

EDGE IAS



SARTHAK

General Studies - Mains Test Series - 2024

Test Code: 04

Time Allowed: 3 Hours

Maximum Marks: 250

Student's Signature: _____

Question Paper Specific Instructions.

Please read each of the following instructions carefully before attempting questions:

- There are total 20 questions in test printed in **ENGLISH**.
- All questions are **compulsory**.
- Answer must be written in 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 allotted for answers written in medium other than the authorized one.
- Any page or portion of the **page left blank** in the Question -Cum- Answer booklet must be **clearly struck off**.
- Word limit in question should be adhered to.
- The number of marks carried by question/part is indicated against it.

(To be filled by Examiners only)

Questions No.	Starting Page No.	Maximum Marks	Marks Obtained
1	4	10	2
2	6	10	2.5
3	8	10	3
4	10	10	3
5	12	10	1.5
6	14	10	2
7	16	10	1.5
8	18	10	1
9	20	10	2.5
10	22	10	2
11	24	15	5
12	27	15	3
13	30	15	4
14	33	15	6
15	36	15	2
16	39	15	6.5
17	42	15	8
18	45	15	8
19	48	15	7
20	51	15	7

Total Marks Obtained:

77.5 250

Remarks:

Macro Analysis

- write introduction which is directly related to the demand of question
- your content is good, but explain your points, so that they fit in a context, otherwise they will look very generalist
- make map whenever possible, it will give you an edge
- prioritise your points and then write important ones first.

keep writing!

you've good content
present it properly

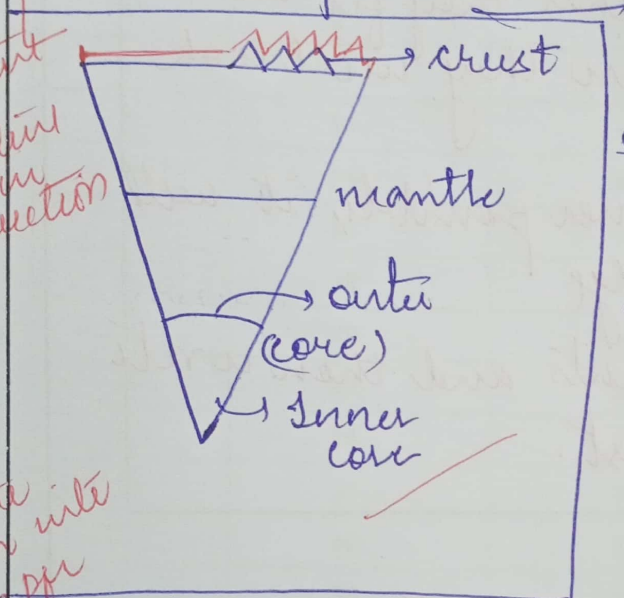
(Please do not write anything except the question number in this space)

1. While the earth's crust is undergoing constructive changes to create new relief, external forces of nature are working vigorously to level this down. Explain. 10 (150 words)

(Please don't write anything in this space)

Briefly tell about destructive and constructive forces in intro direction only

Our earth is ~~made of~~ divided into three parts, crust, mantle and core.



It is often said that our crust is undergoing constructive changes that is creating new relief but on the other hand

Break the question into parts as per the demand
① Constructive

the ~~sea~~ level is going down also. This can be explain by taking few examples

① plate tectonic theory, which result in formation of ~~formation~~ mountains like Andes, Himalayas.

or you can also do a comparative analysis using this etc. content

② The erosional agent like wind, river breaking them too is the form of mushroom rocks, zardangs etc

③ The sea floor spreading is creating new oceanic relief but the magma from volcano getting the older rocks subducted into the ocean.

Thus, we can say that the crust is undergoing change in its form at some places the formation is occurring like mountain but other they are breaking due to erosional features.

$\frac{2}{10}$



(Please do not write anything except the question number in this space)

2. Analyze the phenomenon of the Sixth Mass Extinction in light of the alarming loss of species on the planet, where thousands are projected to become extinct within decades.
10

(150 words)

Till date the earth has seen 5 ~~the~~ mass extinction, the last one, where the dinosaur has been disappeared. Today the world is seeing the 6th mass extinction due to human being which is often called as the anthropocene era.

(6ME)

The sixth mass extinction

can be seen in many ways-

value add
with data
if possible

- ① The loss of krill in arctic region affecting food chain there of whales.
→ 80% decline in population Antarctic
- ② The extinction of Bramble bay cay memolynes due to climate change.
- ③ The Amphibians are more vulnerable than other species as per studies.

④ The declining population of rhino with tusk is another phenomena of GTHME.

⑤ The ^{male} green turtle are on the verge of extinction as because of ~~more~~ climate change more female green turtle are coming

Thus, the GTHME has huge repercussions on the species like honey bee, mammals etc. It can be minimised by adopting sustainable practices and phenomena like circular economy

write
- Causes?
- Can also write mitigation measures

$$\frac{2\frac{1}{2}}{10}$$



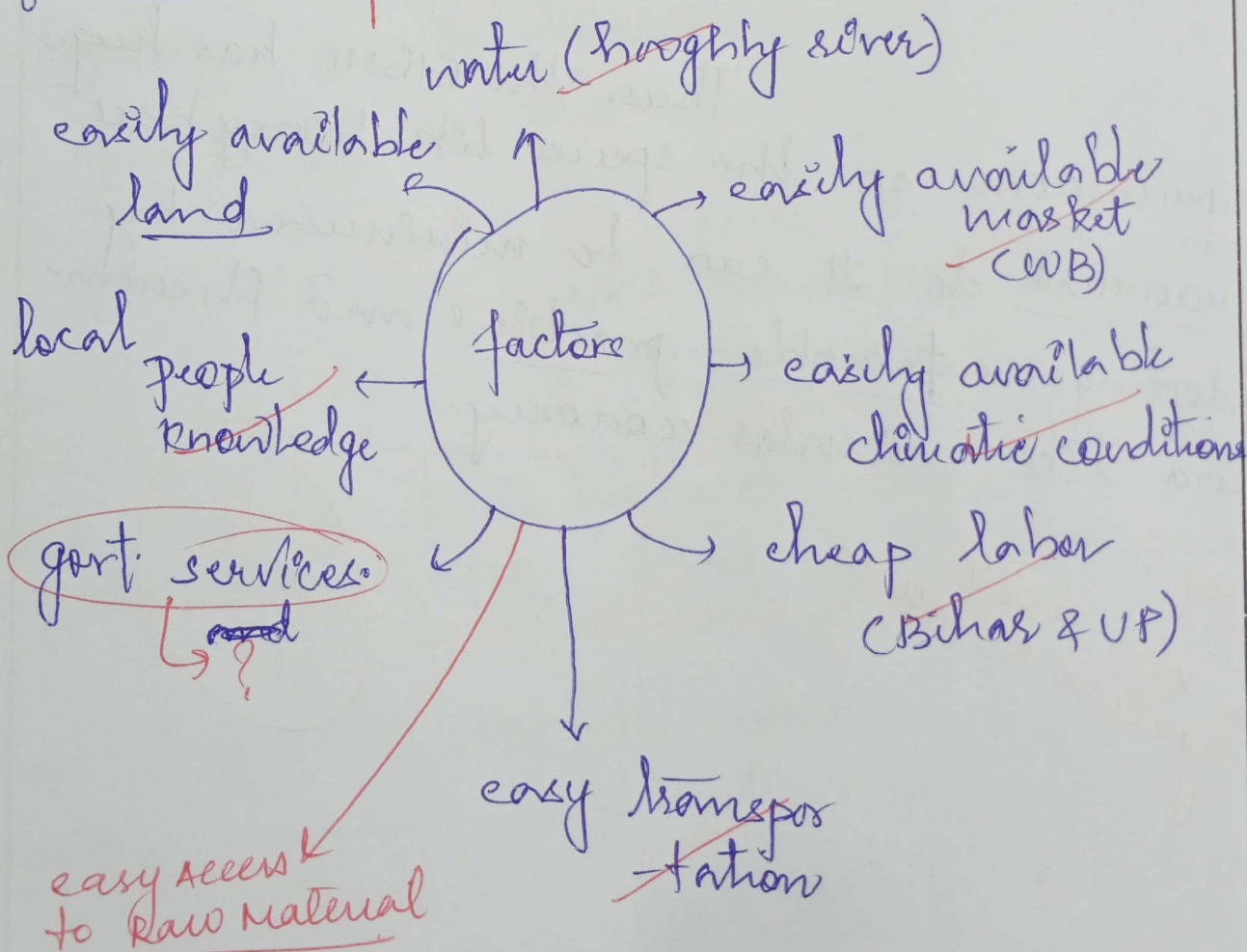
(Please do not write anything except the question number in this space)

3. What factors have affected the localisation of the jute industry in Eastern India? Elaborate the major challenges facing the industry in recent times. (150 Words)

