36044 (655)

GS SCORE

GEOGRAPHY
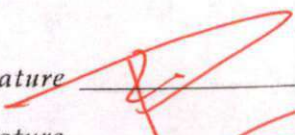
Time Allowed: 3 hrs.   Max. Marks: 250

Instructions to Candidate

- There are Eight questions divided in two Sections.

- 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 choosing at least ONE question from each Section.

- The number of marks caarried 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 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 chronological order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the answer book must be clearly struck off.
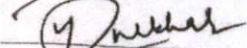
Follow the same approach

All the Best!

Name _Yasharth Shekhar_

Mobile No. _____

Date _20 -12 - 2021_

Signature _____

1. Invigilator's Signature _____
2. Invigilator's Signature _____

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REMARKS

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SECTION-A

Attempt all questions:

1. Answer the following questions in about 150 words each: (12.5 × 4 = 50)

   (a) Major sources of groundwater pollution in the country.

   (b) Role of physiography on cross border terrorism.

   (c) Equilibrium in Ecosystem

   (d) Socio-spatial consequences of recent COVID-19 in India

   (e) Population explosion

(a)   Groundwater is the water found in the underground aquifers of the country. 21st century has seen many such aquifer getting polluted because of:

Better to write for India

Natural reasons

① Storm like cyclone causing sea swell and water enter into groundwater

Anthropogenic cause

① Seewage getting seeped into

② Excessive drawing of water using machine ⇒ ↑ concentration of

Remarks

making it unsuitable
for domestic use

② Natural presence
of Arsenic in areas
like Bengal
increase pollution
of groundwater

quantitative
pollutants, like Uranium
whose percentage ↑ in
water.

③ Soil pollution getting
dissolved into water
to reach ground-
water.

Many steps are needed to
tackle such pollution like :

① ↓ excessive use of groundwater

② charging userfee for groundwater

③ practices rainwater harvesting

④ Strategy for New
India @75 according
groundwater conservation
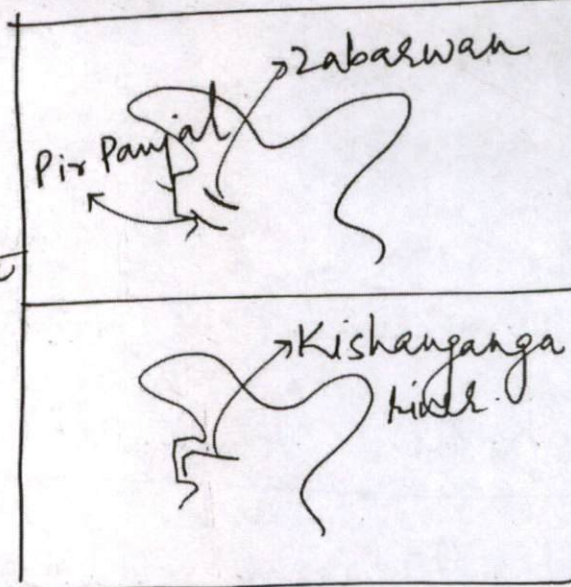an important role.

(5T)

Arsenic

Uranium

Nitrate
pesticide

(b) India suffers cross border terrorism on many ~~fronts~~ and role of physiography is important : like ?

① Mountains — The mountains of Kashmir acts a hiding ground for terrorism eg Zabarwan Mountains of Srinagar or Pir Panjal near Qazigund.

② River → create porous border thus helping terrorist ~~to operate~~ freely on the other side eg. Kishanganga River or Galwan River

③ ~~this~~ Difficult topography coupled with forest assist in illegal infiltration like what we

Remarks

experienced in Kargil before Kargil was.

(4) At the same time, unwielding physiography like on India - Myanmar border reducing connection between militant groups on all side eg. weakening of linkages b/w NSCN ($\frac{IM}{R}$) and NSCN (Khaplang) section.

⑤½

Thus, physiography is an important determinant in % cross-border terrorism.

(c) Ecosystem is enmeshed community of biotic component and abiotic component. Biotic include humans plant, animal while abiotic include energy, nutrients etc. they are all connected to each other through food chain and food web

Remarks

ie energy transfer [energy/number/biomass pyramid], nutrent cycles etc and are in EQUILIBRIUM.

However, whenever an ~~ieg~~ events distrebs thee equalibrium, conditions emerge which create equilibrium again eg of a ~~f~~ pond ecosystem where fishes require plankton to survive.

eg.. | Fishes ⟶ plankton to survive |

NOW if fishes↑ in no and overconsume plankton and then primary production fall ⇒ fishes die ⇒ resent happen.

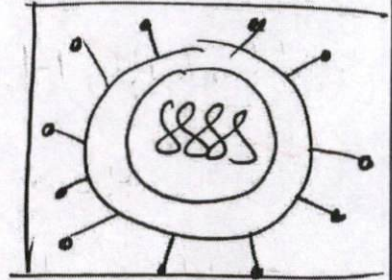Many threat in 21st century are there to equilibrum ⟞ ?

Threat	Role of Equilibrium
① Climate change [cop26]	① Biodiversity ② Food, fuel/fodder
② Deforestation	③ Ecosystem services ④ O_2 production
③ Pollution ④ Waste	⑤ Biome's existence ⟶ all
	possible because of ecosystem.

(d) COVID 19 is the name of new Pandemic disease that ravaged world from ~~202~~ 2019 till present

Social Consequences of Covid

① Positive	Negative
① Social cost of living came down as Carbon emission↓	① ↑ death rate (June 2021)
	② ↓ education level
② Better social mobilisation of children as they stayed home (Manodarpan scheme will be used)	③ ↑ poverty levels (25% as per NiTi Ayog MPI report)
	④ ↑ pressure on social schemes like MNREGA as reverse migration happen on a massive scale
③ Realisation of importance of society in dealing with such pandemic	⑤ Exposed the weakness of our health system
	⑥ As NFHS-5 showing falling parameter only magnified!

