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Geography

Test (2) GS 1

RECEIVED

GENERAL STUDIES (TEST CODE : 1813)

Name of Candidate	RIDHIMA JAIN		
Medium Eng./Hindi	ENGLISH	Registration Number	1210976
Center	Online (ORN)	Date	11/10/22

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	12.5	
2	12.5	
3	12.5	
4	12.5	
5	12.5	
6	12.5	
7	12.5	
8	12.5	
9	12.5	
10	12.5	
11	12.5	
12	12.5	
13	12.5	
14	12.5	
15	12.5	
16	12.5	
17	12.5	
18	12.5	
19	12.5	
20	12.5	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

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

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

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar
Delhi- 110009

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EVALUATION INDICATORS

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

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

Answer all the questions in NOT MORE THAN 200 WORDS each. Content of the answers is more important than its length. All questions carry equal marks.

12.5X20=250

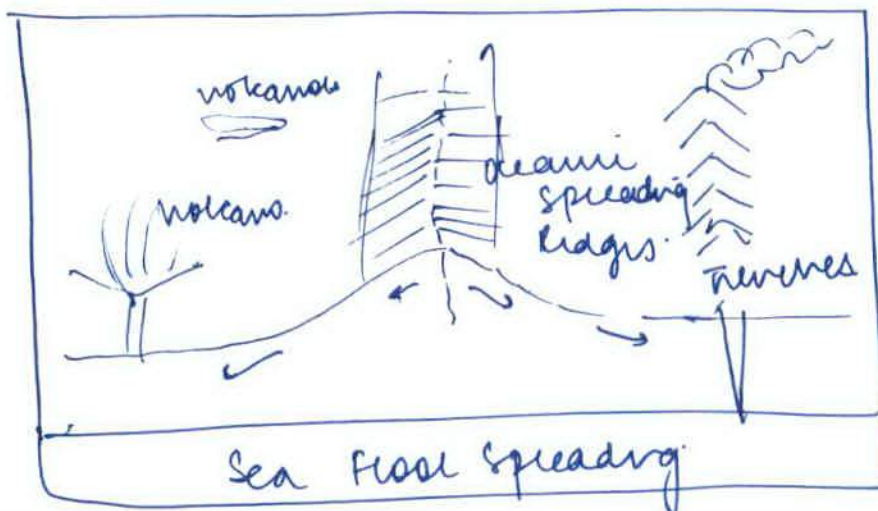
1. Explain the process of sea floor spreading. Also, discuss the various evidences that support it.

सागरीय अधस्तल के विस्तार की प्रक्रिया की व्याख्या कीजिए। साथ ही, इसका समर्थन करने वाले विभिन्न प्रमाणों पर भी चर्चा कीजिए।

Sea Floor Spreading theory was given by Harry Hess in 1961 to explain the system of existence of continents and oceans.

PROCESS OF SEA FLOOR SPREADING.

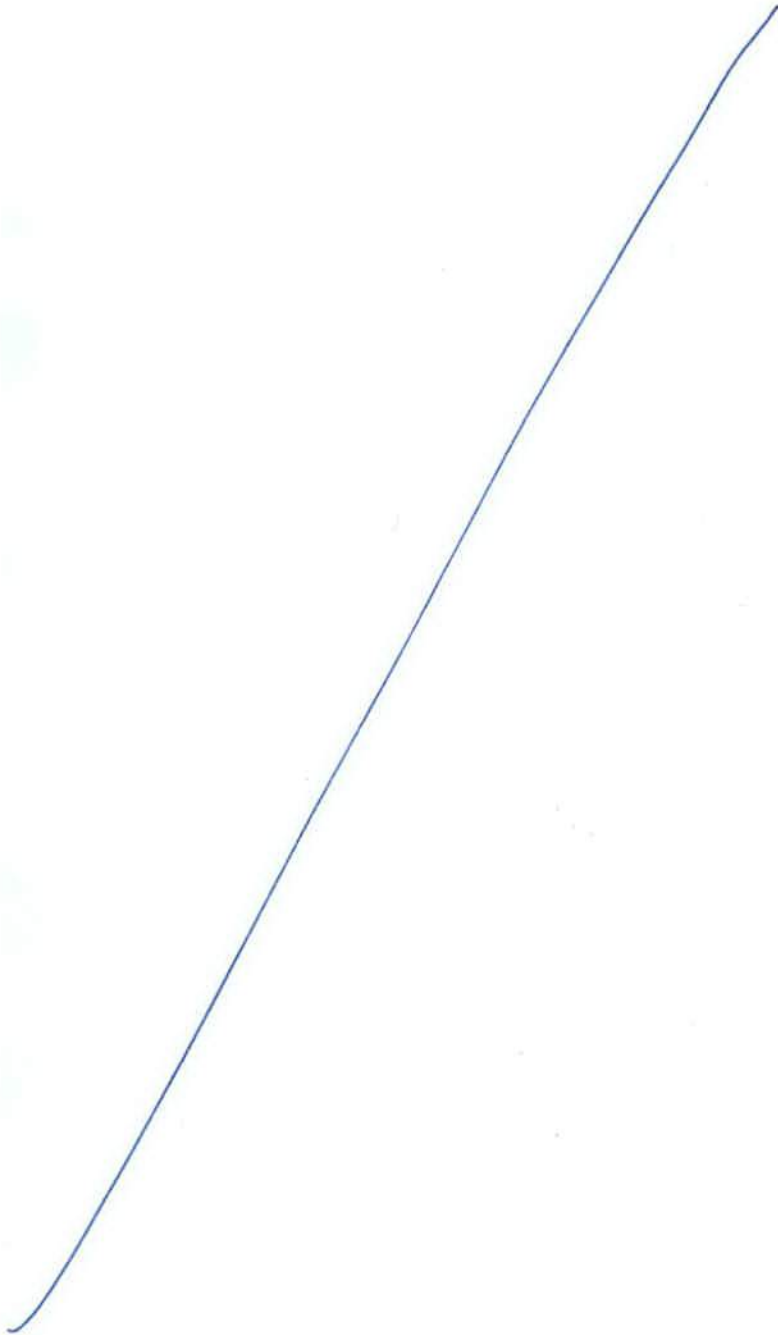
- 1.) He argued that constant eruptions at crest of oceanic ridges causes the rupture of oceanic crust.
 - 2.) This pushes the oceanic crust on either side. The Ocean Floor, thus spreads.
 - 3.) Further, Ocean Floor that gets pushed aside sinks down at Oceanic trenches and gets consumed.
- ⇒ It is the driving force behind continental drift.