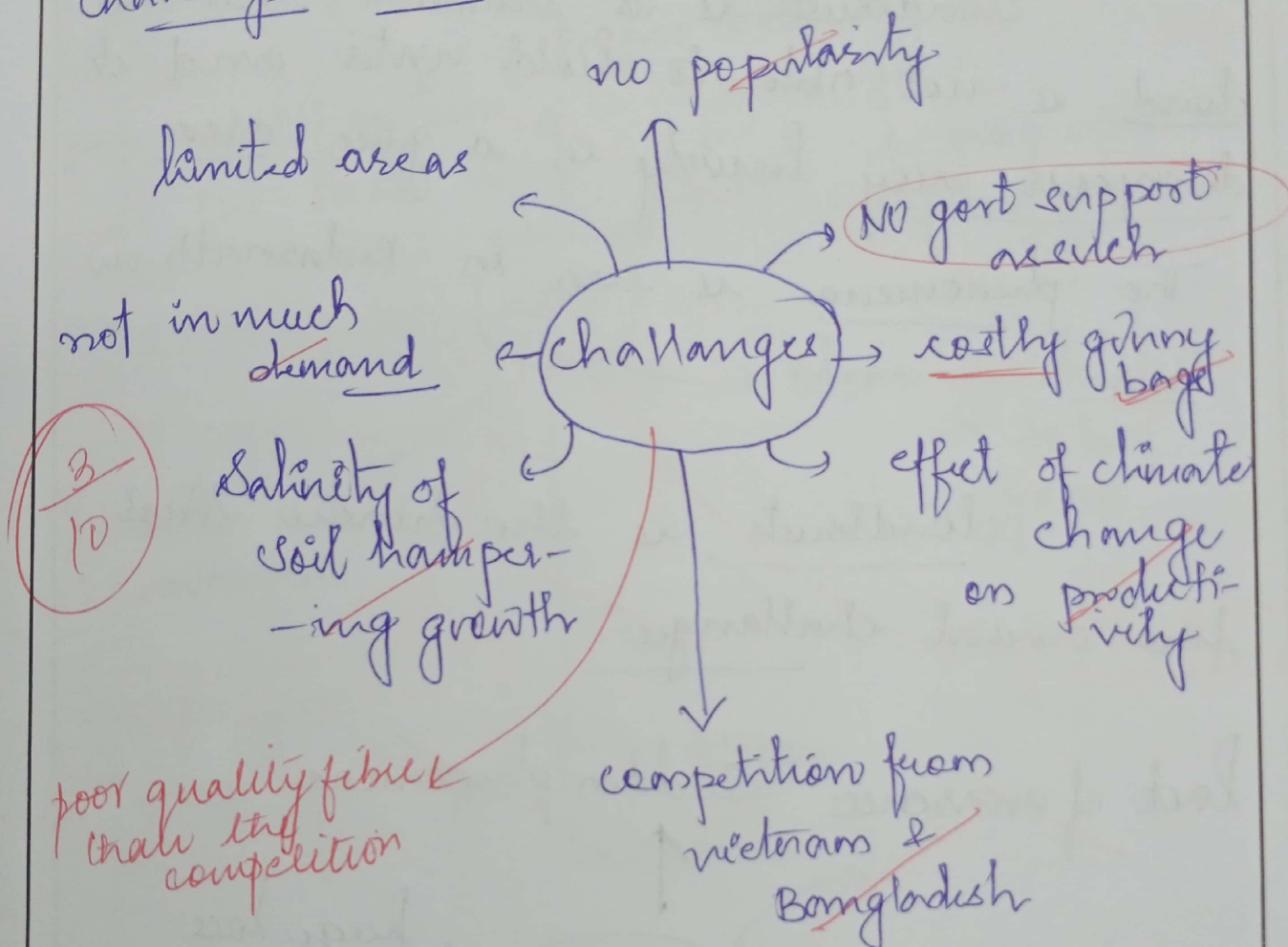
Break from here and write in next line

India is 2nd in the production of jute industry in the world. The industries find it mainly in eastern India due to following factors-
prepare data west eastern states also

Map missing



Tute industry is very important for Indian economy, but often face challenges like-



Tute industry can be helpful in reducing pollution and curbing plastic pollution, but the thing is the govt need to provide support for its advancement.

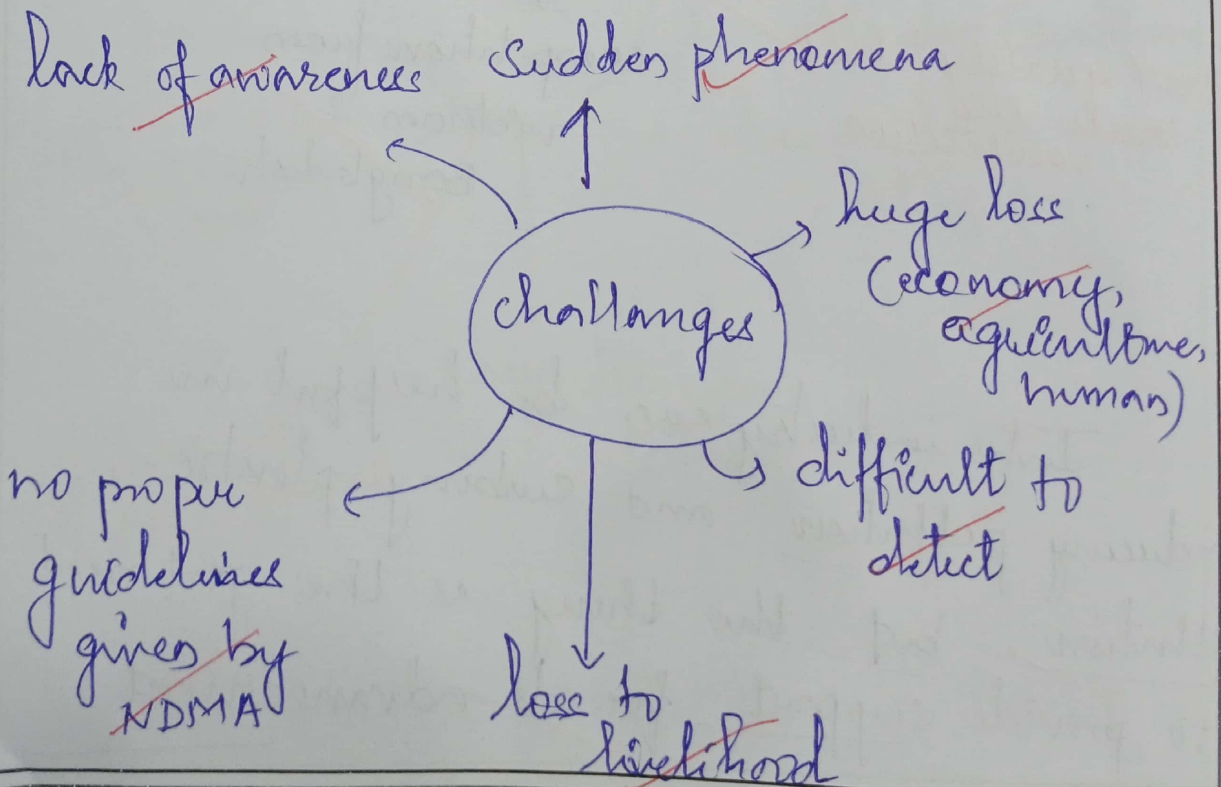
4. The occurrence of cloudbursts is a significant concern in mountainous regions. Examine the challenges posed by cloudbursts and suggest measures to mitigate their adverse effects.

(150 words)

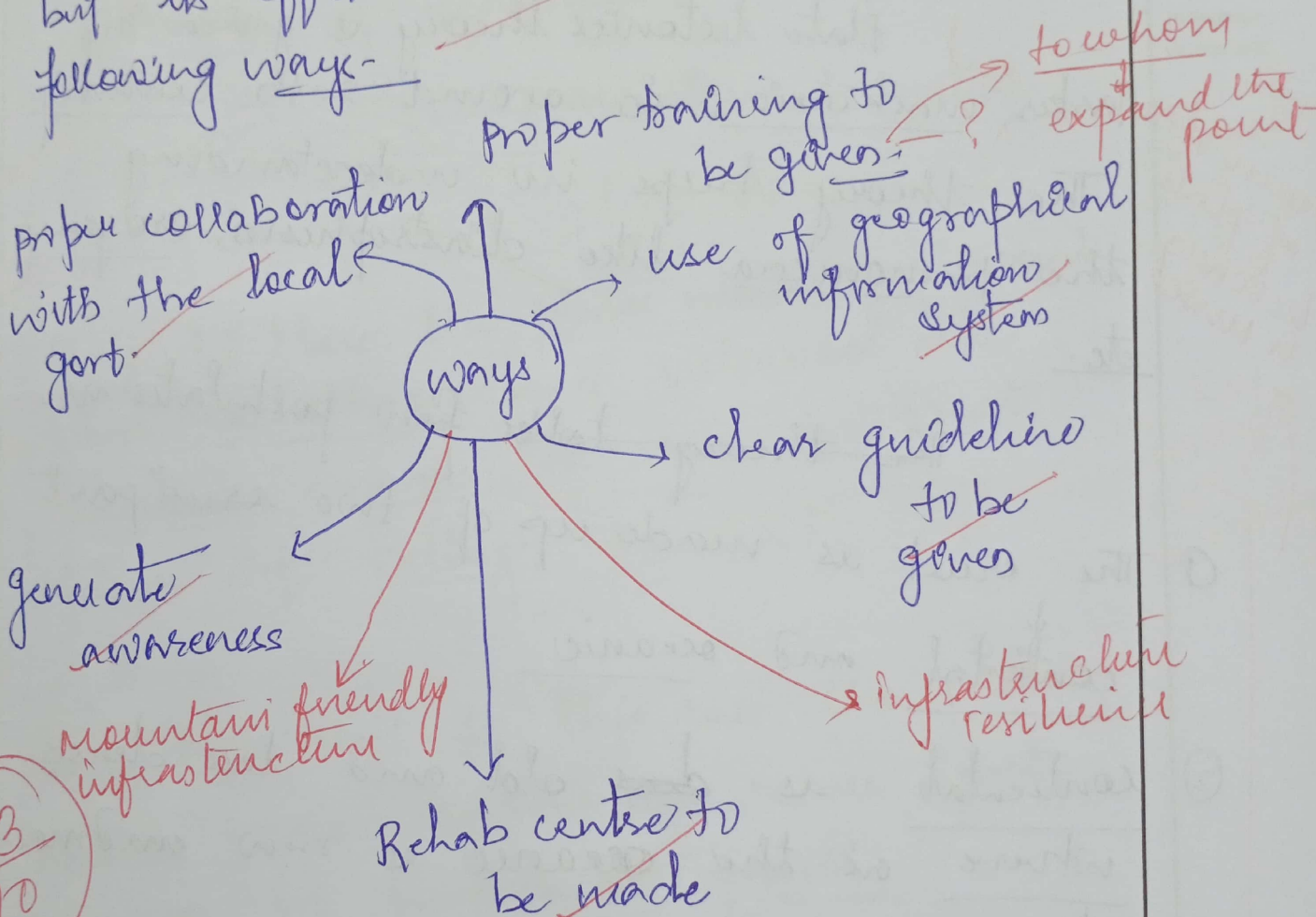
10

cloudburst is a situation when the cloud is not able to hold water and it downpours very heavily in a given area.
The phenomena is seen in Kedarnath in 2013.

cloudburst is the disaster that has several challenges.



land-brusts do ~~not~~ occur suddenly but its effects can be minimised in following ways-



Natural disaster are an act of god, they can't be controlled, but the effects can be minimised ~~but~~ by taking some measures like early warning system, generating rehab centre etc.



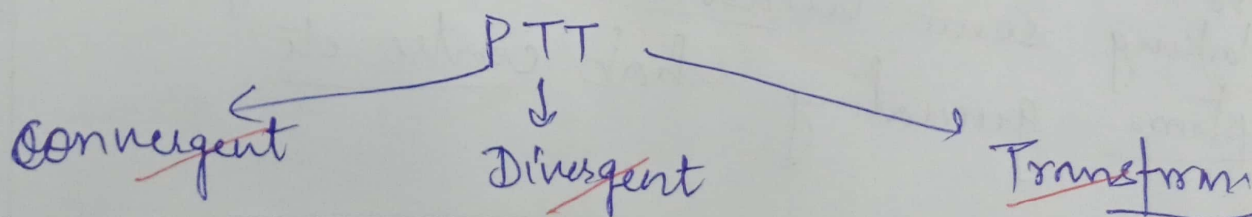
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5. What do you understand by the theory of plate tectonics? Discuss the various types of plate boundaries across the world. 10 (150 Words)

main idea of plate tectonics is given by
(PTT) Plate tectonics theory is given by Parker ^{and} Mackenzie, is around 20th century. The theory helps in understanding the phenomena like diastrophism, orogeny etc.

