



# REMARKS

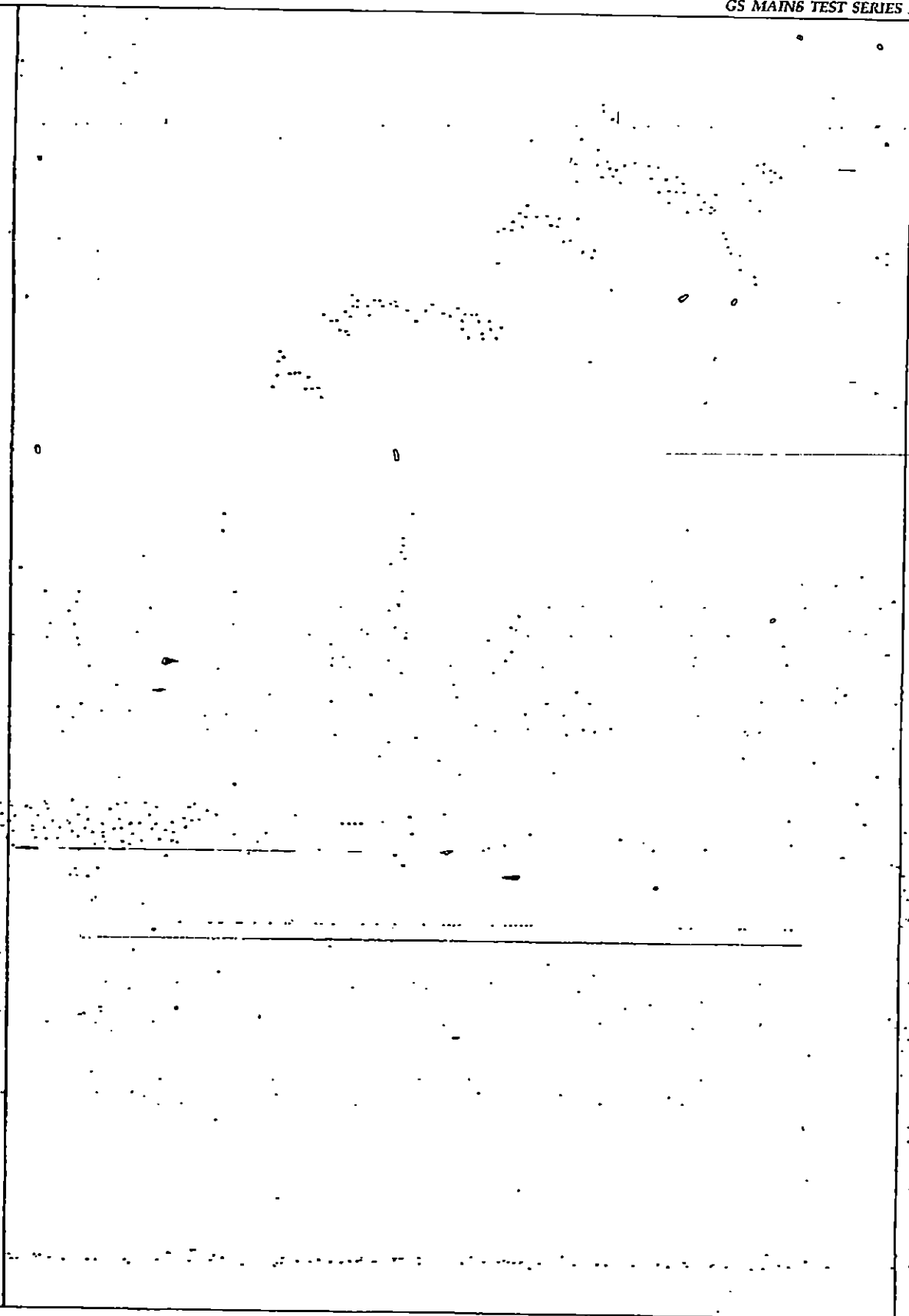
**GS SCORE**  
GS MAINS TEST SERIES 2017

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Roll No. \_\_\_\_\_

Q1. What do you understand by biological disaster? While listing the workplace and occupations prone to biological hazards, discuss the preventive and control measures that are required to be taken at these places. (12.5 Marks)

Remarks



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Q2. Community based disaster management processes build local resilience, strengthen existing coping strategies and enhance security of lives and livelihoods. Examine. (12.5 Marks)

Recently, launched National Disaster management plan focuses on community based disaster management. It was also recommended by 2nd ARC report as it mitigates and make community prepared which are the 1st point of incidence.

Community based disaster management includes -

- i) Active role of Panchayati Raj Institutions with quick disbursal of funds for disaster preparedness.
- ii) Role of NGOs in mobilising locals for building resilience framework in pre and post disaster crisis, both structural and non-structural.
- iii) Adoption of traditional knowledge and technologies which are regional in character which can easily cope up with regional disasters like landslides, floods etc.
- iv) Mobilising funds by govt in building structural assets via its poverty alleviation schemes like MNR etc which can serve double purpose during floods and droughts.
- v) Sharing of experiences by lessons learnt from previous disasters with policy planners.