EVIDENCES SUPPORTING.

- 1.) Discovered that Rocks & Material on either side of ridges shown similarity
- 2.) Ocean floor not just plain but have mountain Ranges, deep Trenches.
- 3.) Oceanic crust younger than continental crust.
- 4.) sediments on Ocean Floor are very thin.
- 5.) Trenches - deep seated earthquake. mid oceanic have shallow depths.

The Sea Floor spreading theory was later supported by Plate Tectonic Theory.

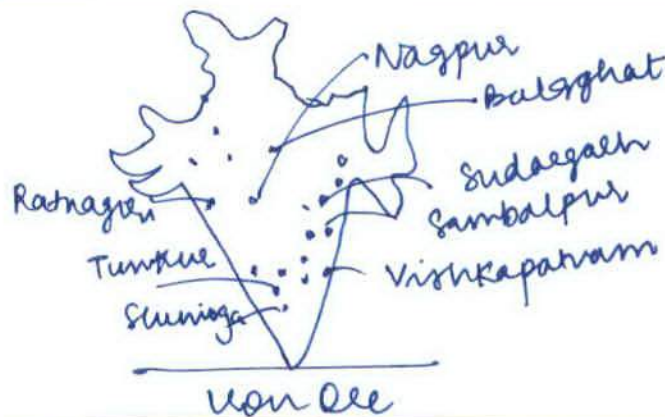


2. Give a brief account of distribution of iron ore and manganese found in India.

भारत में पाए जाने वाले लौह अयस्क और मैंगनीज के वितरण का संक्षिप्त विवरण दीजिए।

India has one of the largest iron ore
reserves and second largest
reserves of manganese and 5th
largest producer of manganese.

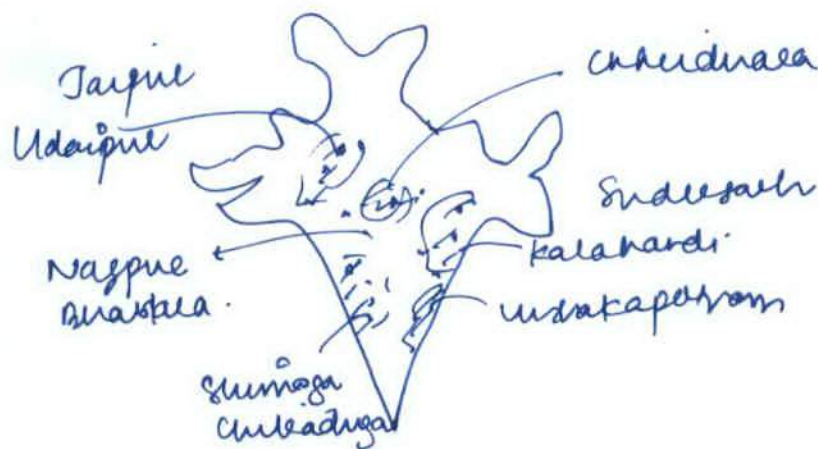
Distribution of iron ore.



1.) About 95% of reserves of iron
ore are in states of Odisha, Jhark-
hand, Chhattisgarh, Karnataka, Goa,
Telangana, Andhra & Tamil Nadu.

- 2) Orissa - Sudeesah, Mayurbhanj, Sambalpur, Keonjhar, Keaput.
- 3) Chhatisgarh - Dalli Rajhara, Bailadila,
- 4) ~~Chhattisgarh~~ Chhattisgarh - Noamundi, Durgam (Singhmun).
- 5) Karnataka - Kemangudi in Bababud an Hills, Sandur & Hospet Area.

Manganese Distribution



Manganese ore in India.

State wise.

- 1) Maharashtra - 27.6%
- Nagpur, Bhandara.

- ② Madhya Pradesh
↳ Balaghat, Chhindwara.
- ③ Odisha
↳ Bolangir, Sambalpur,
- ④ Andhra Pradesh
↳ Vijayanagara, Nizaguntur
- ⑤ Karnataka
↳ Shimoga, Bellary, Chikmagalur

Thus, having rich sources of iron and manganese, India stands at position to lead the nation in future in its production

3. Highlighting the role of seismic waves in its understanding, describe the different layers of earth's internal structure.

