

**GS SCORE**

**An Institute for Civil Services**

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**IAS TOPPER'S**

**TEST COPY**

**KUMARI SOMEYA**

**AIR - 502**

**(CSE 2022)**

**GEOGRAPHY OPTIONAL**

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 **8448496262**  **iascore.in**

118

**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.

1. Invigilator's Signature \_\_\_\_\_

2. Invigilator's Signature \_\_\_\_\_

Name Somaya Kumar<sup>o</sup>

Mobile No. \_\_\_\_\_

Date \_\_\_\_\_

Signature 

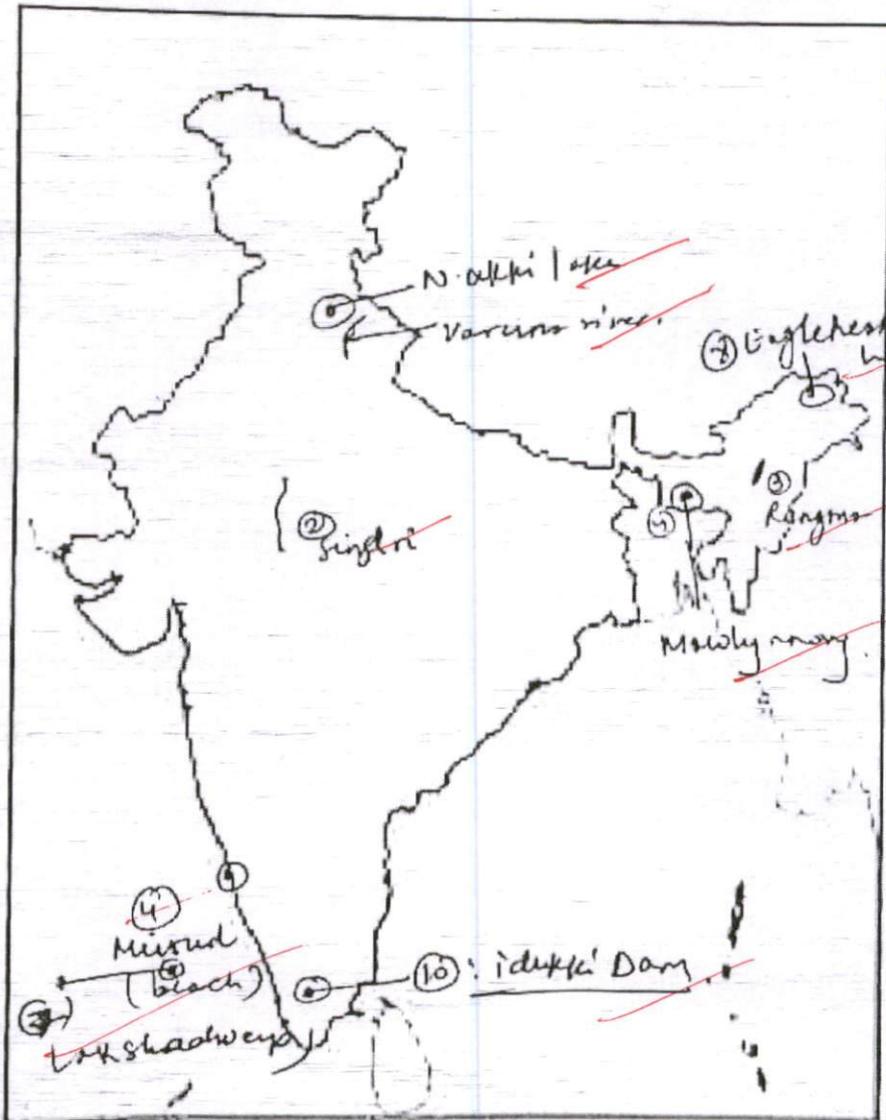
- \* try to elaborate your points, use more diagram, examples in your answer.
- \* use more elaboration in your answer
- \* All the Best

———— \* —————

Section - A

1. (a) Locate these map entries on the map and write about 30 words: (150 Words) (10)

1. Varuna River
2. Sind River
3. Rengma Hills
4. Mawlynnong
5. Murud Beach
6. Trikuta Hills
7. Lakshadweep
8. Eaglenest Wild Life Sanctuary
9. Nakki lake
10. Idukki Dam



Remarks

Murud beach can be located near Ratnagiri region,  
 Nakki lake - Rajasthan;  
 Varuna River - Varanasi;

- (c) Discuss the Origin and mechanism of the Indian Monsoon in the light of recent theories. (15 Marks)
4. (a) Discuss the Orogenesis of Himalayan Mountain ranges on the basis of plate tectonics. Elaborate with geographical evidence supporting collision of different types and nature of tectonic plates during process of orogeny. (20 Marks)
- (b) Discuss the effects of relief and climate on the distribution of natural vegetation in India. (15 Marks)
- (c) Differentiate between Dharwad and Cuddapah rock system in India. Discuss its significance in the economic development of India. (15 Marks)

### SECTION - B

5. Comment on the following into 150 words:
- (a) Write a short note on Blue revolution in India. Also write its prospect and challenges. (10 Marks)
- (b) Write a short note on Zero Budget Natural Farming. (10 Marks)
- (c) The growing pattern of ecological footprint is uneven in nature. Analyze with respect to land resources in India. (10 Marks)
- (d) What are the main causes of ground water depletion in India? (10 Marks)
- (e) Write a short note on West flowing rivers of our Country. (10 Marks)
6. (a) "The fertile soils, perennial rivers and favorable climate, the great plains of north India are of immense economic and social significance". Elaborate. Also, discuss despite huge economic potential the entire Gangetic plain mainly in Uttar Pradesh and Bihar are marred by poverty. (20 Marks)
- (b) What are the different Soil types of India? Briefly write the important characteristics and distribution of Major Soils. (15 Marks)
- (c) Give a geographical account of Coal resources of India in terms of its reserve and utilisation. (15 Marks)
7. (a) "India can utilize the vast natural resources of Himalayan region in the form of minerals, herbs, shrubs and tourism to boost its economy". Critically analyze with reference to economic opportunities and sustainable utilization of resources of the fragile Northern Mountain Complex. (20 Marks)
- (b) Geological, geophysical and inherited tectonic factors imprint on the climate and contrasting geomorphology of the Indian peninsula. Explain. (15 Marks)
- (c) Discuss the ecological significance of increasing desertification in India and suggest measures to control it. (15 Marks)
- (a) Examine the need of interlinking of Himalayan and peninsular rivers. Critically analyze the challenges of interlinking Himalayan and peninsular drainage systems. Discuss with reference to different river-interlinking projects. (20 Marks)
- (b) Discuss the main causes and consequences of soil erosion occurring over extensive parts of our country. Suggest some viable measures to solve this menace. (15 Marks)
- (c) Discuss the rising problem of air pollution in Delhi NCR also write about the initiatives taken by central and state governments to curb the menace. (15 Marks)

\*\*\*\*\*

04.20

04.35

① Varuna river: \* It is tributary of Ganges in UP.

- ① Tributary of Ganges,
- ② flows in Uttarakhand
- ③ Has high cultural value, provides ecological services

② Sind river:

- ① Tributary of Yamuna, joins it in Uttar Pradesh
- ② flows through MP, & UP.
- ③ Provides irrigation facility for rice.

③ Patkoti Hills: \* Assam Nagaland region.

- ① Extension of Meghalaya plateau in Assam.
- ② Between Mikir & Barail ranges.
- ③ Source of Brahmaputra's small tributaries.

④ Mawlynnong:

- \* cleanest village in whole Asia.
- ① well station in Meghalaya.

Remarks

- ① Limestone caves (~~stalactites, etc~~) 'found here.
- ②
- ③ Mudud Beach!  
- Beach in Karnataka. \* It is in Maharashtra.
- ④ Trikuta Hills! \* complete freewriteup here.
- ⑤ Lakshadweep?
- ① Coral islands in Arabian sea
  - ② ~~strategic~~ location, ↑ India's EEZ
  - ③ no industry, <sup>eco.</sup> tourism potential
- ⑥ Fragilest world life sanctary?
- ↳ In Arunachal Pradesh
  - ↳ Endemic ~~bird~~ species, ~~East~~ Himalayan hotspot
  - ↳ community led conservation.

Remarks

9

⑤ Nakki Lake → It is in Rajasthan.

- found in ~~Himachal Pradesh~~.
- Famous tourist site

⑩ Idukki dam

- Dam located in Kerala
- On periyar river.
- Kerala floods in 2020 due to ~~Idukki dam~~ sudden water release
- Hydro project project ~~from~~ developed.

\* You haven't properly located locations in their correct locations, also mention more on climatic, vegetation, tribal biodiversity in the region etc...