Remarks

Spatial Consequences

+ve	-ve
① Burden on rural area reduced ⇒ scope of better urbanisation can be explored.	① Massive migratory waves changed spatial distribution of population ↑ pressure on rural area ② affected

(margin note in red: In term of distribution H try to write for social con)

In general, spatially distribution of wealth, poverty, changed as some states suffered more due to covid so existing spatial disparity only increased further.

(e)   Population explosion occure when the population grows way faster than the means of sustenance. India experienced it in 1970s era. when decadal growth rate of population was ≈ 25%

Remarks

Causes

1. High birth rate due to many reasons like conservative thinking, son-meta preference as Economic Survey argued, religion compulsion etc

2. High death rate induces family to produce more

3. Low awareness of contraceptive

4. High in-migration eg what USA experienced in 1920s

Consequences

1. food scarcity as we experienced in 1960s

2. Slums (5) like Dharavi (3) High poverty as multi-dimensional poverty index showed (25%) (4) Poor, Health and education parameter as GHI Report shows (5) Many other like high unemployment rate.

Solution

1. Education is the best contraceptive (2) ↑ food production (green revolution), (3) Female empowerment as NFSH - V data shows ~~NFSH V~~ (4) ↓ son-meta preference

5. Better Health and education system.

NFHS-5 data show India's TFR of 2.0 which is same as replacement levels.

2. Answer the following questions:

(a) How India's geo-spatial location gives it a distinguished geographic identity?
(250 Words) (20)

(b) Whether conducting Surgical strikes on another sovereign nation's territory a threat to regional stability and maintenance of good relations with neighbouring country? Discuss with valid argument.
(200 Words) (15)

(c) Examine the demand for the creation of new states in India and validate their feasibility.
(200 Words) (15)

(a)   Indian Subcontinent has a unique space on Asian Continent.

These are many reason why India's Geo-spatial location gives it a distinguished identity as:

① In the flanking Himalayas create a distinct boundary and India lies on the south of emerging pole of world power like China who contestation vs USA and India's growing salience with USA creates India and Indian geography an effective bulwark against Chinese expansionism.

Remarks

(2) In the West, vast expanse of desert between India and Pakistan (Thar) gives it a unique space.

(3) In the South, vast expanding Indian Ocean with no power in near site enables India to exercise influence over the region effectively. This ocean, called Indian ocean creates a specific boundary for India.

(4) In the East, the watershed of Purvanchal creates a boundary between India and Myanmar thus creating and separating a natural border for India.

All this adds to the geopolitical significance of India as:

① stands closest to contest China's Border aggression eg at Galwan valley
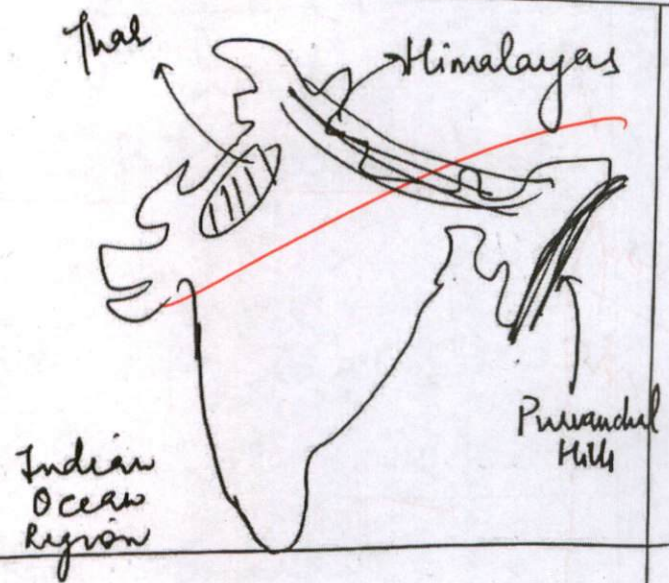
② It also makes it a bulwark to contest Chinese expansionism in Indian Ocean through ports Gwadar, Hambantota and Kyaukphyu.

③ It i boundary with Pakistan exposes it "Two front" war scenario solely because the geographical calculus of the region hue

④ The growth of Quad has further added value to the rise of India

All this mean the geo-spatial ensured unique identity of India India ie to play an improle in future

Thar ← Himalayas

Indian Ocean Region

Purvanchal Hills

12+

(b) Surgical strikes refers to quick, lightening offensive conducted by army, navy, or air force separately or in combination for some, short, swift quick purpose which is very specific.

Good and

eg India conduct surgical strike in Balakot to take out ~~terro~~ terror camps seen in Khyber Pakhtankhwa in 2019

Threat to Regional Stability

Yes	No
① The events of dog fight post the surgical strike indicates the threat it posses to regional stability (Abhinanyu Varthaman's incident)	① as it removed the irritant that affect relations of the India-Pakistan the irritant of terror and latter not going together is removed. ② Regional Stability

Remarks

② May create apprehension about seriousness of efforts to normalise relationship.

③ May increase sensitivities of armies on each who may respond in disproportionate matter even for next minor incident along border.

depends on other factor like the history, nations share, or how its trade is or the role of external third power.

③ India conducted surgical strike and immediately informed Pakistan to reduce any miscommunication

④ The purpose of surgical was not war

⑤ The fact that war did not break out is indication of that

Threat to maintenance of good relations	
Yes	NO
① It is violative of a nation's sovereignty	① As it helps create a bond between nation which is not just based

Remarks

and met the national self-image.

Good

(2) Politics of populism will prevent such from being favourably well disposed to you.

