GSSCORE

An Institute for Civil Services

IAS TOPPER'S

TEST COPY

RUPAL SRIVASTAVA

AIR - 113

(CSE 2022)

GEOGRAPHY OPTIONAL

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34377 - (1195)

GS SCORE

Geography Test Series 2022

TEST - 08

145

GEOGRAPHY

Time Allowed: 3 Hrs. *Max. Marks: 250*

Instructions to Candidate

- Please read each of the following instructions carefully before attempting questions.
- There are EIGHT questions divided into TWO SECTIONS and printed in ENGLISH.
- The candidate has to attempt FIVE questions in all.
- Question Nos. 1 and 5 are compulsory and out of the remaining, THREE are to be attempted by choosing at least ONE question from each Section.
- The number of marks carried by a question/part is indicated against it.
- 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 a medium other than the authorized one.
- Word limit in questions, wherever specified, should be adhered to.
- Illustrate your answers with suitable sketches/maps and diagrams, wherever considered necessary. These shall be drawn in the space provided for answering the question itself.
- Attempts of questions shall be counted in sequential order. Unless struck off, the attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

Name RUPAL SRIVASTAVA

Mobile No. _____

Date _____

Signature Rupal

1. *Invigilator's Signature* _____

2. *Invigilator's Signature* _____

REMARKS

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* Your examples to justify your arguments are good, keep it up.
* try to give diagrams even in 10 markers Question
* All the Best

Roll No. 34377

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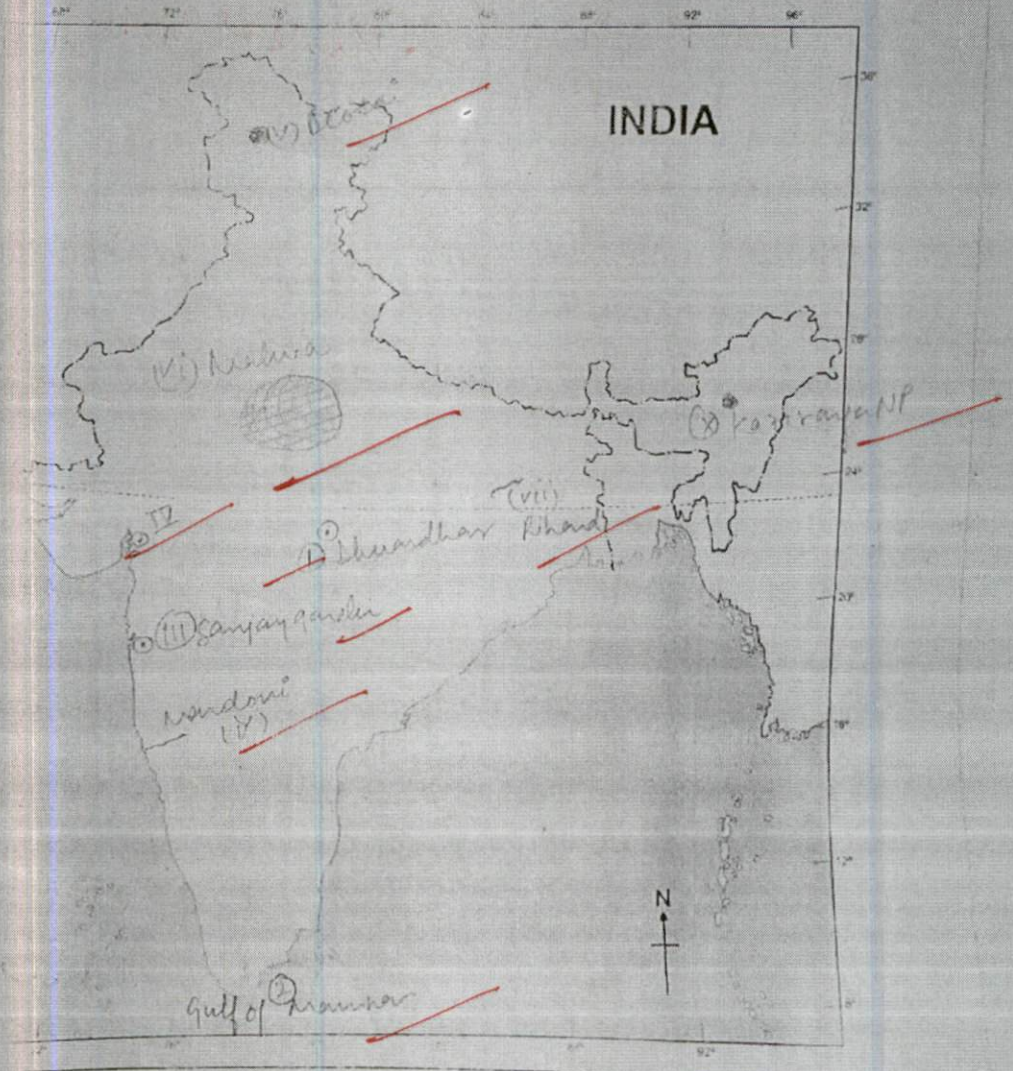
Section - A

1. (a) Locate these map entries on the map and write about 50 words: (20 Marks)

i) Dhuandhar
ii) Gulf of Mannar
iii) Sanjay Gandhi National Park
iv) Bharuch
v) Deosai Plains
vi) Malwa Plateau
vii) Rihand River
viii) Sonpar Hills
ix) Mandovi River
x) Kaziranga NP



Remarks

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(i) Dhuadhar falls
- located on the Narmada river in the Jabalpur district
- Sedimentary Vindhyan rocks and marble mines
- tourism site at 'Bhedaghat'

(ii) Gulf of Mannar → Zone of living for dungong in "sea cow" which are endangered
- between India and Srilanka.
- critical coral ecosystem of India
- also a UNESCO World Heritage Site of India
- has sand bar islands - 'Pambans'

(iii) Sanjay Gandhi National Park
- Maharashtra (near Thane Mumbai)
- located in Sayahadris with tropical evergreen forest
- species like endemic macaque found here
- also home to Royal Bengal Tiger

(iv) Bharuch
→ located near the Gulf of Khambat in Gujarat

Remarks

- petroleum oil refinery situated here. (Kaliari)
- area of marine transgression during the tertiary

(v) Deosai Plains
- part of the ~~Ladakh~~ Jammu and Kashmir union territory
→ presently in Gilgit Baltistan region of PoK
→ Fertile plains due to Jhelum river useful for Saffron (Karewas soil) cultivation

(vi) Malwa plateau
- part of peninsular triple tectonic division
- made up of basaltic rocks from the fissure type eruption when moved over Reunion hotspot
- Black soil - cotton cultivation
- covers area of MP, Maharastra, Gujarat

(vii) Rihand ~~Dam~~ River
- on ~~Ritam~~ Tributary of Son River
- rises in Chattisgarh
- has India's largest Dam - Rihand Dam.
- HEP for the Renukoot Hindalco plant

Remarks

(viii) Lonpal hills
- local hills but important for the tourism economy.