Remarks

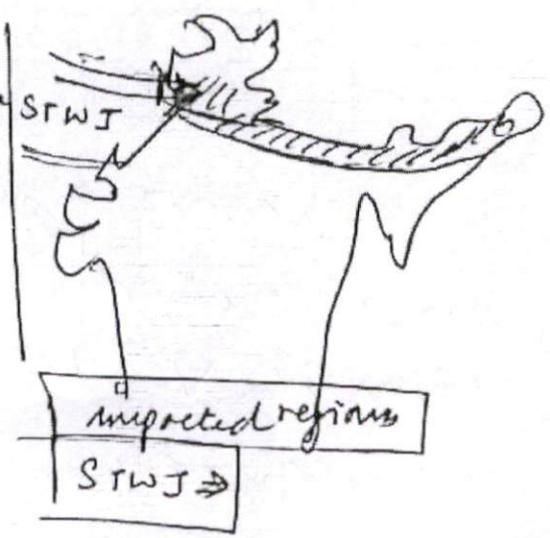
1. (b) Write a short note on winter rainfall in India and also write its significance to Agriculture. (150 Words) (10)

Winter rainfall in India is caused due to western disturbances in the northern plains and retreating monsoons impacting Southeastern coasts.

\* mention the role of tropical cyclones in contributing rainfall during winter seasons.

Winter Rainfall: western Disturbance

Due to sustropical westerly jetstream, the western disturbances originating in Mediterranean moves eastward picking moisture from black & Caspian sea.



Due to Himalayan obstruction & Tibetan bifurcation causes winter rainfall in North west plains, even reaches Brahmaputra plains.

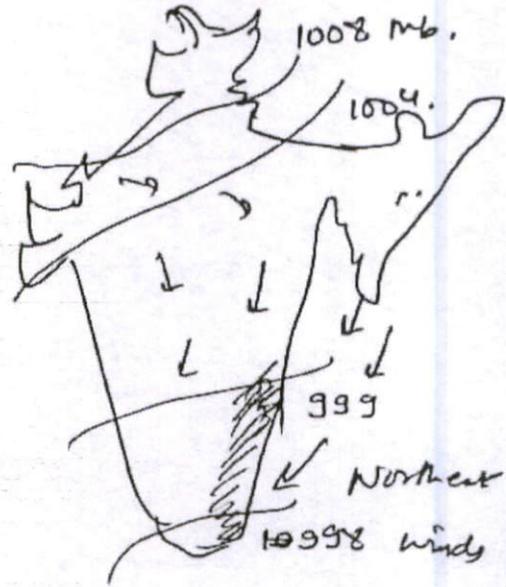
Remarks

Retreating Monsoon

(i) North east monsoon

retreat picks up moisture from bay of Bengal.

→ Rainfall in Tamil Nadu, Cooromandal coast.



Significance to Agri

(1) Rabi crops: need winter rainfall. ~ 20cm in winter (eg wheat, Barley, Pigea, Urjona).

(2) Tea plantations in Assam & Bengal

(3) Damage to crops: hailstorm, ⇒ loss of crops ⇒ Cold wave.

Thus winter rainfall has impact on SOCIO economies of India.

try to come up with better conclusion.

Remarks

1. (c) Write a short note on climatological characteristics of Marathwada region.  
 (150 Words) (10)

4 Marathwada region is lying in the leeward side of the western ghats characterised by dry arid climate.

Climatological characteristics

① Temperature  
 lies in tropical →  
~~73°C~~ annual average temperature

② Rainfall :

① Leeward side of western ghats → Arabian monsoon branch brings little rain ⇒ ~~50cm~~ rain

→ Dry arid climate.



Remarks

### ③ Köppen's classification

→ Bsh → arid type of climate.  
with scarc vegetation found.

### ④ Soil moisture index:

- Low due to high evapotranspiration  
than precipitation.

Marathwada region is thus a dry  
region that needs agricultural infra of  
irrigation, water to secure the livelihoods  
of farmers & people in region.

\* write more on the socio-ecological implications  
of not following proper cropping pattern in this  
region.

\* mention steps to improve socio-economic

Remarks

Conditions in the regions.

1. (d) Briefly explain the importance of Inter-linking of Rivers in India. Also, examine the problems and prospects of the Ken-Betwa river link project: (150 Words) (10)

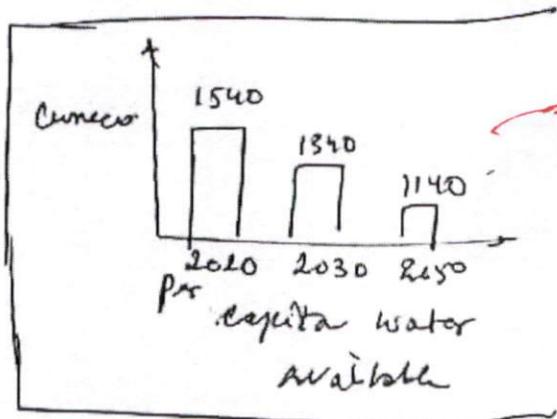
India's hydrological system varies across states with himalayan & peninsular drainage system.

Interlinking of rivers & importance:

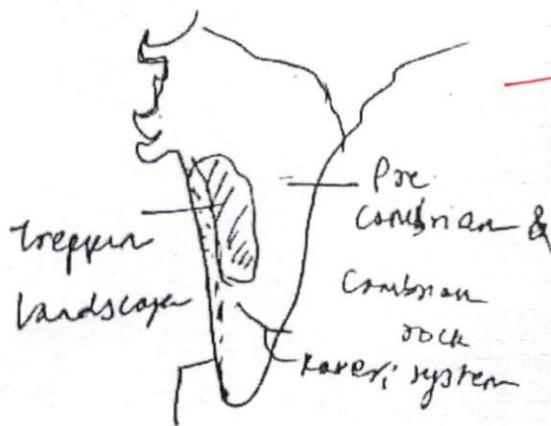
① Non perennial peninsular rivers

with hard bed rock system.

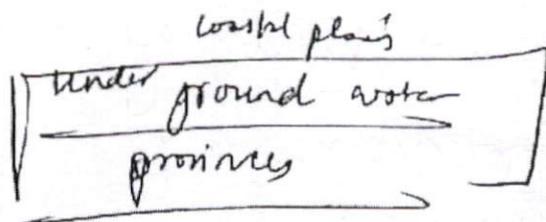
② Underground aquifers prospects low in peninsular Rock system ⇒



fair presentation of Ideas.



good diagrams depicting various ground water provinces in India.



Remarks

mention how it helps in development of various other benefits i.e. irrigation potential & development of inland waterways etc.

③ Perennial rivers in Himalayas  $\rightarrow$  cause floods,  
~~devastate~~ properties  $\rightarrow$  can be diverted to  
 water deficit region.

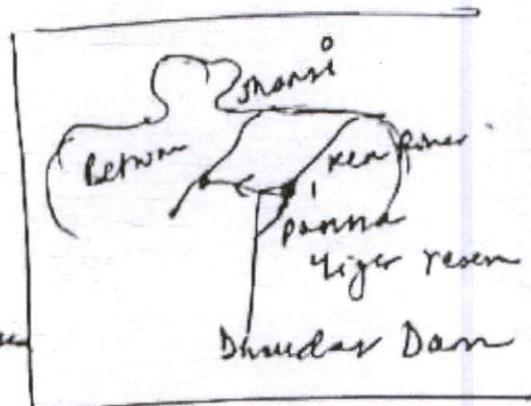
④ ~~rising~~ per capita demand for water

Ken Betwa Project

Problems:

① Ecological: minimum  
 flow of water maintenance

(~~maintain~~ Channel flow & velocity)



② Panna tiger reserve [ $\sim$  10% Deforest]  $\rightarrow$   
 habitat destroy

③ Riverine ecosystemal fisheries, habitat loss.

Prospects ① Agriculture: Irrigation ( $\sim$  10 lakh ha)

② Water security: Bundelkhand drought prone region.

③ Gender empower: ~~less~~ water fetching &

④ Economical: Defence industrial corridor link

Remarks

3. (a) The Dam Safety Rehabilitation and Improvement Project (DRIP) will pave the way towards dam safety and management which is critical for surrounding areas and downstream communities. Discuss. (250 Words) (20)

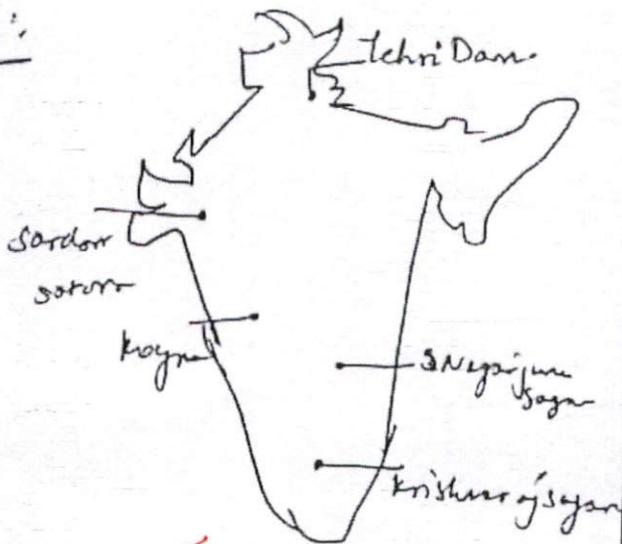
DRIP project is being implemented with help of ~~world~~ world bank & AIB & govt for ensuring rehabilitation & maintenance of dams

DRIP project & Dam safety & Management

① >100 dams in India are aged above 75 years  $\Rightarrow$  questions on

Structural viability:

④ Hydrostatic pressure or least reservoir led earthquakes (eg Koyna dam)



⑤ Structural weakness:

flood gates destroyed,

Dams in India

Remarks

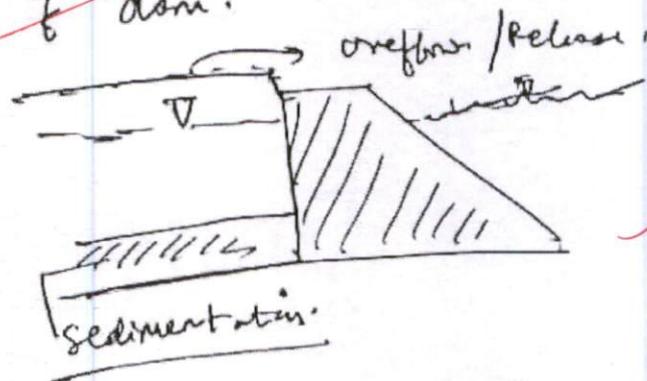
or Dam failure or release of excess water from Dam.

