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GENERAL STUDIES (TEST CODE : 1986)

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Medium Eng./Hindi	ENGLISH	Registration Number	545314
Center	ORN	Date	25/11/21

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
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6	10	
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16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

- Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
- There are **TWENTY** questions printed in **ENGLISH & HINDI** इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
- All questions are compulsory.**
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one.
प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
- Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

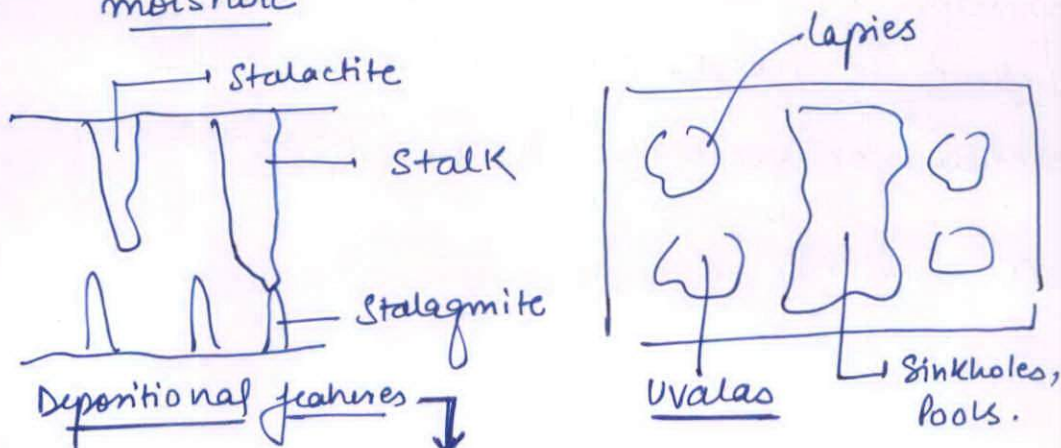
1. Highlighting the conditions that are conducive for the formation of Karst topography, discuss its distribution around the world. (150 words) 10

कार्स्ट स्थलाकृति के निर्माण के लिए अनुकूल स्थितियों को रेखांकित करते हुए, सम्पूर्ण विश्व में इसके वितरण की विवेचना कीजिए।

Karst Topography refers to occurrence of various geomorphological features on sedimentary rocks due to the action of ground-water.

→ conditions for Karst Topography :-

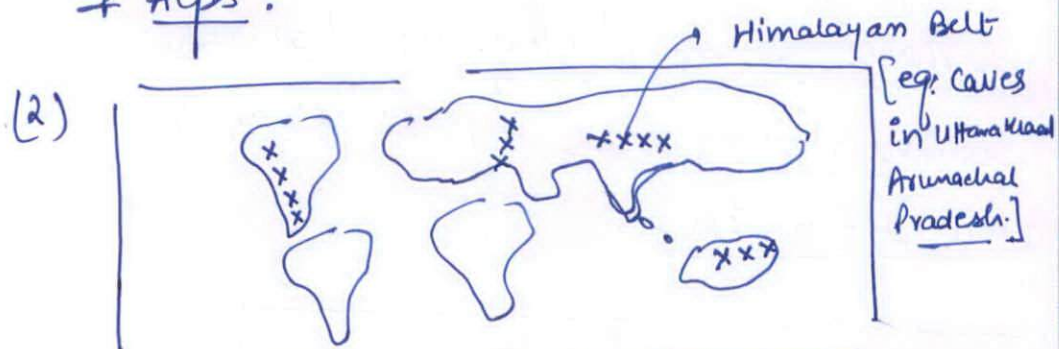
- (1) Presence of sedimentary rocks / soft-rocks that can be easily eroded by water.
- (2) Presence of ground-water : that is the eroding agent.
- (3) Humid condition to maintain moisture



* KARST TOPOGRAPHY features

→ Distribution of Karst Topography :-

- (1) Commonly seen in sedimentary Belt
eg:- Mountainous areas of Himalayas
+ Alps.



Mostly restricted to the northern hemisphere
in the sub-Tropical regions beyond
30°N latitude.

- (3) Common in areas of continent-continent
of ocean-continent convergence.

Karst Topography thus is
responsible for formation of beautiful
caves + its morphology serving as source
of study for geologist + an attraction
for tourism.

2. The extraction of groundwater in India has reached a level that is threatening the water security in the country. Analyse the guidelines issued by the Central Ground Water Authority in this regard. (150 words) 10

भारत में भूमिजल का निष्कर्षण एक ऐसे स्तर पर पहुंच गया है, जो देश में जल सुरक्षा के समक्ष खतरा उत्पन्न कर रहा है। इस संबंध में केंद्रीय भूमि जल प्राधिकरण द्वारा जारी किए गए दिशा-निर्देशों का विश्लेषण कीजिए।

India extract almost 25% of groundwater for activities related to agriculture & industry making it largest groundwater exploiter.

→ Groundwater extraction : A Threat

- (1) Excessive extraction for agriculture
eg:- fertile Belt of Punjab & Haryana.
- (2) Use of water in industries
eg:- coal washing
- (3) Result is drying up of wells → water scarcity
- (4) Increasing contaminants in water
eg:- Presence of radioactive elements in Bihar or arsenic in West-Bengal due to over-exploitation of water. Thus, water left unfit for consumption.

→ Guidelines of CGWA :-

- (1) NOC needed for ground water extraction by housing societies, industries etc.
- (2) No extraction allowed within 500m of wetland area.
- (3) Installation of water-meters needed by those using ground-water.
- (4) Penal provisions for violation of above norms.

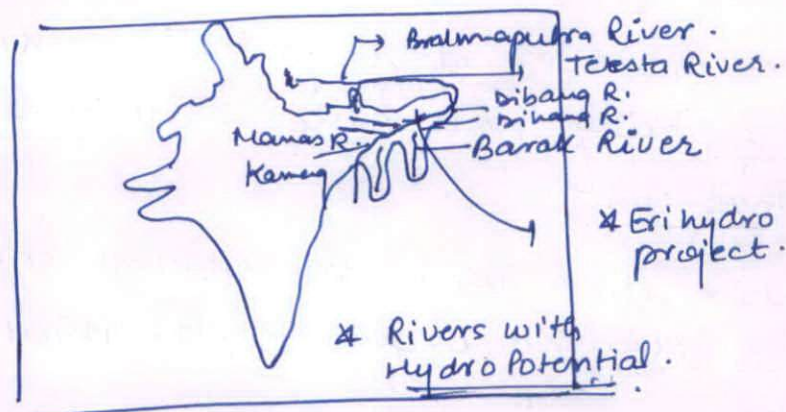
However, certain activities eg: agriculture & main cause of ~~expt~~ extraction is exempted and over-exploiters being only fined and allow to continue extraction are some loopholes in the guidelines.

Maintaining appropriate levels of ground-water by use of techniques like rain-water harvesting can be helpful to address this crisis.