(3) sow seed of suspicions which are harming to a bilateral relationship

on superficial bilateral complementarities but which seeks to promote good will by & terror elements

(2) It removal major element often responsible for bad relation b/w neighbours eg. role of terrorism in souring Indo-Pak relations

9

However, a nation should and must adopt method which are need to protect it's citizens.
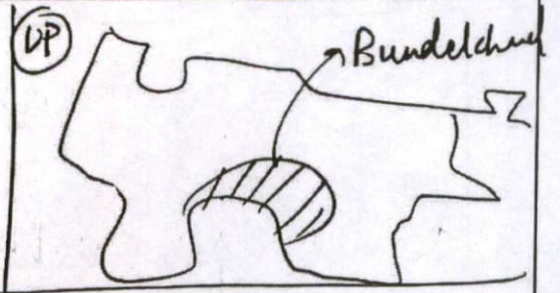
(c)   India has seen many phases of reorganisation of States with most recent on being bifurcation of erstwhile state of Jammu and Kashmir. Before that, we observed the creation of Telangana from Andhra-Pradesh
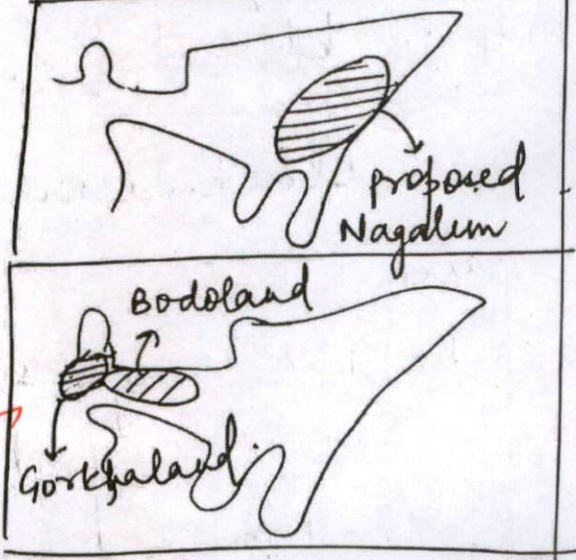
Why such demands?

(1) under-development eg. Bundelkhand

② cultural commonality
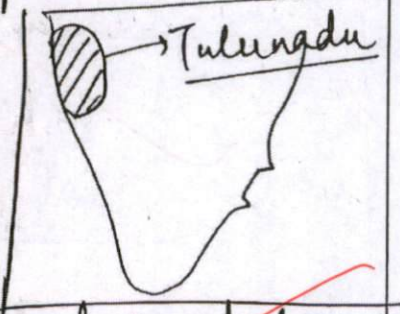eg. demand of NSCN for
Nagalim consisting of
Nagas split across States

③ linguistic basis   eg the
creation of Haryana from
Punjab. of ~~Bod~~ Bodoland
(Bodo vs ~~Assamese~~)

④ Ethnic basis eg Demand for Bodoland
or Gorkhaland because of "Bodo" culture
and "Gorkha" culture

⑤ lack of political empowerement eg. Tulus
not playing an important role or pale in
comparison to Bangalore region

⑥ Unwieldy nature eg. UP is too big
to be governed under one rule
to demand to divide it into Harit Pradesh,
⊕ Purvanchal, Bundelkhand and ⊠ Awadh

UP → Bundelkhand

proposed Nagalim

Bodoland
Gorkhaland

→ Tulungdu

Remarks

Viability

→ Some arguments of states like in case of Bundelkhand, or unwieldy nature of UP are viable because ~~it~~ the concerns are genuine as :

① UP is huge state of 22 crores
② underdeveloped
③ very poor

  So new state may help them to develop fast and fulfil regional aspiration as ~~as~~ we have seen in case of faster development of Uttarakhand.

→ Some like Bodoland, Gorkhaland, or Tulunadu are non-viable as they seek to create ~~states~~ on a basis which may cause violence, create division and ethnic conflict as we see in case of NSCN led insurgency before 1997.

Answer the following questions:

(a) The Asian geopolitical chessboard awaits bold moves by New Delhi. In the backdrop of this statement discuss the relevance of Rimland Theory in Asian Geopolitics.

(250 Words) (20)

(b) While electric vehicles reduce emissions, they also consume a greater deal of metals whose mining is not environmentally sustainable. Discuss and also suggest alternative mechanisms to improve sustainability in mining. (200 Words) (15)

(c) Highlight the possible geo-political implications of NATO withdrawal from Afghanistan. Can the SCO play a stabilizing role in Afghanistan while meeting the interests of various stakeholders? (200 Words) (15)
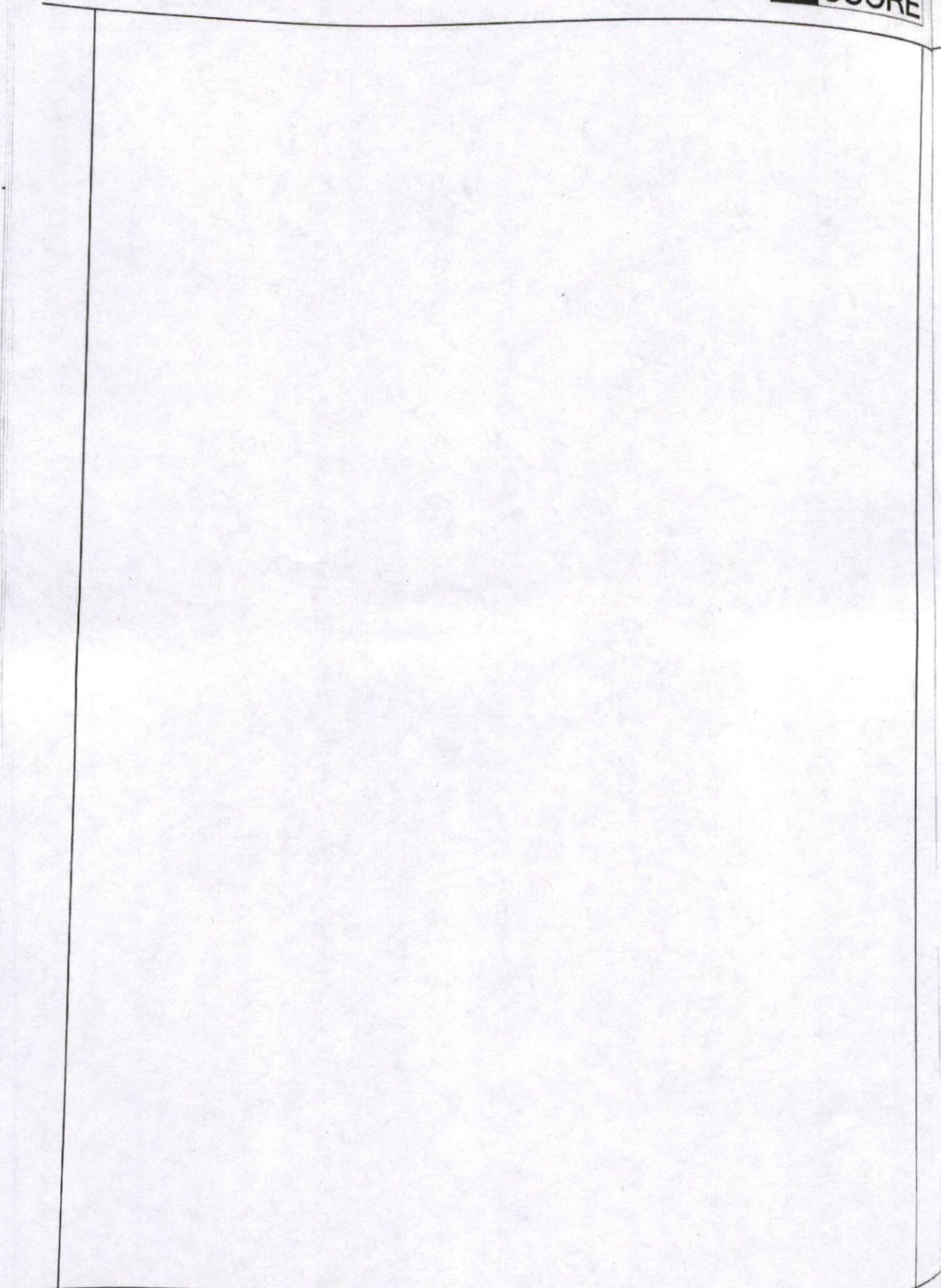
Remarks