Implies -

- Issues away fund

- example - Disaster relief

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vi) Training ~~there~~ and capacity building for coping with post disaster crisis.

Thus govt. ~~instead~~ instead of top-down approach, must adopt bottom-up approach by strengthening the local community and thus better management of crisis which includes.

- i) Empowering Panchayati Raj Institutions and their active role in disaster management.
- ii) Promoting Self Help Groups to cope up with menace.
- iii) Early warning systems to be robust enough to build up community resilience before Disaster Response force arrives.

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Q3. There is a need to move away from disaster management to disaster risk management which requires us to pursue all developmental activity in a manner that lead to reduction of disaster risk. Discuss. (12.5 Marks)

Sendai framework differs from its predecessor as it replaces disaster management to with disaster risk management. It makes the states responsible for disaster mitigation and preparedness and thus saving human kind from catastrophic effects of both natural as well as man-made disasters.

Disaster risk management differs from disaster management in its foundational spirit of pro-active measures rather than reactionary steps. It includes-

- i) Integrated planning - which includes institutional framework with short term and long-term plans and structural and non-structural plans to mitigate and be prepared for disaster. It includes -
  - Land use patterns planning
  - Building codes in earthquake prone areas
  - Standards for nuclear and explosive industries to mitigate man-made disasters
  - Institutional structure to have watch over developmental activities in disaster prone areas.
  - Integration of local bodies in disaster management.

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include key words

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ii) Building Community Resilience:-

- By proper information dissemination in both pre-disaster and during disaster phase
- Adopting traditional measures to mitigate disaster which are regional in their occurrence.
- Training and capacity building.

iii) Knowledge creation and data analytics

It includes use of modern GIS and big data by means of satellites, drones etc and previous lessons learnt and accordingly planning of disaster management.

Thus to save millions of lives, the disaster need to either avoided and curbed at its infancy stage if non-avoidable in which Disaster Risk Management plays a crucial role. Recent National Disaster management plan which is in line with Sendai framework and Sustainable Development goals is a welcome step in this direction.

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Q4. Examine the cause of frequent forest fires in Indian hilly states in recent years. Also, suggest strategy to control this problem? (12.5 Marks)

According to Ministry of Environment, incidents of forest fires has increased by 55% in 2016. Indian forests are prone to forest fires, both in peninsular block and hilly areas. Indian hilly forests are mostly covered with Chir pine forests, which have needle shaped leaves containing resin in it. Needle shaped leaves are more prone to forest fires compared to broad leaved forests and situation is aggravated by presence of resin in it, having catastrophic effect. This leads to incidents of crow fire in hilly regions of Himalayas.

The government has adopted a "one size fits all" approach to control forest fires which negates -

- That forests fires are ecological phenomenon
- That maintains the ecology of forest
- Leads to destruction of invasive species
- Maintain the fertility of soil.

So an outright strategy to end forest fires has ecological impacts. The govt need to devise a strategy.

Other, Mah  
Lam  
Climate Chg  
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Lam

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that strikes the balance between ecological needs and forest fire disasters. Recent NDMA guidelines are welcome step in this direction which includes-

- i) Replacing pine forests with broad leaved forests to reduce incidences of crown fires.
- ii) Picking of leaves of pine forests which may lead to incidences of surface fires with participation of community.
- iii) Empowering gram Sabha and Panchayati Raj Institutions to carry out such work
- iv) Participation of NGOs and civil society to adopt traditional measures to control forest fires.
- v) Controlling Thun cultivation which includes burning of slash and contributing as an anthropogenic factor.
- vi) Construction of rain ponds in nearby areas by traditional water harvesting techniques for rescue and relief operations.

Forest fires have serious impact on ecology and livelihood which needs to be controlled for sustaining Indian forest cover and undermining air pollution caused by such instances.

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- Q5. The advances in science and technology lend themselves to greater possibilities for more efficient disaster management worldwide. Elaborate. (12.5 Marks)

Sendai framework on disaster Risk Management envisions to include new technologies for mitigation, prevention, rescue, relief and rehabilitation in all phases of disaster management.

Disaster Risk Reduction strategy includes phases such as:-

- Hazard Risk and vulnerability analysis:- Modern ICT techniques can be utilised for information gathering such as by GIS (Geographical Information System), satellite imaging, use of satellite technologies in meteorology, drone image capturing etc. This leads to authentic data collection and then data analysis can be utilised with past records and recent collected data.
- Information dissemination and Early Warning Systems - for prior crisis measures, critical knowledge need to be disseminated to general public via Early warning systems which can be revolutionised by modern communication technologies.
- International collaboration:- Agencies across the world can share information on real time basis for better management.

Legal Rights  
Bris Info  
Planning  
Covm

92

- write stage wise (dis. Mng) role of ICT

Remarks

like in the case of cyclones and earthquakes.

- Collaboration of various research agencies like ISRO and NTRC with governments in mitigation can be a revolutionary effort which can ~~only~~ make institutions resilient ~~and~~ to cope up with disaster situations.
- Use of ICT in Panchayati Raj Institutions and at community level make the 1<sup>st</sup> point of reporting connected with upper hierarchy leading to early measures after disaster has occurred and thus better post crisis measures of rescue and relief.
- In recovery phase also, modern ICT technologies can be helpful for "build better back" as envisioned by Sendai Framework, recovery as an opportunity.