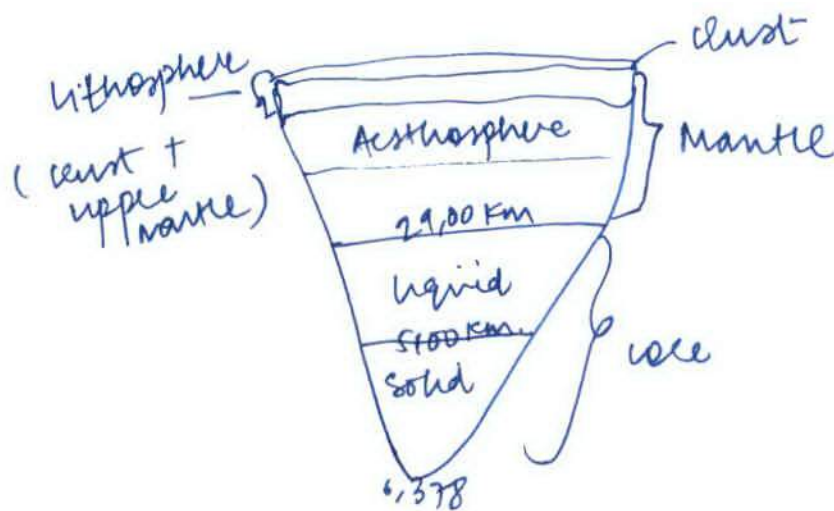
पृथ्वी की आंतरिक संरचना को समझने में भूकंपीय तरंगों की भूमिका पर प्रकाश डालते हुए, इसकी आंतरिक संरचना की विभिन्न परतों का वर्णन कीजिए।

Due to sudden release of energy in ~~Earth~~ Earth's surface, earthquake is ~~quakes~~ takes place which creates seismic waves that travel in all directions.

Role of seismic waves.

- 1) move faster through denser or rigid Area. & vice versa.
→ help in studying Density, Rigidity of various layers.
- 2) assessing thickness of various layers.
↳ abrupt increase of waves when they move from one layer to another.
- 3) Outer - Inner Core
S-Waves - only through solids.
not found in Core - show.
Outer Core is liquid state.

Diff cent layers of Earth.



Earth's interior

1.) ~~Outermost~~ CRUST

- ↳ outermost, solid part of Earth
- ↳ brittle in nature
- ↳ two types - Oceanic & continental
- ↳ Avg density of crust $\sim 3 \text{ g/cm}^3$
- ↳ Oceanic crust is younger & thinner than continental

① Mantle →

- ↳ extends from Moho's Discontinuity to depth of 2900 km.
- ↳ predominantly solid state
- ↳ composed of Dense rocks
- ↳ Crust + uppermost - Lithosphere
- ↳ Below it - Asthenosphere

② Core

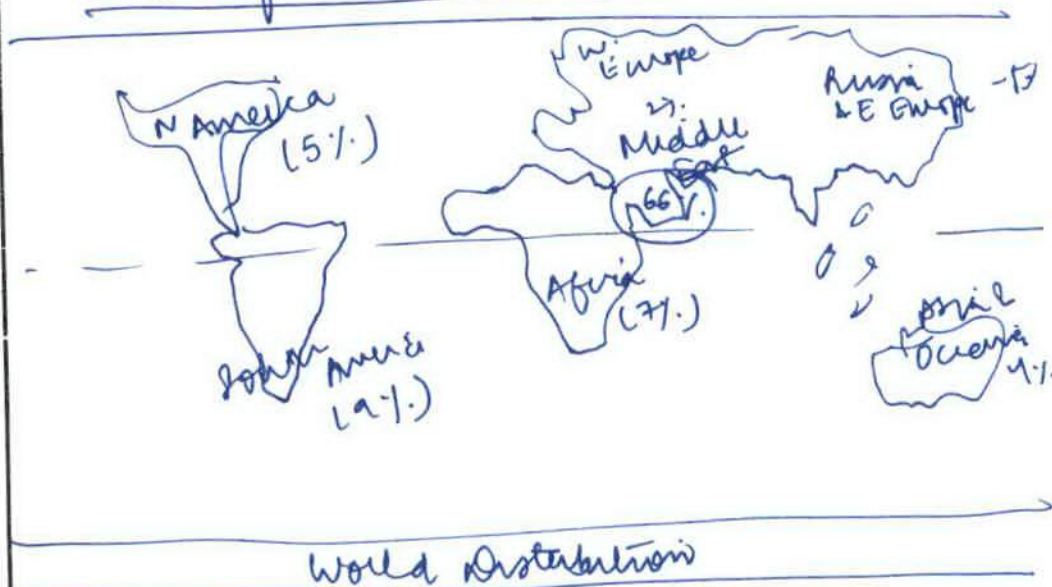
- ↳ from 2900 km below surface of Earth
- ↳ Outer & inner core
- ↳ Outer in liquid & inner in solid.
- ↳ Core made up of heavy material
Nickel & Iron.

Seismic waves have helped
Geologists & Geographers in a
better understanding of Earth's
Internal Area.

4. Give an account of the distribution of petroleum reserves in the world.

विश्व भर में पेट्रोलियम भंडारों के वितरण का विवरण दीजिए।

PETROLEUM is also called Black Gold or liquid Gold because of its high value in market. According to US Department of Energy (2015), 15 countries account for ~~every~~ more than 75% of world's oil production



1.) Middle East

is more than half of world's oil reserves

- is Saudi Arabia
- is Iran, Kuwait, Oman.

② Russia, & Caspian Sea

- ↳ Russia - 6% of world's Reserves
- ↳ western Siberia, Sakhalin Island
- ↳ Volga-Caspian Region

③ Sub Saharan Africa

- ↳ giant oilfields in
- ↳ Nigeria, Angola, Guinea

④ N America

- ↳ USA, - ~~10~~ 2% of world's
- ↳ Mexico, Canada

⑤ South America

- ↳ Venezuela - world's largest oil endowment
- ↳ Brazil - second largest oil Reserve in S America.

⑥ India - 0.3% of Global Oil Reserves.