Remarks

Remarks

Remarks

GS SCORE

Remarks

Remarks

4. Answer the following questions:

(a) The nature and extent of human wildlife conflict in India has profoundly impacted humans, wild animal and the environment in many ways. Elucidate and also suggest measures to curb such conflict. (250 Words) (20)

(b) Geographical divisions have led to federalism in India by helping people create a distinct language and culture. Illustrate. (200 Words) (15)

(c) Write an explanatory note on current land use pattern in India. Even after bringing various policies, why land under forest in India has not increased much since last four decades? Also examine why majority of landholdings in India are small? (200 Words) (15)

(a.)

Human-Wildlife conflict is occuring in India because of many reasons :

① Shrinking forests [fall in NE from 67% to 65%)

② Expanding population occupied traditional areas of animal.

③ Trapping on electric wire of animal eg. recent death of elephants in Assam

④ Climate change affecting movement of animals outside of forest for food stuff.

⑤ Poaching eg. of Rhino in Kaziranga N.P.

⑥ Forest fire eg. Bandipur in 2019

Impact on :

Human ① loss of life of human especially eg when

[margin note: Also H habitat fragm →Agri →minin]

Remarks

Tigress Avni became man eater

② Safety of Human settlement put in question

③ Ex Threat of extinction of many animals

⇒ affects pollination ⇒ affect biodiversity ⇒ affect human who depend on food from such animals. [food security Affected]

④ the Way of living of tribals affected.

On Wild Animals

① Human created artificial often restrict create genetic diversity of animals affecting their survival

② loss of life of animals eg. death of Avni tigress or elephant or Rhino by Poaching

③ loss of top predator adversely affect food chain and food web in the forests.

④ Threaten wild life extinction as report by IPBES show

Remarks

On Environment

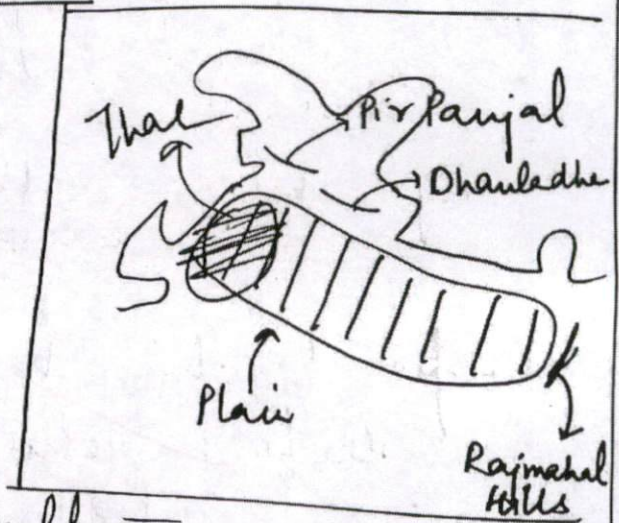① Biodiversity hurt ⇒ ecosystem equilibrium affect ⇒ stability of environment affect

∵ lose of lion ⇒ deers ↑ ⇒ overgrazing ⇒ grassland ecosystem destroyed

② Changes to environment to destruction by human with no regard for wildlife

Measures to curb

① A separate law to deal with such conflict like Wildlife Protection Act of 1972.

② Creating a specifically trained cadre of wildlife protectors

③ Division of all ecosystem in core, buffer and Transition zone to ↓ conflict

④ Avoiding laying down of electric wire in prominent animal zones.

⑤ Catching and prosecuting poachers

⑥ Joint forest and wildlife management with with active role of Tribes

Remarks

(b) *try both geographic division Intractable*

Federalism respect cultural divide and this cultural divide is the result of geography.
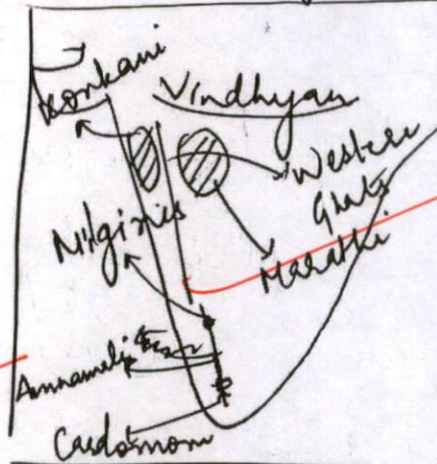
~~North / Indian~~

① Vast featureless plain led to development of Hindu-Hindi culture

② Presence of Rajmahal Hill helped separating and creating a Bengali culture

③ In the North, separate by mountain, developed a separate Hindu culture in Himanchal so a separate state which was further separated from Muslim cultural dominant State of J&K by Pir-Panjal and Dhauladhar range

④ Thar separate Rajasthani culture from Punjab's culture of Pak and Punjab (India)

Thar → Pir Panjal → Dhauladhar
Plain
Rajmahal Hills

Remarks

⑤ Vindhyas created difference between Aryan North and Dravidian south.