3. Discuss the challenges that lie in harnessing the potential of hydroelectricity in North-East India. (150 words) 10

पूर्वोत्तर भारत में जलविद्युत की संभावना का दोहन करने में आने वाली चुनौतियों की विवेचना कीजिए।

hydroelectric potential of north-eastern India remains extremely high due to presence of fast-flowing rivers like Brahmaputra that can address our energy needs.



→ Challenges in Harnessing potential :-

(1) Rugged topography of North-East & thus, construction activity becomes difficult.

(2) Limited infrastructure and technological capability of India.

Most projects are small-hydro

projects [<25 Kwh.] and large one remains unexplored.

(3) Trans-Boundary issue :- Rivers like Brahmaputra originate in China & no proper water-sharing agreement in this regard.

→ To address the challenges :-

(1) Invest more on large-projects as Hydro-energy being renewable is sustainable in long-run.

(2) collaboration with neighbours eg:-
Projects like Kholongchu with Bhutan
OR
Better collaboration ceasing platform like Mekong-ganga for north-east as well.

(3) Addressing issue of rehabilitation & loss of livelihood post dam construction.

Limited presence of non-renewable sources like coal makes it necessary to tap hydro energy as source of electricity & north-east can be helpful in this regard.

4. In light of various recent studies, discuss how climate change is affecting the jet streams. (150 words) 10

हाल के विभिन्न अध्ययनों के आलोक में, चर्चा कीजिए कि जलवायु परिवर्तन कैसे जेट धाराओं को प्रभावित कर रहा है।

Jet streams refers to those geostrophic winds that blow in upper atmosphere from West to East direction.

→ Effect of climate change on Jet Streams

(1) Jet streams becoming weaker & thus phenomenon of occurrence of western disturbance and winter rainfall in India being impacted.

(2) Climate change causing late withdrawal of westerly jet stream delaying arriving of Indian Monsoon.

(3) Occurrence of Polar Vortex which strengthened causing severe chilling

Waves across the North America can be attributed to climate change.



→ Implications:

- (1) Decrease rainfall in some areas and excessive in the other.
- (2) To strong winter.
- (3) Impact on Indian Monsoon delaying its arrival.

Thus, climate change studies need to be further enhanced to assess greater impact on jet streams & ways to reduce the impact.

5. Highlighting the distribution of coal in India, discuss the issues associated with coal mining. (150 words) 10

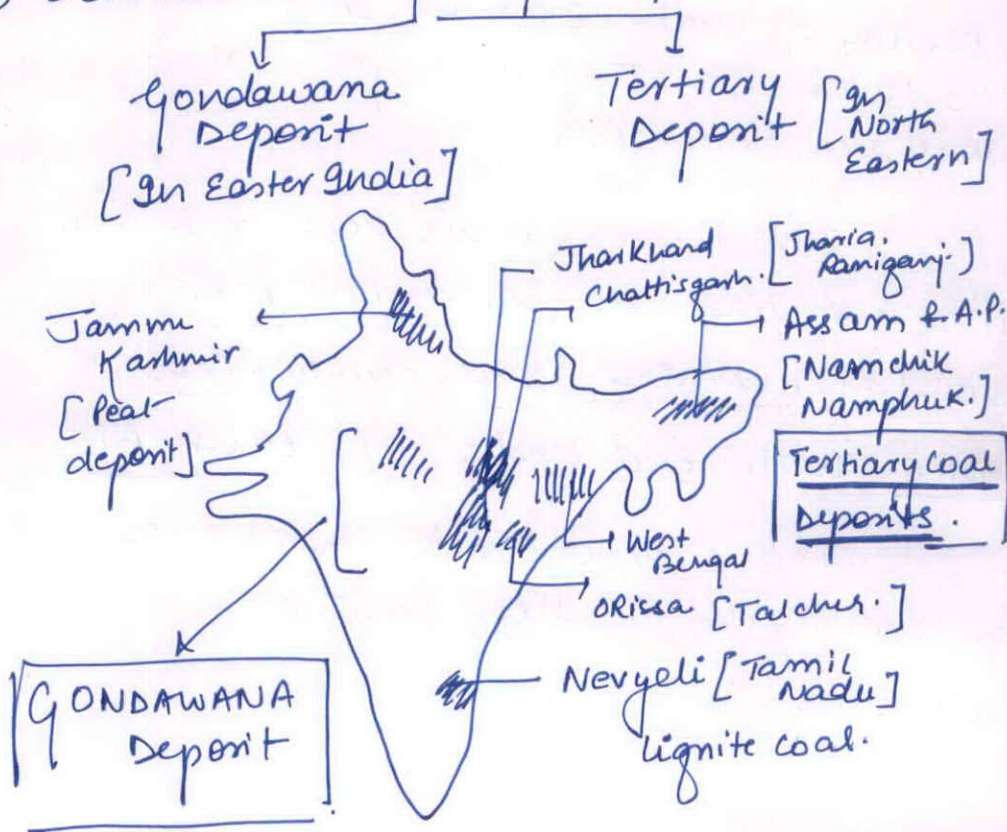
भारत में कोयले के वितरण को रेखांकित करते हुए, कोयला खनन से जुड़े मुद्दों की विवेचना कीजिए।

→ Coal is a non-renewable energy source remains the mainstay of production of electricity in India.

Distribution of coal in India :

- (1) 4 varieties of coal found in India
Bituminous = Maximum.

- (2) Occurrence in 2 major systems



* COAL IN INDIA

→ Issues associated with coal-mining:

- (1) Older techniques: - eg:- manual labour excessively used. → risking life
- (2) Environmental concern: - Pollution due to excessive dust, release of harmful pollutants NO_2 , SO_2 etc.
- (3) Transportation to industries: - costly process + additional legal requirement eg:- washing : adding to the cost.
- (4) Location of coal-mines and issue of Tribal Rights.
- (5) Leasing of coal-mines on contract Basis & separate permits for coal & methane extraction.

Some issues have been resolved with guidelines on cover-transport instead of washing and auctioning mines with one tender for coal & CBM

This is expected to improve the coal recovery & reduce cost of production.

6. Assess the efforts India has taken towards achieving the goals of the Strategic Plan for Biodiversity (2011-2020). (150 words) 10

जैव विविधता के लिए रणनीतिक योजना (2011-2020) के लक्ष्यों को प्राप्त करने की दिशा में भारत द्वारा किए गए प्रयासों का मूल्यांकन कीजिए।

Indian sub continent has 2% of the world biodiversity and 2 major biodiversity hotspots of Indo-Burma & Western Ghats & thus, its biodiversity efforts become significant.

→ Goals of SPB [2011-20] → Indian Effort

(1) Address cause of →
Biodiversity loss [A]

(1) Signing for
Convention on
Biodiversity Act

(2) Reduce Pressure →
[B]

(2) Establishment
of 3 tier mechanism
in form of

(3) Increase Biodiversity →
[C]

National, State
Biodiversity
Authority &

(4) Help in further →
spread [D]

Biodiversity
Management
Committee at
local level.