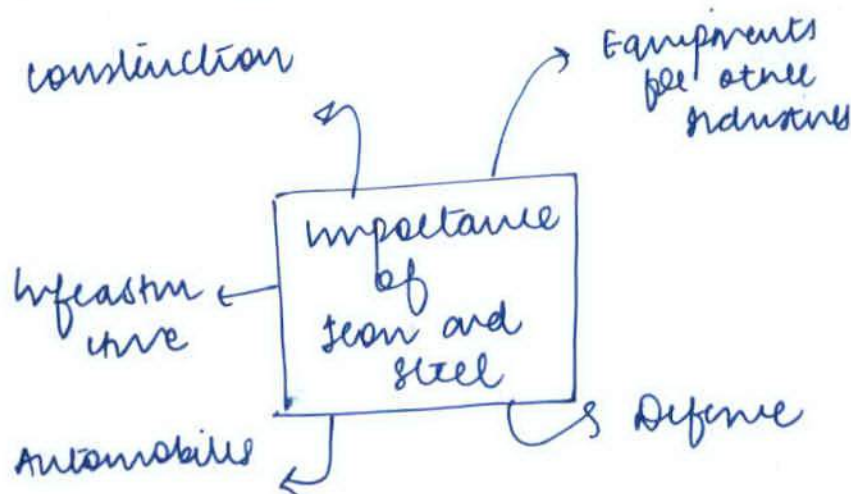
- ↳ Mumbai High, Guj, Assam (Dibrugarh)

Apart from the above mentioned Reserves, there is huge scope of exploration and production in Arctic & Antarctic region of Northern Hemisphere.

5. Identify, with examples, the factors responsible for location of iron and steel industry in India.

उदाहरण प्रस्तुत करते हुए भारत में लौह एवं इस्पात उद्योग की अवस्थिति के लिए उत्तरदायी कारकों की पहचान कीजिए।

Iron and Steel Industry is one of prominent industry which provides the capital for other industries as well.



Iron and Steel Industry

Factors for location

1) Near Iron Ore Mines →

↳ located near mines with iron ore, manganese, limestone

↳ Eg → Bokaro in India.

2.) Transportation →

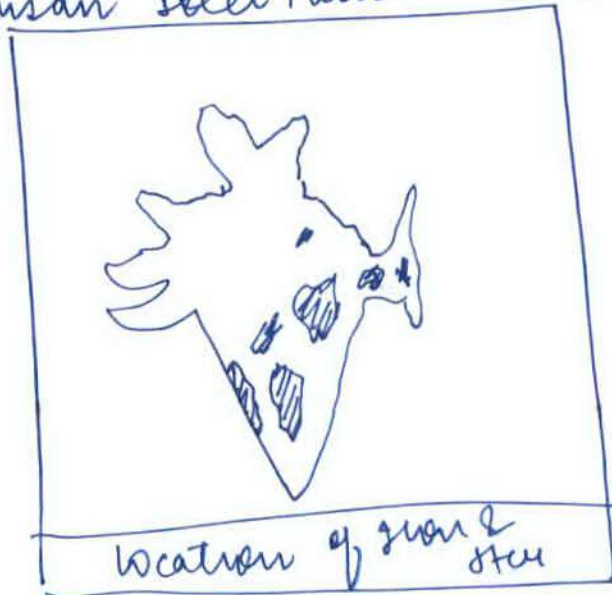
↳ near coastal regions reduces
cost of transporting raw materials
from port to factories

(eg) Vishakhapatnam

3.) Modern Technology → such as

electric smelters shift from
coal & iron reserves to scrap metal

(eg) Bhushan Steel Plant in Ghaziabad.

4.) Industrial inertia → continue to be
located in same area despite
decline of locational advantages.

(eg) Ruhr in Germany

5.) Developmental Policies of Government

↳ Bhilai & Salem Plants in India.

6.) Strategic Reasons →

↳ USA some set up plants in western Region - California

↳ USSR in eastern side - Pacific Coast.

Thus, Iron and Steel Industry being a heavy industry is preferred to be located near raw material and industrial area to reduce transportation cost.

6. Describe the major types of volcanoes along with their characteristics.

ज्वालामुखी के प्रमुख प्रकारों का उल्लेख करते हुए उनकी विशेषताओं का वर्णन कीजिए।

A vent or opening in Earth crust
is known as Volcano.

↳ The material that reaches the ground
includes lava flows, pyroclastic debris,
volcanic dust, bombs, ash and
gases.

Major types of volcano.

1.) SHIELD VOLCANOES

- ↳ largest of all the volcanoes
- ↳ mostly made up of Basalt
- ↳ not very steep
- ↳ become explosive if water gets into
↳ Eg Hawaiian Islands

2.) COMPOSITE VOLCANOES

- ↳ eruptions of cooler & more
viscous lava. than basalt

- ↳ material accumulates in vicinity
- ↳ formation of layers
- ↳ found at destructive Plate margins

(Ex) Mt Fuji in Japan

3.) CALDERA

- ↳ most explosive of earth's volcanoes
- ↳ usually collapse on themselves
- ↳ huge destruction : collapsed ^{Depressions}
- ↳ (Ex) Lonar lake in Maharashtra.

4.) FLOOD BASALT

- ↳ outpour highly fluid lava
- ↳ flows for long distances
- ↳ thick basalt lava flows
- ↳ Deccan traps in India.
(Maharashtra Plateau)

