consequences. 250 words (2017)

Model Answer

Indian society is a multi-religious society with a majority of Hindus, based on the Census 2011 at 79.8%. The rest includes Islam (14.2%) , while the remaining 6% adheres to other religions (Christianity, Sikhism, Buddhism, Jainism and various indigenous ethnically-bound faiths). These minority religions, though spread out over the entire country have come to be largely concentrated in the border states.

This is due to the following reasons:

1. The border areas were the first areas of contact for these migrants and they settled at the frontiers. For example, the Buddhists that migrated from Tibet are largely concentrated in the northern parts of Himachal Pradesh,
Arunachal Pradesh and Uttarakhand. The Parsis are concentrated on the coasts of Gujarat and Maharashtra.

2. **Isolation of border areas** made it easy for newer religions to enter and be absorbed in that region. For example, the spread of christianity in North East India and its concentration is largely attributed to this factor.

3. **Migration due to wars or conflicts creates a concentration in the region near the border**, for example, the muslims in southern Assam and Kashmir and the Rohingya Muslims in Bengal and Tripura. The Sikhs that arrived in Punjab after the partition provide another example.

4. **Well established Hindu religion in the Indian heartland** made it difficult for the other religions to propagate in large numbers.

The consequences of this concentration can be seen as:

1. It has led to population imbalance in the border areas due to the increasing influx of people of different religions. This is especially true in the states of Assam and the North East where it has caused a reaction from the native population giving rise to regionalism. This has affected local politics and power dynamics.

2. Cases of communal violence are present especially when two religious communities are competing for the same economic interests.

3. Location in the border areas has also led to under-development and marginalization of these communities.

4. It has led to gentrification of society. In some cases, the minority communities may be more affluent for example the Parsis, in other, they are usually poorer. This has led to a social divide.

5. Lack of education and employment opportunities in these border areas has negatively affected their growth.

6. It has also caused troubles with India’s neighbours due to shared mutual bonds across borders between the minority groups.

Thus, the concentration of minorities in border states poses a unique challenge to the society of India. It is needed that they be assimilated into society further while respecting and protecting their beliefs.
04-Jan-2019 - Question 2

How do slums develop? Given concrete suggestions for their improvement. 150 words (2016)

Model Answer

Slums are informal settlements within cities that have inadequate housing and squalid, miserable living conditions. They are often overcrowded, with many people crammed into very small living spaces.

Slums develop due to the following factors:

1. **Rapid population growth** in urban areas. This may be due to immigration from rural areas for better economic opportunities, disasters or due to economic stagnation forcing people to live in squalor.

2. **Poor governance** - This can be seen in the lack of basic infrastructure facilities, high cost of housing and rent, exclusion of certain sections of society and lack of ability to expand with the changing population.

Thus, there is an urgent need to develop slums, keeping in mind the vision and targets of the UN Habitat. Some suggestions include:

1. Provision of low cost, affordable housing equipped with basic facilities. This includes efforts under PM Awas Yojana (PMAY).

2. Redesign and retrofitting of cities to upgrade infrastructure as under Smart Cities Mission and AMRUT.

3. Reducing increasing burden on slums due to constant influx of migrants by providing better facilities and economic opportunities in rural areas as under RURBAN mission and RKVY.

4. Providing skilling to the poor strata to allow them to move up the economic ladder and move to better residential settings.

5. Legalising or regularising properties and bringing secure land tenure to residents.

These steps will help transform slum areas and improve the quality of life in cities in view of the targets set under SDG 11 for sustainable growth of cities.
14-Jan-2019 - Question 1

“An effective three-tier Panchayat Raj System will strengthen the bottom-up approach to multilevel planning in India.” Explain. 300 words (2017)

Model Answer

Multi-level planning is defined as planning for a variety of regions which together form a system and sub-ordinate systems. Every region i.e. state, district, block or village is involved in the planning process.

A bottom up approach ensures that there is direct participation of the people at the grassroot level. It involves creating plans at the smallest regional unit i.e. the village/ gram panchayat . The plans of several villages and municipalities are then combined to form the plan for a district and so on. It is based on the principle of subsidiarity.

The three-tier Panchayati Raj (PRI) is a good embodiment of the bottom-up approach to multi-level planning in India. There is a shift to this approach from an earlier top down centralized planning and this is even more so after the creation of the NITI Aayog.

An effective three-tier PRI system which will strengthen this approach to planning in the following manner:

1. It will allow creating a plan that is suited to the topography, climate and demography of a place rejecting a one size fits all approach.