(eg ~~Indukki~~ Dam: Kerala floods)

③. Lack of Timely inspection, reservoir levels check before monsoon & post monsoon.

~~timely~~ (eg Mullaperiyar Dam & lack Hydro Data sharing)

④. Sedimentation & lack dredging & maintenance causing overflow of dam.



Good dimension of counter argument

DRIP project  
this helps in

proper Manage  
ment & Dam safety through:

Remarks

7 Also mention factors of why DRIP needed, by bringing in concept of **GS SCORE** the need for governance & address various

- ① Standard operating procedure for maintenance Interstate river disputes here etc...
- ② State level & National level dam authorities for timely data inspection & check structural viability
- ③ Basin based management & study for reservoir hydrology,
- ④ Coordination among states &

DRIP project critical for surrounding areas & downstream:

- ③. Timely release of early warning system, saves flood related vulnerabilities.

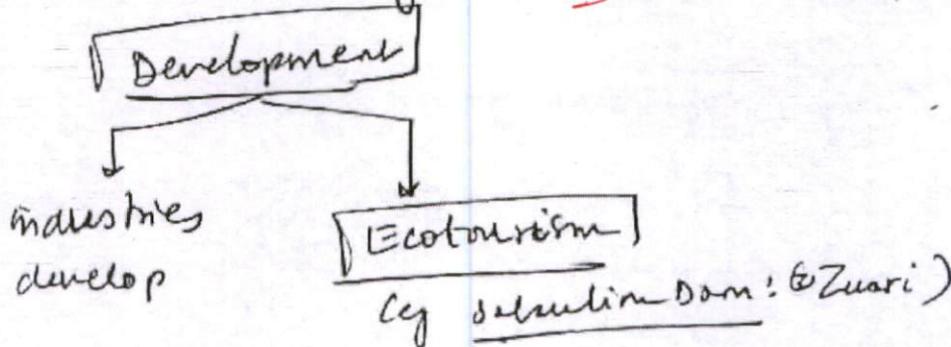
Remarks

② Canal irrigation & command area development  
 better if reservoirs are well managed.

10

③ Hydrological projects : ensure

energy security in region ⇒ Regional

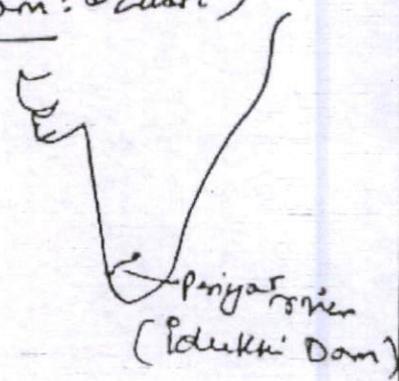


④ Downstream people :

① • Fishing & livelihoods

Saved ⇒ Dam management

② Disaster resilience.



thus DRIP project can save the temples  
 of India for the socio economic, ecological  
 benefits -

\* you haven't mentioned on the rehabilitation  
 aspect.

Remarks

3. (b) India is going through an energy crisis phase and we need a sustainable strategy to achieve the twin objectives of energy security and environmental security. Comment. (200 Words) (15)

India's coal shortage in 2021, its skewed energy basket with >60% thermal source & increasing per capita demand has impacted energy crisis.

*fair intro*

Energy crisis phase of India

SUPPLY

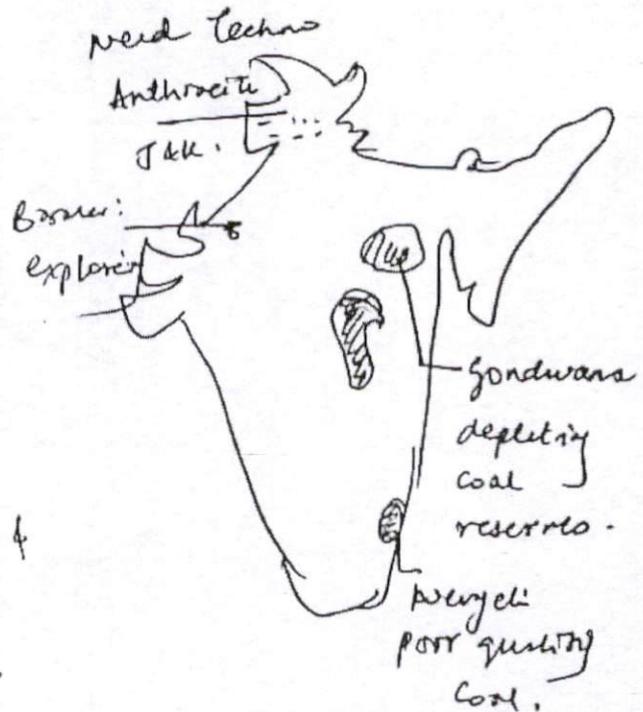
①. High dependence on coal:

→ reserves & 15<sup>th</sup> largest reserves

→ poor quality coal, mostly gondwana & tertiary period

→ Global supply chain

*mention some of qualities which make them poor*



Coal reserves in India

Remarks

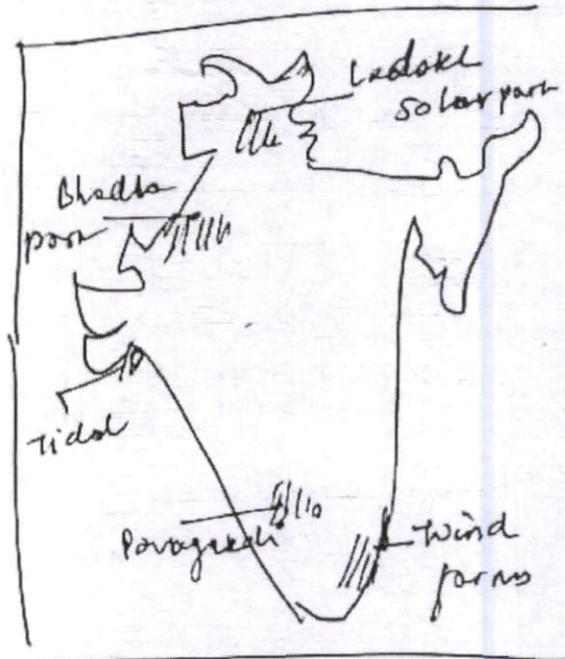
*Present some cases of present day energy min in the world & shortcomings in it, which has posed energy crisis issue.*

disrupted due to COVID-19.

## ② Renewables issue

① High cost & Technology needs :  
→ R&D.

② Import of raw materials  
eg Silicon wafers from China



③ Grid integration + storage

## Sustainable strategy for twin objectives

① Supply-demand management?

① Thermal power plants + efficiency →

Carbon capture & storage of emissions.

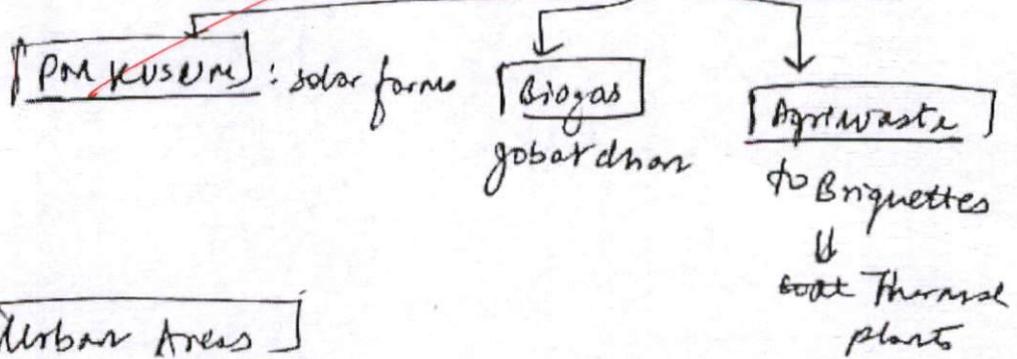
→ Syn gas production (eg Talcher)

Remarks

21 \* mention more on how making our energy mix more diverse with Biofuels, **GS SCORE** electric batteries etc... is a way ahead.