5.) MID OCEAN RIDGE

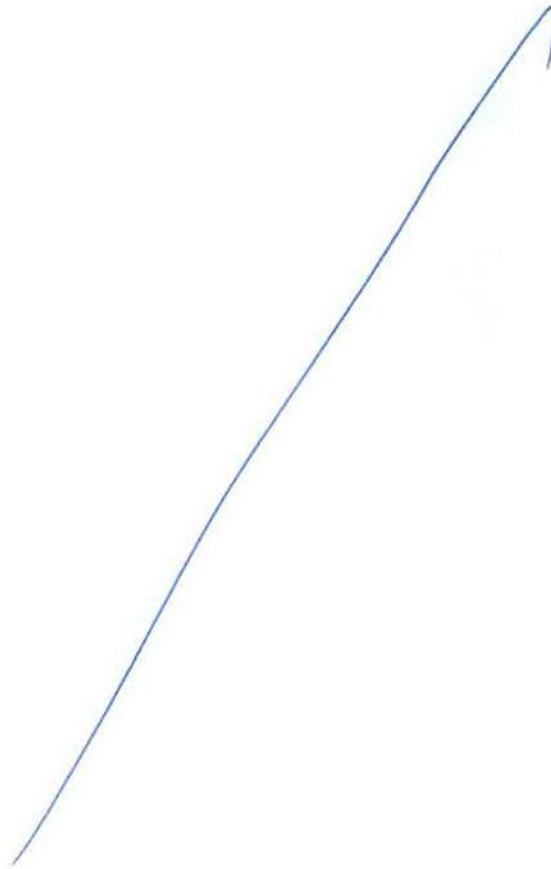
- ↳ occur in Oceanic Areas.
- ↳ system of mid Ocean Ridges

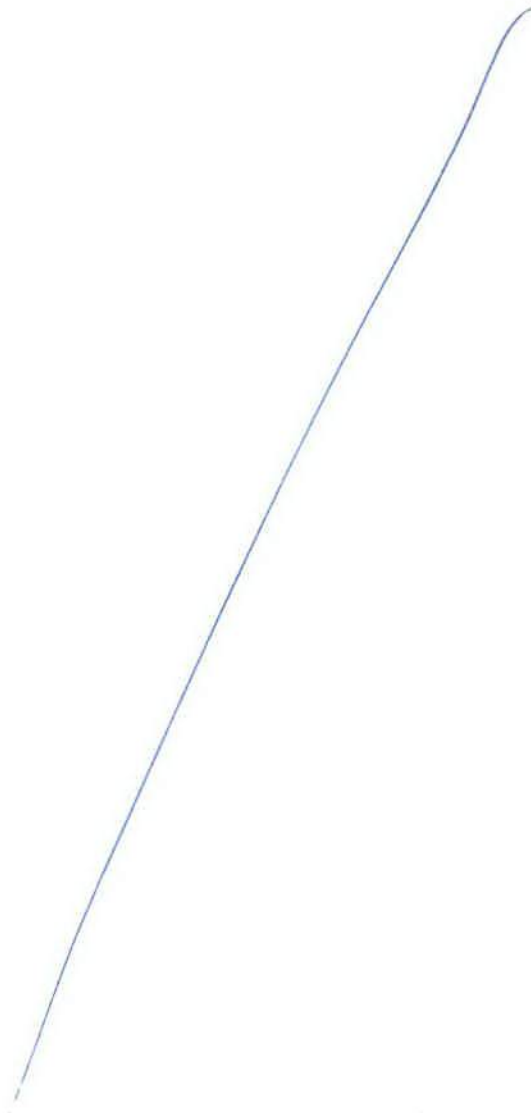
- central portion of ridge
experience frequent eruptions -
- longest mountain chain submerged
under Earth

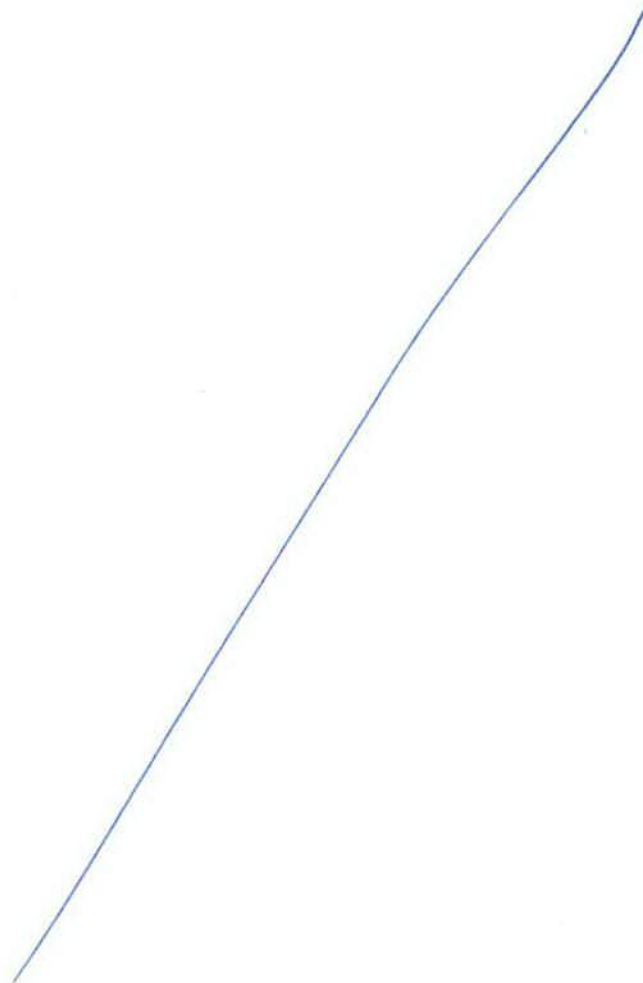
Volcanoes can on hand bring
huge loss of human life as well
as environmental pollution; while
also can yield very fertile
soils and creates geysers and
springs of hot water.

7. Provide an account of the major fishing grounds in the world and identify the factors responsible for their distribution.

विश्व के प्रमुख मत्स्य ग्रहण क्षेत्रों का विवरण प्रस्तुत कीजिए और उनके वितरण के लिए उत्तरदायी कारकों की पहचान कीजिए।







8. What are the major factors that influence the location of the fertilizer industry in India? Explain with the help of suitable examples.