2. People’s participation at the grassroot level helps maintain accountability and transparency for example with the use of tools such as social audit, public hearings in Environmental Impact Assessment.

3. At the next tier, the block will synthesize the plan based on the needs of the different gram sabhas. It can economize and plan better by creating common transport and communication infrastructure. It also help reduce conflicts in development goals of different gram panchayats.

4. Districts can plan for the entire district including municipalities, thus converging both rural and urban needs in a single plan. They are the focal points for aligning the plan with the available budget.
5. They can plan for taking advantage of surrounding growth-pole or industrial hub, by creating required infrastructure or developing necessary skills.

6. Multi-level planning also ensures that different DPs can be comprehensively analysed at state level to remove intra-state imbalances, and to develop various growth points as per local expertise and resource availability.

These plans when converged at the national level lead to the creation of the Central plan. This also ensures all regions/state can utilize their special geographical/resource conditions to take part in national development. Thus 3-tier PRS is essential for effective bottom-up approach.
14-Jan-2019 - Question 2

Discuss the implications of India’s strategic location with reference to the Indian Ocean. 250 words (2014)

Model Answer

India stands at the head of the Indian Ocean at the very centre of the Eastern Hemisphere commanding trade routes running in all directions. Its centrality has made it the most dominating country among all the littoral states of the ocean.

The implications of its location can be seen as under:

Economic

1. India’s 95% trade by volume passes through the sea and hence it needs to contain piracy and manage regional stability in the region.

2. Also, majority of the world’s energy (50%) and merchandise (70%) trade passes through these waters and through the Straits of Malacca. Thus Indian naval presence is not only a security guarantee for the domestic trade but for international trade as well.

3. The Indian Ocean is also a largely untapped fishing reserve unlike the temperate regions, India’s location with its large coastline provides it considerable advantage in this aspect.

4. Also, Indian Ocean’s bed is a source of polymetallic nodules and India is the pioneer explorer in the Central Indian Ocean basin for these nodules which are rich in several metals.

5. Its central location also makes it a junction at the trade routes between the east and the west.

Strategic

1. In recent years there has been a shift to Indo-Pacific from the Atlantic in the strategic discourse. India’s prime presence in the Indian Ocean increases its stakes with respect to security in the region.

2. There has been a rising influence of Chinese naval presence as well as western navies in the region. India is considered by many littoral states,
both big and small, as a counter against these influences. This is also seen in the context of the Belt and Road Initiative of China.

3. India’s cultural links with the other littoral states since ancient times serve as an important source of soft power to influence the diplomacy in the region.

Thus, it is for these regions India’s location has great strategic significance and India sees itself as the ‘net security provider’ for the Indian Ocean Region. It is with this backdrop that initiatives such as Project Mausam have been launched.
Reduction in regional disparities has been one of the priority goals of national planning in India. How the proposed new Smart urban centres may contribute to the process? 300 words (2015)

Model Answer

Reduction in regional disparities has been a priority in the national level plans ever since the First Five Year Plan. The process has been refined in the subsequent five year plans with area specific planning gaining momentum during the fifth plan and multi-level planning becoming the norm after the 73rd and 74th constitutional amendments.

The introduction of the Smart Cities Mission in 2015 is another strategy that can contribute to the process of regional development. In this mission, 100 cities have been selected to be developed as smart cities from all across India, impacting a combined urban population of nearly 99.6 million people. The effect on regional development can be seen as under:

1. Smart cities can act as growth poles for the region around them. This will help create better economic opportunities for the people in that urban centre as well as the hinterland that surrounds them.

2. Smart cities involve the development of basic infrastructure that when connected to the national infrastructure such as the national highways, national waterways etc. will help create faster and reliable mobility options that can lead to faster delivery and evacuation of goods and people.

3. They can also serve as centres to attract youth of rural areas for employment. This will reduce the pressure on the existing centres such as the metropolitan areas. It will also lead to faster rise of Tier 2 and Tier 3 cities as economic centres which in turn will reduce the differences in the level of economic development between these cities and already developed areas. For example, Jhansi as a smart city in the Bundelkhand region that serves as a source of migrants for Delhi NCR will help reduce this migration.

4. One feature of the Smart cities mission is to give an identity to the city - based on its main economic activity, such as local cuisine, health,
education, arts and craft, culture, sports goods, furniture, hosiery, textile, dairy, etc. This will help create ‘cultural capitals’ across the country such as Bhagalpur, Tirupati etc. This will give an impetus to local crafts and traditions.