(ix) Mandovi River - Parallel drainage system/pattern
- major water source for goa
- short swift west flowing river in Goa
- forms an estuary at the mouth.
- very close to the Dudhsagar Falls

(x) Kaziranga NP
- in Assam, south bank of Brahmaputra
- famous for one horned Rhino (largest population)
- important UNESCO world heritage site

+write more on type of climate seen in these regions.

Remarks

1. (b) Write a short note on the emerging geo-political scenario of Indian Ocean Region. (150 Words)

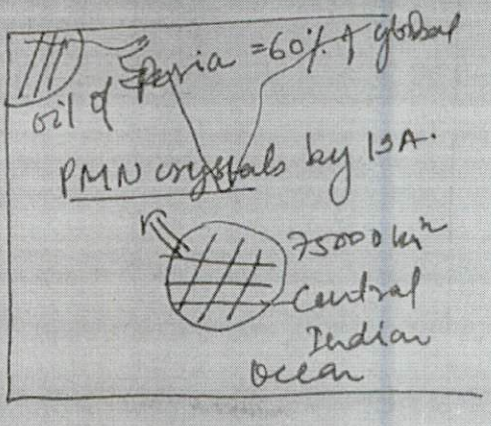
Indian Ocean comprises of portion between Africa, the Arabian Peninsula, India, Myanmar upto Indonesia.

It is the 3rd largest ocean in the world and has been historically an important trade route discovered by Vasco Da Gama.

Recent geopolitical significance of Indian Ocean

(1) According to Nicolas Spikeman, falls under the 'Rimland' zone. thus crucial to determine global power balance.

(2) Resource rich area
(i) - 15% of global fishing,
(ii) - Presence of 2nd largest polymetallic nodules for semiconductor
(iii) Energy reserves in the Persian gulf region.



(3) Tackling the Rise of china in its policy

(5)

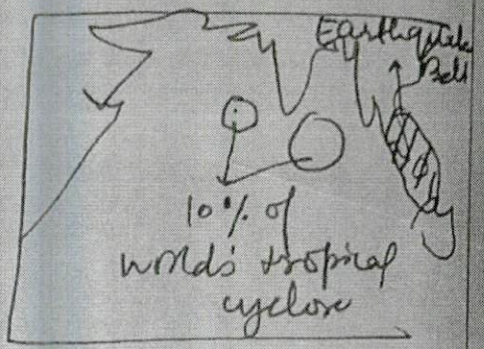
Remarks
* Also mention a brief on rising problem of piracy in gulf region, rise of threat of nuclear proliferation in the region from pakistan.

* Also mention the threat of "New great-game", rising in Afghanistan region & threat of spillover of food crisis from "horn of Africa" region.

of 'String of Pearls' and debt trap diplomacy

(4) Rise of QUAD to ensure the freedom of navigation in Indian Ocean Region

(5) Also, highly vulnerable to climate change due to cyclone and monsoon variability



The littoral states of Indian Ocean have one of the youngest population of the world. Thus this demographic dividend has further attracted.

Remarks

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1. (c) 'Food security is impacted by climate change in India'. Elaborate this statement with example. (150 Words)

According to FAO Report on State of Food Security and Nutrition, India is expected to see a 12-14% decline in productivity by 2100 due to climate change.

Also being among the top 10 vulnerable countries to climate change due to its tropical location food security further threatened (CEEW Report 2020)

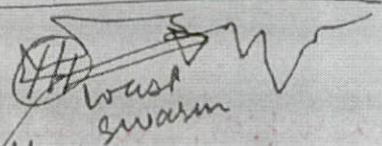
Impact of Climate change on food security

(1) Reduced crop yields due to repeated crop failure due to flood and drought

Eg: Wheat productivity declined by 3.8% in last 2 decades chair of Agriculture.

(2) Increased incidence of pest attacks leading to damage.

Eg: 2020 - 6 lakh ha lost due to attack



(3) Increase in the cost of food due to hidden environmental and health

Remarks

costs. FAO Report projects $1.2 trn/annum hidden cost of food due to environmental factors

(4) Increase in inequities - especially women and children as worst affected by climate change. Eg: ~43% of climate refugees are women and children. (UNIOM Report)

(5) Indian agriculture especially vulnerable due to limited diversification and low irrigation (48%)

Presently 180 mn people undernourished in India; and extra 35mn can be added due to climate change.

Need to switch to climate smart and diversified agriculture to achieve SDG Zero hunger

* Also mention some instances of not only climate change, but also other causes have led to Food insecurity ie socio-economic problems ie poverty, ethnic conflicts etc..

Remarks

13

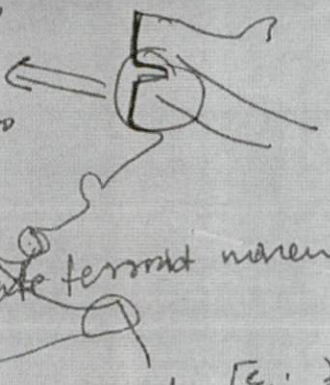
1. (d) Write about the Role of physiography in cross border terrorism. (150 Words)

Physiography in terms of the terrain, relief and climate is an important determinant in cross border terrorism in India.

5

Role of Physiography on the Western boundary terrorism

(1) Himalayan Layer
- ① Steep gorges and canyons = leading to hideouts
- ② Deep valleys of Indus, Jhelum etc facilitate terrorist movement



③ Coastal boundary also easy access to terrorist routes [Ex: 9/11 entry via boats]

Also seasonal snowfall in Ladakh-Kashmir Himalayas, leads to infiltration of terrorists.

good, can show some trends like Infiltration is at max in summer during December - January time period.

Cross border terrorism in North east Boundary and Eastern Sector

Remarks

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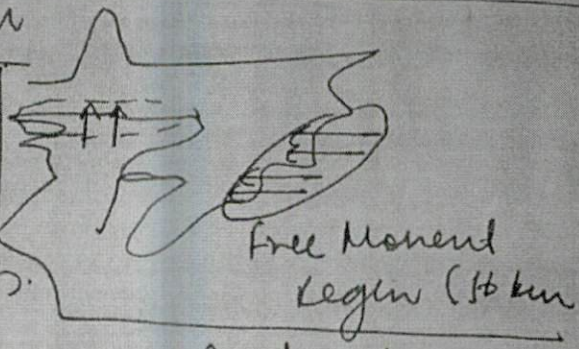
① Indo-Myanmar border

- dense vegetation of tropical evergreen forest facilitate movement of terrorists.
- Difficult terrain, thus low infrastructure creation (the last Assam Rifle Post = 15km away.