②. Closure of old polluting thermal plants.

③ Renewable energy promote in Rural areas



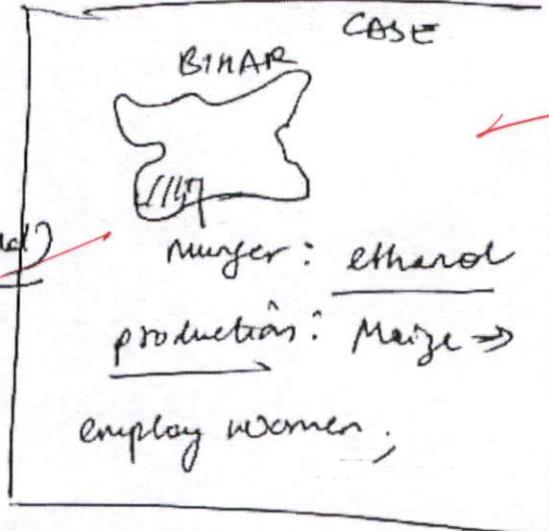
④. Urban Areas

- (a) Municipal waste: (Circular economy)  
(Niti Aayog proposed model)

⑤ International Cooperation

→ One sun One world one grid.

For energy crisis handling India needs climate finance & tech-transfer to meeting SDG-7 goals.



good case study

Remarks

\* elaborate your answers with more diagrams, examples, facts, don't just mention them.

3. (c) Discuss the Origin and mechanism of the Indian Monsoon in the light of recent theories. (200 Words) (15)

Good intro deduction.

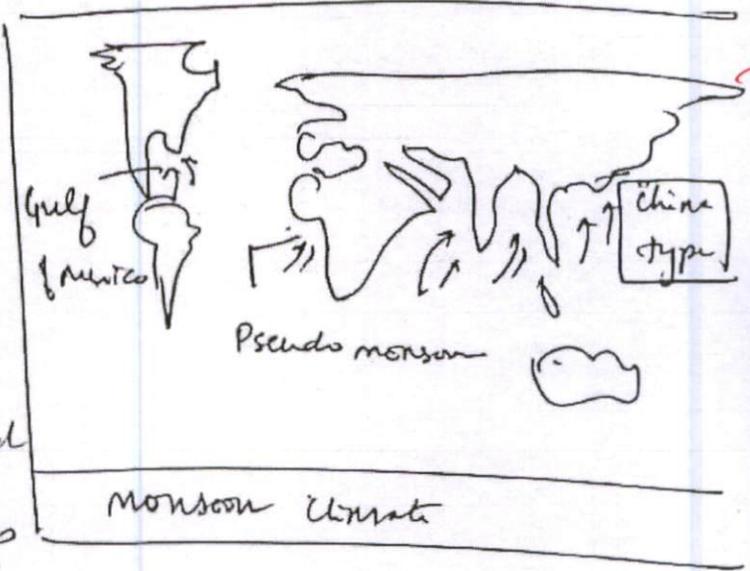
Monsoon is a complex meteorological phenomenon that impacts the Asian & other parts of globe.

8

Origin & Mechanism

Frontal theory of Fohn

A Fohn considered impact of air mass on monsoon.



fair presentation of various areas

As the ITCZ, low pressure belt <sup>major shift</sup> ~~finds~~ to 20-30°N latitude in summer,

it attracts the maritime tropical ~~moons~~ ~~equatorial~~ winds

Remarks

airmass, that on crossing equator under influence of conolis shifts south west

(1) similarly with shift of ~~ITCZ~~ in south hemisphere

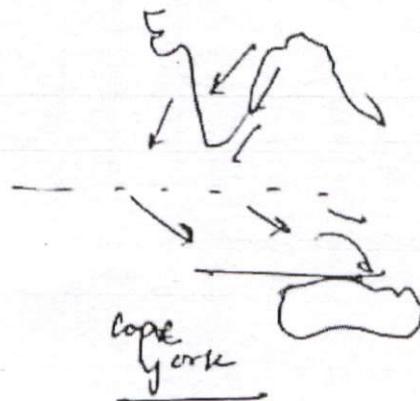


fair illustration of the answer.

is winter, the airmass retreats in North east direction & upon crossing equator causes

North west rain in Australia

(2) ~~Jet stream~~ Monsoon is also expected by



upper ~~tropospheric~~

wind as proposed in Jet stream theory of gen.

Remarks

Give a brief on teleconnection of monsoon  
i.e. ENSO, Southern Oscillation,  
IOD, Madden-Julian Oscillation,  
AMOC etc. in  
Indian monsoon rainfall - India.

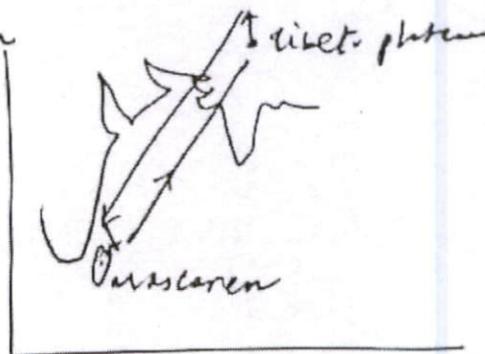
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The STWJ causes high  
pressure system when  
it is winter (December  
to ~~March~~) that  
keeps monsoon winds  
from crossing subcontinent



② Upon shift of STWJ northward, the monsoon  
rainfall bursts.

\* Kateswaram's theory is related to gen's STWJ  
as the coupling of Tibetan  
low & ~~mesoscale~~ high  
in atmosphere causes  
monsoonal winds  
movement.



The monsoon is also impacted by El Niño  
& Indian Ocean Dipole, MJO that impact  
intra-seasonal variability.

Remarks

Section - B

5. (a) Write a short note on Blue revolution in India. Also write its prospect and challenges.  
(150 Words) (10)

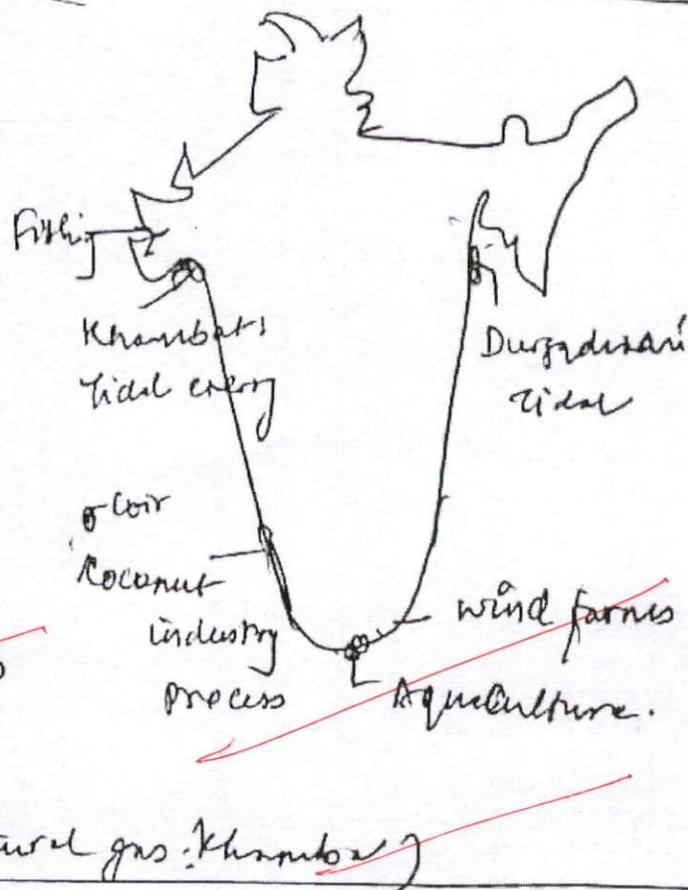
W.S

Blue revolution in India aims to capitalise the 4500+ km long coastline & aquatic resource of nation for socio economic & welfare of people

Blue revolution

① Economic:

- marine fishing,
- Aquatic sports & Cruise tourism
- Continental shelves ~~minerals~~ exploration



Remarks

Prospect - young population of India  
 -> Nutritional security  
 -> Income security for small & marginal farmers.

Social development

- train fish farmers (PM Matsya Sampada)
- use digital techno (GPS, satellite imaging etc)

Prospects :

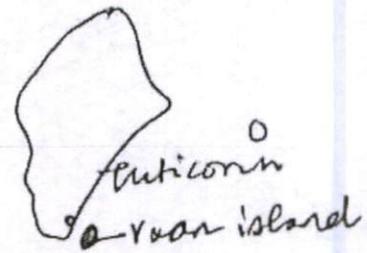
① Coastal development

- port led, export oriented development

② Backward forward linkage: <sup>Fish</sup> Processing industries

③ Marine minerals: Deep sea mining,

Case



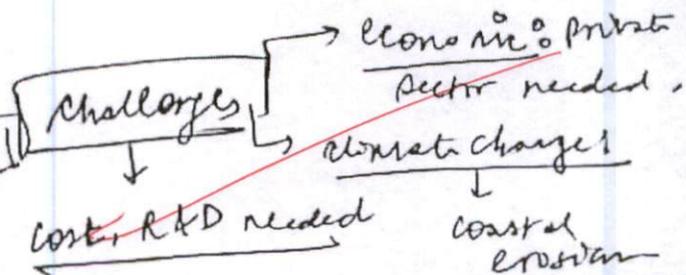
- Pearl fishing
- ecotourism
- sea weed farming by women

Good case study

① Social

Women inclusive

Connectivity



Remarks

Including various examples, facts, case studies etc.