भारत में उर्वरक उद्योग की अवस्थिति को प्रभावित करने वाले प्रमुख कारक कौन-से हैं? उपयुक्त उदाहरणों की सहायता से स्पष्ट कीजिए।

Fertiliser Industry is in recent have shown progressive graph in alignment with rise in demand and creating future prospects.

Factors that influence location

- 1) closely related to petrochemicals
(70% of fertiliser plants producing Nitrogenous Fertiliser uses Naptha)
- 2) located near Refineries
(Eg) Oil & Gas from Bombay High, Gujarat - Maharashtra Region got fertiliser plants at Nagina, Mumbai, Trombay etc.

3.) Some draw their feed stock from steel slag as well as coke and lignite.

↳ Sulphur - another important material

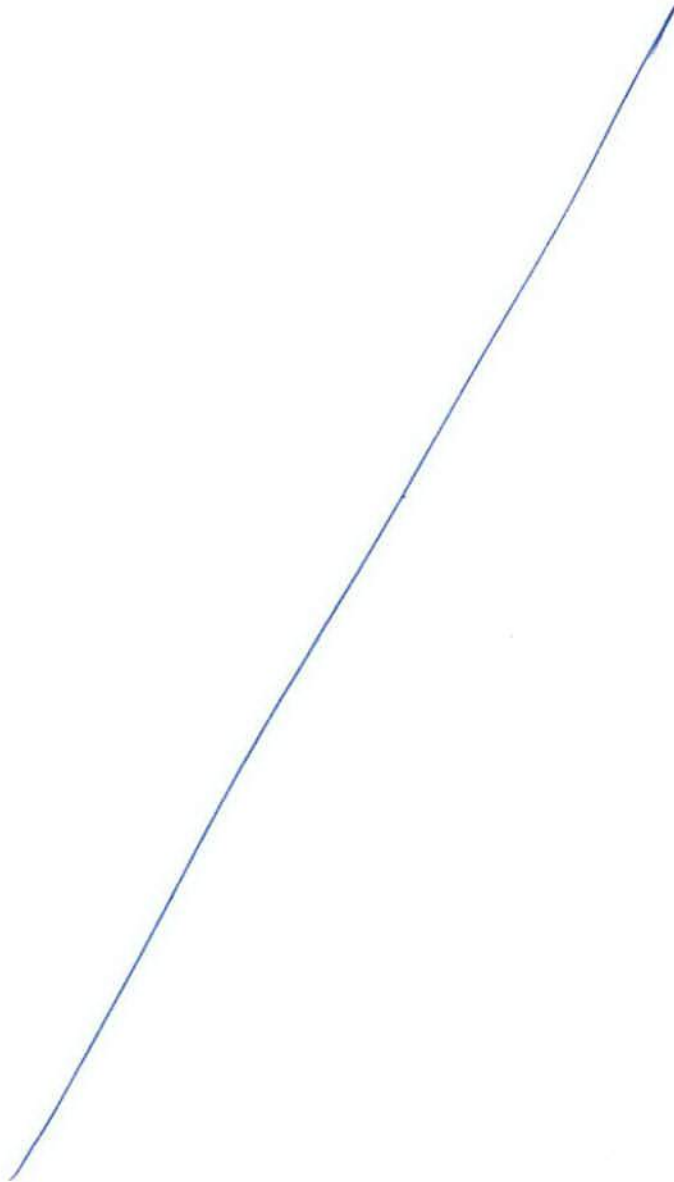
⊙ Tamil Nadu.

4.) Transportation of Naptha or Gas through Rail / pipelines

↳ widespread distribution of fertilizer - mostly to sea board location

⊙ Vis'aypur, Jagdishpur.

Fertiliser Industry has been provided a number of initiatives by Government as well through subsidy to give the much needed push.



9. Identify the different erosional landforms that are shaped by running water and groundwater.

प्रवाहित जल और भूमि जल द्वारा निर्मित विभिन्न प्रकार के अपरदित स्थलरूपों की पहचान कीजिए।

Geomorphic agents like Running water, Ground water, Glaciers, waves create several kinds of landforms.

erosional landforms by Running water.

1.) VALLEYS

- ↳ hills → Gullies → valleys
- ↳ many types - V shaped, Gorge, Canyon.

2.) Potholes & Plunge Pools

- ↳ circular depressions called Potholes.
- ↳ at foot of waterfalls - large potholes - called plunge pools.