② Indo Bangladesh - Porous border and dense mangrove and hilly areas of ~~Assam~~ (Barjeely) Meghalaya etc.

Cross border terrorism needs to be tackled by mindful surveillance of borders via drones etc.

* Also add how undemarcated physiography i.e river has led to infiltration from Bangladesh border into India.
* Add role of passes, marshy areas i.e Sir Creek areas being some areas which inhibits cross border terrorism.

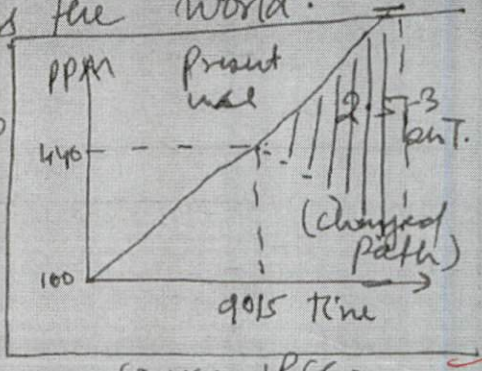
Remarks

3. (a) Discuss the present need to control Carbon emission. Illustrate key mechanism controlling carbon emission. (250 Words)

12

The concentration of atmospheric CO_2 has increased from 120 ppm to 440 ppm since 1850s. this has led to a 1-1.2°c rise in temperature during this period.

Furthur it has impacted various climatic phenomenon across the world. This highlights the need to control Carbon emissions



source: IPCC.

Need to control carbon emission

(1) Increase in global temperature can go upto 2-5°c by 2100 at the current rate of emission (IPCC – 6th AR 2021)

(2) this can lead to extreme climatic events like heatwaves, floods and droughts by impacting heat distribution.

Remarks

+ Add role of carbon emission in posing threat for ocean ecosystem ie Increasing acidification, disturbing carbon biogeochemical cycle etc...

* Add role of Increased carbon emission posing some threats of

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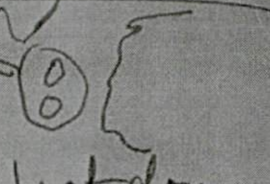
Eg: Uk heatwaves 2022: 1st time temperature reach upto 39.8°c
In 2017 - max = 37.2°C | Urban heat dome effect



③ Excess carbon emission can lead to decline in the crop productivity.

Eg: FAO predicts 12-14% decline in productivity due to changes in rate of photosynthesis

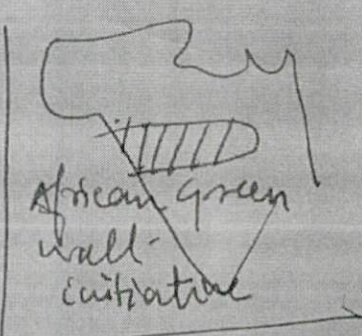
good example

④ The rapidly increasing population, expected to touch 8.5bn by 2030 and 10 bn by 2050 can increase the carbon footprint. Hence need to shift to emission control.

don't use such shortforms

[Key mechanism to control C emission]

① Increasing green cover under Afforestation and Forest landscape Restoration Approach by 350mha by 2030 (Bonn challenge



eg:

(2) Switching to cleaner mobility solutions like eV and hydrogen fuel as they account for 27% of C emissions
Eg: India's eV program 30% eV by 2030

(3) Clean industrial technology like use of scrubbers, oxycombustion etc

(4) Removal of already released carbon by CCUS (carbon capture and storage) through storage in underground rocks etc. → give some successful examples, as seen in Norway.

(5) Shift to carbon neutral crops like Jute etc. which maintain a balance

(6) Shift to renewable energy solutions and away from coal based thermal power plants.
Eg: India's push for solar energy grid under International Solar Alliance-1TW solar power.

(7) Controlling methane emission (CH_4) from agriculture by anti-methanogenic feed-
Eg: 'Harit Dhara' by CSIR.

Remarks

3.

Increasing CO_2 concentration is also leading to 'ocean acidification' which can threaten the critical coral ecosystem. (Eg: 'the blob' - 70% loss of Hawaiin Corals). Thus, there is an urgent need to cut down carbon emission.

India's 'Panchamrit' at COP 26 aims to reduce 2.5 - 3 bnT carbon by 2030.

3. (b) India's Boundary dispute have its origin in colonial times, geograp... and Socio cultural aspects. Elucidate. (s)

India shares a 15,800 km long land boundary and 7500 km long coastal boundary. though largely peaceful; true have been disputes due to various factors.

① Disputes due to colonial factors

b(i) Indo Pak to the demarcation of Radcliff line by Boundary commission disputed in the Gilgit Baltistan region

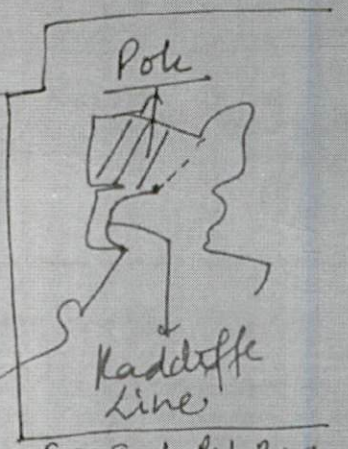


Fig: Indo Pak Border

(ii) Indo china dispute

Western Sector
- conflicting interpretation of McDonald and Johnson line

Johnson Line - Aksaichin in India

McDonald Line - Aksai Chin a China

Eastern Sector - conflict over the McMohan Line - as China consider Arunchal parts as itself (90000 km² area)

Remarks * Add role of conflict b/w Indo-nepal & Indo-myanmar as reason for due to colonial role.

write recent incidents of dispute over kalapani b/w India & Nepal & also demarcation of border b/w Indo-bangla desh.