Sendai framework makes states responsible for disaster risk management and thus governments across the world should invest in research and inclusion of ICT in disaster management to revolutionise the efforts.

Remarks

Q6. Water resource augmentation, conservation, efficient utilization will be very important determiner of India's future development. What is the status of water resource in India and discuss needs for its conservation and efficient utilization. (12.5 Marks)

With increasing global warming and climate and depleting water resources, water is being considered as oil of the future which will frame the development graph of any economy in future. Thus a sustainable use of water resources is the need of the hour which not only includes efficient utilisation and conservation of water resources but also includes augmentation of existing water resources.

Status of water resources in India -

- i) with almost 17% of world population, India only contains nearly 3-4% of surface water resources
- ii) due to perennial flow of Himalayan rivers, it has abundance of water in gangetic plains but most of the part of country faces situation of drought every year
- iii) Due to skewed distribution of monsoonal rainfall, ground water and surface level water resources are also distributed abruptly
- iv) Conflict of states over sharing of water resources

In recent past there are certain

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incidences that demand revolutionary conservation efforts for water, like -

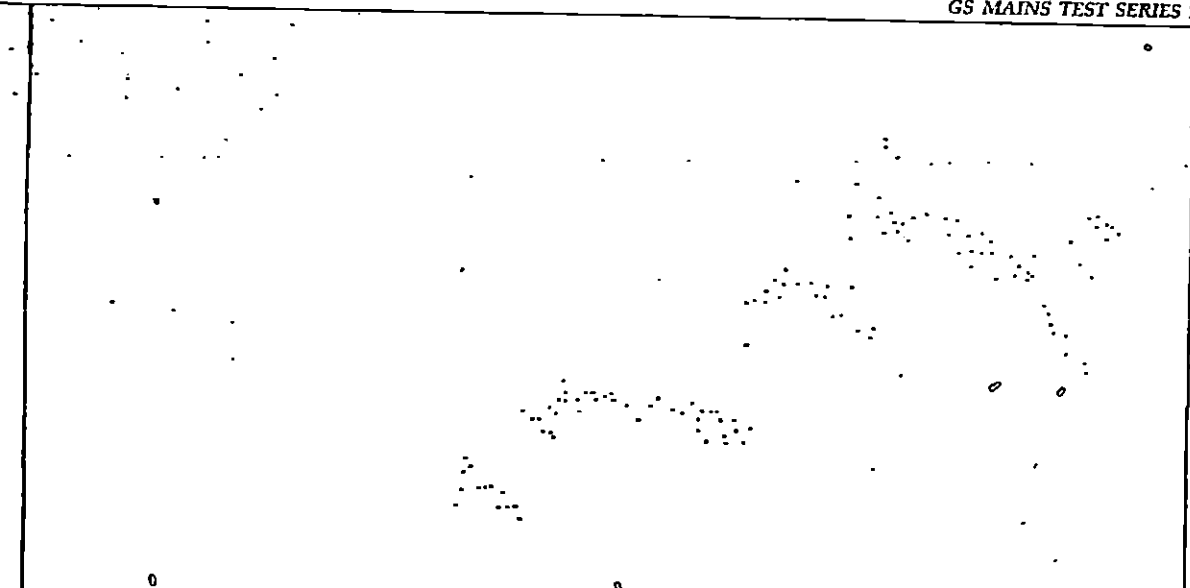
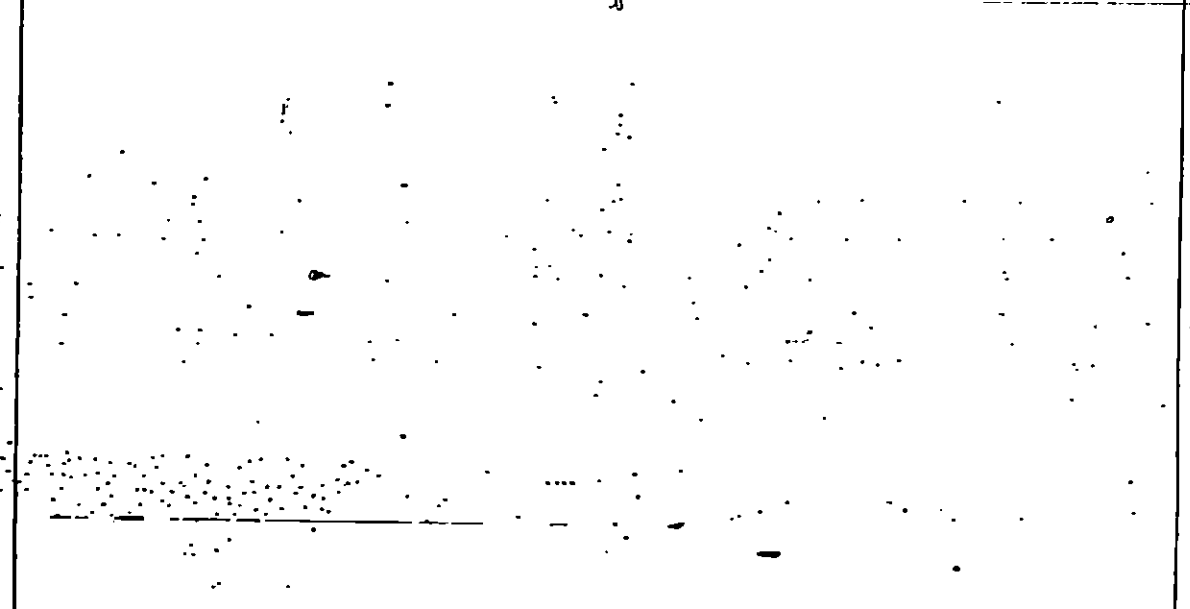
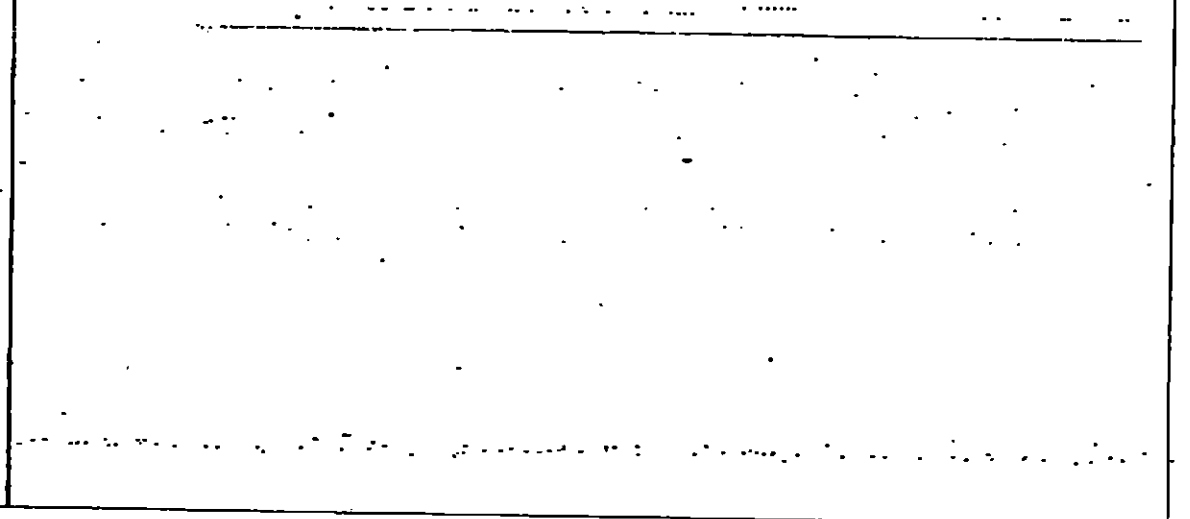
- i) Rising global warming and climate change leading to increased incidences of El Niño.
- ii) Water intensive agriculture leading to depleting ground water resources.
- iii) Several incidences of drought and flood having catastrophic effect on agriculture which has led to 3 lac farmer suicides in last 2 decades.
- iv) Conflict among states regarding water sharing like recent case of Karnataka and Tamil Nadu.
- v) Being in lower riparian in most of the river systems, India needs to focus on sustainable water resources.
- vi) Unsustainable land use patterns in basin of river leading to flood situations.