The theory ~~tells~~ few postulates are-

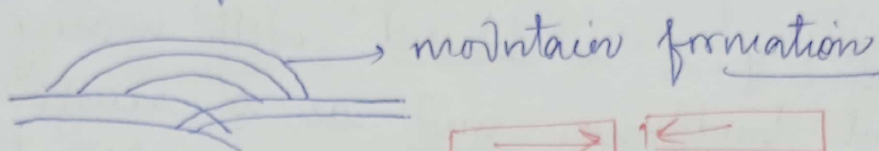
- ① The crust is made up of two crust part
↓
continental and oceanic
- ② continental is ~~new~~ old and less dense where as the oceanic is new and more dense.
- ③ The continental made up of sial (silica and aluminium) and oceanic is of simar (silica & magnesium). The sial float over simar.





convergent - The plate when comes together
they form the mountain as seen the
formation of mountains (Himalayas)

(Please
don't write
anything in
this space)

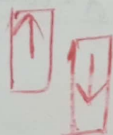


Talk of
subduction
and
compressional
zones

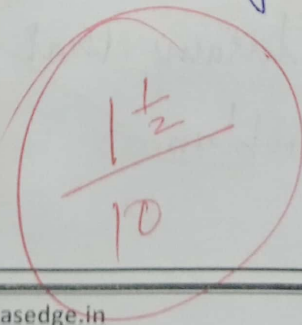
Divergent: Here the plates moves far apart
from each other and volcanoes like
situation emerges or seen in great
african rift valley

- use key
words &
right
terminology

Transform: In this case the plate
neither come together nor moves apart
as seen in San Andreas fault



Thus, PTT shows many
phenomena to explain the dynamics of the
world.





(Please do not write anything except the question number in this space)

6. Why are landslides more common in the Himalayan region than the Deccan? What role do developmental activities play in the occurrence of such events? 10

(150 Words)

India is the land of different topography, it is blessed with many different landforms and as a result different areas see different type of disasters.

Landslide are more common in the Himalayas than Deccan because-

- 1) The plate are in continuous motion as a result earthquake occurs and landslide too. - Himalayas are tectonically active
- 2) The rocks of the region are Inconsolidated often get affected by shaking.
- 3) ~~The~~ weak consistency of the rocks also copy
- 3) The difficult terrain that holds the soil is another problem.



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4) The increasing height of the Himalayas is another reason.

not directly
climatic factors - extreme rainfall/cloudbursts

Development activities can lead towards a harmful situation because

① Decreasing binding capacity of soil - How? concretisation

② Extra pressure weakens the rocks - from?

③ pollution also play a crucial role.

④ The shifting of cropping pattern also hampers the ~~productivity~~ landslides.

⑤ The conversion of lane-1 to lane-2 and lane-2 to lane-4 exert pressure as seen in Himachal Pradesh.

unustainable
→ tourism
- deforestation
- poor land use practices

Thus, landslide

can't be ~~control~~ stopped but can be controlled by community level participation, afforestation, early warning system and following nishra committee report on Joshinath.

(Please don't write anything in this space)

2/10

- could have been talked of reasons behind seismic stability





(Please do not write anything except the question number in this space)

7. While the Andaman and Nicobar Islands are popular tourist spots and key links in India's blue economy, its fragile coral reefs are suffering as a result of haphazard development.

Discuss 10

(150 words)

not addressed

This question is more about coral reefs - by giving intro based on that

Andaman & Nicobar islands are the continental islands that are formed as the extension of peninsular Himalayas.

The region

is important for tourist and helps in ~~to~~ blue economy because of the geography

Significance of the ~~island~~ island content with demand of question

The coral reefs are suffering from problem because-

- ① Increase in temperature due to increase in pollution
- ② The development of hotel impacting the growth



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except the
question
number in
this space)

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don't write
anything in
this space)

③ The improper EIA hampering the islands.

④ Increase salinity decreases coral popula-
tion - oceanic pollution

A&N are ~~useful~~ the key to
increase India's economy but the destruction
of coral reefs will hampers the regions.
In this direction biosock technology good
can be used and proper EIA can be
done to save the islands.

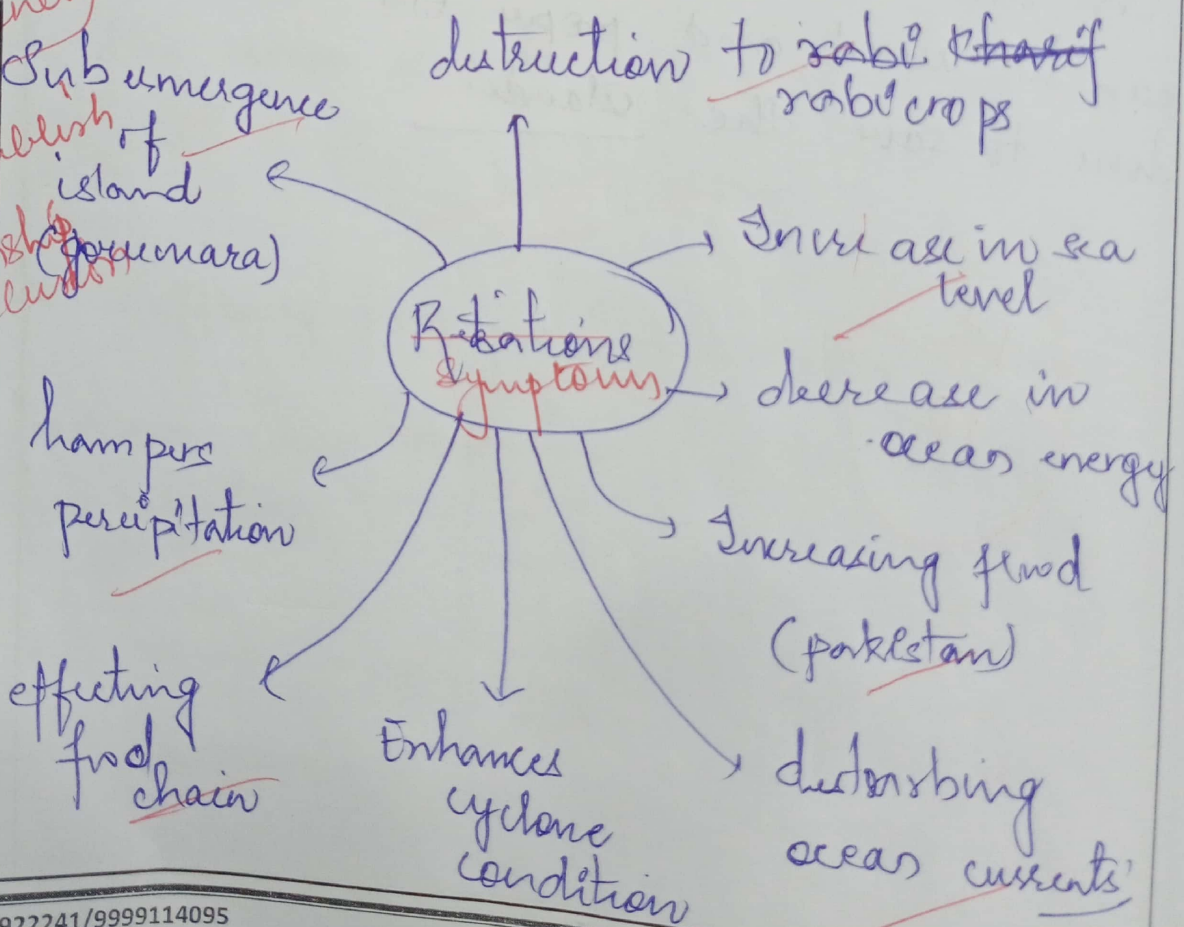
$\frac{1\frac{1}{2}}{10}$

8. What is Arctic Amplification? Bring out the relationship between the Arctic Amplification and the symptoms of Climate Change in the Indian Subcontinent. 10 (150 words)

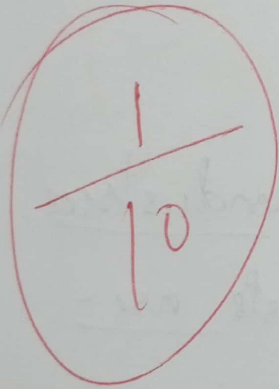
Arctic region warms faster than the world average (AA)
Arctic amplification is the condition of melting of ice at arctic region. The region is melting 20-30% more than the other part.

Break this into parts

Causes → *consequences* → *Then establish a relationship in conclusion*
(AA) and Indian subcontinent has following relations



As it is said that geography can't be changed, so effects in one area will hampers other. The global effects of world is needed to control this phenomena and COP-20 can be a platform to do the same.