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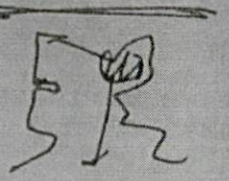
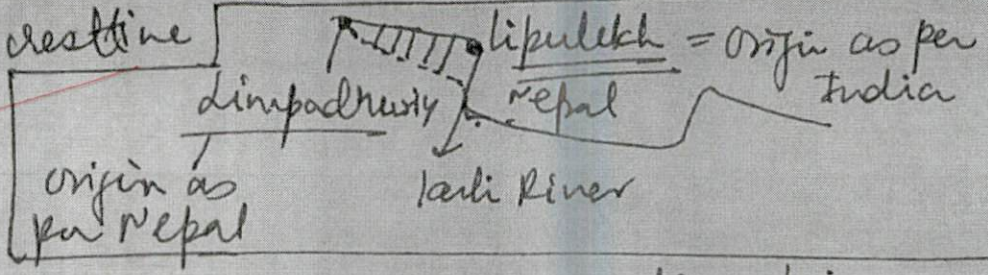
(2) Geographical difficulties

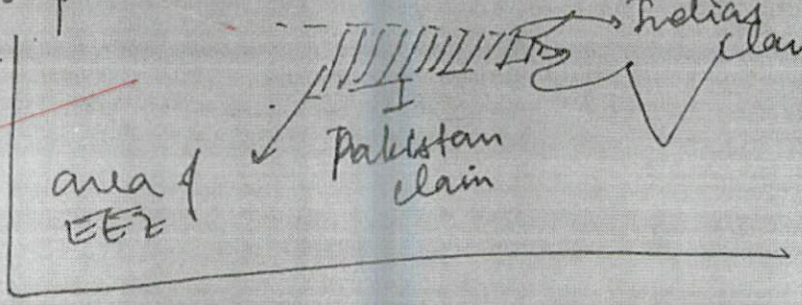
(a) Indo China – principle of 'frontiers' of Radio Christoff still applicable in the Siachen area – as no LoC is seen.



(b) Indo Nepal – disputes due to rivers thalweg and crestline



(c) Sir Creek dispute due to median line demarcation



(3) Socio cultural Aspects

(a) Since most boundaries are superimposed and act as cultural divides, hence often disputes arise.

Eg: Indo-Myanmar insurgency- demand for 'Nagalim', 'Tipraland', (Greater Nagas, Greater Tripura) } good examples

based on ethnicity

② Also porous border with Free Movement regime (16 km) leads to conflicts and insurgency.

③ separatism in Kashmir due to close ethnic connect

8.5

It is necessary to resolve Boundary disputes. Recent skirmishes by China in the Siachen are a violation of India's territorial sovereignity.

- similarly add Role of tamil issue in Srilanka, due to cross border sharing of similar culture, Indo-Nepal maitri issues etc...

Remarks

(c) The concept of 'Gross environmental product' that includes 'Ecosystem services' in the ambit of its calculation is gaining traction. Discuss its significance for natural resource rich regions in India. (200 Words) (15)

Gross environmental product (GEP) refers to the sum total of all the environmental goods and services produced and used in development.

Uttakhand became the 1st state to use this (GEP) in accounting.

Gross Environment Product	Green GDP
(1) It is cumulative / additive impact of environment utilisation	(1) It only subtracts the environment cost from GDP
(2) Better captures the extent of footprint	(2) Can have redundancies

It is based on the idea of payment for ecosystem services as adopted by nations like South Korea etc. Its significance for natural resource rich regions in India can be seen as follows—

MARKS

* Define what is ecosystem services & various services given by ecosystem & their provisioning services.

① Estimating the extent of resource utilization and the rate of use. This plan for strategies to conserve resources.

Eg: Coal Reserves - in WestBengal, Jharkhand, expected to last till 2070

Good example

② Proper accounting of ecosystem services can help in proper GDP and GEP estimations thus planning the macroeconomic indicators of inflation (due to overuse), fiscal deficit etc.

③ The amount earned under GEP can be used for local area development
Eg: Tribal areas of Chattisgarh, Odisha can have better connectivity under Bharatmala Program.

④ The impact of 'Ecosystem services' can help to understand the ecological footprints impact on human development indicators

Eg: UNHDI 2021 → included
PHDI = Planetary adjusted HDI
to assess adverse effect of environment on HDI

Good intervening of current events.

Remarks

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(5) Planning for resource rich regions based on sustainable watershed approach for holistic development -

9

the environmental accounting can also help in levying eco tax and developing c. market mechanism like that in China (carbon border stamp)

marks

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Section - B

(5) Write a short note on various inter-state river conflicts of india. (150

Inter-state river conflicts are an outcome of the superimposed cultural boundary of the states according to Sarkaria Comitee.

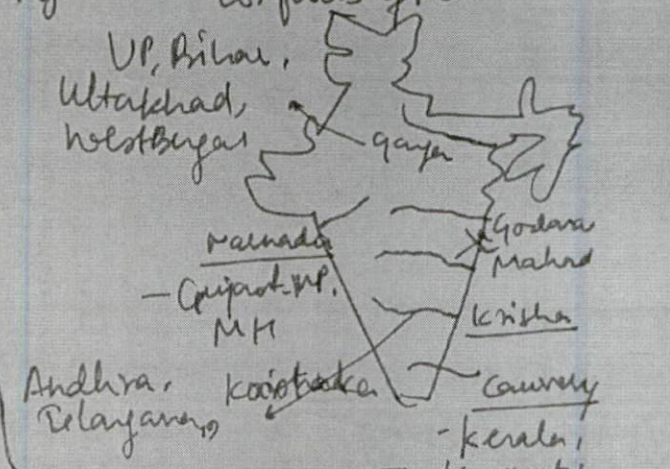
5

Reasons for conflicts

① State boundaries created on the basis of linguistic criteria (Fazl Ali Commission). thus cut across rivers.

Eg: disputes of Cauvery, ~~Periyar~~ river

Fig: some conflicts of river



② Issue over dam regulations on the rivers

Eg: Mullaperiyar dam in karnataka but rivers flows through kerala.

③ Conflicts of water storage and release leading to upstream and downstream flooding

Eg: Sardar sarovar Dam 2020 - full storage led to submergence of areas of MP - Katni, Jabalpur etc

Marks

In reasons for rising conflicts you could have written on role of
* demography
* climate change
* Agriculture cropping patterns & others.

④ Diversion of water for agricultural and drinking water purpose

Eg: Bangalore line dispute over Cauvery tributary

⑤ Lack of official data on rivers and delays in litigation

Eg: Cauvery dispute award came 20 years later

Solution

① According to Sarkaria and Punchi committee, inter state forum to resolve disputes.

② Recent amendment to Inter state water dispute bill which mandates setting up of tribunal within 3 months if mediation fails.

Care must be taken to resolve disputes by mediation as rivers are lifeline of all the states.