Thus the situation demands a multifaceted and multifaceted strategy that includes watershed development, interlinking of rivers, sustainable agriculture, ground water recharge etc. to cope up the water crisis.

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Q7. What factors are behind the growth and present location pattern of automobile industry in India? (12.5 Marks)

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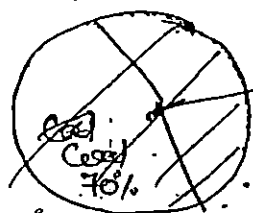
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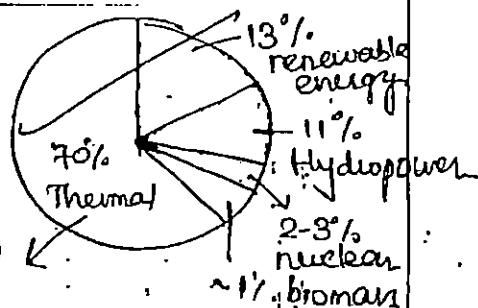
Q8. Renewable energy is emerging as anchor of Indian economic development. What is the spatial distribution of renewable energy resources in India? What efforts have been made to augment these resources? (12.5 Marks)

With increasing global temperature and changing climate, governments across the world are on line of adoption of renewable energy as torch of their development, India also being one of them.

Presently renewable energy accounts for nearly 13% of electricity production.



60% coal



Renewable Energy resources in India being a typical country has abundant potential but they are skewed as -

- i) Most of solar energy is produced in Rajasthan, Gujarat and Andhra Pradesh.
- ii) Gujarat, Maharashtra and Karnataka are leading states in wind energy production.
- iii) Himachal Pradesh has site of geothermal energy.
- iv) With vast coastline, Indian coastal states have immense potential of both wind and tidal energy.