Give equal weightage in explaining it with more writeup

5. (b) Write a short note on Zero Budget Natural Farming;

(150 Words) (10)

4's

Zero Budget Natural Farming is <sup>type of</sup> natural

farming that takes no chemical inputs

& tries ~~most effective~~ agri-practices for high productivity.

Zero based Natural Farming

- ① Method
- ① Beej  
Teevamrit: seed be free from insects/ pest infection
- ② Mulching: ~~Aethadone~~  
→ cover soil for ~~nutrient~~ replenish.

Case  
Kara Dantewada district: Used District mineral fund for organic ZBNF → Millet cultivation.

good case study.

③ mention all the components of ZBNF

Remarks  
i.e. Beejamitra, mulching, Teevamrit & Wapsha.

→ use diagrams to show various prospective diagrams in brief & where ZBNF has potential for development.

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③ Natural fertiliser: mixture of  
Jaggery, cow dung, cow urine for  
 ↑ soil nutrient.

④ Natural insecticides.

⑤ Migration be ~~in~~ noon time - water use efficiency

Benefits

① Cost effective & local  
~~cost~~ inputs / Jaggery  
 ↳ low dung

② Climate smart:  
 Adoption: ↓ soil  
 degrade

~~Govt's effort of green organic corridor~~  
along Ganga is step in right  
 direction.

Challenges

① Extension services  
 ↳ train farmer R&D.

② Apri yield is  
 compromised

③ Regional variation

Remarks

5. (c) The growing pattern of ecological footprint is uneven in nature. Analyze with respect to land resources in India. (150 Words) (10)

Land ~~degradation~~ resource in India is

limited with 73% being degraded

(ISRO's land atlas report)

H.S

Growing Eco-footprint

SPATIAL PATTERN

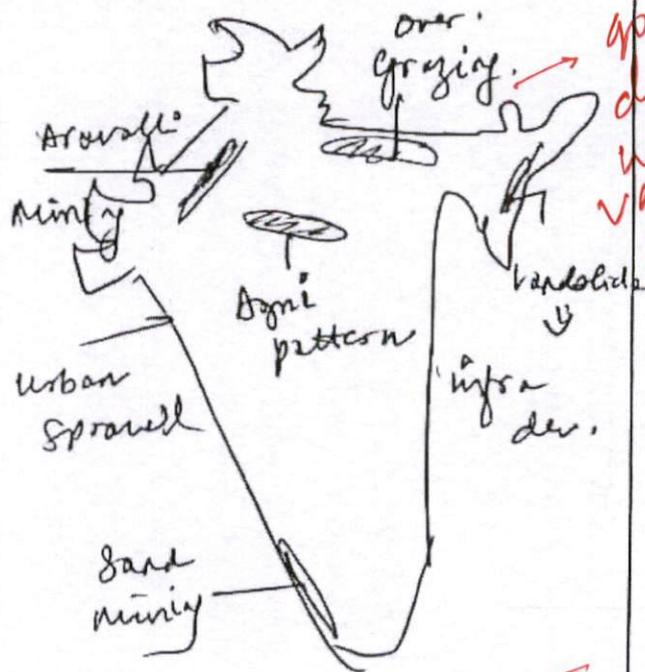
①. Land Use  
Changes



↓ Forested lands

~~↓ Dense forest~~

area ↓ (ISFR 2011)



good diagrams with various prospects

Ecological Footprint

②. Wasteland ↑ ∴ Overgrazing ⇒ ↓ soil fertility ↓

③.

Remarks

① Agricultural pattern:

\* ~~710%~~ of GHG emissions (Methane) Nitrogen emissions  $\Rightarrow$  flood irrigation, rice

② Industrial land use & settlement: Non Agri

land use  $\Rightarrow$

~~encroachment~~: Wetland destruction (eg Chennai)



③

Way ahead

① National land

use policy  $\Rightarrow$  Framework solutions

② Land banks & drone based

land monitoring  $\Rightarrow$  illegal land encroachment

③ Forestation & reclaim wasteland

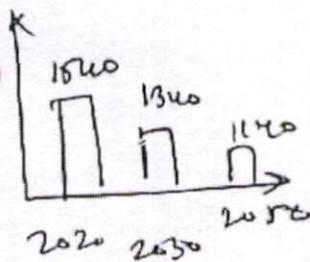
Remarks

\* Add how urban land, deforested land etc.. have different ecological footprints.

5. (d) What are the main causes of ground water depletion in India? (150 Words) (10)

4's

Groundwater depletion has been on rise due to ~~overexploitation~~ & rising water demand availability

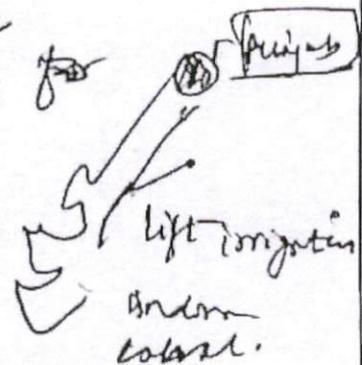
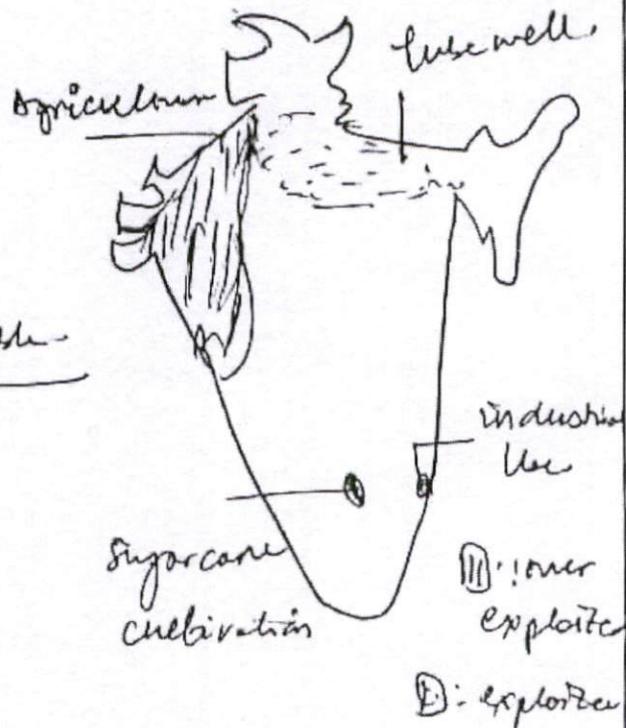


per capita water available

Main Causes

① Agriculture  
~~tubewell~~  
→ Over irrigation &

due to cheap electricity ⇒ ↑  
exploitation (eg Punjab)



Remarks

→ mention more on role of how misplaced MSP, cropping patterns have been cause for ground water depletion in India.

② Industrial activity

→ Not strict admin regulate.

③ Domestic use:

- Non regulated by CGWA,

~~insistent misuse~~

④ Deforestation:

- Loss of precipitation &  
+ surface drain

Way Ahead:

① Atal Bijuat Yojana's  
aquifer mapping be  
expanded <sup>whole</sup> country

② Sensor based water level monitoring

③ Agriculture be included under penal  
action of CGWA regulations.

CASE

NGT scrapped the  
CGWA 2013 guidelines  
as it was toothless  
& not regulated  
industrial ground  
water use

→ good  
case  
study.

Remarks

→ mention role of water harvesting,  
command area development programmes in  
recharging ground water & Increase the  
potential.

5. (e) Write a short note on West flowing rivers of our Country.

(150 Words) (10)

West flowing rivers are ~~the~~ rivers flowing in the Arabian Sea.

① Drainage basin:

largely smaller basins, travel less distance.

② Less sediment load, thus no delta formed,

estuaries (eg. Narmada)

③ Structural controls of Drainage

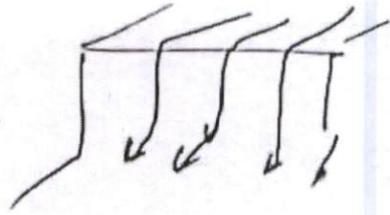
pattern:

western parts sudden ~~at~~ steep slope gradient.