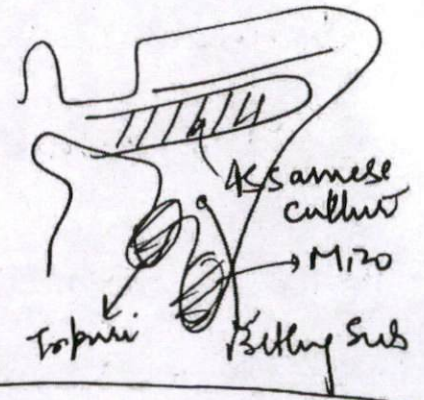⑥ Here Western Ghats differentiated between Konkan and Marathi culture, hence the persistent demand for a separate Konkan State.

⑦ Tamil Nadu and Kerala separated by Nilgiri to Annamalai to Cardomom resulting into culturally different state.

⑧ While Both of them were from separated from Kannada speaking Karnataka by Nilgiris and Malnad and Maidan Plateau

⑨ In Odisha, Coastal East is separated from Mountainous west by Malaygiri & Maduskonda Hill, generally persistent demand for ~~upo~~ separate Western Odisha State (Kosala)

Remarks

(10) In the North East, the creation of plain by Brahmaputra resulted in the generation of predominant Assamese culture separated from Nagaculture by Purvanchal and Arunachalese culture by Himalayas.

Assamese culture → Mizo
Tripuri   Betling Sib

(11) Similarly Tripuri culture separated from Mizo culture by Betling Sib and other ranges.

(12) Garo, Khasi and Jaintia Hills separated Bangladeshi culture from Tribal Meghalayan State.

Thus we observe how geographycal resulted in creation of Federal India.

⑧

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(1)   Land use pattern in India is predominently dominated by <u>Agriculture</u>, <u>forestry</u>, <u>deserts</u>, and <u>urban spaces</u>. However, as the population expands and shifts to urban area, the <u>urban areas</u> are expanding at cost of <u>agri</u>, <u>deserts</u> and other area like <u>plantation</u>, <u>fallow land</u> etc.

Try to Give data of different Land use

Many policies tries to increase forest areas in India like ① <u>Green India Mission</u> ② <u>Forest Conservation Act</u> ③ - social forestry policies we have not been able to enhance forest areas as : ① <u>lack of funding</u> ② <u>lack of awareness</u> On how to expand forestland ③ <u>growing population</u> prevent <u>forestation</u> ④ <u>Development need of forest land for urban expansion</u> and agriculture to feed the growing population ⑤ Afforestation

post deforestation takes years to replace original forest. ⑥ Climate change

This led to only 24% forest and tree cover as part of India-State of forest Report 2019-20

Majority of landholding are small as [eg 86% of farmer are small and marginal with avg landholding size at (1.16 ha)]

Reasons:

① High population pressure on land and division among siblings

② Land reforms like land ceiling restricted size that can be held. Not implemented proper

③ Small area as land available itself was long on account of ↑ desertification

This had led to uneconomical nature of landholding where factor of scale to enhance productivity has been lost.

Thus land reform 2.0 are needed.

SECTION-B

Attempt all questions:

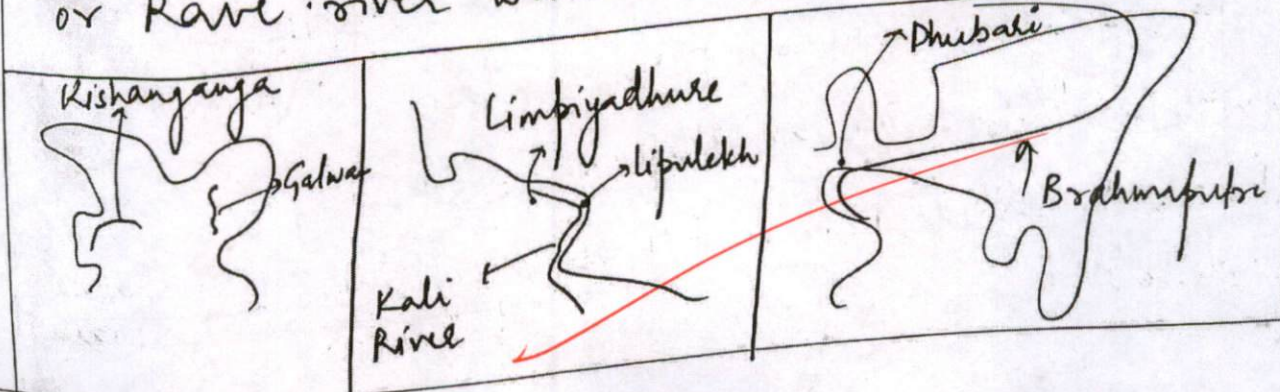5. Comment on the following into 150 words: (10 × 5 = 50)

(a) Write a short note on <u>water frontiers</u> of India.

(b) Write a short note on Problems of Food security in India.

(c) Write a short note on Geopolitics of Indian Ocean.

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

(e) The extensive geographical spread of the country is conducive to the growth of regional diversities in social milieu. Explain.