(5) Capacity Building →
[E]

- (3) All approvals with regard to IPR of Biodiversity for need approval of National Authority → Promoting fair & equitable sharing.
- (4) local Biodiversity Registers are being maintained by Biodiversity Management Committees to find cause & address the issue of BD loss.
- (5) Involvement of local communities
eg:- Singchung Bugun in Arunachal Pradesh
for declaration of Biodiversity
heritage sites to conserve BD.

It is with these consistent efforts that India has been moving a successful pace & has achieved 6/12 targets partially at the end of UN Decade of Biodiversity which is commendable compared to world average.

7. Explain the concept of Ecosystem Restoration. What are the challenges and opportunities associated with this concept? (150 words) 10

पारिस्थितिक तंत्र पुनर्स्थापन की अवधारणा की व्याख्या कीजिए। इस अवधारणा से जुड़ी चुनौतियाँ और अवसर क्या हैं?

Ecosystem restoration refers to the process of reestablishing the already degraded ecosystem or conserving the one at risk of degradation.

→ opportunities ~~for~~ of Ecosystem Restoration

(1) Prevents further degradation: Due to rising issue of climate change, industrialisation etc. pollution & land degradation are seen which can be reduced.

(2) Restore the degraded system:

eg:- AFR 100 x 100 working to restore degraded land in the African continent to prevent land degradation

(3) focuses on use of sustainable practices in line with SDG

eg:- Promotion of marine fisheries instead of animal protein which is more polluting.

(4) Has helped in restoration of mangrove system and corals further protecting against damage by natural hazards.

Challenges ⇒

- (1) Targets made on land restoration 350 mn hectare by 2030 whereas water ecosystem remains unaddressed.
- (2) International collaboration: - need for all countries to set goals like NDC of Paris Agreement with constant reviews.
- (3) Inadequacy of funds to invest in Ecosystem restoration.

Realising the importance of Ecosystem restoration UN has declared 2021-30 as decade on ecosystem restoration for better collaboration across globe in this regard.

8. Give an account of the challenges associated with rapidly increasing biomedical waste in India. Also, state the key features of the Bio-medical Waste Management (Amendment) Rules, 2018. **(150 words) 10**

भारत में तीव्रता से बढ़ रहे जैव-चिकित्सा अपशिष्ट से जुड़ी चुनौतियों का विवरण दीजिए। साथ ही, जैव-चिकित्सा अपशिष्ट प्रबंधन (संशोधन) नियम, 2018 की प्रमुख विशेषताओं का भी उल्लेख कीजिए।

Bio medical waste refers to waste generated by hospitals and other health care facilities that has potential to cause health hazard.

→ Challenges with Biomedical waste management :-

- (1) Increasing amount especially after covid-pandemic due to rising no. of health facilities.
- (2) Issue of pre-treatment, storage and disposal without contaminating the environment.
- (3) Improper training of health care staff on disposal of Biomedical waste resulting in mixing with other solid waste.
- (4) Not following guidelines on how to collect and dispose waste as laid down by WHO & CPCB.

-1/ Features of Biomedical Waste management Rules, 2018

- (1) Phasing out use of chlorinated plastic Bags & gloves.
- (2) Separate waste into 4 categories:-
Yellow, Blue, red, white Bin maintained for it.
- (3) Pre-treatment of waste before transport and common disposal facility within 75 km radius.
- (4) Bar-coding of waste to track for proper disposal.
- (5) Monthly updation by health facility on website regarding waste generated & disposed.
- (6) Training of staff on waste disposal.

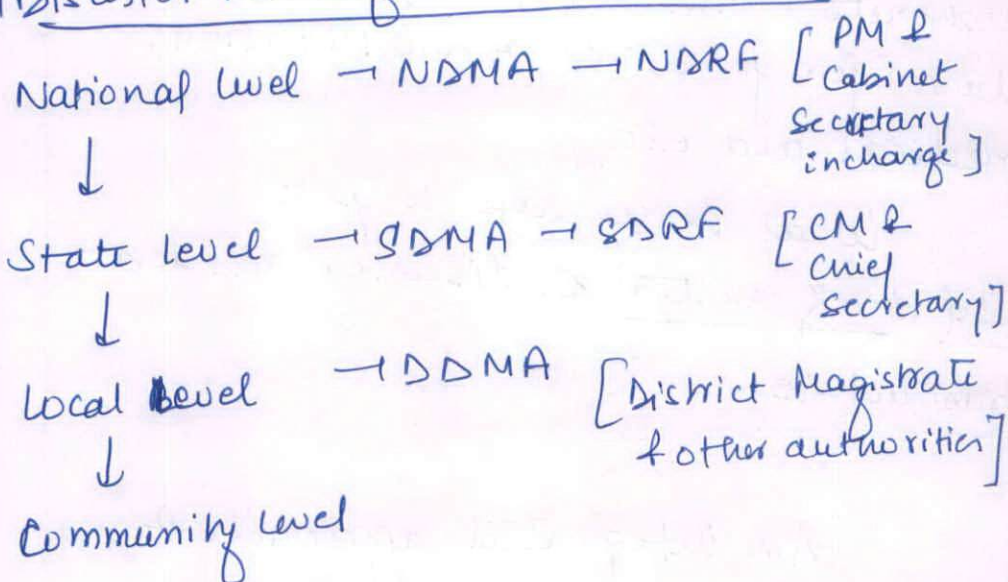
With potential health hazard a proper & safe disposal of Biomedical waste is must for medical staff & people in general.

9. Discuss the role played by local bodies in various phases of disaster management. (150 words) 10

आपदा प्रबंधन के विभिन्न चरणों में स्थानीय निकायों द्वारा निभाई जाने वाली भूमिका पर चर्चा कीजिए।

Disaster Management refers to the process of using techniques & process to mitigate the impact of disaster & protect the critical infrastructure associated with it.

Disaster Management in India



→ Role of local Bodies in DM :-

- (1) local Bodies form a link between community & higher level & can help in providing right.

Training [eg: Mock drills] or arrangement for rehabilitation centre to mitigate risk prior to occurrence of disaster

(2) During disaster:- Local Bodies are familiar with the area. can help in quick assessment & early mitigation response.

(3) After disaster:- To provide right medical aid, collaborate with NGOs & government above for fund & rehabilitation, medical aid etc.