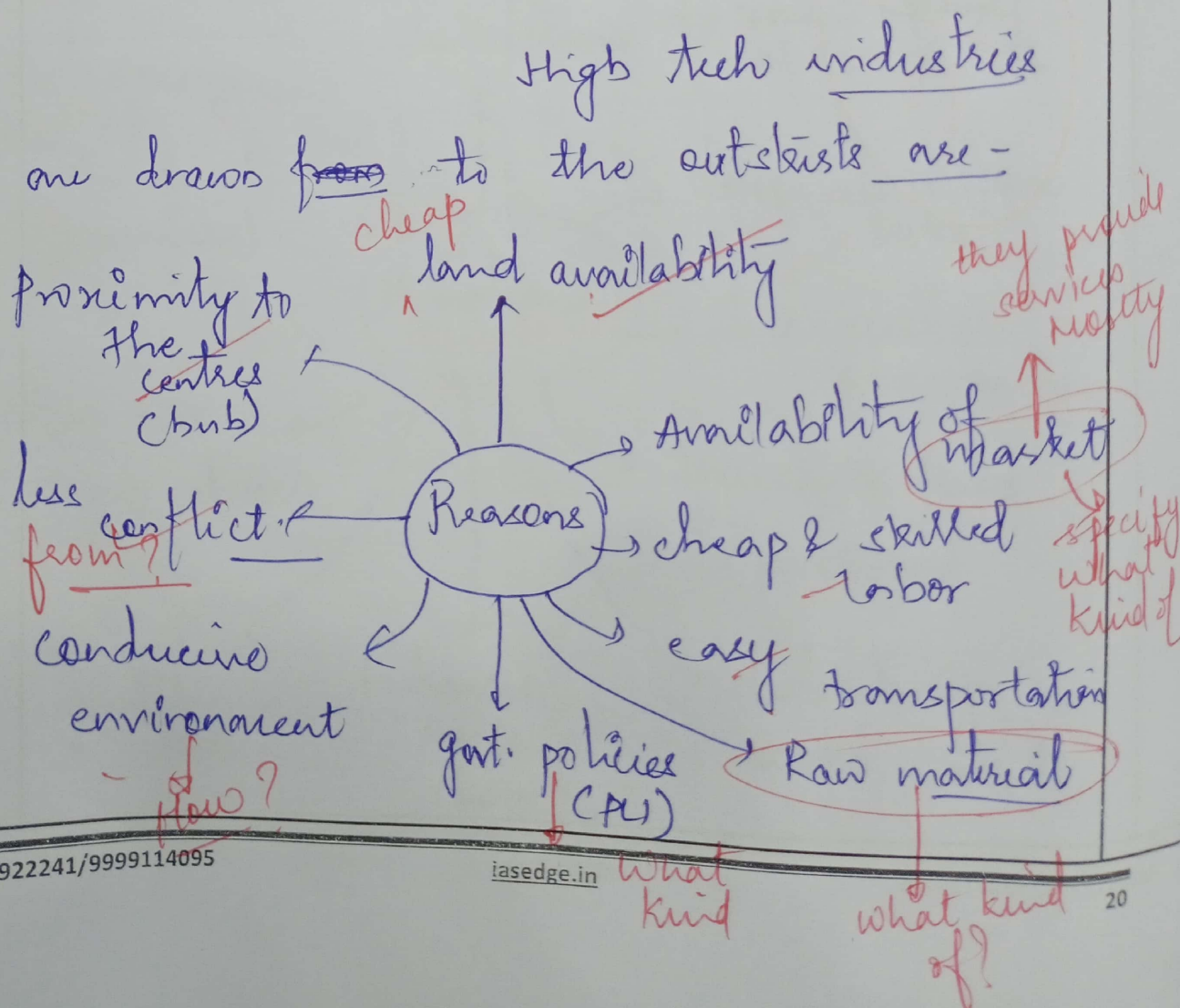


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9. Explain why high-tech businesses are drawn to the outskirts of large urban centers in many different countries. 10 (150 words)

map?

High tech industries are the quinary sector of ~~any~~ Indian economy. The ~~com~~ areas like Bengaluru, Gurgaon etc. are the high-tech business areas in India.



Thus, high tech industries are
creating a win-win situation for the
people and for them and making
the country's GDP to high level like
California, Bengaluru etc

(Please
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anything in
this space)

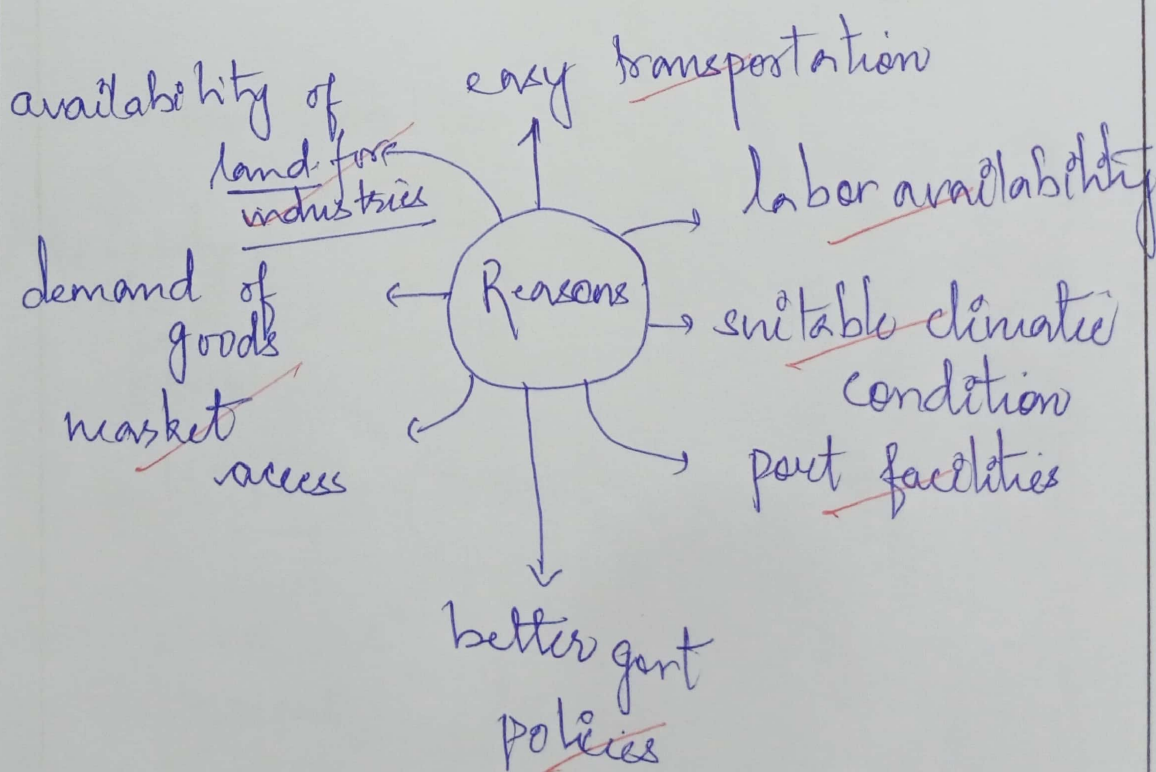
$$\frac{2\frac{1}{2}}{10}$$

10. What elements affect the location of cotton textile mills in India? Briefly describe how the sites of these industries are changing. 10 (150 words)

map?

~~1st~~ India ranks 1st in the production of all cotton ~~industries~~ in the world. The overall rank is 2nd in the cotton production ^{exporter} in the world.

The cotton plants ^{textile mills} are available in region like Maharashtra, Gujarat due to many reasons-



Expand more in points - diversify

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question
number in
this space

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anything in
this space)

with change in the pattern and the climatic condition the industries are now shifting towards south side too because of the availability of resources like in Tamilnadu, Karnataka, the forest free lands are available in the region, along with the increase in productivity because of labor availability.

- better transportation network
- technological advancement
- labour migration → power supply

cotton industries thus helping the country to grow and has the potential to transform itself and in this regard ATEUS, PM-MITRA, etc can help.

2
10



(Please do not write anything except the question number in this space)

Address this in two parts

11. Desertification poses a serious challenge to sustainable development and humanity's ability to survive in many areas of the world. Discuss. 15 (250 words)

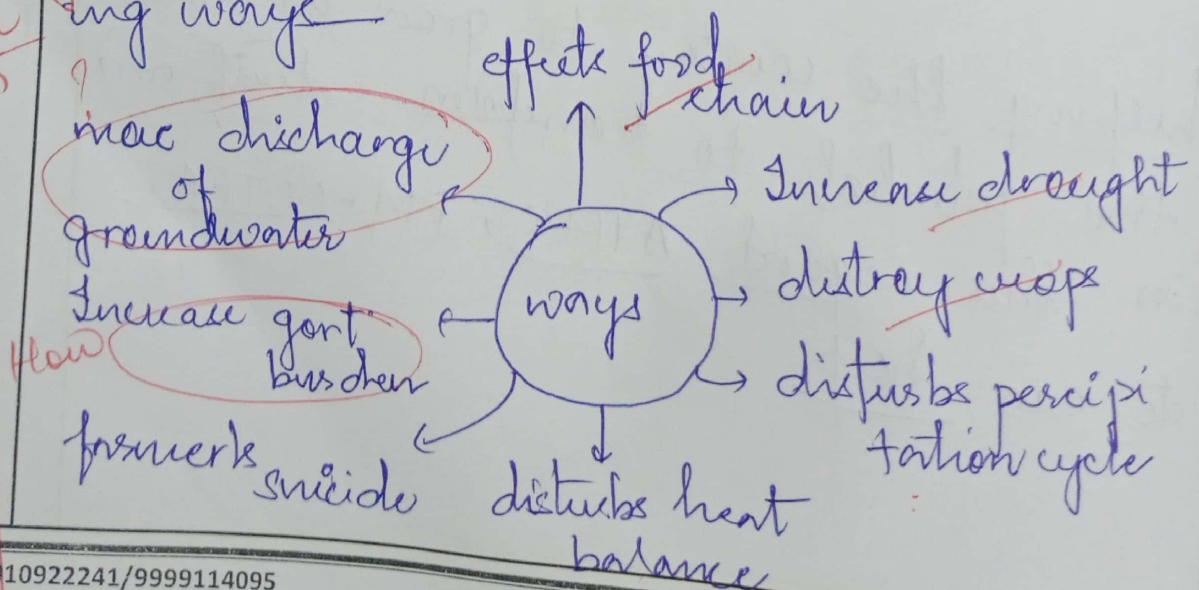
Desertification is the condition when the arable land get converted into non-arable land. ~~and~~ with change in land use patterns the ~~phenomena~~ is often seen in ~~parts~~ like Rajasthan, North Africa etc.

desertification

Desertification often poses

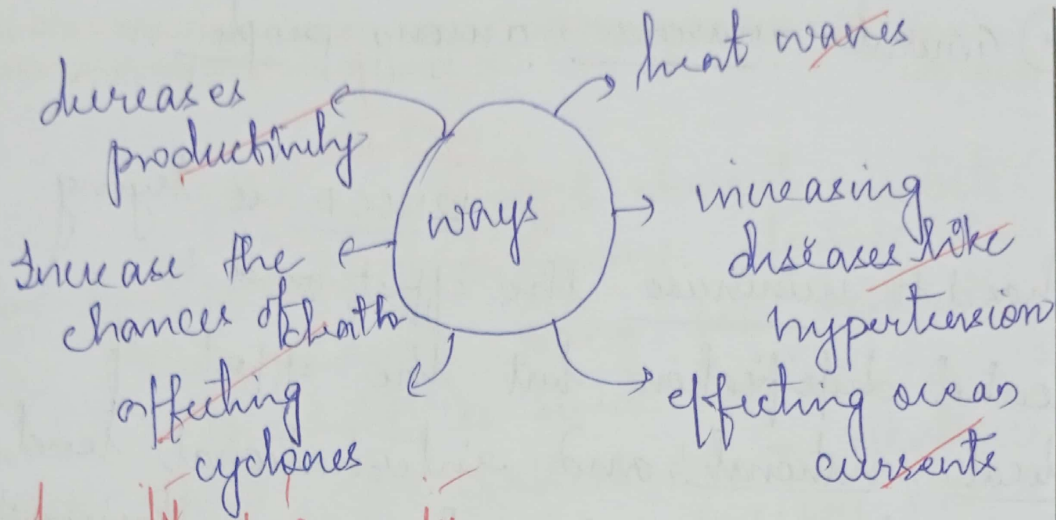
serious challenges to sustainable development and humanity in following ways

briefly explain these points



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loss of biodiversity
poverty intensifying
hampers food security

Desertification ~~has many~~ ~~steps~~ -
has impacted in many ways as
mentioned above, to minimise the
effects the steps can be taken -

① Afforestation

② use climate friendly crops like millet

③ The urbanisation and development
of industries to be done on
non-arable land.