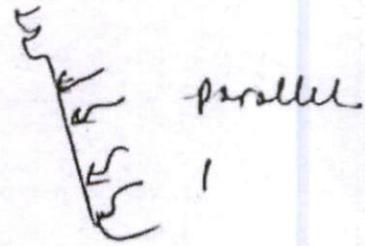
Remarks

→ Trellis pattern of Drainage



→ parallel Drainage

(eg. Sharavati, Mandoni)



① Have Hydroprojects potential

eg. Sardar Sarovar, Linganamakki

② Rift valleys of Narmada & Tapi  
have geothermal potential.

③ Fisheries,

(eg. Mandoni Goa)

④ Non perennial nature ⇒ At interstate  
dispute (eg. Narmada)

\* Waterfalls formed in upper reaches:

(eg. Dhalsagar, Shaj Falls)

Thus west flowing rivers have high  
ecological & economic importance

Remarks

\* Speak more on the river regime of these rivers, drainage pattern of these rivers.

7. (a) "India can utilize the vast natural resources of Himalayan region in the form of minerals, herbs, shrubs and tourism to boost its economy". Critically analyze with reference to economic opportunities and sustainable utilization of resources of the fragile Northern Mountain Complex. (250 Words) (20)

9

India's Himalayan region due to its geo-climatic and geological uniqueness has vast natural resources.

Natural resources : Economic opportunity

Western Himalayas :

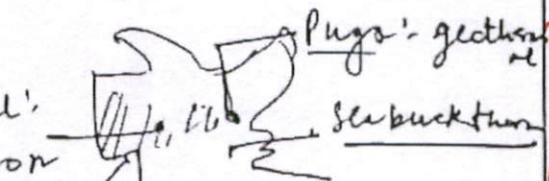
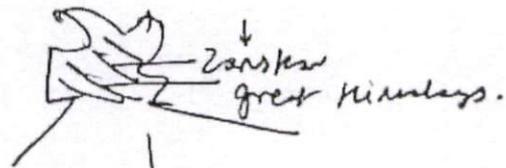
1) Mineral mining:

gold, good quality  
coal

help boost industrial

location near

raw material (weber)



(Mineral)  
Anthracite  
Coal, gold,

Mention more on the places deposition

2) medicinal plants → pharma industry

(eg. Himalal sea buckhorn)

Remarks

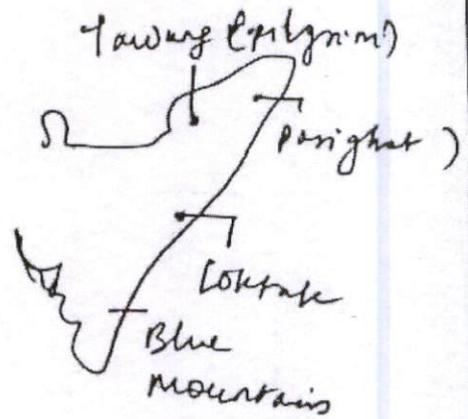
mention more on how Saryngandhi, lavender, etc. can be used for medicinal development.

③ Ecotourism: → Also mention on various endochronic lake formed here which have tourist potential ie Pangtso lake, Tsomiri n-etc  
 (eg Chardham project in Uttarakhand)  
 → promotes livelihood, local people development.

Eastern Himalayas

① Economic

→ Mineral oil & Natural gas through  
 Diphoo,,  
 → Vanadium: Arunachal.



Tourism & Hill stations

② Tribal area Development:

- ethnic culture → assimilation (eg Adivisi)  
 - local infra development: Ecotourism & hill stations (eg. Ziro Valley)

③ ?

Remarks

Economic opportunities → mountain salt  
 → various HE potential  
 → prospect for development of horticulture

Issues :

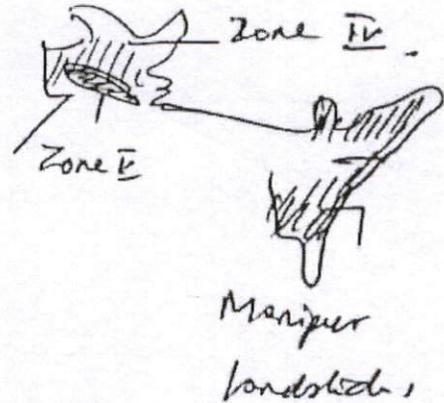
① Social issues :

- + ① Tribal culture erosion (eg Bodo)
- ② Regionalism to protect ethnicity.

Elaborate these don't just mention these.

② Ecological fragile ecosystem

- ① Earthquake prone
- ② ~~Endemic~~ Endemic species



③ Disaster vulnerability

- ① Landslide

④ Security issues

- ① Maoists, terrorism, => impact economical utility (eg. J&K resource and land -> ~~NO~~ industries)

~~thus~~

Remarks

7. (b) Geological, geophysical and inherited tectonic factors imprint on the climate and contrasting geomorphology of the Indian peninsula. (explain). (200 Words) (15)

Indian peninsula has a long geological history from breaking away from

Gondwana blocks to its collision

with Eurasian plate in Tertiary period.

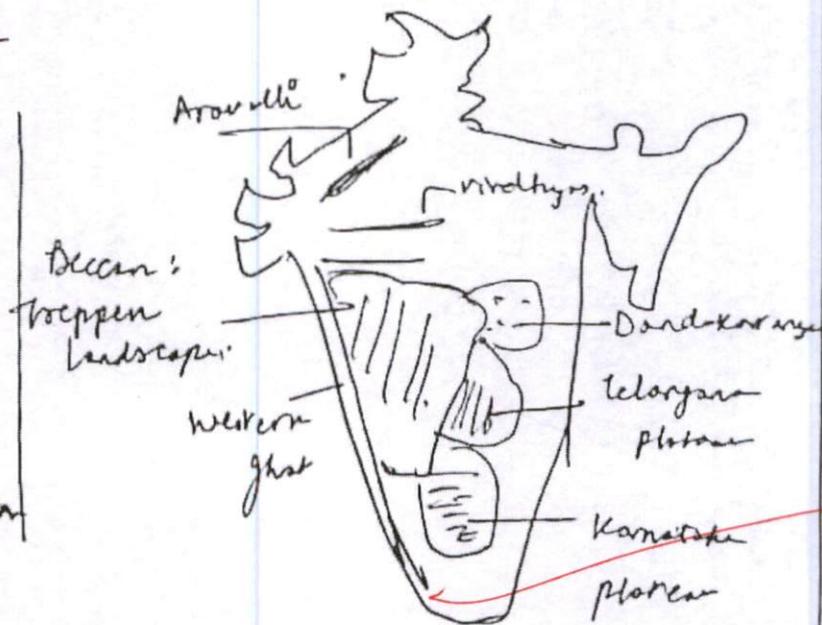
Geological, geophysical & tectonic factors imprint on climate :

Rainfall  
① As per  
pattern:

Aravalli's  
because  
parallel  
to

Arabian monsoon  
sea branch

*Fair dimension*



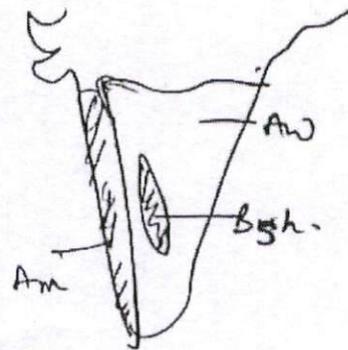
7

Remarks

→ less rainfall → Thar Desert on west of Aravalli & Dry conditions on east coast (Morrow & region)

② peninsular plateau of south being on leeward side of western ghats is to receive less rainfall  
 → Drought prone: Marathwada, Rayalseema, Karnataka plateau.

③ Faults & lines & rift valleys due to tectonic faulting & precambrian & Canadian shield impacts Hydrological cycle → less underground water.



Koppen's climate  
classification

Remarks

Contrasting geomorphology

①. Rock system :

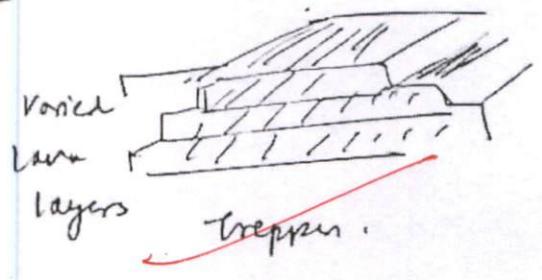
Due to Gondwana land structure,

Chotanagpur plateau has high reserves of coal, minerals.

②. Purana & Cuddappah rock system have gold, iron, manganese (eg. Cuddappah region)

③. Trepper landscape :

Decent plateau due to pressure volcanic flows



④. Channel morphology :

→ Hard bed rock, & straight courses, mature stage of peninsular rivers due to tectonic stability.

Remarks

7. (c) Discuss the ecological significance of increasing desertification in India and suggest measures to control it. (200 Words) (15)

7.5

As per ISRO's land atlas report, >30% of India's land is degraded and may reach 50% by 2050.