* Also add some of recommendations such as bringing water under concurrent list-, as mentioned due to in mihir Shah report.

5. (b) The extensive geographical spread of the country is conducive to the regional diversities in social milieu. Explain. (150 w)

The geographical spread of India from Kashmir to Kanyakumari and Rajasthan to Arunachal has created regional diversities in social milieu.

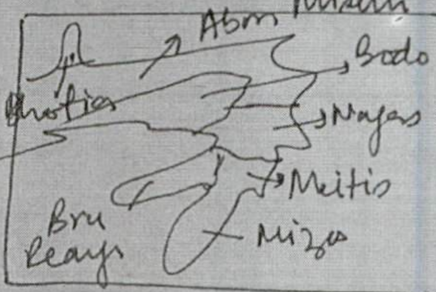
this has led to small pockets of India in large India.

① Regional diversity of North East

↳ ① Rich tribal diversity (20% of tribal population Xaxa Report)

② culture → Jhum farming, silk making (Assam-Muga)

③ High levels of literacy due to missionary

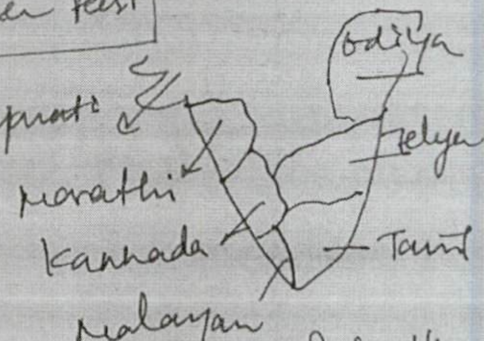


② Diversity in the southern part

↳ ① Mainly 'Dravidian' population

② Some PVTGs like Todas, Irulas exist

③ Plantation economy + service sector hubs Eg: Bengalore



Eg: language of South

Remarks

* mention how geographical relief have helped in fostering this diversity ie role of vindhyan mountain system, North east mountains system ie garo, Jaintia & Khasi hills in the region.

8.5

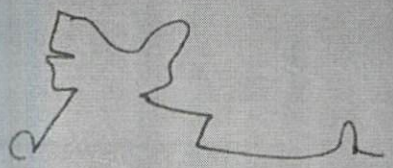
③ Western:
Gujarat + Rajasthan

① Desert tourism
② Dryland areas
③ Tribals - generally empowered eg: Meena, Bhils.

④ Northern Belt
→ Transhumance activity

- low levels of development due to difficult reach

⑤ Social diversity in North & central



✓ largest tribal belt
- Gonds, Khonds, Abujh Maria

MP + Jharkhand + Chattisgarh

✓ LWE areas - Emergency problem
✓ Low levels of development but rich minerals (80% of Fe ore)

The development should aim to connect all these regions to achieve horizontal unity and integrate the economy.

5. ... do you understand by Environmental Impact Assessment ... ions in India?

Environmental Impact Assessment refers to analysing the ecological footprint of the developmental projects and their effect on socio-economic indicators.

It was introduced under the Environment Protection Act, 1986 based on US-EIA model.

EIA process involves

Screening → Scoping → Public hearing → Appraisal → Monitoring

- Screening: Cat A and B1 projects. Eg: Fe and Steel, construction, power plant — need EIA
- Scoping: defining terms of reference
- Public hearing: organized by SPCB to empower citizens
- Appraisal: by SEAC (State Appraisal) committee and EAC at centre

Eg: Vedanta Niyamgiri Plant
↳ SC upheld Gram Sabhas' objection to the EIA process and hence Vedanta was not permitted for mining Bauxite

Limitation in India

(1) Recent Amendments to the EIA Rules have reduced the need for several projects
Eg: Hydro power, nuclear power etc

(2) Reduced time for public hearing from 45 → 30 days

(3) Low awareness in citizens about their rights

(4) Also does not take into account the tribal livelihood on forests (Xaxa report. 80% of tribes affected due to faulty EIA)

There is a need to introduce strong checks in the EIA process through an independent regulator.

51

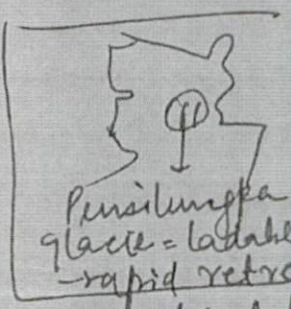
Write a short note on Impact of Global warming in India.

According to MoES 'Climate Change Assessment of Indian Report', India will be among the top 10 worst affected countries due to global warming. (5)

Impact

Expected increase in temperature of India by 1.7°C can lead to various disruptions

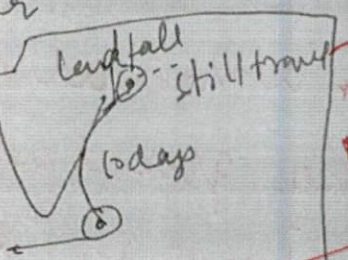
① Rapid melting of Hindukush Himalayan glacier- WR Report suggest 1/3 of glacier to be lost by 2600



good report usage

② Increase in extremes of weather and disasters

Case: Cyclone Fani | March April
- unusual time
- 10 days on water
- rapid intensification to 220 kmph



mention increased Number of cyclones in Arabian seas.

③ Increase in the sea level by 3.6 mm/yr can lead to coastal submergence

Eg: Sundarbans - expected to submerge 60% by 2100 due to 3.2 mm/year increase

(4) Changes in ocean chemistry and acidification

Eg: Damage to corals in Lakshwadeep. ~ 56% damage in last decade

Source: UNEP Report

(5) Decline in agricultural productivity pushing 35 mn people to hunger by 2100 (FAO Report)

To overcome this, India's National Action Plan for climate change (NAPCC) and its 8 missions can help.

* write about migration pattern impacted by global warming, Outbreak of pandemics, change in settlement patterns etc.

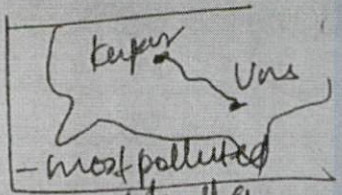
some of the innovative practices that can be adopted for wa
ous important Indian cities.

India generates 53 MT of solid waste per annum. With the increase in population, it is estimated to reach upto 150 MT by 2050.

6

Some innovative solution for waste management

① Adopting 'zero discharge' system in the liquid waste in cities like Kanpur, Varanasi etc



② Use of Bio remediation by agents like Azotobacter to treat the toxic wastes.

③ Setting up e-Waste processing clinics for extraction of left over metals

also mention a brief on pyrolysis methods etc...