(Please do not write anything except the question number in this space)

④ Generate awareness among ~~people~~

~~good~~
UNCCD is trying hard to minimise the effect and to control desertification but the effort of local, national, and international level is needed to not only save humanity rather achieve SDGs.

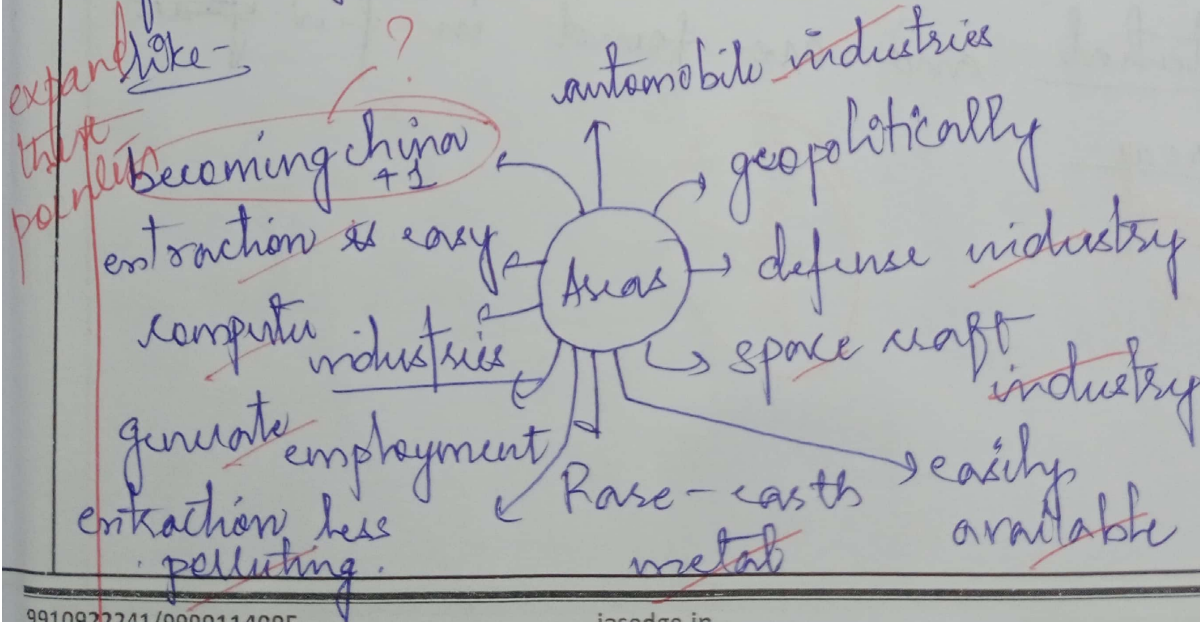
$\frac{5}{15}$

12. Why is lithium considered as a strategic metal? Describe the distribution of major Lithium producing countries in the world. 15 (250 words)

(Please don't write anything in this space)

Lithium is s-block element present in the periodic table having atomic no. 3. The element being ~~the~~ lightest one of the ~~light~~ is used in many ways and often called as a strategic metal due to following reasons like strength, ductile, etc.

The element is called as the strategic metal because of having advantages in many areas





(Please do not write anything except the question number in this space)

Lithium being a light element is often found in ~~the~~ abundance in the ~~region~~, like

- ① South America → Argentina, Brazil, and Chile is often called as the Lithium Triangle.
- ② India → Jammu and Kashmir region
- ③ In areas like Europe, Australia etc.

Thus, Lithium has huge potential and are found in few ~~parts~~ areas.

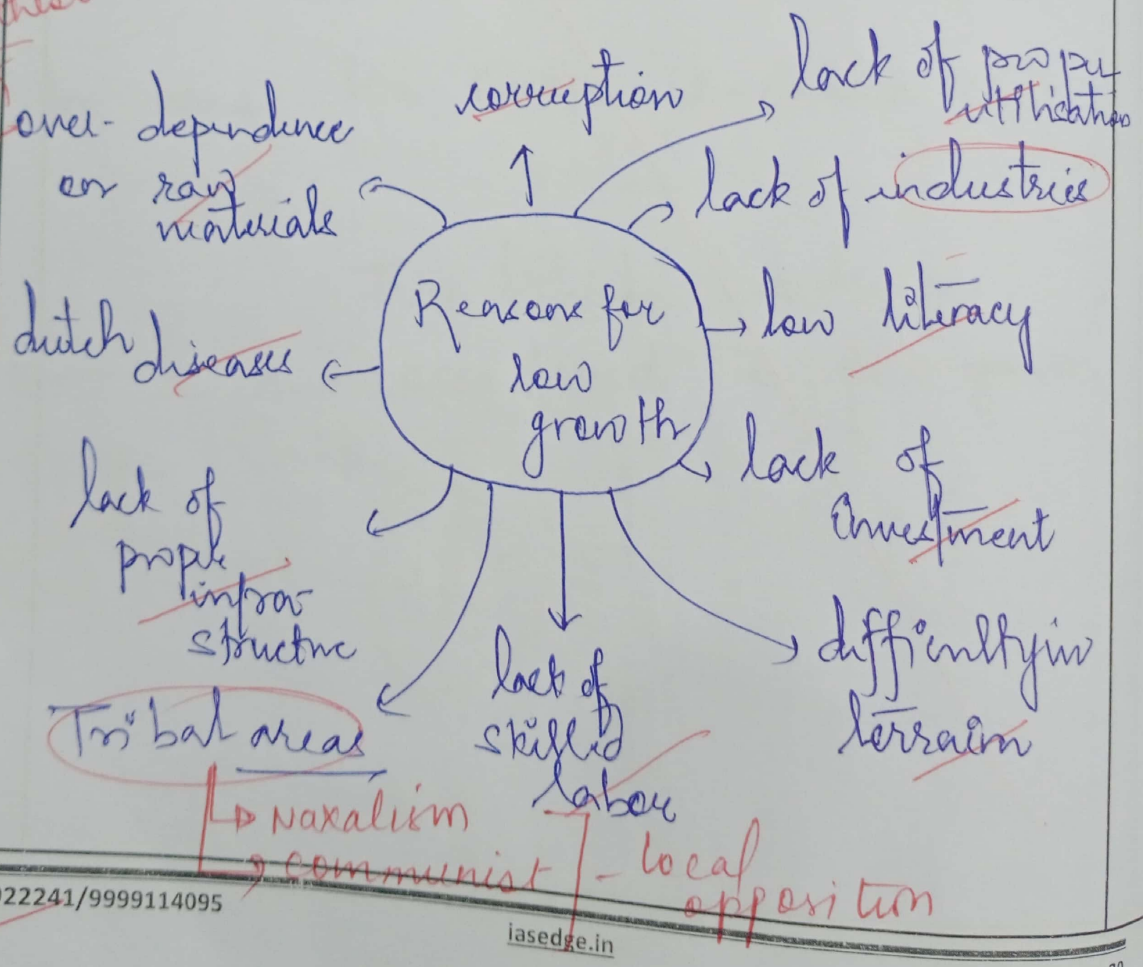
World map ?

$$\frac{3}{15}$$

13. The Eastern states of India have not recorded the predicted growth and social indices despite being mineral-rich areas. Consider the causes and appropriate corrective actions for this failure. 15 (250 words)

The eastern belt of India includes states like Odisha, Jharkhand, Bihar etc. has huge mineral resources but they are not getting proper growth and lag far behind in many social issues because of their topography and some other issues.

expand onto these points



The state has huge resources like iron, magnese, coal etc but due to above mentioned they are lagging far behind in many aspects. The steps that can be taken are:-

(Please don't write anything in this space)

- ① Generate awareness regarding utilization of resources.
- ② Development of road, rail infrastructure to transport goods.
- ③ Minimise the corruption in the region.
- ④ The tribal people must be consulted before using the resources.
- ⑤ Employment generation under MGNREGA.
- ⑥ step-up industries there.

write
~~the~~ specific
chemicals
initiatives
- DMA
- PM KRRY
- tribal circuit
- promote regional development



(Please do not write anything except the question number in this space)

Eastern state has huge potential to change the GDP of a nation and achieve inclusive growth. In this direction the one size fits for all ~~approach~~ approach need to be removed and piece meal approach is required.

4/15



(Please don't write anything in this space)

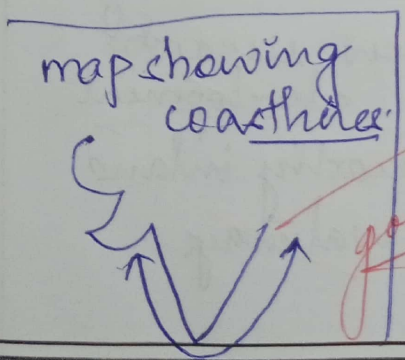
14. What is Ocean Energy? Examine their potential in India and explain the reasons for their limited spatial spread. 15 (250 words)

(Please don't write anything in this space)

not required in intro can be in body

Ocean Energy is the energy that is mainly extracted from the ocean due to difference in their temperature and pressure. As per NASA, 1% extraction of ocean energy from ~~florida~~ ocean can help in generating electricity at 90% in florida. The energy is a renewable energy which have the potential to replace coal and fossil fuel for energy generation.