Ecological significance of ↑ Desertification

①: loss of

Biological productivity

impacts

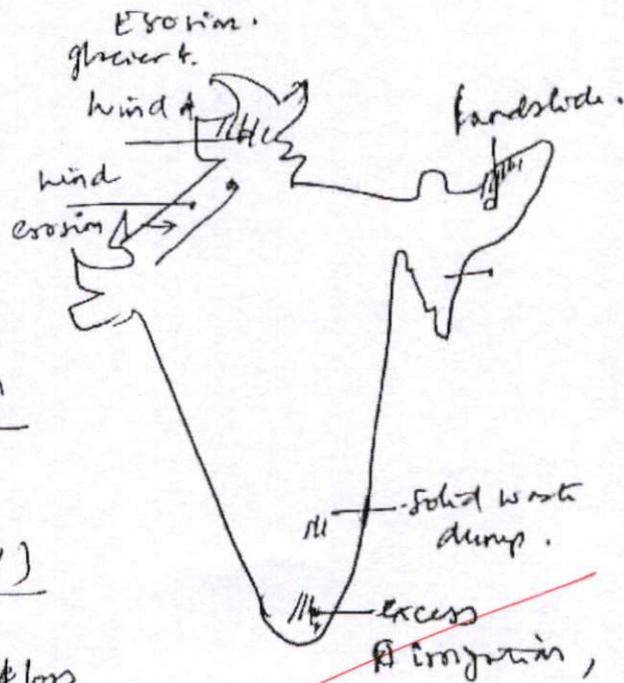
natural vegetation

growth.

(eg. Banni grassland)

②: soil fertility & loss

impacts



Desertification

mention how loss of moisture is

leading to fertility loss.

Remarks

\* mention how desertification has lead to  
loss of ecosystem provisioning etc..

GS SCORE

agricultural development,

① Habitat destruction :

① invasive species introduction

②

② Water security :

① Water percolation ↓ affected

(eg Morwar region of Rajasthan)

↳ Pipelines blockage

③ Disaster

→ Dust storms

④ Loss of land restoration increase

(eg Aravalli's Ecological Zone Conservation)

Give some  
examples  
where there  
loss of species  
is seen.

Remarks

74 mention how some of India's commitment such as Bonn challenge, UNCCD,

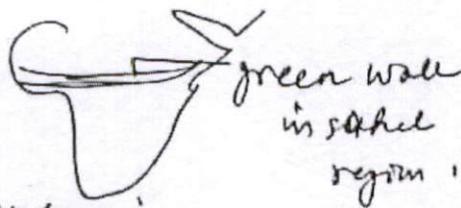
UNCCD etc.. helps in addressing desertification.

Measures to control

① Nature based solutions

Afforestation & reforestation

in wastelands (eg.)

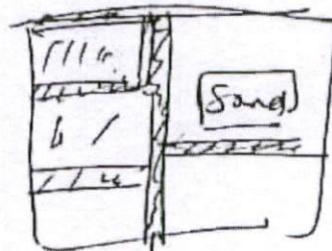


② Waste Disposal

~~Waste Disposal~~

② Sand dune stabilisation

~~CAZRE has studied~~  
~~grid based stabilisation~~ ⇒



③ Watershed Development

② local participation to

best grasses  
vegetation (acacia)

③ Agri pattern:

⇒ Diversify to agroforestry & ~~forest~~ Dry land cropping system

CASE

Kenore Bazar:  
Ahmednagar: Water  
shed development

helped & agri  
productivity in  
drought prone region

→ good case study.

Remarks

8. (a) Examine the need of interlinking of Himalayan and peninsular rivers. Critically analyze the challenges of interlinking Himalayan and peninsular drainage systems. Discuss with reference to different river-interlinking projects. (250 Words) (20)

Interlinking of rivers of Himalaya &

peninsular was first proposed in

National perspective plan to address

the water deficit & surplus basin mismatch.

\* mention who gave the concepts envisaged the plan.

Need of interlinking

① Drainage basins of

① low discharge & non perennial - peninsular

② Hard bed topography in peninsular:

underground water recharge low.

③ surplus waters in Himalayan:

- youthful stage

Complete the sentences don't leave some space in between & quote example

Remarks

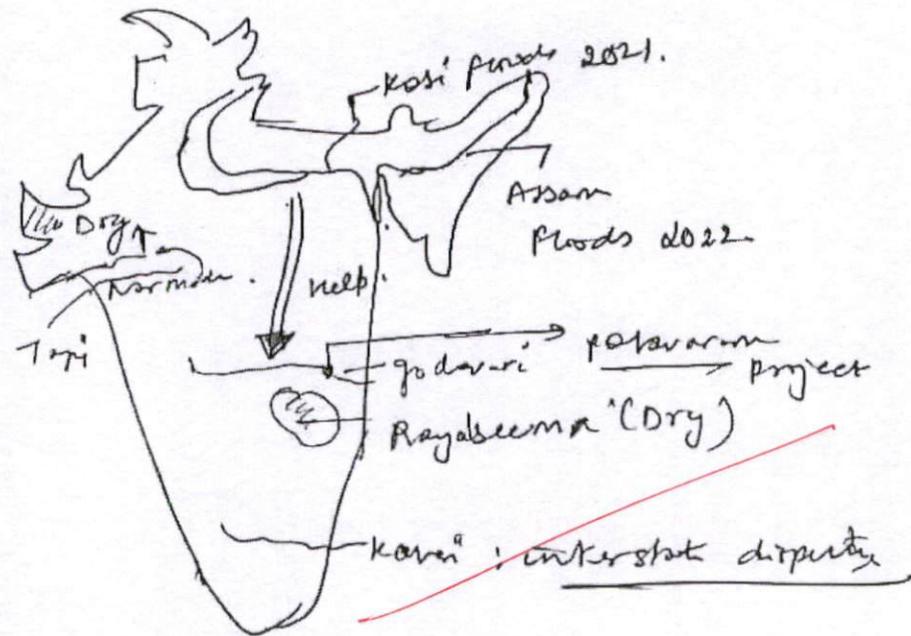
- \* mention a) helps in development of inland waterways
- b) Energy security
- c) Irrigation potential

for your argument.

causes river shifting, flooding, river capture :

these due to high discharge .

⇒ can be diverted to peninsular .



Issues

①, Drought prone areas : get water  
Security & irrigation for Vidarbha

Remarks

② Navigation :

→ Waterways → industrial development

→ Connectivity improve regional development

(eg Bihar to Andhra via Waterway)  
 Agri export ↗

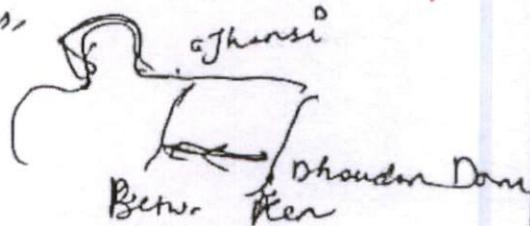
③ Challenges

① Capital is high

→ mention some monetary value lost in the process.

→ Dams, the check dams,

canal system etc  
 is costly



② Natural flow  
impacted :

→ Drainage basin affected by

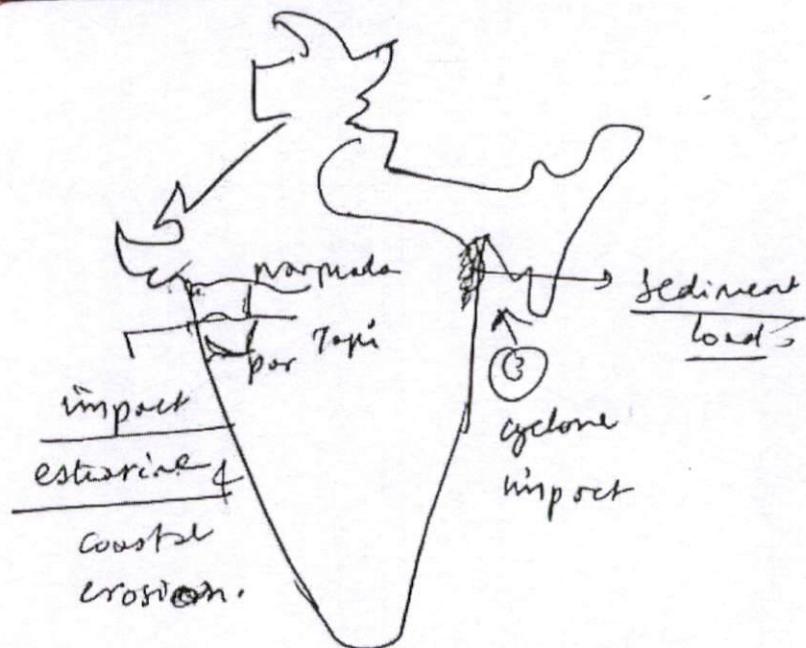
low minimum ecological flow.

Remarks

③ Habitat & forest def destruction

leg panna tiger reserve → relocation of tigers

④. Coastal delta formation, sediment  
load imbalance



⑤. social - tribal

displacement →

rehabilitation & cultural & social  
loss → jobs, living standards.

Remarks

\* mention cost of deforestation, cost for rehabilitation of displaced people.