India is the 7th largest country in the world as so it has varied <u>borders</u>.
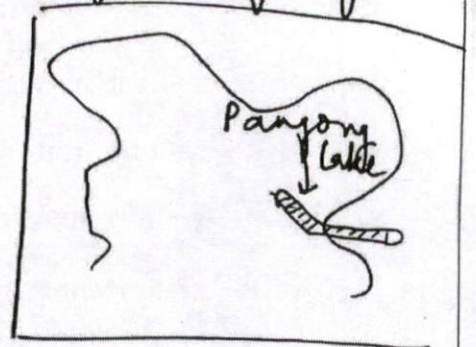
<u>Water frontiers</u>

① As <u>rivers</u>, the most major is that of massive Brahmaputra river or Kali River (with Nepal), or Kishanganga (with Pakistan), or Galwan River with China or Ravi river with Pakistan.

[margin note in red: Q^th have been asked mainly on the border Indo-Srilanka Border]

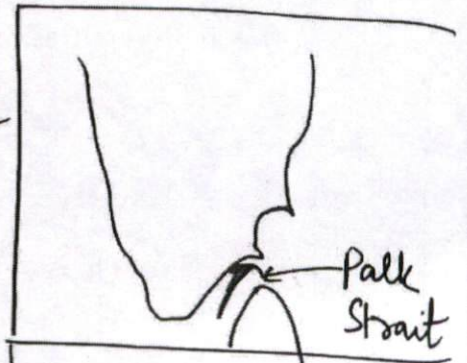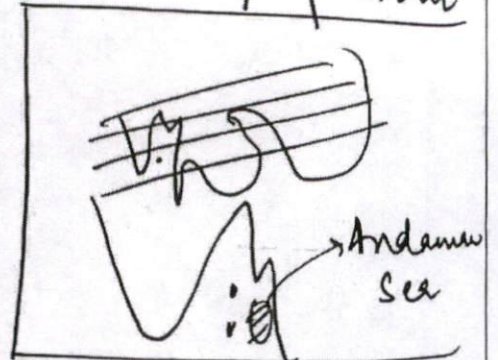|		
Kishanganga ⟶ Galwan	Limpiyadhura ⟶ ⟶ Lipulekh Kali River	⟶ Dhubali ⟶ Brahmaputra

Remarks

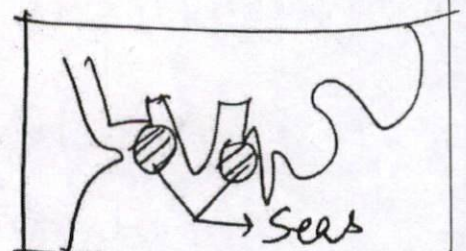② As lakes, we have examples of Panyong Tso lake between India-China, .

③ As Straits, we have an example of Palk Strait. b/w India - Sri Lanka

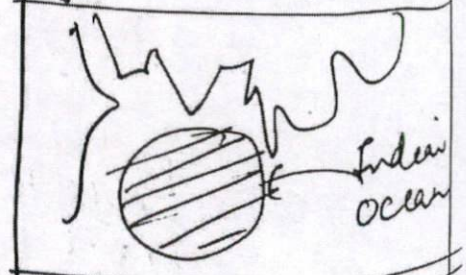④ As Marginal seas, we have example of Andaman Sea between Andaman and Nicobar Island and Thailand

⑤ As seas, we have example of Arabian Sea separating us from Pakistan, among the other Arabias, Arabian Gulf

⑥ As Ocean, we have Indian ocean, separating us from Central Indian ocean Islands like Seychelles, Prince Edward Crozet etc

Panyong Lake

Palk Strait

Andaman Sea

Seas

Indian Ocean

Remarks

(b) Food security refers to AVAILABILITY ACCESSIBILITY, STABILITY in of food at all times. India was food insecure in 1960s when Green Revolution helped us.

> Problems of food security

① Rising population, though it has moderated to 2.0 as NFHS 5 shows

② Falling productivity of land as the Green Revolution harmful results show

③ Issue of micro-nutrient deficiency (Hidden Hunger) is beginning to impinge

④ Climate change is affected the food availability component

⑤ Rising poverty on account pandemic led

Remarks

(red margin annotations) here highlight that present the main Problem of food security in India is not availability and access only but mainly related to non-availability of nutrious food, food diversity Package / Perfect fr019
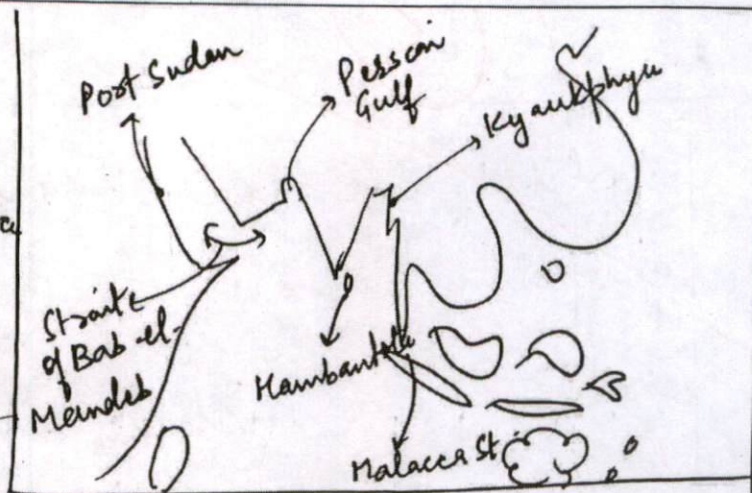
disruption is reducing people's physical and economic access to food.

⑥ Rising inflation as CPI soared to 4.91% and WPI to 14.24% is affected food security.

Therefore, need of the hour is to work to enhance production, incentivise smaller families and combat climate change as PM Modi promised at COP 26 in his "Panchamrit".

(E)

Indian Ocean is the 3rd largest ocean and straddles the "Rimland" of Spykman thereby reflecting geopolitical sensitivity.

Geopolitics of IOR arises due to geopolitical significance of IOR.

① Economic scope of utilisation of Poly-metallic nodules. ② Strategic competition with China over "Maritime Silk Route" and String of Pearl with ports at Hambantota, Kyaukphyu, Sudan

③ It flanks 3 nuclear powered nations of India, Pak and China

④ Straddles across important Sea lanes of Communication and has important choke points of Bab-el-Mandeb and Malacca strait creating strategic & geopolitical competition over them.