Eg: Bhopal - 1st eWaste clinic

④ Utilization of wastes (Plastic) for road construction

Eg: Jamshedpur - 'Tata Steel Road' made of 100% plastic

⑤ Switch to biodegradable materials like jute bag to substitute single use plastics.
Eg: SHG Sonchiraiya - women made jute bags

⑥ Electric Arc and "Pyrasol" projects to burn waste at 500 - 1000°c - creating slag (construction waste)

⑦ for Agricultural waste - local vermi compost and use of microbial PUSA decomposer can help. (Eg: Punjab - Stubble issue)

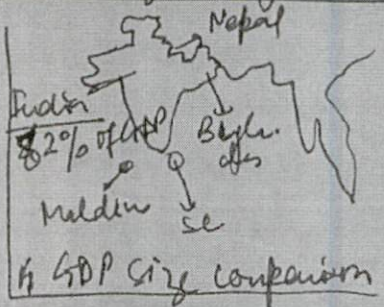
India needs to shift to a circular economy to tackle this menace

6. (a) To what extent organisations like QUAD helps in realising India's interests in Indo-Pacific Ocean region? Discuss.

The idea of QUAD was 1st mooted by the ex-Japanese PM Shinzo Abe. It was an informal group of 4 nations - India, Japan, US and Australia to tackle the rise of China's hegemony in the India-Pacific Region

India's potential in the Indo-Pacific Region

(1) One of the fastest growing economy in the neighbourhood of South Asia



good pictorial presentation

(2) Utilize the rich resources of the Indian Ocean Eg: 2nd largest Poly Metallic nodules in world after US-Clarion depperton fractures

(3) Emerge as the regional power pole and ensure overall development.

The Indian Ocean Region is a part of the 'Rimland' of Nicolas Spykeman and thus is the future of global politics in the

good interlinking of concepts.

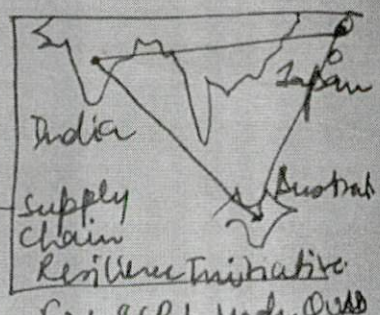
remarks

* mention how India can be first responder in case of disaster & net security provider in the region & how Quad helps in meeting this goal.

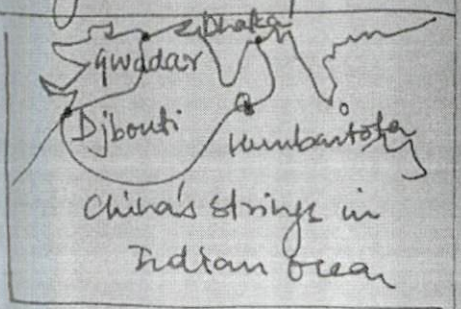
coming years.

QUAD can help in achieving India's objectives as follows -

① Reduce the supply chain dependence on China as 80% of semiconductor imported.



② Tackle the China's growing footprints through its 'helping encirclement' and 'string of Pearls' policy thus affecting the freedom of navigation.



③ Utilize the new markets of the South-East Asia like Philipines, Indonesia, Malaysia as they have been victims of 'debt trap diplomacy' of China.

④ QUAD also has periodic military exercises like the Malabar exercise - which can help in tackling the issue of piracy in the Somali

↳ QUAD, helps India maintaining its role as net security provider in the area, It's responder - in case of need & Also maintain india's role as flag bearers of freedom of navigation

region and Malacca strait.

(5) QUAD alliance will help create a 'South-South' collaboration of the economies rather than the traditional 'North - South'.

(6) Involvement of player like US, Australia can strengthen India's military capabilities also.

However QUAD also has some issues

(1) often projected as the 'Asian-NATO' by Russia and China to create geopolitical tension.

(2) QUAD does not have a formal structure and mainly operates at informal dialogue diplomacy.

(3) the new players like UK, France can challenge India's interest and can lead to neo-colonialism tendencies.

(4) often seen by experts as a strategy of US to use India against its economic ambitions.

* Also mention lack of idea of concentual view of Indo pacific region, while for USA it is India & its eastern region, while other like Australia & Japan have different views.

* Also only India shares boundary with China & hence under direct threat.

12

India has however maintained that QUAD, for India is not a military alliance like NATO.

For India, QUAD serves as a platform to raise issues of piracy, cyberterrorism, Freedom of Navigation as per UNCLOS in this region.

5. (b) ...ency of Glacial Lake Outburst Floods has increased ... ...ge. Discuss measures to reduce and deal with G...

Glacial Lake outburst floods refers to the sudden breach of moraine dammed glacial lakes within a short period. It leads to intense flash flood in a region

According to MoES, the frequency of GLOF (Glacial lake outburst floods have increased due to increasing temperature of Himalayan Region by 1.7°C in last decades

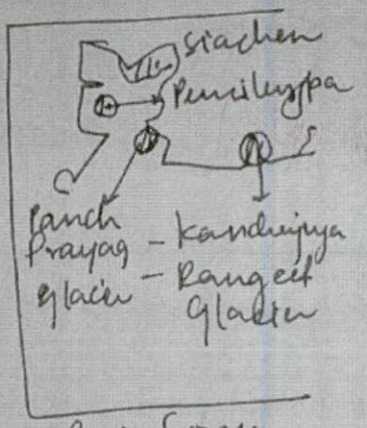


Fig: Some glaciers.

Recent reasons for increased GLOF

① Rapid melting of Hindukush Himalayan glaciers, expected to decline by 1/3 by 2100 (World Bank Assessment)

② Increased urbanization and slope concretization in hilly areas due to unsustainable tourism.

* Also mention Increased deforestation in the region, Improper slope management in the region.

Es: Shimla - Manikaran Glacial flood in 2017 due to heavy tourist footfall.

(3) Rampant Plantation and heavy construction leading to 'head dam' effect and glacial lake breaches

good examples { Es: Uttarakhand Power Plant in the glacial areas → lead to heating and GLOF

According to MoES, GLOFs can be predicted by proper monitoring of glacial lakes.

Steps to control

(1) Hazard Vulnerability zonation

(i) GIS based mapping of the extent of glacial lakes. → lake numbers
→ lake areas
→ lake locations.

(ii) Planning of settlements away from such critical zones.

(2) Population vulnerability assessment in terms of gender and age group for effective Rehabilitation planning

③ Periodic pumping of water from the glacial lakes to prevent sudden breaches.