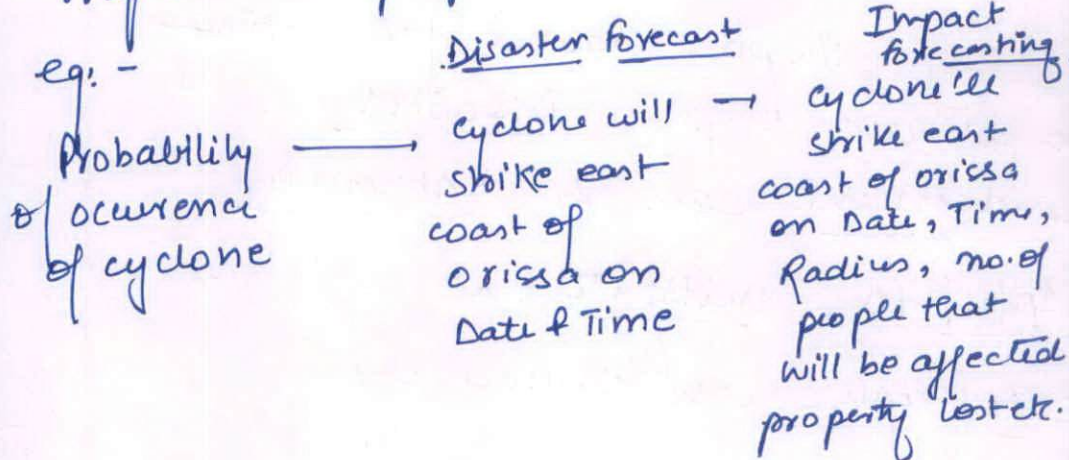
Local Body also help to Build Back Better a disaster resilient infrastructure.

An integrated approach & a planned methodology is a must to minimise disaster loss & local bodies can serve as a crucial link in this regard.

10. What do you understand by impact based forecasting in disaster management? How can such forecasting strengthen the disaster management preparedness? (150 words) 10

आपदा प्रबंधन में प्रभाव आधारित पूर्वानुमान से आप क्या समझते हैं? ऐसा पूर्वानुमान आपदा प्रबंधन की तैयारियों को कैसे मजबूत कर सकता है?

Impact Based forecasting refers to use of ~~ass~~ techniques to assess not only when & where will the disaster strike but also how it will impact the people around.



→ Importance of impact forecasting:

- (1) Prediction of not only the occurrence of disaster but its impact on community of man & animal], property, environment etc.

- (2) Better guide for early evacuation
to ^{min}imise loss.
- (3) Better targeting of affected population
→ quick help can reach.
- (4) can help build - Back Better
by understanding the scale of
destruction brought about by
the disaster.

Impact Based forecasting
as a new step in Disaster
Management can be extremely
helpful to mitigate the
catastrophic loss caused by
disasters.

11. Plate tectonics, which is a unifying theory combining the continental drift and seafloor spreading theories, explains many features and processes that we find on the Earth. Discuss. (250 words) 15

प्लेट विवर्तनिकी, जो महाद्वीपीय प्रवाह और सागरीय तल विस्तार के सिद्धांतों के संयोजन का एक एकीकृत सिद्धांत है, कई अभिलक्षणों और प्रक्रियाओं को स्पष्ट करता है जिन्हें हम पृथ्वी पर पाते हैं। चर्चा कीजिए।

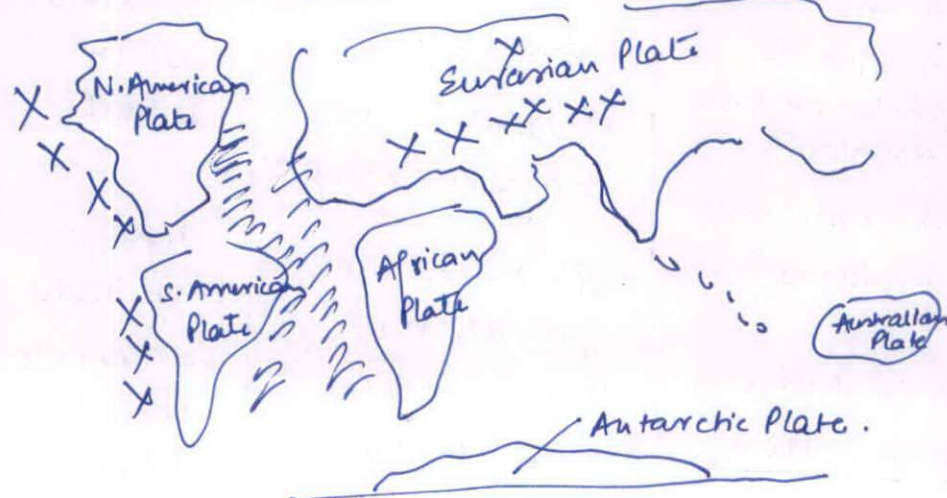
Plate tectonics refers to irregular-shaped slab like plates present on earth crust above the molten magma responsible for occurrence of geophysical phenomenon like earthquake & volcanism.