8. (b) Discuss the main causes and consequences of soil erosion occurring over extensive parts of our country. Suggest some viable measures to solve this menace. (200 Words) (15)

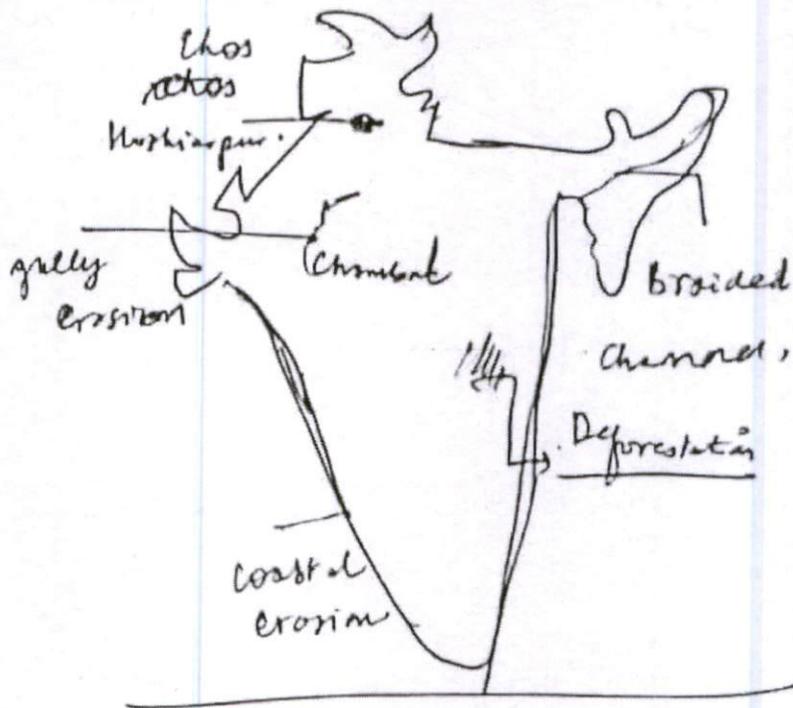
Soil erosion is removal of top layer of soil due to erosive agents like glaciers, rivers, wind etc.

\* mention different types of soil erosion happening  
\* Also mention some regional trends of soil erosion

Main Causes:

① Natural causes:

①. Erosive agents → sheet, splash, rill erosion by river.



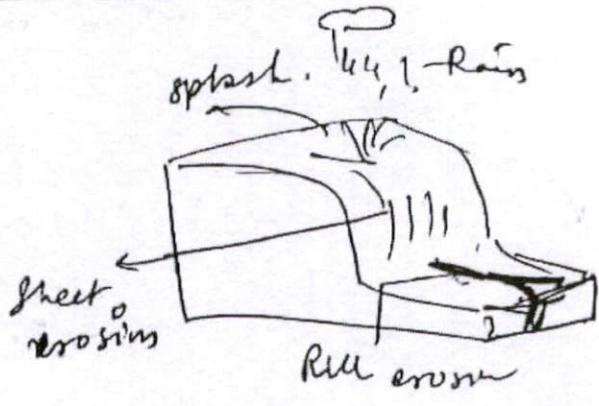
② glacial erosion, in Himalayas.

③ gradient slope / stop change suddenly.

Remarks

\* mention factors influencing the formation of soils.

Chas formation at  
foot hills of  
Shivaliks.  
(Noharpur)



Man Made causes

→ Dam construction  
 + Deforestation etc..

① Deforestation  
 → due to industrial development or mining.

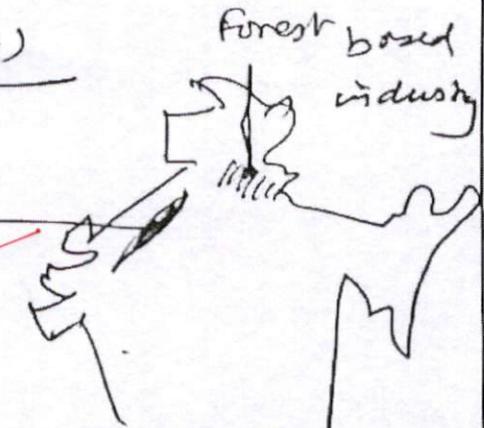
② shifting cultivation: ~~causing clearing forest~~  
 (eg Mizoram)

③ Infra development  
 tunnels,

(eg char Dham project)

④ Overgrazing:  
 (eg. Banni grassland).

Asavalli  
mining



Remarks

Measures

①. Afforestation :

- ~~increase~~ tree cover & ↓ soil erosion.

③. Decentralised planning & watershed management

③. Agricultural practices: sustainable

↓  
Cropping pattern: water use efficiency

↓  
Livestock separate ranching area & fodder crops.

Case

Pani Panchayat :  
Koraput District

farmers manage  
water supply → ↓  
~~flood irrigation~~

7

→ Good Case Study.

④. ~~landscape~~ ~~deserts~~ Idiographic approach: region based management

↓  
hill area: slope stabilise

↓  
~~Desert~~  
sand dunes

↓  
coast  
afforestation

Remarks

\* mention various methods like terrace farming, shelter belt, social & Agro forestry etc..

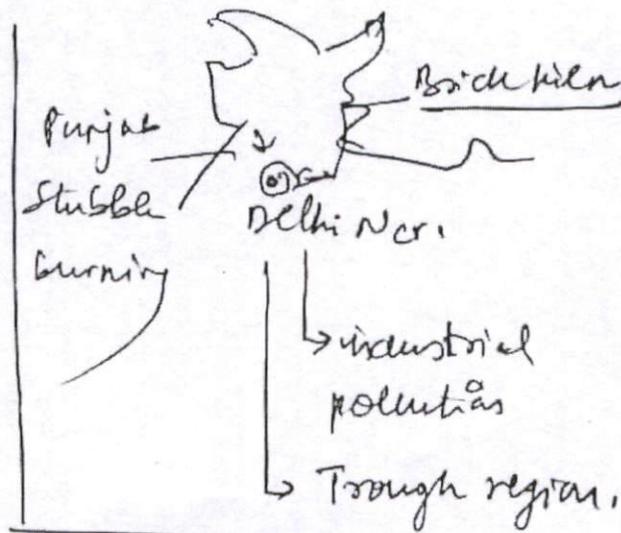
8. (c) Discuss the rising problem of air pollution in Delhi NCR also write about the initiatives taken by central and state governments to curb the menace. (200 Words) (15)

Delhi NCR is the most polluted capital of the world as per World air quality report IQ Air.

Rising problem of air pollution

(i) Geographical conditions

forms a trough region which with polluted air from



Surroundings converge in NCR.

(eg) stubble burning in Punjab,

7

→ mention the causes of Temperature Inversion, low vertical wind speed.

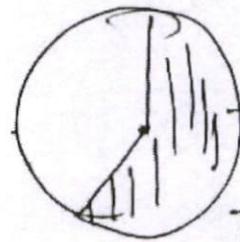
Remarks

brick kiln of uttarpradesh. etc

② Rising population: Migration &

↑ personal vehicles:

→ congestion with  
ill planned routes &  
urban connectivity  
impact concr.



60%  
transport

air pollution

*Fair  
presentation of  
idea.*

③ Admin.: illegal construction &

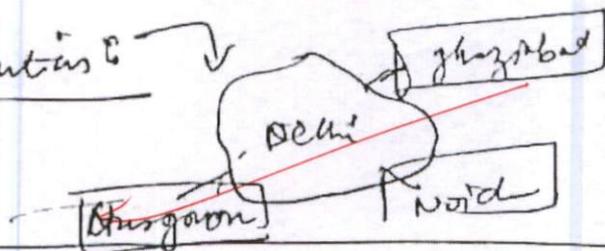
*use  
full  
words.*

lack of regulation of CPCB norms

for air pollution mitigation (eg  
dust suppressants in construction)

④. Industrial pollution:

CPCB requesting  
work



Remarks

*\* mention the role of vehicular emission,  
construction, thermal power generation etc.*

+ mentions role of some measures like smog tower, a ban on using of avoiding diesel vehicle older than 10 years age etc.

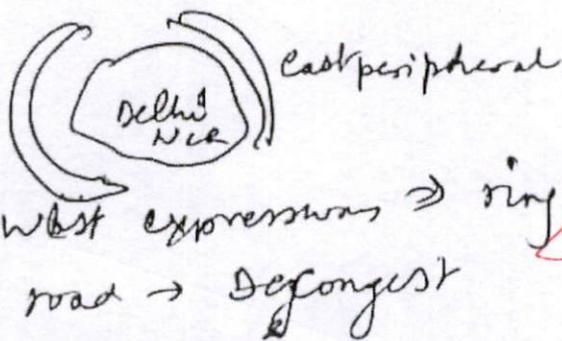
SCANNED WITH CAMSC

## Initiative of govt

### Central

- ① CAQMA act: Commission for air quality management  $\Rightarrow$  statutory body to regulate norms first act.

- ② East & west peripheral expressway



- ③ National green highway mission,  $\&$  NATCC are some of steps to improve right to clean environment

### State

- ① Odd-even rule: to regulate vehicular pollution  $\&$  less private vehicles on roads.

- ② Smog towers

$\rightarrow$  installed to ~~also~~ adsorb pollutants from nearby region (IIT Delhi + govt)