④ Some structural embankments and bunding around glacial lakes

⑤ Early Warning system based on 'Ensemble Forecast' model of UK and USA where probabilistic analysis of floods are done

8

According to Prof. Talaas, it is necessary to shift from 'what the disaster will be' to 'what it can do' in the planning.

examine the demand for the creation of new states in India and (200 Words) (15)
feasibility.

8

Indian federalism is an evolving federalism Presently, it has 28 states and 8 union territories after the latest reorganization of Jammu and Kashmir and merger of Daman and Diu and Dadar Nagar Haveli.

However there have been various demands for creation of new states (eg: Statehood for Delhi; demand for Bodoland etc).

Reasons for demand of new states

① Better administrative efficiency as smaller states are easier to govern with limited population

② Demands due to special status based on ethnicity and culture E: North East states demand.

③ Demands for greater autonomy as far flunged from the mainland
Eg: Union Territory of Lakshwadeep.

* Also add role of some other factors regional Imbalance ie marathwada, vidharbha being peripheral for core area of mumbai.

- Also add role of low resource base as demand for some new states.

④ Also asymmetrical federalism, hence many union territories with legislature also demand statehood
Eg: Delhi's demand.

To assess their feasibility

Merits of new states

① Smaller states, thus better to administer.

② Stronger decentralization and connect to the local aspirations.

③ Centripetal tendencies of the people with culturally congruent states.
Eg: Telangana split from Andhra Pradesh

④ opportunities for growth of regional parties

⑤ Improved development and focussed tribal welfare.
Eg: Jharkhand, Chattisgarh.

However, there are certain challenges

① Increase in fiscal expenditure
1(a) Due to whole new set up of an

* Also add role of small states in ensuring proper growth pole location at regular Intervals

executive, legislature, bureaucracy etc

(b) Decline in share from divisible pool
Ex: 15th FC Report 42% → reduced to 41% due to UT of Ladakh & Jammu

Good examples

② Can not guarantee better development
Ex: Uttarakhand w.r.t-a-vis UP - Hill laggard in development.

③ Can still lead to secessionist and insurgent activities.
E: left wing Extremism in Jharkhand, Chattisgarh.

④ 'Domino Effect' from several states.
Creation of new states does not automatically enhance governance.
Reform to present setup must be brought first. (National Commission on Constitution Report)

8. (a) Discuss causal factors behind soil erosion. What conservation activities can be undertaken to reverse these phenomena? (250 Words)

Soil erosion refers to the permanent removal of the top soil (according to Dukocheiv). It happens when the rate of removal of top soil exceeds the rate of formation.

Soil erosion happens when the -

① erodability of the soil increases due to loss of cohesion and weak molecular structure

② erosivity of the agent increases due to lack of interception

Causal factors

According to UNCCD Global Land Outlook; in India 20-30 GTonne erosion/year happens due to water - splash, rill and gully erosion. On the contrary only 2-3 GTonne/year due to wind.

① Deforestation

b(i) Reduces the binding capacity of soil and hence increases erodability

(ii) The water 'streamlet interception' is reduced thus erosivity increased.

Remarks:

* mention different types of soil erosion
* mention some major trends in pattern of soil erosion across India.

+mention role of grazing & plantation in hilly regions.

SCORE

India has lost 5.3% of forest cover since 2000 (ISRO Atlas).

② Faulty Agriculture Practices

(i) In hilly areas, 'Jhum' cultivation and cultivation along slopes

Eg: Apple Plantation in Himachal.

(ii) Flood irrigation leading to erosion

(iii) Excessive fertilizer application, increasing soil friability.

(iv) Overgrazing by cattle in the pastures

Eg: Himalayan Bakarwals, Gaddis, Kashmir

③ Land use changes

- Rapid urbanization leading to concretization
- Slope modification in hilly areas.

④ Coastal erosion due to increased storm surge.

Eg:- Cyclone Fani - 10-12 mtr high surge
- WB coast > most eroded (30%)

To Conserve the soil

(A) Structural measures

(B) Construction of bunds, embankments along the floodplain

+Add role of shelter belts, terrace farming in addressing the issue.

(2) Use of stone pitching, wire netting on hill slope and tripod and tetrapod on coastal areas.

However these are temporary solution and costly also.

(B) Agro-economic solution

(1) Smart agricultural practices

(a) Use of micro irrigation like drip and sprinkler. (99% efficay

(b) Contour ploughing on hills

(c) Natural/organic farming to reduce soil degradation

Case: Sikkim

Sangtok

- 1st organic state
- reduced erosion due to watershed approach.

(2) Watershed based area development to restore damaged land

(3) Revolutionize the urban infrastructure - 'Blue green infra', 'geoblanket' and geotextile.

Case: Chambal Ravine - Badland
- Bhind, Morena, Kolhapur mianji
Soln: millet farming, flattening of ravine topography.

(4) Afforestation and Forest landscape Restoration to achive an Increase in 5 mha forest cover by 2030 (Green India Mission)

Remarks: Also add role of mulching, Intensive cropping, or mixed cropping, role of Agro & social forestry in addressing soil erosion.

SCORE

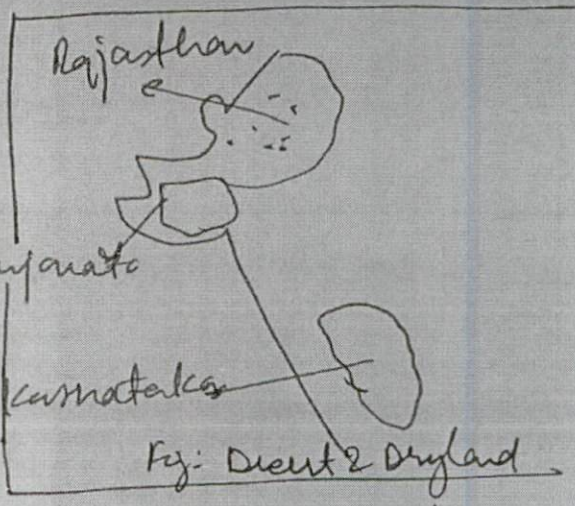
11.5

India can use the traditional dwellers of forest areas in soil conservation programs. (Eg: the sacred groves idea). This can help check the land degrad degradation

8. (b) Geographical divisions have led to federalism in India by helping people distinct language and culture. Illustrate. (20 Marks)

Geographical divisions of India by SP Chatterjee coincide with the federal structure and help in creating distinct language and cultures.