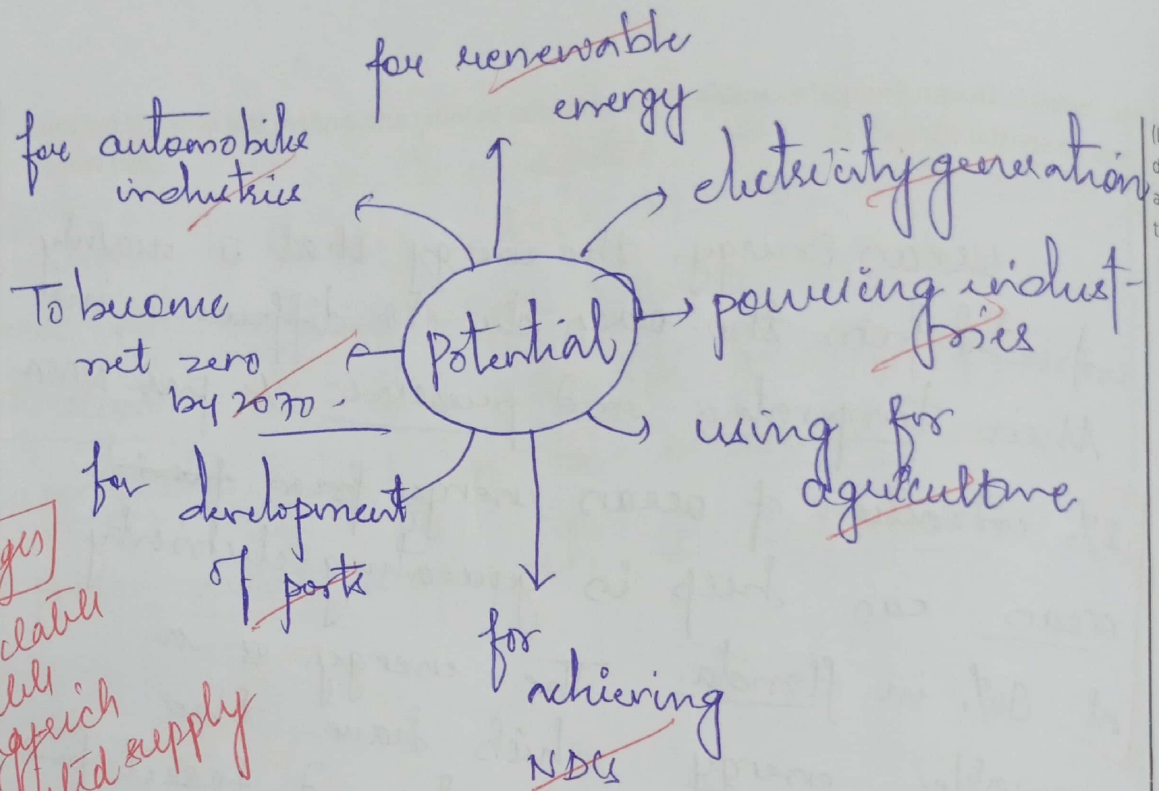
India having the coastal-line of around 7500 km² has the huge potential for many ~~things~~ industries and for commercial purpose.



Potential of ocean energy can be seen in -



(Please do not write anything except the question number in this space)

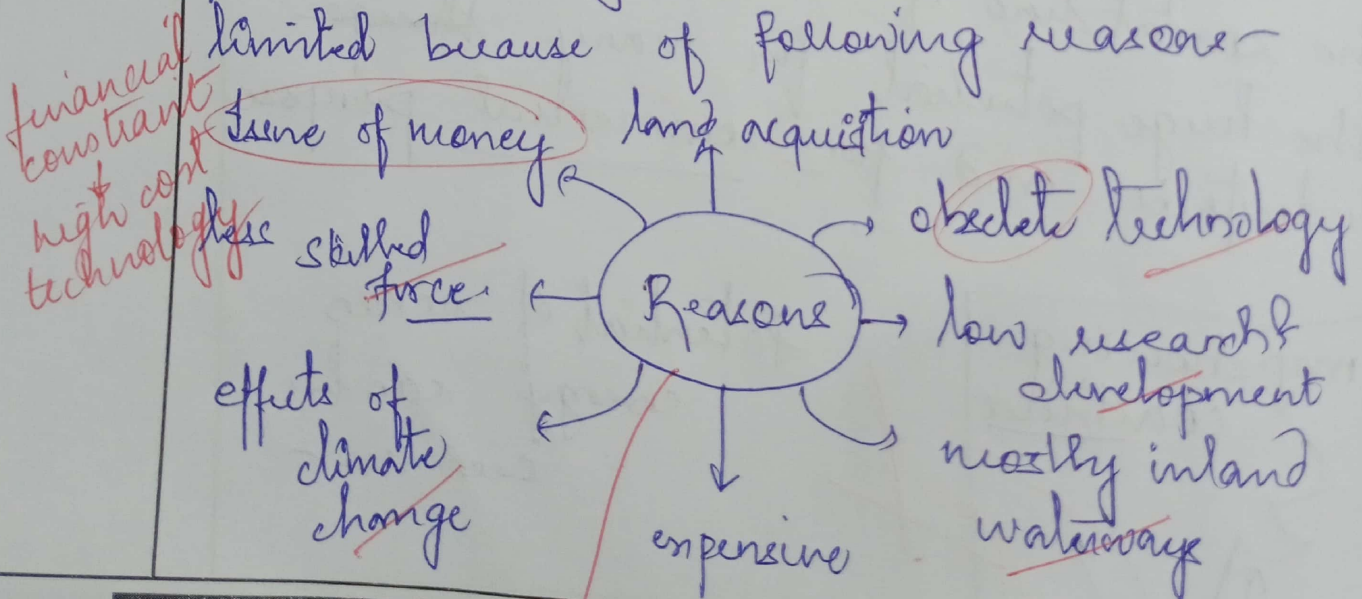


Advantages

- predictable
- reliable
- energy rich
- unlimited supply

Despite of having

so many advantage and having huge potential in many areas, their reach is limited because of following reasons-



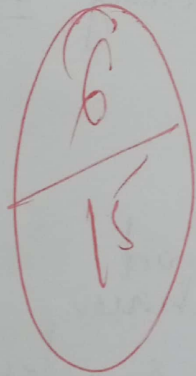
financial constraint
high cost
technology

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fear of commercialisation of marine ecosystem

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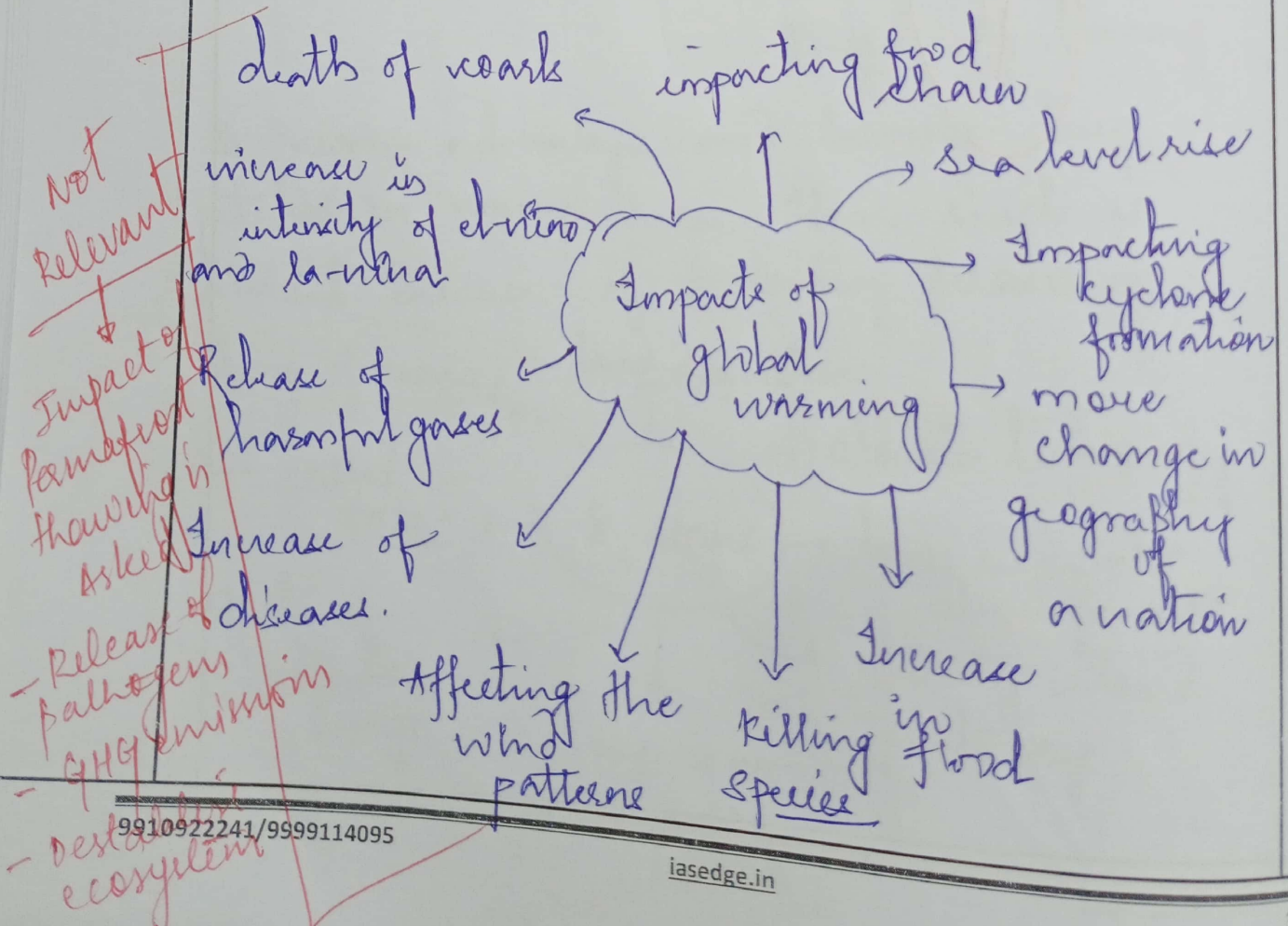
Ocean energy can be a game changer for India to become net zero and to achieve NDG. In this direction, the modern technology, development, collaboration with international, local govt etc can help to achieve SDG-14 and to save envt. (Please don't write anything in this space)



15. Discuss the impacts of permafrost thawing due to global warming. Suggest measures to mitigate the adverse effects of permafrost thawing. 15 (250 words)