Thus, the development of new Smart urban centres is an important step in the efforts to bring about balanced regional development in the country.
16-Jan-2019 - Question 2

Cross border terrorism has implications on border area development in India. Examine it with suitable examples. 250 words (2018)

Model Answer

India shares a nearly 15,000km long and vulnerable border with its neighbours. It passes through a very diverse terrain from deserts and marshes in the west to rugged, high snow peaks in the north and north west, dense forests and agricultural fields in the east.

Cross border terrorism has significant implications for the border area development in India:

1. Cross border movement of terrorists is often accompanied by military fire to cover their movement, especially along the India-Pakistan border. This disrupts the economy of the region by threatening life and property. It can also lead to destruction of basic infrastructure if the firing involves mortar shells.

2. Instability due to frequent engagements between the military and terrorists discourages businesses from expanding and may even lead to relocation to safer areas for example, in Baramulla district of Jammu and Kashmir. It also leads to the well-off families shifting away from these areas as they have the means to do so. The poorer families are however, stuck and cycle of poverty is perpetuated.

3. Terrorist movements also disrupt agrarian life, especially in the plains of Punjab and Jammu where innocent farmers are often picked up as sympathizers or in collusion with terrorists.

4. The comparatively lax controls on the India-Nepal border allow easy movement of terrorists and contraband into India. The administration is often hard pressed to deal with these problems rather than the issue of development.

5. The challenge of terrain in the Purvanchal hills and Eastern Himalayas (Assam and Sikkim’s borders) makes it difficult to carry out development along with maintenance of law and order as well as security along the
border due to porosity of the forested borders that allow terrorists to move freely with little to no trouble from the security agencies.

These challenges make border area development difficult. The Border Area Development Programme (BADP) is being implemented to focus on development in border areas. It needs to be dovetailed with other important programmes looking at connecting border areas to the hinterland as well as security solutions to make its impact better. This is help reduce regional disparities between the border regions and the inner areas.
18-Jan-2019 - Question 1

Explain the pipeline network across India and its impact on regional development. 300 words (2018)

Model Answer

Pipelines are the most convenient, efficient and economical mode of transporting liquids, gases and slurry products. The country has a network of about 7,000 km of pipelines. The important pipelines are shown as under:

1. Naharkatia- Nunmati - Barauni Pipeline. It extends from Naharkatia oil field to Nunmati and has further been branched to Kanpur, Siliguri, Haldia and Maurigram.
2. Mumbai High - Mumbai - Ankleshwar - Koyali pipeline connects the offshore fields to the mainland.
3. Salaya - Koyali - Mathura pipeline
4. Hajira - Bijapur - Jagdishpur Gas pipeline
5. Jamnagar Loni LPG pipeline
6. Kandla - Bhatinda pipeline
7. Chennai - Trichy - Madurai pipeline
8. Mundra - Delhi oil pipeline
9. Urja Ganga Gas Pipeline from Varanasi to Cuttack (under construction)
10. Kudremukh to New Mangalore (for iron ore slurry)
11. Bailadila to Visakhapatnam (for iron ore slurry)
Pipelines have a distinct impact on regional development as under:

1. It helps link energy rich regions to the energy deficient regions bringing opportunities for more economic development.

2. Linking iron ore fields to the port regions such as Visakhapatnam allows for creation of iron and steel industry in the region bringing more employment and serving as the growth centre for setting up for several industries based on the iron industry.

3. It helps in interlinking industrial regions of the country creating a network for more backward and forward linkages.

4. It creates a reliable link to even remote locations which have poor connectivity such as the north east and the desert areas of Rajasthan and Gujarat. This allows for energy security.
However, they have certain shortcomings too:

1. They are inflexible i.e. they can be used only for a few fixed points.
2. Their capacity cannot be increased once they are laid.
3. It is difficult to make security arrangements for the entire length of the pipeline.
4. Repair is difficult especially in underground pipelines due to difficulty in detection of leakage.

Realizing the benefits the government has also entered into international agreements such as the TAPI gas pipeline and several other proposals are being considered such as the Iran - Pakistan - India pipeline and the Russia-India pipeline.
18-Jan-2019 - Question 2

Mention the space relationship of India with neighbouring countries. 150 words (2016)

Model Answer

India is located at the centre of the South Asian landmass in the middle of the Indian Ocean and shares land and maritime boundaries with several nations.