The Desert and dryland

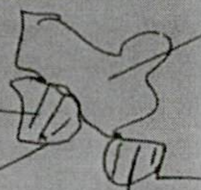


① Rajasthan and Gujarat
- Desert tourism
- use of tankas, Badis for rain water
- Folk culture - Ghumar, Kalbelia

② Karnataka – the 'Malnad and 'Maidan'
- Kannada language
- clothing – cotton wear
- Festivals and dances – Kathakali, Yakshagana etc.

The Himalayan federalism

Jammu UT
- Jammu Plains
- cultural centres - Vaishno devi etc

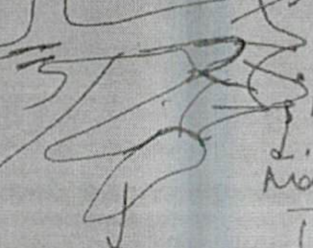


Ladakh - cold desert plateau

Uttarakhand
- Middle &
- lower Himalayas
- Transhumance

Sikkim Himalaya
- Fused Shiwaliks
- Bhotias, Lepchas, Transhumance, Jhum

(3) North East Federalism



narrow chicken neck corridor

Arunachal
Nyishi tribe

Nagas (Naga Hills)

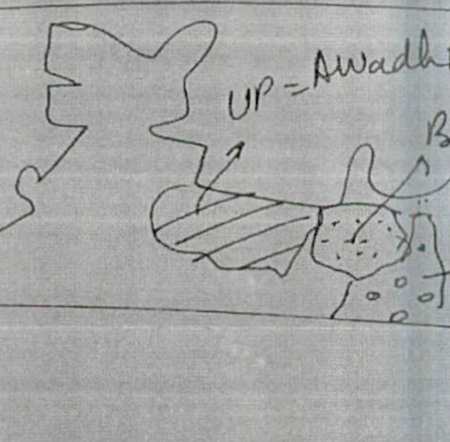
Manipuri
(Meity
&
Manipur Hill

Meghalaya
Similar to 'PPR' and Garo Khasi Jaintia Hills

Mizo tribe
Lushai Hills

(4) The North Plains and Central Highlands

(a)



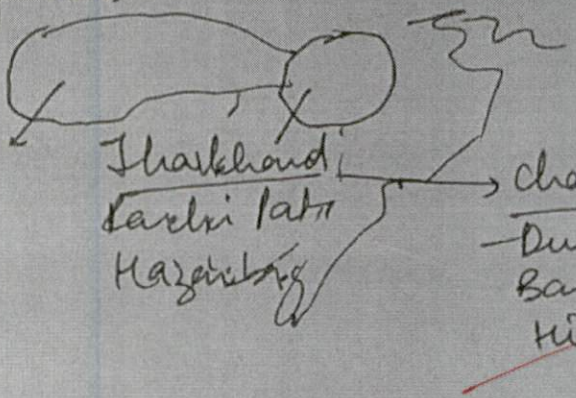
UP = Awadh Plain = Middle Ganga

Bihar: Lower Ganga

Bengal - Lower + Mouth of Ganga

Based on east-west zonation of ganga plains

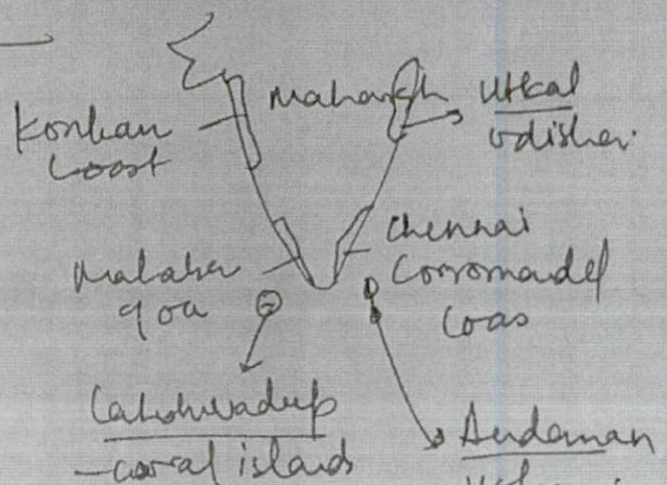
(b) Central highlands – raised patlands distinct from plains



9

(c) the coastal division

Coastal states and Islands.



thus India's federalism has strong roots in the geographical divisions.

* Here you could have also used factors of culture ie tribal culture forming separate division. Also could have used factor of language etc as a basis for division of federalism.

GS SCORE

(c) The earthquake itself is not the killer, but it is the unpreparedness among the society, in terms of inadequate infrastructure, which kills thousands. Elaborate. (200 Words) (15)

Earthquake is a catastrophic disaster which involves sudden release of energy from the earth. It is often a result of plate boundary interactions and can happen at all 3 types of boundaries - convergent, divergent and transform.

In India, according to GSI - 54% of area is earthquake prone.

decreasing order of intensity ↓

VII = V
VI = IV
V = III
IV = II

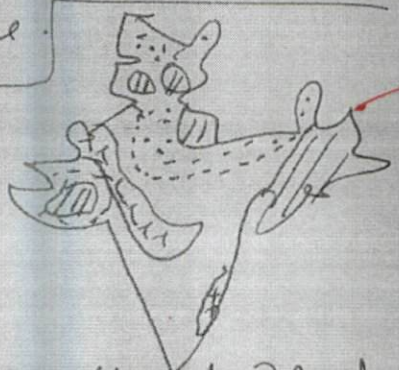


fig: Earthquake zones of India

good presentation of the issue

Earthquake itself is not the killer

① Earthquake is a hazard and a natural outcome of earth's movement and internal structure.

However: this can be seen from the case of Japan.	Hazard + Vulnerability (- Socio economic factor; - faulty infrastrat) ⟹	Disaster & loss of life

Although it lies in the Volcanic Ring of Fire in the Pacific ocean where >80% of earthquake occurs, the casualty is almost zero. This is due to sound infrastructure setup.

8

Problems of inadequate infrastructure

① Improper zonation of 'weak zones' and 'fault lines' and construction in high seismic zone

② lack of 'strong foundation' and pillar 'beam structure' to resist the quake.

③ Slope destabilization in hilly areas and thus the unconsolidation of soils

④ Dense congested infrastructure, increasing the stress in limited area.

(5) Dam based multipurpose valley - leading to reservoir induced seismicity

Eg: Tehri Dam Breach.

Steps → (1) Hazard Zonation - GIS maps, Magneto-Telluric survey

(2) Stronger plinth + Resistant materials

(3) Drills for awareness

It is essential to improve the 'factor of safety' for Earthquake proofing

* mention framework of Sendai, National disaster preparedness, Zonation mapping of hazards as some of the measures.