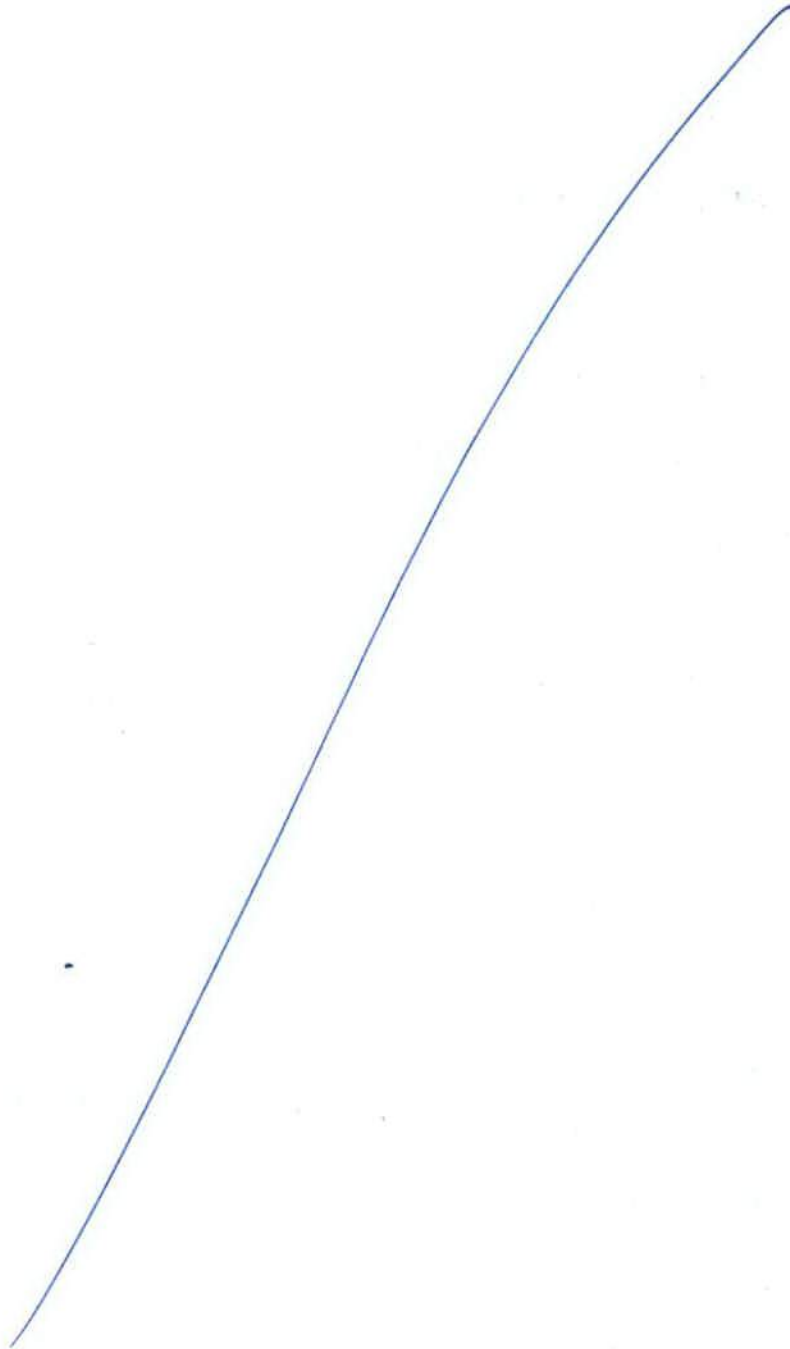
3.) Meanders → streams flowing over gentle slopes, ford cuts & form Meanders.

erosional landforms by
Groundwater

1) Sinkholes, lapies & limestone
pavements →

sinkhole - surface depression of
limestone.

2) Caves → where ageing beds
of rocks with limestone or
dolomites in between or in
areas of - cave formation is
prominent.

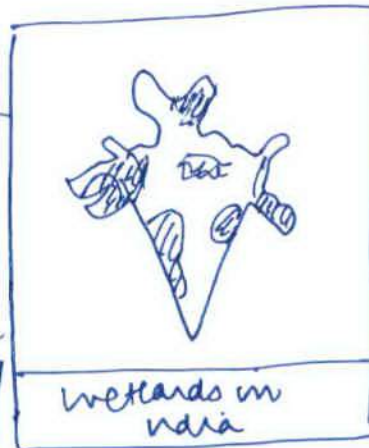


10. Give an account of the ecological services provided by wetlands and reasons behind their decline. What steps have been taken by the government to protect wetlands?

आर्द्रभूमियों द्वारा प्रदान की जाने वाली पारिस्थितिकीय सेवाओं का विवरण दीजिए और उनके ह्रास के लिए उत्तरदायी कारणों को स्पष्ट दीजिए। आर्द्रभूमियों के संरक्षण के लिए सरकार द्वारा क्या कदम उठाए गए हैं?

WETLANDS are the transitional lands between the aquatic & terrestrial ecosystems and have their water table at or near the surface.

ECOLOGICAL SERVICES BY WETLANDS



1.) **Carbon Sequestration**

- ↳ Wetlands helps in sequestering carbon
- ↳ Reduce carbon composition from atmosphere

2.) **Biodiversity**

- ↳ Wetlands are said to account for 40% of world species and 12% of animal species
- ↳ supports endemic species as well.

3.) Flood control

- ↳ most important social and economic benefit.
- ↳ acts like sponges

4.) Frontline Defences

- ↳ mangroves, coastal reefs, & salt marshes
- ↳ first defence against potential devastation.

5.) Earth's filters

- ↳ clean up water
- ↳ Remove pollutants like phosphorus, heavy metals etc.

REASONS FOR DECLINE.

1.) Natural phenomena

- ↳ like flood, storms, sea level rise.
- ↳ potential to destroy

2.) Agricultural Activities

- ↳ & Related Discharge in form of pollutants

3.) Waste disposal

- ↳ Mining for minerals & dumping.

4.) Hydrological alteration

- ↳ construction of dams,
- ↳ channelisation for navigation

5.) Settlement

- ↳ & infrastructural projects

STEPS TAKEN1.) International

- ↳ Ramsar Convention
- provides protection to sites listed
- ↳ Wetlands International

2.) National level

- (a) National Wetland Conservation Program (NWCP)
- (b) National Lake Conservation Plan (NLCP)

Thus, with proper check & balances and people centric policies, conservation efforts can be realised to save wetlands.

11. Highlight the various factors affecting salinity of the oceans. Also, elaborate upon horizontal and vertical distribution of ocean salinity.

महासागरों की लवणता को प्रभावित करने वाले विभिन्न कारकों को रेखांकित कीजिए। साथ ही, महासागरीय लवणता के क्षैतिज और ऊर्ध्वाधर वितरण का सविस्तार वर्णन कीजिए।

Salinity is total content of dissolved salt in water and calculated as amount of salt (gm) dissolved in 1000 gm of seawater.