Pakistan: India shares a boundary of 3,310 km running from Kachch in Gujarat to Jammu and Kashmir. It traverses salt marshes, deserts, fertile plains and rugged hills and mountains. This boundary is artificial and came into existence in 1947.
Afghanistan: India shares a small land boundary of 80 kms with Afghanistan in the extreme north. However, this region currently lies under Pakistan occupied Kashmir and as such lies to the west of the Line of Control (LoC).

China: It lies to the north of the Himalayas extending from J&K to Arunachal in the east. However currently China occupies a portion in Ladakh known as Aksai Chin and the line separating India currently from this occupied territory is the Line of Actual Control (LAC).

Nepal: It is straddled between Uttarakhand and Sikkim in the east west direction. The border is largely open for movement.

Bhutan: It shares all except its northern borders with India and shares the Brahmaputra watershed.

Myanmar: It lies to the east of the NE-Indian states sharing a boundary that runs through densely forested and rough terrain.

Bangladesh: It shares the longest land border with India at 4,096 km and the largest delta in the world as well.

Sri Lanka: It is separated from India by the Palk Strait in the south.

Maldives: It shares a maritime boundary with India lying roughly 500 km south of the southernmost point of Lakshwadeep islands.

Indonesia: It also shares a maritime boundary being only 180km south of the Great Nicobar islands.

Thus, India’s space relationship is defined keeping in mind the centrality of its location to the other nations in its neighbourhood.

MAP QUESTION Mark the following locations on an outline map of India. Write in your QCA Booklet, the significance of these locations, whether physical/commercial/economic/geological/environmental/cultural, in not more than 30 words for each entry.:
1. Umiam Lake
2. Hampi
3. Fazilka
4. Gobind Sagar
5. Malvan
6. Kandla
7. Pakke Tiger Reserve
8. Indira Point
9. Pahalgam
10. Niti Pass
28-Jan-2019 - Question 1

How does climate change affect the process of desertification of India. 250 words (2015)

Model Answer

Desertification refers to degradation of land in arid, semi-arid and sub-humid regions resulting from various factors, including climatic variations and human activities. It does not imply loss of land to desert or through sand dune movement.

Nearly 30 per cent of India is degraded or facing desertification. Of India's total geographical area of 328.72 million hectares (MHA), 96.4 MHA is under desertification. In eight states—Rajasthan, Delhi, Goa, Maharashtra, Jharkhand, Nagaland, Tripura and Himachal Pradesh—around 40 to 70 per cent of land has undergone desertification. More to it, 26 of 29 Indian states have reported an increase in the area undergoing desertification in the past 10 years.

As climate change takes place, its effects on the process of desertification in India can be seen in the following ways:

1. In many dryland areas, the climate is become even more arid and rivers, lakes and underground water sources are drying up. This is accelerating the ongoing process of desertification making it more difficult to reverse.

2. There has been a rise in extreme weather events with rainfall variability increasing, especially in semi-arid and arid regions. This can lead to inundation due to flooding when there are copious amounts of rainfall and extreme aridity when there is a prolonged spell of dryness.

3. Climate change affects terrestrial ecosystems and they modify to adapt with the changing climatic conditions. This is associated with the loss of forest and green cover in the vulnerable areas.

4. Loss of forest cover is also associated with increased wind and water erosion as roots are no longer present to hold the soil together. This is visible with the northward shift in the treeline and the subsequent drying up of regions equatorward.
5. In the glacial valleys, the rapid retreat of glaciers due to global warming has exposed the underlying soils which without any vegetation are prone to erosion. This causes severe land degradation in these regions.

6. The rate of weathering is also accelerated due to increased effect of physical processes. This eventually leads to land degradation.

7. Rise in sea level will see inundation of groundwater aquifers in coastal areas with saline waters which will hinder vegetation growth on land due to rise in salinity of soil. This threatens desertification in coastal areas and island groups.

Thus, climate change is a crucial factor that has affected not only the rate but the scale of desertification in India. It is due to these concerns that India has targeted land degradation and climate change and set the target of achieving land degradation neutrality by 2030.
28-Jan-2019 - Question 2

illustrate with suitable examples the endeavours undertaken in augmenting conservation of water and vegetation in India. 300 words (2018)

Model Answer

Conservation of water and vegetation are essential to maintain the functioning of the biosphere and the biogeochemical cycles that support it.