13

drop  
step

Remarks

To diversify its dependency on non-renewables and to adopt renewable energy, Indian government has adopted certain measures.

i) Adoption of INDCs for Paris agreement which envisage 175 GW energy production by renewable resources including 100 GW from solar, 60 GW from wind and other by small hydro and biomass.

ii) Establishment of <sup>Inter</sup> National Solar Alliance (ISA) of countries having immense potential of solar energy.

iii) Make in India programme with special focus on production of solar panels.

Thus government is on its way of sidelining traditional energy resources and adoption of renewables ones but it can't be adopted outrightly given the fiscal and Technological resources of country.

Remarks

- Q9. Environmental concerns have emerged as major area of Urbanization and urban planning in India. What are the reasons behind this? What effective steps must be taken to ensure that Indian urbanization is environment friendly? (12.5 Marks)

With rapid industrialisation country has faced rapid urbanisation. This pace has been further increased by stressed migration which has intensified due to stressed agricultural resources because of changing climate. Consecutive El Niño year and given its dependence on agro monsoon, Indian agricultural economy has faced a downward curve.

Further urban settlements has also posed serious concerns as-

i) Due to concentration and air pollution, they are becoming urban heat islands - further aggravating the situation.

ii) Due to unsustainable land use pattern, they are restricting flow of rain water and thus facing situation of urban flooding.

iii) Urbanisation has led to destruction of rest forest reserves of the country + loss of biodiversity.

iv) Rapid industrialisation near urban centres has increased air pollution which is complemented by vehicular pollution of cities.

Thus rapid urbanisation in unsustainable manner has posed serious threat to peaceful existence of mankind.

Remarks -

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- for which there is need of serious efforts to mitigate like -
- i) Sustainable land use patterns promoting rain water harvesting techniques
  - ii) Green buildings investigating the effects of global warming
  - iii) Adoption of measures to curb air pollution due to vehicles like mass rapid transport, use of renewable energy vehicles etc.
  - iv) Promotion of community afforestation on certain patches of land.
  - v) Adoption of renewable energy resources for lighting in buildings, like solar panels <sup>roof top</sup>
  - vi) Empowering municipal bodies to impose taxes on unsustainable industries, parking and promotion of alternative transport systems.
  - vii) Vertical development near means of rapid transport like metro.

Thus to make Indian cities sustainable efforts from both government as well as community are required.

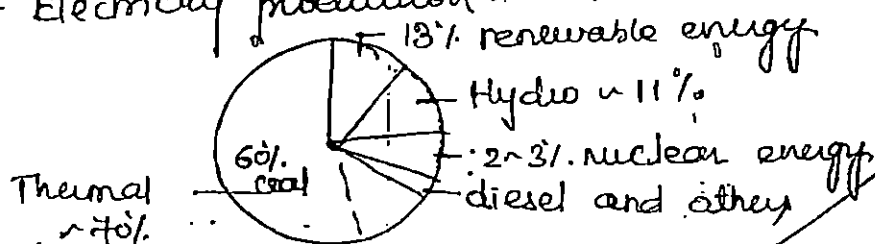
Remarks

Q10. What do you understand by energy security? How India should develop its energy mix to assure sustainable energy access to its people? Also discuss the steps taken by government in this direction. (12.5 Marks)

Energy security refers to making country self-sufficient and providing affordable energy resources to its citizens.

Presently India has dependence on coal for its electricity production and petroleum and natural gas.

Electricity production -



Majority of its petroleum and natural gas resources are imported.

Nearly 60% of nuclear resources are imported.

This situation presents dependency of India on other countries for meeting its energy demands. To assure sustainable energy access to its people there is need of decreasing this dependency by

- i) Diversifying the energy resources with more dependency on renewable energy resources
- ii) Diversifying its trade of nuclear energy and research for use of Thorium which India has vast resources in its monazite sand.

collaboration  
(UNO) original  
best

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Remarks

iii) Building strategic reserves of petroleum to counter any energy crisis

iv) Harnessing potential of solar energy with immense potential due to subtropical country.

For providing sustainable energy government has taken certain measures like:-

i) Adoption of INDCs in line with Paris agreement to develop 175 GW energy (electricity) by renewables

ii) Strategic oil reserves to enhance its resilience has been proposed in recent budget

iii) Trade diversification - with signing civil nuclear deals with Australia and ~~rest~~ despite being non-signatory to NPT

iv) Make in India programme for promotion of production of solar panels.

v) Coal cen. to disincentivise electricity production by it and making renewables competitive to it.

Thus government has taken measures to realise "electricity for all" by 2022 but dependency on coal can't be changed abruptly, thus along with promotion of renewables, govt must also focus on ~~stream~~ cleaner energy production by coal.