⑤ Emergence of the concept of Indo-Pacific and contestation b/w West and China over Quad   ⑥ the fact that one-third of

Remarks

world trade goes through it only increase geopolitical sensitivity of IOR.

(d) Global warming is the ~~average~~ long term increase of average temperature of earth's atmosphere and leading to climate change:

IMPACT ON INDIA (-ve)

① Melting of glaciers like <u>Rathong</u>, <u>Siachen</u>, <u>Baltora</u> etc [affect water availability. Initially <u>flood</u> later <u>drought</u>

② Rising sea level as IPCC AR6 show at rate of 4.1mm/year may submerge islands of Lakshwadweep.

③ Desertification ⇒ ↓ land for agriculture ⇒ food security hurt

④ Frequency, intensity and <u>random</u> of <u>natural disasters</u> like <u>cyclone</u> as we have

observed in Arabian Sea will increase.

⑤ The system of Monsoon will be adversely affected.

(+ve)

① ↑ area for agriculture as rising temperature will help areas of State like UK and Sikkim be more suitable for agri.

② ↓ the extreme cold of winter which kill a lot of people.

③ ↓ avalanches by ↓ amount of snow on steep hill.

$5\frac{1}{2}$

In general, it will have bad consequence. So PM at COP 26 argued for neto by 2070 under "Panchamrit".

ⓒ   India is country of wide proportion so it exhibit diversity in social milieu.

Aspects

① Culturally, we have different culture in Northern, Southern and North-Eastern part of India

Remarks

(2) Linguistically, we have Aryan set of languages in North like Hindi etc, Dravidian in India like Tamil, ~~Mongol~~ ~~Australoid~~ Austric group in like Santhali, Ho etc.

(3) Racially, we have Aryan race in North India, Mediterranean in Central India and Mongoloid tribes like Lepchas, Bhutia etc in NE

(4) Religiously, large areal nature has allowed crores of minority to co-exist with majority Hindus. Along we have variant social tribal cultures like Sanamahi, worship in NE

(5) Societal structures also differ eg. Matrilineal societal culture of Meghalaya vs Male dominated in North to equality of South

However with spirit of "Shreeetha Bharat", & we co-exist "Ek Bharat peacefully.

[margin note in red:] Try to write it in the backdrop of vast physiographic Geographic Region

(5)

Answer the following questions:

(a) 'Indian ocean has vast mineral and energy resources which provide great geo-political significance to it'. Comment. (250 Words) (20)

(b) The frequency of Glacial Lake Outburst Floods has increased particularly in light of climate change. Discuss measures to reduce and deal with Glacial Lake Outburst Floods. (200 Words) (15)

(c) Bring out the main concerns raised by environmentalist in Environmental Impact Assessment notification 2020. (200 Words) (15)

(a) Indian Ocean is the 3rd largest Ocean of the world and has many reason to be of geopolitical significance like:

(1) Sea lane of communication on it

(2) Mineral wealth like PMN.

(3) Energy Sources eg. Saffaniyah oil field

(4) Choke points like Bab-el-Mandeb

(5) Role of China / Chinese's Maritime Silk route.

But the presence of minerals like Polymetallic Nodules (PMN) and energy resource has added geo-political significan as:

Remarks

① Region has 40% of total oil reserve in fields like Saffaniyah, Abqaiq and Khurais

② World's energy security depends on IOR

③ Mineral resources have become important in the wake of growing demand of electric vehicle as EV require PMN.
(EV)

④ Region experiences conflict and instability as flanking IOR by Saudi Arabia, or Iran shows

⑤ The conflict over resources with the entry of China in Indian Ocean region show → enhanced geopolitical sensitivity of Indian ocean region

⑥ India interest as [It is part of India EEZ (Central Indian Ocean Basin)
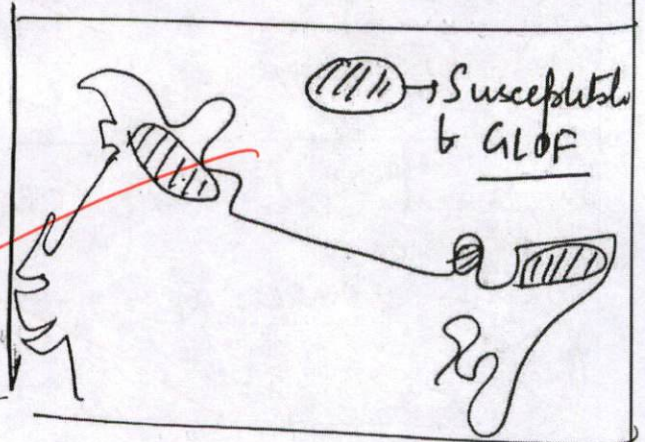
Remarks

This had led to many issues:

① China's String of Pearl with port like Hambantoba, Kyaukphyu, Port Sudan etc creating the potential for strategic conflict

② Spectre of conflict b/w USA and Iran as recent firing on Ships of US-A by Iran shows

③ Climate change due to increase exploration and affecting ocean ecosystem which is the source of food for people.

④ Strategic competition and tensions b/w India and China spilling in Galwan

Thus, there is need to follow directives of United Nation Seabed Authority to sustainably exploit resource with the demands of net zero at COP 26 being fulfilled.

(b)   Glacial lake outburst occurs when lake dammed by <u>ice</u> or <u>morraine</u> starts "leaking" causing <u>damage and destruction</u> eg. GLOF of Uttarakhand's upper reaches near <u>Tapovan</u>.

Frequency has increased due to climate change as:

① Climate change is leading to rise in temperature causing thermal expansion of water

→ Susceptible to GLOF

② ↑ the <u>melting of glacier</u> ⇒ ↑ level of <u>water in glacial lakes</u>

③ Weakening the <u>impound capacity of</u> ice <u>water</u> weakening the holding capacity causing breakage to occur.

④ Climate change is enhancing liquefaction of debris morraine, which holding back water

⑤ Climate causing Avalanches due to failure of slope on account of melting g. Tapovan (UK, Feb 2021)

⑥ Climate change is bar making base of river itself a source of added water.