→ Plate tectonics theory :-

- (1) It says the crust of earth is divided into many ~~major~~ plates :-

7 major Plate

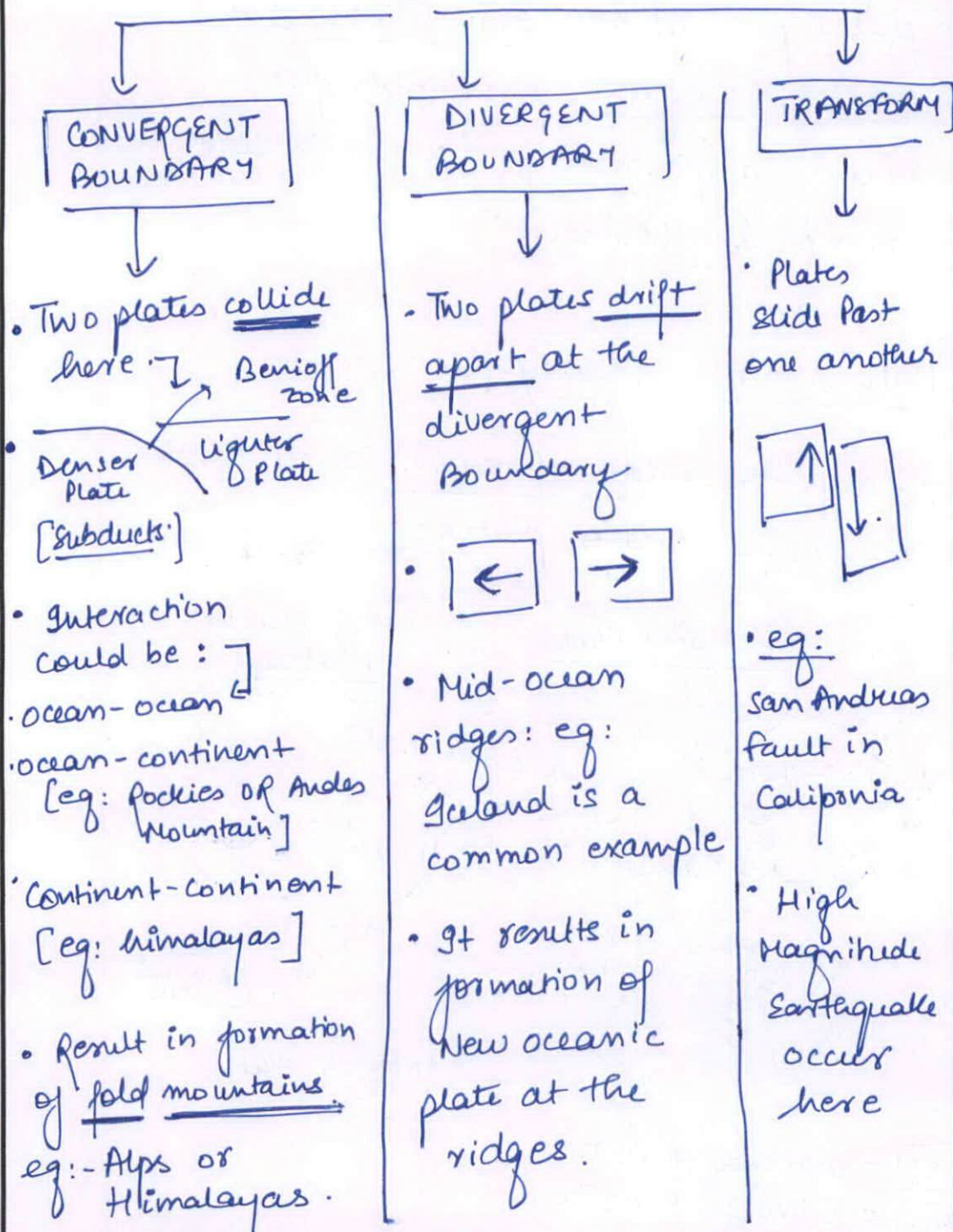
Other Minor Plates



X X = Convergent Plate
/// = Divergent Plate

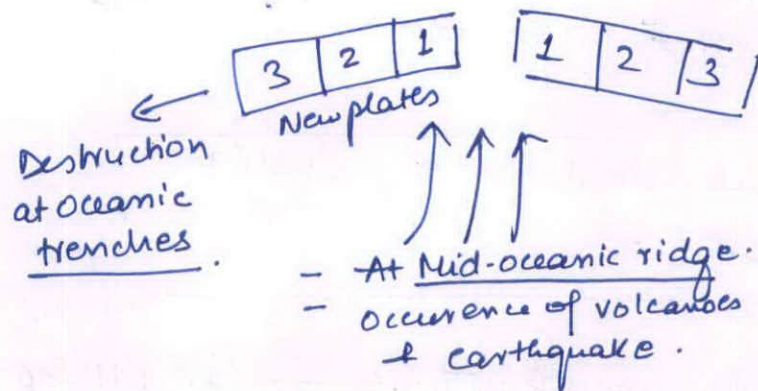
(2) Collision and separation of these plates floating on hot magma result in occurrence of earthquake or volcanoes.

(3) Interaction occurs in 3 ways :-



- High velocity earthquakes are common in such area.
eg: Zone II of Indian Earthquake mapping

Similar concept of oceanic plate formation explained in SEA-FLOOR spreading theory



Thus, plate tectonics has been able to provide a satisfactory explanation on occurrence of features like fold mountains or volcanoes across globe though a continuous research for Better understanding is needed.

12. The pattern of the Indian monsoon has been witnessing changes in recent decades. Examine in the light of recent studies linking this phenomenon to climate change. (250 words) 15

भारतीय मानसून के प्रतिरूप में हाल के दशकों में परिवर्तन देखा गया है। इस परिघटना का, जलवायु परिवर्तन से इसे सम्बद्ध करने वाले हालिया अध्ययनों के आलोक में परीक्षण कीजिए।

Over 2/3rd of Indian population is dependent on the monsoon for its survival and thus, a study of changing trend becomes important.

→ Classical features of Indian Monsoon:

- (1) Starts in month June → last till Sept.
- (2) Intra-regional variation:-
 - South India rain before North
 - South India = longer duration
- (3) Occurs due to ~~river~~ withdrawal of western jet streams and Northward shift of ITCZ.
- (4) It rains in "Burst" :- ie. mostly pours in India.
- (5) Breaks occur in between when rain-carrying depressions are not

very frequent along monsoon trough.

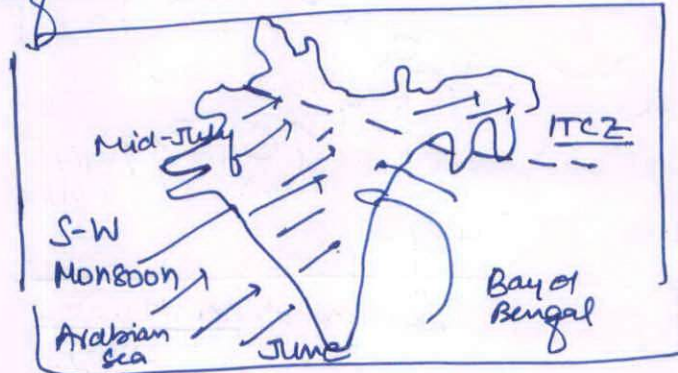
→ changes witnessed in Indian Monsoon :-

(1) late start & early withdrawal

• Start: from July, Withdraws: Aug/Early September

(2) Increasing number of breaks in between causing prolonged dry-spell.

(3) Excessive rain in some areas & dryness in other.



* Indian Monsoon

→ changes :- linkage with climate change

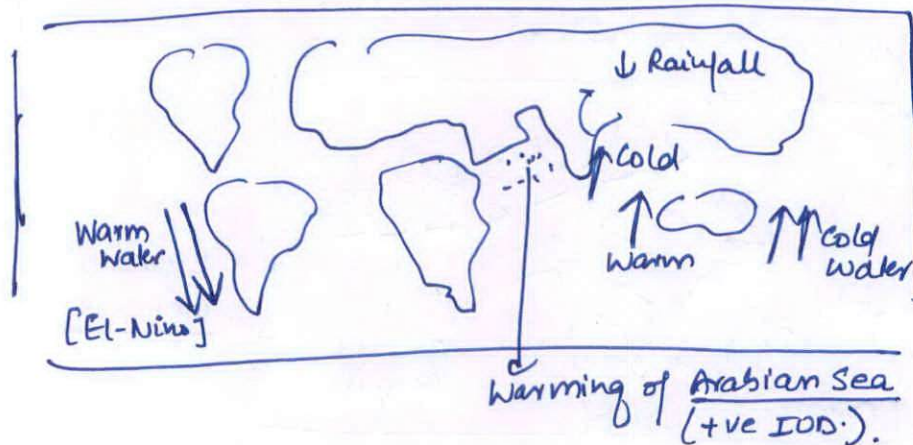
(1) Increasing global warming :-
Temperature increasing in Arabian Sea → occurrence of positive

Indian ocean Dipole → increased

Rain in Western Coast than Eastern Coast

(2) El-Nino [warm water off the coast of Peru] → increasing in frequency → Thus, delayed Monsoon → Increase chances of drought occurrence.

(3) Alteration in ocean-conveyor Belt [Maddon-Jullian oscillation.] thus less depression formed in Bay of Bengal & less rain.