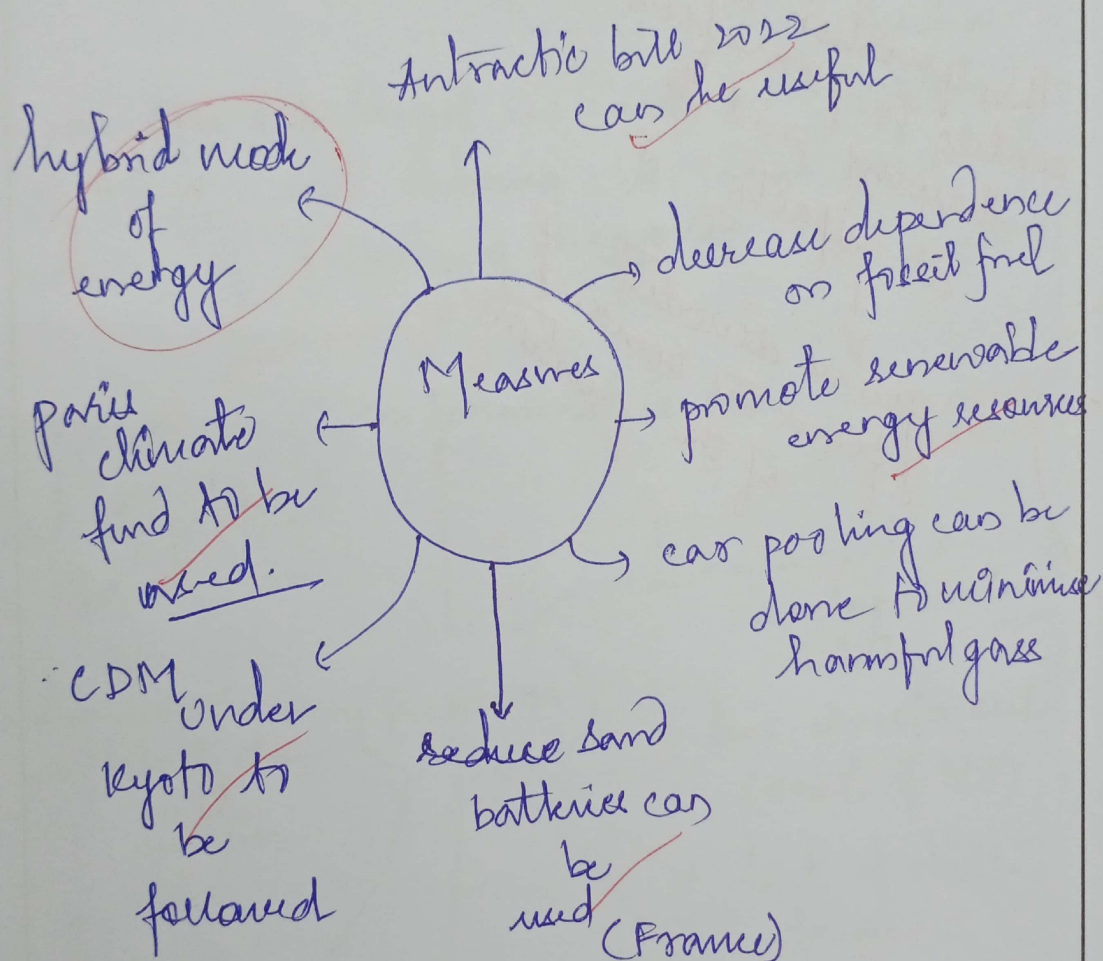
Permafrost is the phenomena where the ice area is covered by ice completely for 3 years consecutively. With increase in temperature, the permafrost is thawing means the ice is melting and leading towards adverse impact.

The phenomena can be seen in arctic region, where the ice is melting 4 or more than normal region.



Global warming has adverse impact on the permafrost and have many severe impacts. In this context the measures can be taken like -

(Please don't write anything in this space)





(Please do not write anything except the question number in this space)

Global warming is real and is increasing very rapidly. It should be minimised by using concept like LIFE of India, circular economy etc.

This question is centric to permafrost thawing and its all impacts

↓
you're diverted from the demand of the question

2/10

REE

16. India is not utilising the potential of its rare earth industry despite having extensive uses across several industries. Examine. 15

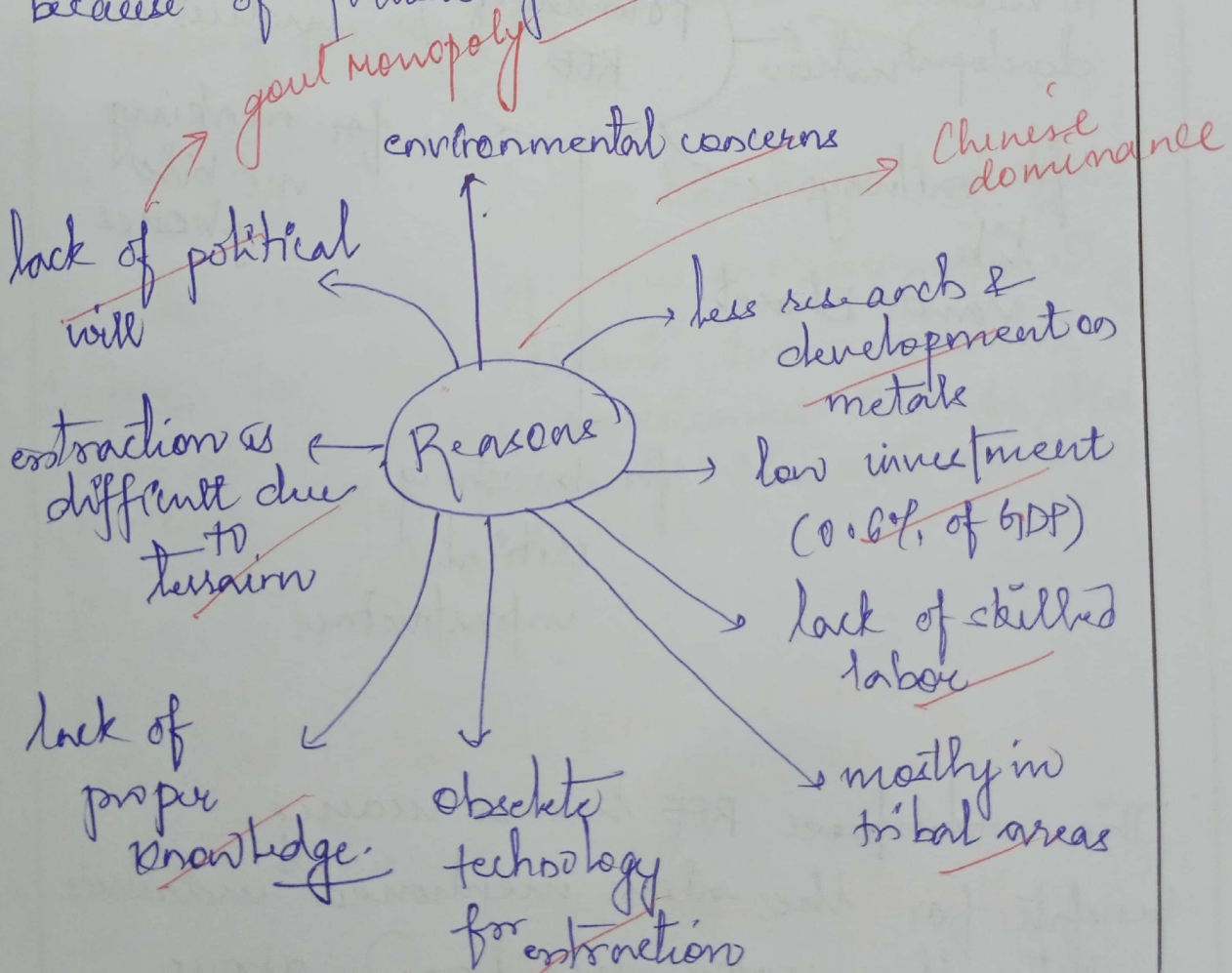
(250 words)

(Please don't write anything in this space)

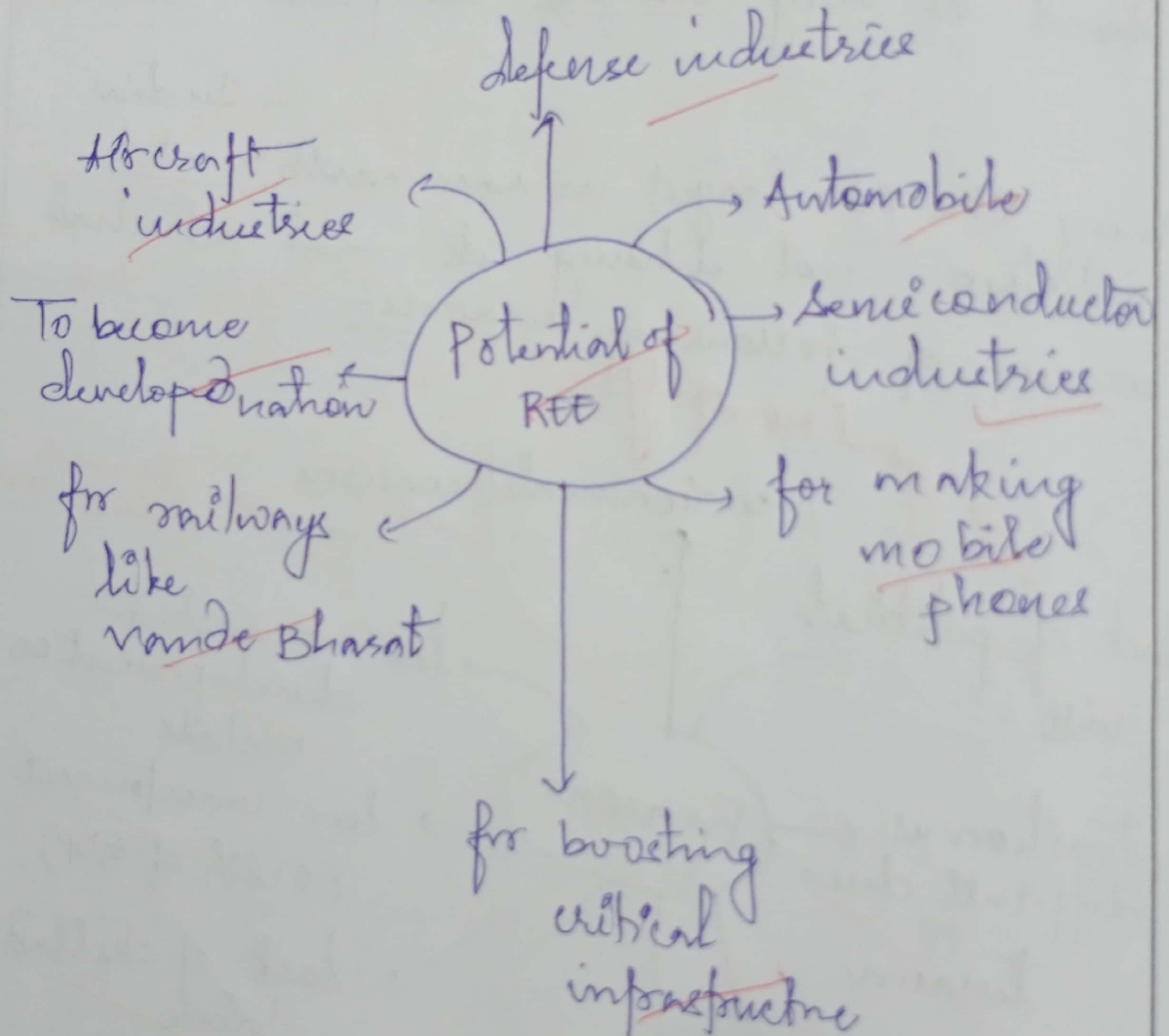
Rare earth metal are the group of lanthanides including some f-block elements. They are called as rare earth because they are found at very limited place.