Remarks

Q11. Ganga river system has been the lifeline of northern plains, however, this lifeline is threatened by anthropogenic activities, discuss. Also suggest what should be done to make Namami Ganga a success to develop a sustainable river ecosystem? (12.5 Marks)

Ganga river system is crucial for northern plains for its development as it is sole source of water demand of the region for domestic use, agriculture and industrial use. But this water reserve has been depleting due to changing climate and situation has been aggravated by certain anthropogenic activities like

- i) unsustainable land use patterns, obstructing ecological flow of river and thus causing rising incidents of floods; + loss of biodiversity - Ganga Dolphin
- ii) water pollution with effluent discharge of industry + sewage + effluent
- iii) Intensive water utilisation for agricultural purposes leading to depleting water level.
- iv) Construction of dams and their siltation has aggravated situation

This has lead to deterioration of quality of water and decrease in quantity also having serious repercussions in present as well as future also. This threatens the very core of development of the region i.e. agriculture. To revive its ancient glory and revitalise the water flow, government has adopted Namami Gange programme that focuses on efforts not only by

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- government by also by community. It has-
- i) Adopted an institutional framework for mobilisation of funds and promotion of integrated planning (National Ganga River Board Authority)
  - ii) Promotion of sustainable agriculture to deal with depleting resources
  - iii) Making villages near Ganga basin, open defecation free
  - iv) Promotion of community led programme for river rejuvenation
  - v) Controlling effluent discharge both from domestic and industrial centres.
  - vi) Empowering Panchayati Raj Institutions for speedy disbursement of funds.

However without behavioural change to counter pollution of river, Namami Gange programme is incomplete. There is need of social marketing to make Ganga to regain its ancient glory again.

Remarks



Q12. India is the largest user of groundwater resources, which is unsustainable with visible signs emerging. Elaborate. How should India manage its groundwater resources with sustainable use? (12.5 Marks)

India accounts for 17% of the world population with only 3-4% of water resources. Thus its <sup>over</sup>dependency on ground water and surface water for meeting its demand is inevitable and makes it the largest user of groundwater. But its unsustainable utilisation has posed serious question on sustaining water resources for future.

- i) Due to increasing global warming and changing climate, dwindling of water resources will make water the oil of future.
- ii) Water intensive agriculture especially after Green revolution in areas of Punjab, Haryana and UP has led to exponential depletion of water table in these areas.

With consecutive El-Nino years and depleting water resources, Indian agricultural economy is facing a serious threat with more than 3 lakh farmer suicides in last 2 decades. Thus there is need to not only conserve and efficiently utilise water resources but also to augment and recharge its ground water which can be done by -

- i) Adoption of water harvesting traditional methodologies like Kund and Tank in Rajasthan and farm ponds in Maharashtra.
- ii) Intalushed development which encompasses

Salinity  
Arising  
Phosphate

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support  
and  
reason  
(Ques 6)

other  
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conservation of water resources and rain water harvesting to recharge the same

iii) Adoption of efficient irrigation methodologies like drip irrigation and sprinkler irrigation in line with Prime Minister's vision of "per drop more crop".

iv) Abandoning water intensive agriculture in drought prone areas.

v) Participation of NGOs for social marketing and behavioural change.

vi) Sensitising municipal bodies to deal with water wastage at supply side in urban areas.

Thus a lot need to be done both from side of community and government to cope up with a menace of water crisis. otherwise situation of chaos will be created in very near future where communities will fight for water like recently Cauvery water crisis.

Remarks

Q13. Ports are not just the facilitator of trade, but could be inclusive centers of economic development. In this light discuss the significance of Sagarmala project and its objectives. (12.5 Marks)

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**Remarks**

Q14. Sustainability of India's forest cover lies in adoption of social forestry, examine. Also discuss what factors are hampering the growth of social forestry in India?

(12.5 Marks)

Social forestry refers to community participation for increasing the forest cover. This includes community led afforestation programmes in both rural and urban areas.

In line with its vision of increasing forest cover to 33%, India needs to focus extensively on social forestry which includes -

- Afforestation on small patches on lands in urban areas.
- Agro forestry → Afforestation on boundaries of ~~poor~~ farms where afforestation and agriculture are accomplished simultaneously.
- Farm forestry → It refers to afforestation on farm lands for commercial purposes.
- Afforestation on community lands on voluntary basis.

Thus to make vast afforestation, social forestry plays a crucial role. However there are certain factors that hamper social forestry -

- i) Lack of political will which leads to weak ~~social~~ institutions.
- ii) Lack of efforts for sensitisation of local community.
- iii) ~~lack~~ <sup>scarcity</sup> of resources with Panchayati Raj institutions and lack of manpower.

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interspecific cross

Input cost eg seed

Manpower

Remarks

- iv) Increasing incidents of droughts and lack of drought resistance plant species that also provide a commercial value.
- v) Inability of civil society organisations to have targeted approach and more focus on the issue.
- vi) Dwindling community pasture lands and small land holdings, leading to little to do towards the measure.

These all needs to be overcome for community led afforestation programme which may also be done via poverty alleviation scheme MNRGA serving the double purpose of providing employment and promoting afforestation.