Addressing climate change and adopting sustainable practices such as reduce & reuse will reduce global warming helping to bring Indian Monsoon Back to its original form.

13. Highlight the reasons behind high concentration of plantations in South India. Also, give an account of the significance and challenges that the plantation sector of South India is confronted with. (250 words) 15

दक्षिण भारत में बागानों के उच्च संकेन्द्रण के लिए उत्तरदायी कारणों पर प्रकाश डालिए। साथ ही, दक्षिण भारत के बागान क्षेत्रों के महत्व और उनके समक्ष व्याप्त चुनौतियों का भी विवरण दीजिए।

Plantation industry largely involves cultivation of crops like rubber, tea & coffee for mostly economic purpose rather than subsistence.

→ Reasons for high plantation in South

1.) Climatic condition

eg:- Equatorial / Tropical condition conducive for rubber production

2.) Availability of labour to work in plantation sector eg: in states like Karnataka cultivating coffee.

3.) Presence of well-connected transport network eg:- railways & ports for international

transport.

→ Significance :-

- (1) Economic returns: India's 2nd largest tea producer & 2nd largest sugarcane producer
- (2) Employment opportunities to locals
- (3) Better growth & development due to transport, market growth thus, better development indicators eg:- healthcare & literacy for people.

→ Challenges :-

- (1) Use of older techniques: manual plucking of cocoa Beans,
- (2) Adverse impact of climate:
eg: Excessive rainfall harmful for

coffee

(3) Competition from other countries
eg. Brazil in sugarcane
Indonesia in rubber

(4) Lack of government support
eg. No dedicated export centre &
issues with approval & international
trade.

however, with consistent
efforts of government such issues
could be resolved for better
growth of the sector.

14. What do you mean by industrial inertia? Bring out the factors that contribute to industrial inertia and also give a few examples from the Indian context. (250 words) 15

औद्योगिक जड़त्व से आप क्या समझते हैं? औद्योगिक जड़त्व में योगदान देने वाले कारकों को स्पष्ट कीजिए और साथ ही भारतीय संदर्भ से कुछ उदाहरण भी दीजिए।

Industrial inertia refers to inability of industrial sector [manufacturing] to grow at the same pace as the other sector.

Current growth in manufacturing remains at 14%.

→ factors for industrial inertia:-

(1) Lesser investment eg:-
After 2nd FYP with focus on heavy industries, manufacturing is largely ignored.

(2) competition from other countries
eg. Bangladesh progress in Jute industry.

(3) Too complex laws :-

eg:- laws with land acquisition
& resolving dispute remaining
time taking

With focus on Industrial
Sector via initiatives like Make in
India & Vocal for local. Industrial
sector is likely to boom with
further improvement in EOBB
ranking attracting investment.

15. What are rare earth elements? Highlighting their industrial applications, give an account of their distribution across the world. **(250 words) 15**

दुर्लभ मृदा तत्व क्या हैं? उनके औद्योगिक अनुप्रयोगों को रेखांकित करते हुए, विश्व भर में उनके वितरण का विवरण दीजिए।

16. Identify the causes behind the prevalence of various forms of human-wildlife conflicts in India. Also mention the steps taken by the government to prevent these, with emphasis on the "Landscape Approach to address Human-Elephant Conflicts". (250 words) 15

भारत में मानव-वन्यजीव संघर्षों के विभिन्न रूपों की व्यापकता के लिए उत्तरदायी कारणों की पहचान कीजिए। "मानव-हाथी संघर्षों को दूर करने के लिए भूदृश्य दृष्टिकोण" पर बल देते हुए, इन्हें रोकने के लिए सरकार द्वारा उठाए गए कदमों का भी उल्लेख कीजिए।

Human-wildlife conflict have been increasing in recent times due to increasing encroachment of humans on forest land for development purposes.

→ Causes of human-wildlife conflict ∴

(1) increasing deforestation for construction of industries → loss of habitat for animals → migrate to human settlement for food.

(2) Increased human activity in forest
eg:- passage of roadways between National Park or tourism such as forest camp

(3) Trading of animals eg:- elephant for tusk or tigers for skin.

(4) Lack of stringent measures to address wildlife crimes.

eg:- Illegal trade occurring across borders of China & Nepal.

→ Steps taken to deal with wildlife conflict:-

(1) Legal measures → eg:- Wildlife Protection, 1972 which provides protection to animals listed in Schedule 1 and 2 prohibiting their killing.

(2) Protecting animal habitat → eg:- Declaration of National Parks & Wildlife Sanctuary restricting human activities + Provision to declare Eco-sensitive zone as additional protection.

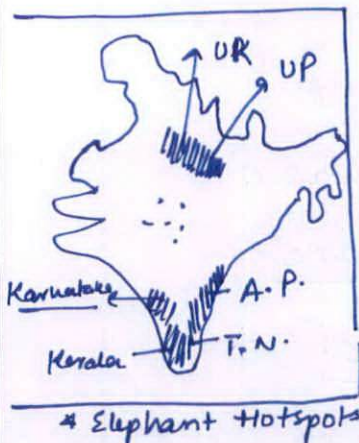
(3) International collaboration → eg:-

UNESCO's Man & Biosphere Programme OR
CITES → dealing with illegal trade.

(4) Raising awareness & use of locals :-
eg:- Declaration of Biodiversity heritage sites
OR community reserves +
construction of Eco-Bridges for animal
passage.

(*) Landscape Approach Human-Elephant
conflict :-

- (1) To identify sites with maximum elephant population. [landscape identification.]
- (2) Declaration of elephant reserve to restrict human activities.



(3) Involvement of locals as custodians of elephants

(4) Coordination with MIKE programme for transboundary movement

Article 48-A of constitution ^{calls of} for
environment protection & preserving Biodiversity
and thus, must be adhered to for Better
co-existence

17. Assess India's vulnerability to flash floods and suggest measures for better resilience to flash floods. In this context, also briefly highlight the significance of recently launched Flash Flood Guidance System (FFGS) operated by the Indian Meteorological Department (IMD). (250 words) 15

आकस्मिक बाढ़ के प्रति भारत की सुभेद्यता का आकलन कीजिए और इसके प्रति बेहतर लचीलेपन के उपायों का सुझाव दीजिए। इस संदर्भ में, हाल ही में आरंभ की गयी तथा भारत मौसम विज्ञान विभाग (IMD) द्वारा संचालित आकस्मिक बाढ़ मार्गदर्शन प्रणाली (FFGS) के महत्व पर भी प्रकाश डालिए।

According to NDMA, 12% of the area in India is prone to flooding with recent times seeing rise in flash floods [eg:- Uttarakhand floods, 2013.]

→ India's vulnerability to flash-floods:

(1) Physical vulnerability:-

Areas eg:- Himalayan Belt or cities with excessive urbanisation are more prone to flash floods.