India has only 4% of the world’s water resources and has to support nearly 17% of the world’s population and over 15% of the livestock on that. In order to ensure this, and stem the fall in per capita water availability several measures have been taken:

- **Increasing water use efficiency in agriculture** through promotion of micro irrigation techniques under the PM Krishi Sinchayee Yojana and more efficient cropping techniques such as system for rice intensification (SRI). Newer agricultural practices such as zero tillage and zero budget natural farming (ZBNF) too are water efficient.

- Promotion of dryland crops in dryland regions such as Jowar, Bajra and Ragi so as to ensure judicious use of water under several programmes such as Drought Prone Area Programme (DPAP), Desert Area Development Programme (DADP), Command Area Development (CAD) and Integrated Watershed Management (IWM)

- Promotion of traditional methods of irrigation such as ahar pyne in southern Bihar.

- Promoting water harvesting both in rural and urban areas by making it mandatory in the building code in several municipal jurisdictions.

- Checking the flow of untreated sewage and industrial effluents into freshwater bodies under various programmes such as National River Conservation Plan and Namami Gange.

- Afforestation under Green India Mission and initiatives under REDD so as to increase the moisture holding capacity of soils.
All these efforts are targeted at achieving the goals under the National Water Policy 2012.

For conservation of vegetation, the measures being undertaken are:

- **Afforestation and reversing land degradation** under IWM, Green India Mission and several other initiatives.
- Promotion of social forestry so as to improve people’s participation in protecting vegetation. Joint Forest Management (JFM) is an initiative under this. National policy on Agroforestry is another important initiative.
- Identification of invasive species and their removal such as Seemai Karuvelam, Eucalyptus, water hyacinth etc.
- Establishment of botanical gardens and seed banks for ex-situ conservation in different regions of the country.
- Satellite monitoring of forest fires so as to detect early and reduce damage caused.
- In situ conservation in the form of protected and reserved forests.
- People’s active participation in the form of Chipko Movement, Beej Bachao Andolan in Uttarakhand, Appiko movement in Karnataka etc.
- Banning agricultural practices such as Jhum cultivation in the north-east region of the country.

Apart from this several legal measures also aid the conservation of vegetation - Forest Conservation Act (1980), Environment Protection Act (1986), Indian Forest Act (1927) and NGT Act (2010).

These measures have augmented conservation of water and vegetation in the country.
30-Jan-2019 - Question 1

Explain the unusual intensity of dust and thunder storms across India in the pre-monsoon period of year 2018. 150 words (2018)

Model Answer

Thunderstorms are a violent, short-lived weather disturbances that are almost always associated with lightning, thunder, dense clouds, heavy rain or hail, and strong, gusty winds. These are common during the pre-monsoon season in the months of March and April due to intense heating of land that creates convection currents leading to short spells of intense rain and thunder. However, the pre-monsoon period in 2018 saw an unusual intensity of dust and thunderstorms due to the following reasons:

1. The period coincided with some western disturbances that were being brought by the Sub-Tropical Westerly Jet stream which were present till very late that year.
2. Intense heating of north western and northern India added to creation of convection currents.
3. The pressure difference between the Arabian Sea and Pakistan created wind anomalies that added to the westerly winds blowing into India and carrying the desert dust from the North West.
4. The pre-monsoon pattern also includes southwesterly winds approaching India from across the equator sweeping over the Arabian Sea and bringing moisture. Some of these southwesterly winds cross over to the Bay Bengal and curve back towards central India as easterlies. They are saturated with moisture from the warm Bay leading to intense thunderstorms over Eastern and North-eastern India.

Thus, these effects combined to create a high intensity of dust and thunder storms across India leading to several casualties and damage to property.
30-Jan-2019 - Question 2

Explain the impact of economic development on environmental degradation in India. 250 words (2016)

Model Answer

Economic development has carried the risk of degrading the environment ever since large scale industrial development began in India. Its impact can be seen in the following manner:

- **Deforestation** that is carried out to set up new industries, mining or settlements has led to shrinkage of India’s forest cover by nearly 89 million hectares since the beginning of the twentieth century.

- Loss of wildlife and fragmentation of habitat due to increase in deforestation has led to reduction in the habitat of wildlife and the increasing loss of several species, many of whom may be undiscovered. This is also seen in large scale river interlinking projects such as the Ken-Betwa Link, which will lead to submergence of part of the Panna Tiger Reserve and the Kutku Dam which will lead to submergence of Palamu Tiger Reserve. Dams on rivers too fragment habitats of aquatic animals with large range. The Western Ghats region is the most threatened in this aspect.