Remarks

Q15. Discuss the origin, movement and characteristic of air masses and explain how air masses influence the world climate? (12.5 Marks)

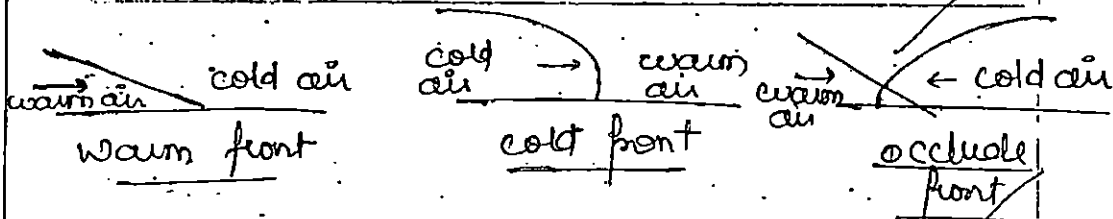
Air masses are large and distinctive air patches which acquire the characteristics of the region. Depending upon the temperature of air within these can be classified as warm or cold air masses. These air patches moves along with wind due to ~~both~~ pressure gradient force, frictional force and Coriolis force.

homogen  
simple  
humidity

Due to intermingling of distinctive air masses, fronts are formed and process is called frontogenesis. There are three types of fronts formed -

type?  
of air  
mass

- i) Warm front - When warm air mass moves towards cold air mass, it gradually lifts upwards.
- ii) Cold front - When cold air moves towards warm, it abruptly pushes warm air upward.
- iii) Occlude - when both cold and warm air masses approach, occlude-fronts are formed resulting in complete upliftment of warm air.

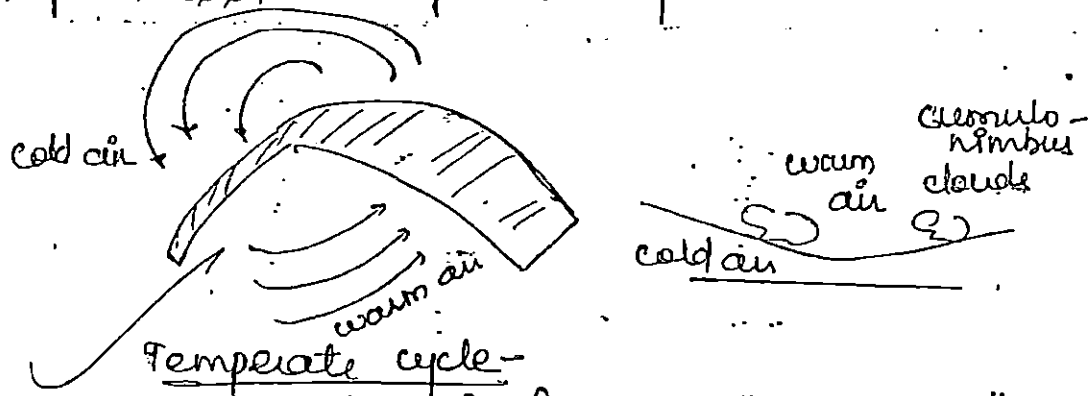


These air masses play a significant role in world climate. They are found mainly in temperate

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regions, resulting in formation of extra-tropical ~~and~~ or temperate cyclones.



### Temperate cycle-

When warm air from equator under effect of trade winds approaches to temperate regions and cold air from polar regions, then there is formation of front. Under the effect of Coriolis force, warm air is shifted right in northern hemisphere and it is uplifted by cold air from back side due to frontogenesis. This leads to complete upliftment of warm air and formation of clouds. These clouds bring torridial ~~region~~ <sup>rain</sup> in the region and thus impact the regional climate.

Remarks



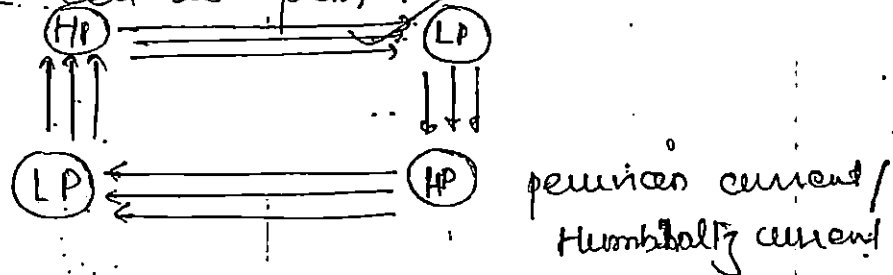
Q16. Explain the geographical factors responsible for the growth of mangrove vegetation in India and discuss its role in coastal ecology. (12.5 Marks)

Remarks

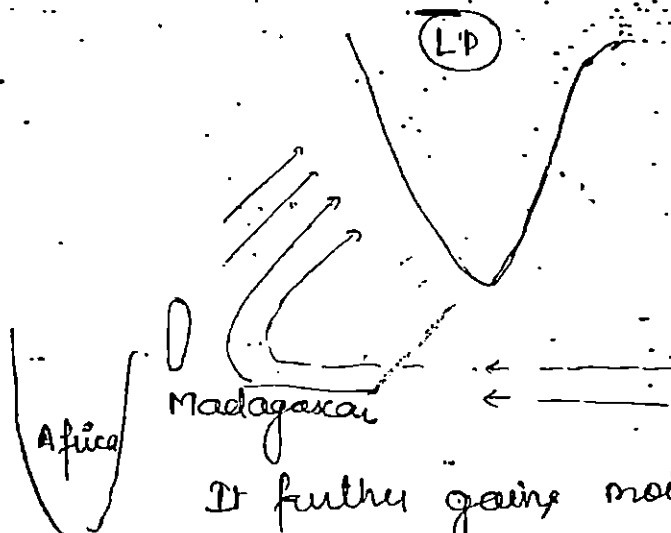


Q17. Describe, how EL-Nino affects the Indian Monsoon? Also, analyze its economic impact on India and world? (12.5 Marks)

Ans. India Monsoon climate is due to upward shift of Inter-Tropical Convergence Zone (ITCZ) during summer, causing an intense low pressure condition. Due to cold Peruvian current Walker cell is formed-



This cold current, due to differential pressure, leads to movement of water towards India and Australia. In Indian ocean, this takes a South West drift, because of intense pressure at Indian subcontinent and leads to monsoonal rain.