(2) Climatic vulnerability:

Rising global warming → melting glaciers
+
Excessive &
untimely rainfall

Flooding

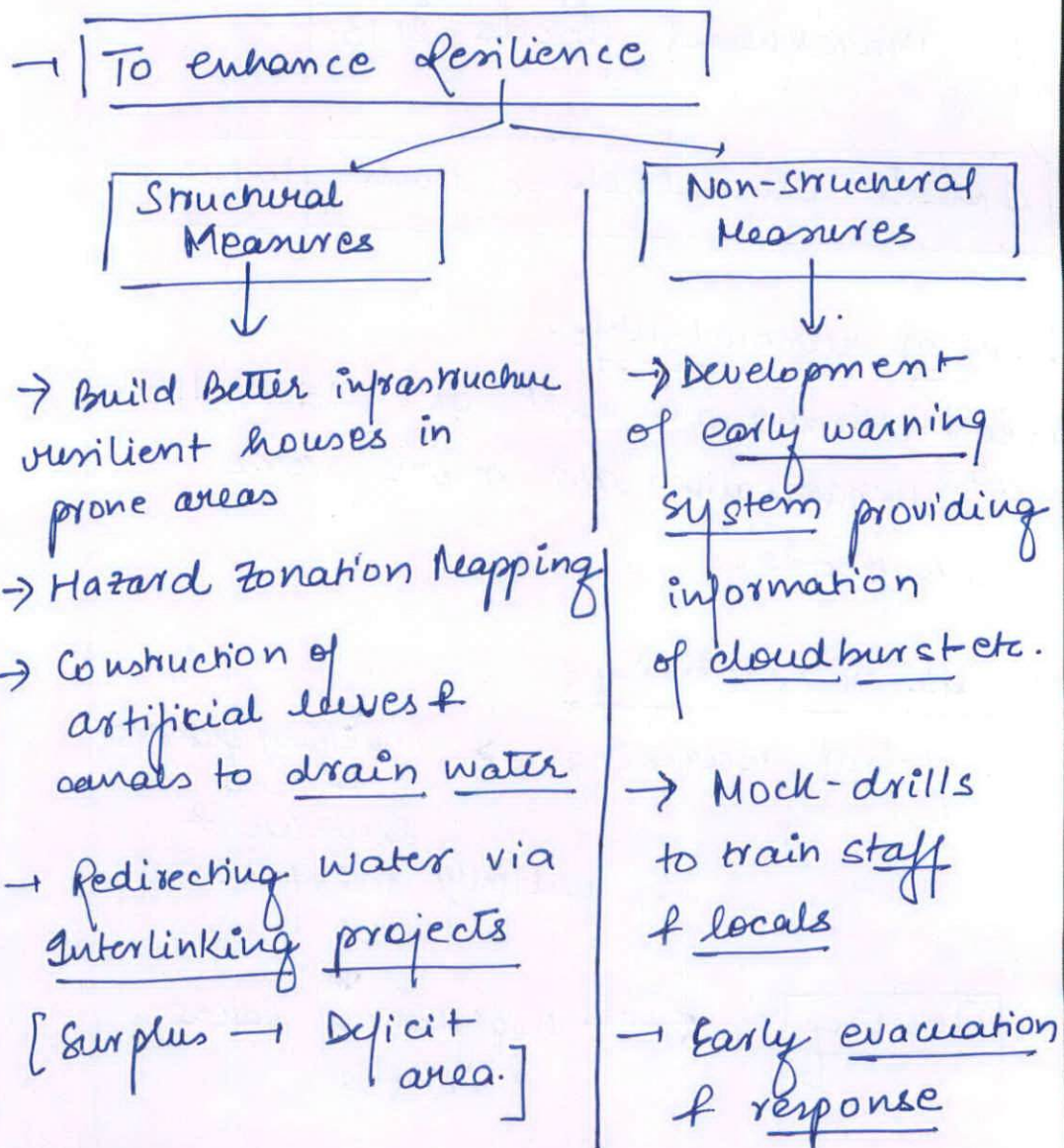
← overflow of lakes
& rivers

(3) Social vulnerability:

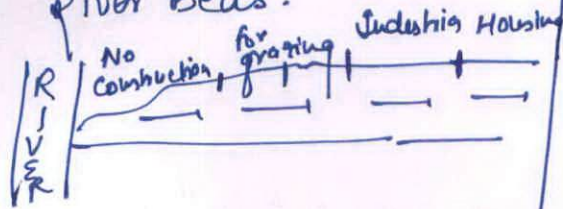
Poor living in slums or Kutcha houses are more likely to suffer, Women & children largely affected

(4) Economic vulnerability:

Lack of funding to manage disaster, provide food & basic necessities & too much reliance on donation



→ Construction of houses away from river beds.



→ Regular desilting of rivers

→ Construction of rehabilitation shelters.

in support of NDRF & SDRF.

→ Use of media to provide right information

→ Coordinate with locals to provide food, clean water etc when supply is cut off.

→ Significance of FFGS:

- (1) Early warning on occurrence can be provided eg: - cloudburst information
- (2) Early evacuation of vulnerable community can be done.
- (3) Better coordination with local to minimise loss.

Flash floods have been creating havoc in recent times & a coordinated response at centre & local level is needed to better manage the disaster.

18. Marine litter is not just an environmental issue but poses a socio-economic challenge as well. Discuss. Also, enumerate the initiatives taken by the global community to reduce marine litter. (250 words) 15

समुद्री कचरा न सिर्फ एक पर्यावरणीय मुद्दा है, अपितु यह एक सामाजिक-आर्थिक चुनौती भी खड़ी करता है। चर्चा कीजिए। साथ ही, समुद्री कचरे को कम करने के लिए वैश्विक समुदाय द्वारा की गई पहलों को भी सूचीबद्ध कीजिए।

The presence of "Great Garbage Patch" in the Pacific Ocean is an indicator of rising levels of marine litter harming both the environment & the people across.

Marine Litter:- an environmental issue

- (1) According to UNEP reports 25.1% of marine waste is plastic waste.

Microplastic is non-biodegradable affecting fishes → causing large scale deaths.

- (2) Bleaching of corals due to dumping of harmful chemicals from ships of industries causing rising sea temperature

- (3) Harmful chemicals & plastic leaving water unfit for marine biodiversity

Eutrophication → causing ↓ BOD → occurrence of Dead Zones is increasing

(4) An overall impact on global climate resulting in glacial melting eg:-

Arctic melting.

Marine Litter:- Socio-economic challenge

(1) Via Biomagnification marine pollutants reaching humans causing illness eg:-

Minamata Disease → Thus, increase healthcare expenditure.

(2) Poor living along coastal areas worst affected by waste of rich:- strengthening idea of inequality.

(3) Increase expenditure to clean marine litter eg:- on oil spills or plastic waste divert funds from other areas. such as healthcare or education.