- **Air Pollution** due to industries, increasing vehicular emissions and other anthropogenic wastes (like stubble burning, thermal power plants, fires in mines and forests) has turned the air in several cities in India to unbreathable. Nine of the 10 most polluted cities by particulate matter concentration according to WHO are in India. This has also affected the biogeochemical cycles. The addition of greenhouse gases has created several hotspots over India where temperature extremes are being seen during summers.

- **Water Pollution** from municipal solid wastes, plastics, industrial effluents, agricultural runoff have tended several freshwater bodies extremely polluted pushing India towards a water crisis. Frothing in lakes such as Bellandur lake in Bengaluru or Yamuna river in Delhi are evidences to the same. The amount of plastics in the oceans has also affected the biodiversity. Oil spills due to accidents in sea waters greatly destroys the marine life.
- Land degradation and desertification due to unscientific methods of agriculture, overuse of chemical fertilizers and pesticides and poor planning have led to an increase in desertification in at least 26 of the 29 states in India.

- Over extraction of freshwater both from surface and ground water resources has created a critical situation that has led to a water stress situation and severe depletion of ground water tables both in rural and urban areas.

Thus, economic development has led to severe degradation of the environment and thus there is a need to focus on sustainable development and meet the targets under the Sustainable Development Goals (SDGs) in order to ensure economic growth with environmental preservation in the future.
01-Jan-2019 - Question 1

Why setting up of Water Management Boards is a controversial issue in India?

150 words (2018)

Model Answer

The existence of rivers that cross political boundaries has created several inter state water disputes in India. The River Boards Act, 1956 and the Inter State Water Disputes Act, 1956 provide for management of these disputes and creation of water management boards to manage the inter state river waters. However, this step is seldom taken, due to the following issues:

1. Politicisation of river water disputes by regional parties creates difficulties in reaching consensus on creation of the board.
2. Since the dispute is between the states and the board is set up by the centre, it is often felt that it may encroach upon powers of the states and weaken federalism.
3. There are issues of constitution of the board with regards to the number of experts, bureaucrats and representatives from civil society.
4. Delay in creation of rules and action taken by the board may render the body highly ineffective even as the dispute is not managed.
5. Regular recourse taken by State governments to approach the Supreme Court under special leave petition when they are dissatisfied by the award of the tribunal is another issue that can be used to side step the board.

Thus, setting up of water management boards is a controversial issue. However, steps have been taken recently to set up the Cauvery Water Management Authority on direction of the Supreme Court to manage the water of the Cauvery river and is a step in the right direction.
01-Feb-2019 - Question 2


Model Answer

The Western Ghats represent a biodiversity rich region stretching across six states from Gujarat to Tamil Nadu. It is home to more than 4,000 flowering plants, about 500 bird species, and over 300 species of mammals and amphibians.

Today, they are among the most threatened biodiversity hotspots of the world and have shrunk by more than 25% in the last two decades.

The strategies taken for conservation of Western ghats include:
1. The **Western Ghats Ecology Expert Panel** (Gadgil Committee) was set up to advise on conservation of the Ghats and it submitted its report in 2011. However, the report was rejected by the states as it called for demarcation of the entire ghats as Ecologically sensitive area (ESA) and divided them into three zones with varying level of restrictions.

2. The **High Level Working Group (Kasturirangan Committee)** was set up to examine and review the Gadgil Committee report. It recommended only 37% of the total area as ESA and here mining was to be banned. It distinguished between cultural and natural landscape for purpose of demarcation. The Oomen V Oomen committee was set up by Government of Kerala to review the Kasturirangan report. It recommended removal of inhabited areas from purview of ESA.

3. **Western Ghats Development Programme as part of Hill Area Development Programme** of the erstwhile Planning Commission launched in 1974-75 focused on ecological conservation and restoration of damage caused by human activity.

4. **Integrated Watershed Development (IWD)** in the Western Ghats focuses on managing water resources judicially and preserving the ecological cycle in the region.

5. **Creation of protected areas** in the Western Ghats such as national parks, wildlife reserves and biosphere reserves. Two biosphere reserves, 13 national parks and several wildlife sanctuaries are located here. The Western Ghats are also a UNESCO World Heritage Site with several sub sites.

Thus, several measures have been taken by the Government of India to conserve the western ghats. These measures are supplemented by legal efforts such as the creation of the National Green Tribunal (NGT) and the efforts of the courts to stop illegal mining and encroachments.