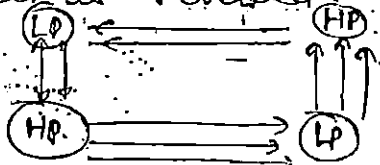
It further gains moisture in Indian Ocean and causes rainfall in India.

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However due to upwelling at peruvian coast, the cold current loses its intensity and Walker cell is reversed.



This leads to the situation of El Niño, where due to lowered intensification of peruvian current, winds are unable to reach towards India and thus unable to cause rainfall in the region.

Since India is an agriculture based economy and most of agriculture is rainfed, due to weakening of monsoon, Indian agriculture faces a serious threat and drought like situation arises in country. Situation is aggravated due to water intensive agriculture in certain areas and food production decreases at drastic rate. Since more than 50% of Indian workforce is dependent on agriculture, events like El Niño leave Indian farmer at vagaries of monsoon, ~~due to~~ it seriously poses a question on India's food security and self sufficiency. It also has led to stressed migration and recent cases of farmer suicides with more than 3 lac in last 2 decades.

Remarks

Q18. With increasing population pressure on pastoral and agricultural economy, the importance of marine resources is certain to increase. In this context explain, how India has utilized its marine resources? (12.5 Marks)

Indian agriculture is facing a dwindling phase in recent years due to increasing incidences of El-Nino and the situation is aggravated by alarming rise of population. This has led to ~~from~~ decrease in food production and production threatening the food security of country.

In this stressed agricultural phase and with a large coast line of 7500 km, India has immense potential of its marine resources which needs to be harnessed in its full potential given the underutilisation.

- For harnessing its potential government has taken certain measures -
- i) Establishment of fisheries promotion board for sustainable use of fisheries.
  - ii) Move towards deep sea fishing in line with China and Japan.
  - iii) Building infrastructure to provide forward linkages of fishermen to market.
  - iv) Establishment of food processing industries and promotion of fish exports.
  - v) Port led development of coastal areas for better integration into mainstream economy like in Sagarmala project.

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Marine resource not hiked to the level of mineral & oil (Bombay High)

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Thus the government has taken certain measures to harness potential of marine resources but there is a lot need to be done like modernisation and commercialisation of fisheries, international collaboration for deep sea fishing in Indian ocean region, and developing better facilities of cold storage and warehousing. This then only this can reduce the stress on agriculture and pasture economy.

Remarks

Q19. While alluvial plains are rich for agriculture, the plateau regions are great for mining and resource exploration. Elaborate with suitable examples. (12.5 Marks)

Indian alluvial plains extending from UP, Punjab, Haryana, Bihar, Chattisgarh and some areas in North-Eastern states under Brahmaputra river system (Assam & West Bengal) has immense potential of agricultural production. These regions are endowed with nutrient rich alluvial soil which contains adequate ratio of sand, silt and clay, further humus content is also sufficient. Micro and macro nutrients like N, P, K, Ca, Mg, Fe etc are in appropriate quantity required for agriculture but there are problems that need to be overcome.

- i) Modernisation of agriculture.
- ii) Reduction in overuse of fertilizers.
- iii) Efficient water utilisation.
- iv) Overcoming infrastructural bottlenecks like lack of facilities of cold storage and warehouses.
- v) Conversion of rainfed agriculture to water efficient irrigated agriculture with "per drop more crop".
- vi) Promotion of land consolidation and farm mechanisation.

Along with the rich endowed soil, lies the peninsular plateau region, which is endowed with good

read  
works

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draw map  
represent  
plateau region  
with a  
sketch of  
soil  
region

Remarks

number of natural resources like :-

- i) Sufficient coal reserves in Jharkhand & Chhattisgarh of bituminous quality and Anthracite coal in Himalayan state of Jammu & Kashmir
- ii) Rich Iron ore reserves in Chhota Nagpur plateau and Goa, Karnataka and Maharashtra region
- iii) Coastal states are endowed with thorium reserves in form of monazite sand
- iv) Copper mines in Rajasthan.

Thus India is also endowed with natural resources in peninsular region but the potential is still not underutilisation which needs to be enhanced to overcome its dependency and attaining self sufficiency.

Remarks



**Q20. Discuss the problems of agro-based industries in India. Do you think agro-based industry could be a better option to absorb shift of labour force from agriculture. What steps has government taken to promote agro-based industries in India? (12.5 Marks)**

**-Remarks-**

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