17
metallurgical elements

India being the 6th largest in rare earth metal industries not utilising its real potential because of following reasons-



Despite of having many advantages across different industries ~~the~~ REE has huge potential like



The ~~advantages~~ REE has so many benefits for the above mentioned industries but the reason mentioned above

is hampering the growth of India in RFE,
in this content the following thing can
be done to boost RFE extraction -

(Please
don't write
anything in
this space)

- ① Increase in investment (PPP model can be done)
- ② use of modern technology for extraction
- ③ More research can be done on finding of metals.
- ④ Tailing ponds can be made underground.

RFE has huge significance
for the economy of any nation especially
India. In this content India should
take some above mentioned steps. In this
direction the joining of Mineral strategic
partnership will work.

6 + 2
15

Well
addressed

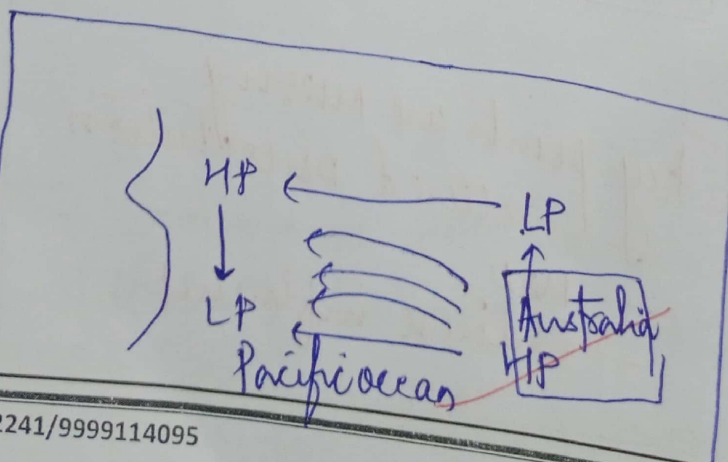
few key points are missing
scattered distribution
- map
- Chinese influence

17. Discuss the causes and effects of El Niño. How does El Niño influence the Indian monsoon and what measures can be taken to mitigate its effects on agriculture, economy, and human lives in India? 15 (250 Words)

El Niño is a part of south oscillation which occurs mostly at a span of 3-4 years. The word means little boy in Spanish language. Year 2023 is the year of ~~El Niño~~ and ~~El Niño~~ will remain till May 2024 as per IMD.

Though El Niño is a natural phenomena in Pacific ocean but with increase in climate change the frequency and intensity of the same is increasing.

Causes



→ diagram showing El Niño condition

In El-nino condition, the warm water from ~~the~~ Australia gets moved and accumulated through South America due to excessive heating as a effect of trade winds. The HP gets developed along the South America and the Pacific ocean become warm than expected.

(Please
don't write
anything in
this space)

Effects of El-Nino

- ① The phenomena hampers the rainfall at the Indian ocean and Australia resulting less rainfall.
- ② The South America region see more rainfall due to more cloud formation.
- ③ The countries like India and Australia often face drought like situations.
- ④ The tendency of hurricanes, cyclones increases.
- ⑤ Breaking of walker cell resulting in less precipitation.

Effects on Indian monsoon: El-nino effects the Indian monsoon in negative sense. It breaks the Walker cell that is developed at Maxwell high at 20°S and thus lead towards drought like situation in the region. The intensity of the cyclone also increases thus affecting the coastal areas.

use keywords
specific to
the subject

El-nino though a natural phenomena but its effects can be mitigated by controlling climate change.

well attempted

② By preparing farmers in advance to adopt climate resilient crops.

③ Early warning system can be used to make aware of the people - disaster preparedness

④ Strong and robust international collaboration can be done.

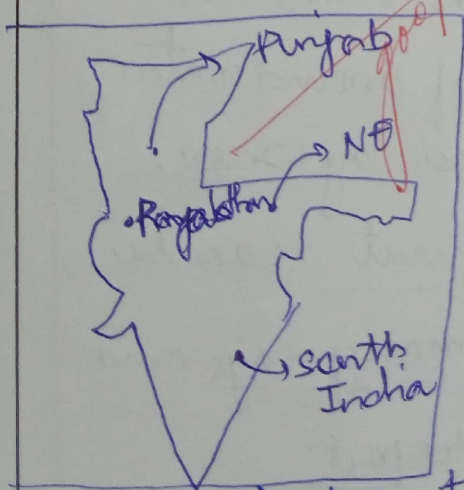
El-Nino is a phenomena that is a natural to occur and can be completely minimised but its effects can be mitigated by controlling climate change, and adopting some climate friendly policies.

18. What is water stress? Which regions of India are under water stress? How can proper water management help resolve this issue? Discuss. 15 (250 Words)

(Please don't write anything in this space)

water stress is the situation where the people are not having proper water to meet their basic requirement like bathing, cooking, drinking etc. In India as per the COMI of Niti Aayog around 763 million are living under water stress conditions.

India being a land of different terrain and geography, at a season some areas have surplus water and some do not have proper water to meet their needs. The regions that are under water stress are-



Some water stressed state

① Punjab & Haryana The regions are water stressed because of over extraction of water for agriculture. Around 80% get extracted as per NAA.



(Please do not write anything except the question number in this space)

- ② The region of western UP and Delhi NCR because of generation of factories and for running industries.
- ③ The north-eastern plateau regions are also under water stress because of construction of raw material like iron, magnese etc.
- ④ The rate hole mining like situation in north-eastern states pollute the water and lead towards water stress situation.
- ⑤ The hard rocks of south India are not able to hold water properly there less water for consumption.

As per NARA, we have extracted around 2430 GT of groundwater and this will lead towards more by 2050, for this regard water management can be useful and can be done in many ways and following shah committee report

- ① Inter-linking of rivers can be helpful for supplying water.
 - ② The Japan model of using waste water for flushing can be done. Grey water management
 - ③ The concept of aquapreneurs can be used here.
 - ④ Devolving more power to local govt can be useful.
 - ⑤ Grey water management of Israel can also be useful.
 - ⑥ Traditional methods like Boali, ponds, great Indian bath can be useful. Research and innovation
 - efficient agricultural practices
 - rain water harvesting
- is a very crucial problem. Around 563 million do not have safe drinking water as per UN. In this regard proper utilisation of water can be done like rain water harvesting, supporting aquapreneurs etc.

8
 15

①

19. Discuss the impact of climate change on karst topography and its implications for water resources and communities in regions prone to karst formations, with reference to recent events and scientific findings. 15 (250 Words)

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Karst topography is that topography where the topography are formed by the limestone or the Indenground effect. The few examples of the topography are pillars, stalite, stalagmite etc. ~~The topography is seen in~~

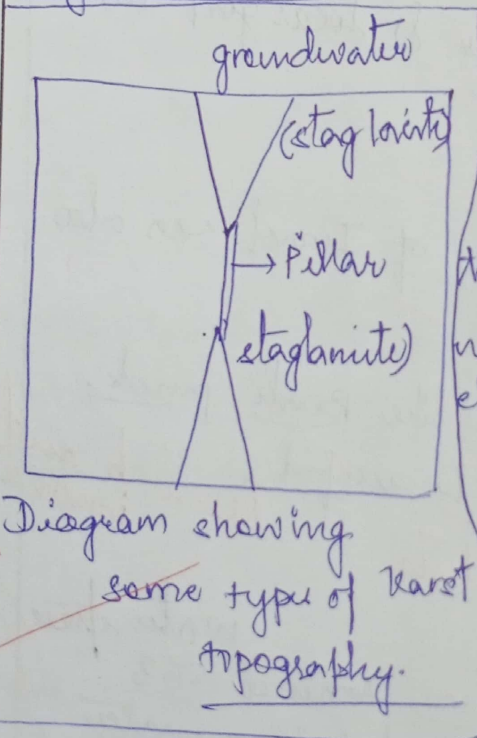


Diagram showing some type of karst topography.

climate change is the long phenomena in weather change which is affecting almost every region. The effect of climate on karst topography are—

- ① change in water pattern, the ~~inclusion~~ inclusion of more salt making water saline

- ② The aquifers will not be able to get sufficient time to discharge water resulting in floods.
- ③ The problem of salinity will increase due to impacting ocean currents.
- ④ The formation of cyclone and conak get affected, which will hamper the food chain.

Reduce water availability
water contamination
Add more key dimensions

Effects on communities

- ① with increase in salt the problem of health disease occur.
- ② The agriculture will get impacted resulting in farmer's suicide.
- ③ The food chain affected thus disturbing ecological balance.



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④ The GDP of a nation will decrease and hampers inclusive growth.

Climate change is real and its effects are seen, the phenomena can't be vanish completely. The need of the hour is to collaborate with the local, and national, international level govt. and in this regard the upcoming WP-20 can be a game changer.

7/15

20. What is a Bomb cyclone? Mention its characteristics and effects. How is a Bomb cyclone different from a tropical cyclone? 15 (250 words)

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Bomb cyclones are those cyclones where the temperature drop by 24mb in 24 hours and they generally occur at temperate regions. They are associated with very less time and their effects are less pronounced.

Characteristics of Bomb cyclones

- ① The pressure drops here 24mb in 24 hrs.
- Heavy rainfall / large size
- ② The time duration of the cyclone is very much.
- Rapid intensification / short duration
- ③ They occur in temperate regions.

Effects

- ① They lead towards huge destruction
- ② They affect the climatic region of the areas like Sweden, Denmark.
- ③ They often hamper the growth and development of the region.
- coastal storms
- heavy precipitation



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Bomb cyclones

- ① They occur in temperate region
- ② They depend on time period like suitable as 24hrs.
- ③ They often do not develop as eye
- ④ They are not named by WMO.
- ⑤ Their effect may not much.

Tropical cyclone

- ① They occur in tropical area mostly 5-30° N/S
- ② They occur usually at the time of late September.
- ③ They develop as eye.
- ④ They are named by WMO by 169 countries
- ⑤ Their effect can be seen in large areas

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- winter

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summer



cyclones are important for transportation of heat and for flood prone to make less flood effects and the drought to have some water. The need is to mitigate the after effects of the same

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Diagram missing

7
15