⇒ Thus creating increasing potential of GLOP.

Measures

General

① ↓ climate change by shifting from fossil to Renewable energy

② use of green hydrogen produced energy to produce electricity / to run electric vehicle

emarks

(3) Reducing housing in GLOF prone areas

Structural measures

(1) Creating embankment wall outside settlement
(2) use of check dams
(3) Hazard resistant construction, strengthening retrofitting of existing and lifeline structure
(4) ~~using~~ Avalanche — (5) GLOF protection Shelters

Non-Structural measures

(1) Structural safety audit of existing structure to ensure their safety

(2) Flood plane zoning to delineate where what kind of construction can happen

(3) controlled blast to drain the glacial lake every few months or so.

This will go a long way in minimising damage because of GLOF

(c) **Environment Impact Assessment**

is the analysis of a project's potential benefits and losses and analysis alternative to come to a conclusion about project sustainability. Mandated as part of EPA 1986.

EIA is important as :

① It enables sustainable development
② It ensures the voice of people in development projects
③ It enhance long term viability of project
④ Minimise the impact of climate change

EIA 2006 was hailed for being great to reduce harm to nature but concern have been raised over EIA 2020 notifications as :

① It gives power to govt to give expost facto recognition to project

→ meaning project can be started without EIA but approval may be granted later.

2. It enables govt to designate any project as "strategic" thus obviating the need for EIA

3. It reduces the time period for public approval and discussion from 40 to 30 days

4. It ends the need for EIA for many categories of project like defence etc.

all these may hold negative for environment in view of our 5 pledge as "Panchamrit" in COP 26, 2021 in Glasgow

Answer the following questions:

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

(250 Words) (20)

(b) Suggest some of the innovative practices that can be adopted for waste management in various important Indian cities.

(200 Words) (15)

(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)

Remarks

Remarks

Remarks

Remarks

55

Remarks

Remarks

Remarks

Answer the following questions:

(a) Identify the landslide and avalanche prone regions of India and suggest strategy for their management.

(250 Words) (20)

(b) The concept of environmental sustainability is critical when building Supermassive structures for hosting massive events like Olympics. Substantiate this statement with examples.

(200 Words) (15)

(c) Can the interlinking of rivers reduce water disparity and interstate river disputes? Comment.

(200 Words) (15)
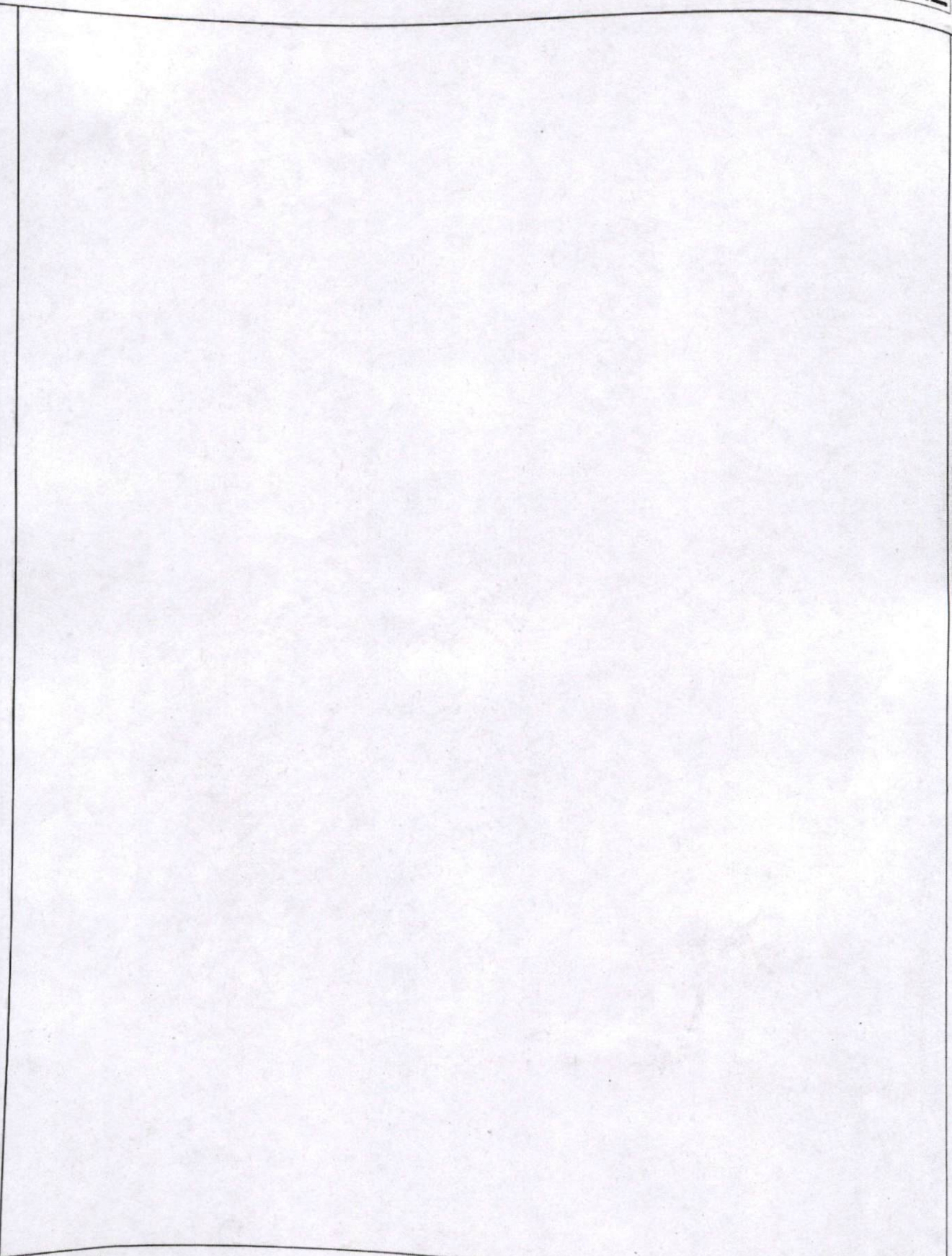
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