→ Initiative taken to reduce marine litter

- 1.) London Convention, 1972 OR MARPOL prohibits dumping of waste from ships in sea.
- 2.) Honolulu strategy by UNEP → To clean marine litter.
- 3.) Ban of use of microbeads in cosmetics affecting fisheries.
- 4.) Phasing out multilayered plastic and switching to use of Biodegradable Plastic.
- 5.) Use of Bioremediation techniques to clean up oceans eg:- oilzapper to clean oil spills.

Collaboration ^{at} international level and use of locals to clean marine waste can help curb this problem.
Kerala's Suchitwa Mission could be a good example.

19. India's response to the Covid-19 pandemic has brought to the fore several inadequacies and ambiguities in India's disaster management framework. Discuss. (250 words) 15

कोविड-19 महामारी के प्रति भारत की अनुक्रिया ने भारत के आपदा प्रबंधन ढांचे में व्याप्त अनेक कमियों और अस्पष्टताओं को उजागर किया है। चर्चा कीजिए।

COVID-19 pandemic has been the worst Biological disaster of the recent times affecting social, political & economic activity across the globe.

→ Issues during management of COVID-19 pandemic :-

- (1) Lack of clear-cut laws to deal with Biological disaster.

eg:- Use of Epidemic Diseases Act, 1879 which was a pre-colonial law not updated with current time.

- (2) Unclear provisions on handling Biological disaster eg: NDMA, 2005 has guidelines on DoS & DON'T for earthquake flood etc but lacking for epidemics.

(3) Improper surveillance and case identification
due to lack of techniques on epidemic
management & lack of funds.

(4) Unequipped hospitals → eg: lack of
medical O₂ or adequate Beds.] and
hospital staff → lacking training] to
deal with such cases.

(5) No standard guiding Body once
disaster occurs eg:- Treatment
protocols varied across the country.

(6) lack of R + D for ~~the~~ identification
of viral etiology or vaccine development
Only ICMR handling majority of
work.

(7) Infodemic :- Providing public with
wrong information on
illness, how to handle lockdown
situation etc. creating panic.

(8) funding issues :- NDRF responsible to
deal with majority
disasters.

→ Steps that can be taken to address this :-

- (1) Revamping laws & repeal of old laws
- (2) clear guidelines on surveillance
eg:- Improvement in Integrated Disease Surveillance Programme
- (3) Investment in healthcare infrastructure
Increase current GDP ~~of~~ expenditure to 6%
- (4) focus on R&D for faster vaccine development.

COVID-19 pandemic has affected all sectors & to avert such a crisis in future right approach of disaster management is needed.

20. In light of the increasing Industrial disasters in India, examine the reasons for their occurrence. Discuss the steps that have been taken to deal with industrial disasters. (250 words) 15

भारत में बढ़ती औद्योगिक आपदाओं के आलोक में, उनके घटित होने के कारणों की जांच कीजिए। औद्योगिक आपदाओं से निपटने के लिए उठाए गए कदमों की विवेचना कीजिए।

The leak of styrene gas from LG polymer plant recently has once again brought the issue of industrial disaster to limelight.

Industrial disaster refers to any mishap occurring in an industry due to lack of proper standards or human negligence resulting in loss of life & damage to the environment.

Reasons for occurrence of Industrial disaster

- 1) Not following proper standards with regard to use & storage of hazardous chemicals in industries.
- 2) Inherent nature of industry
eg:- Presence of machines
Complicated wiring system etc.
increasing the risk.

3) Human negligence occurring due to various reasons eg:- ~~not~~ over working by labours, lack of training & skill on operation of machines etc.

4) lack of clear guidelines & requisite knowledge of DOS & DO NOTs during disaster.

Steps taken to Deal with Industrial Disasters

(1) Legal Provisions :-

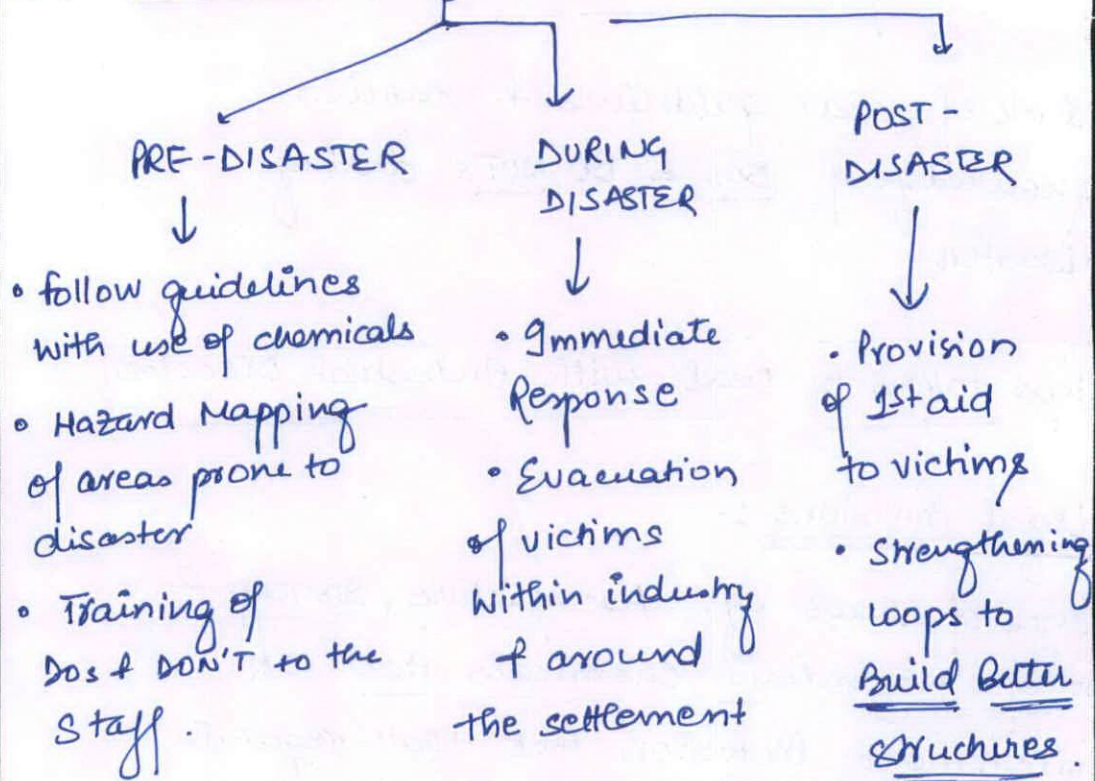
① Presence of laws eg:- Manufacture, Storage & use of Hazardous chemicals Act OR Environment Protection Act that regulate mechanism with regard to use of equipments & chemicals in industry.

② Doctrine of Absolute liability after M.C. Mehta case wherein industry owes absolute, non-delegable duty for occurrence of disaster

③ Public Liability Act; 1991 :- asking

industries to provide compensation in case of a disaster.

(2) Disaster Management Skills:



With growth of manufacturing sector occurrence of disaster is likely situation & thus, careful planning & immediate response can help minimise the loss.