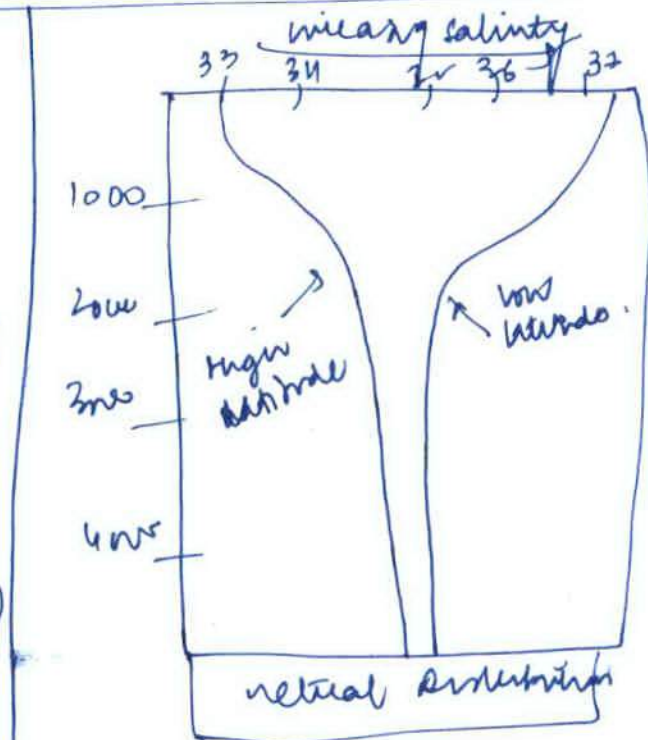
FACTORS AFFECTING SALINITY

- 1.) evaporation & precipitation
 - ↳ with high evaporation, salinity increases
 - ↳ with high precipitation, salinity decreases.
- 2.) Freshwater flow of rivers
 - ↳ Decreases the salinity of seawater.
- 3.) wind
 - ↳ also influences the salinity
- 4.) Ocean currents
 - ↳ contribute to salinity variation

- 5) temperature & Density of water
↳ influences the salinity

vertical distribution of Salinity

- 1) At surface
increases
by
evaporation
or decreases
by input
of water
(from Rivers)



- 2) At Depth,

Salinity normally remain fixed.

- 3) Generally increases with depth
↳ in halocline, - salinity
increases sharply.

horizontal distribution of Salinity

- 1.) Salinity for normal open ocean between 33 ppt - 37 ppt.
- 2.) In land locked Red Sea, 41 ppt while in Arctic & estuaries, salinity fluctuates from 0-35 ppt.
- 3.) In hot & dry regions sometimes even reaches 70 ppt like Mediterranean sea.
- 4.) In Pacific, salinity variation is due to its shape and large areal extent.

The average salinity of Indian Ocean is 35 ppt. Low observed in Bay of Bengal (due to high rate of river water). Arabic sea shows higher due to high evaporation.

12. Differentiate between conventional and non-conventional sources of energy. Also, list some advantages and disadvantages of non-conventional sources of energy.

ऊर्जा के पारंपरिक और गैर-पारंपरिक स्रोतों के बीच अंतर स्पष्ट कीजिए। साथ ही, ऊर्जा के गैर-पारंपरिक स्रोतों के कुछ लाभ और हानियों को सूचीबद्ध कीजिए।

Conventional and Non-conventional
Sources of Energy are the ones
which provide energy to differential
needs in different sectors across
world.

conventional source of Energy	non-conventional source of Energy
1) traditional way of harnessing energy	2) latest way of devising energy for various needs.
2) non-renewable	2) Renewable energy
3) lot of time to build again like million of years	3) can be renewed in comparatively short duration.
4) Polluting	4) less polluting & environment friendly

- | | |
|--|--|
| 5.) Rarely find -
left in few
quantity. | 5.) abundant in
nature |
| 6.) might become
extinct - once
lost | 6.) can be
replenished |
| 7.) (Eg) - Fossil fuels -
coal, petroleum,
charcoal. | 7.) (Eg) - solar,
wind, tidal
energy |

ADVANTAGES OF NON CONVENTIONAL

- 1.) Renewable
↳ can be replenished.
- 2.) Environment friendly
↳ less polluting
- 3.) Reduction in carbon emission
↳ global warming control efforts.
- 4.) Abundant in nature
↳ can be utilised in demand.
- 5.) easily can be replenish
↳ short duration.

DISADVANTAGES

1.) Costly

↳ technology & set up is very expensive.

2.) Less knowledge

↳ many untapped sources are found in nature due to less knowledge.

3.) Less Efficiency

↳ compared to conventional, produces less effective.

Though, non-conventional have some disadvantages but with the present scenario of world issues of climate change worldwide, it is better world switches to non-conventional sources as soon it can.

13. State the characteristic features of equatorial climate and vegetation. Discuss, why the equatorial region remains underdeveloped despite having abundance of natural resources.

भूमध्यरेखीय जलवायु और वनस्पति की अभिलाक्षणिक विशेषताओं का उल्लेख कीजिए। चर्चा कीजिए कि प्राकृतिक संसाधनों की प्रचुरता के बावजूद भूमध्यरेखीय क्षेत्र अल्पविकसित क्यों बना हुआ है।

The hot and wet equatorial climate is found between 5° to 10° North and south of Equator, primarily in Amazon lands, Congo, Malaysia & East Indies

Characteristic features of Equatorial climate & vegetation

- 1.) High Temperature $\rightarrow$ great uniformity of temperature, diurnal and annual range of temperature is also very small
- 2.) Season $\rightarrow$ no distinct winter & summer season.
- 3.) Precipitation $\rightarrow$ heavy & distributed throughout the year

- 4.) Vegetation → great variety
 ↳ evergreen, smaller trees, climbing
 trees, parasitic plant.
- 5.) Multiple species → not found in
 single stand but multiple stand

constraints to development

1.) Equatorial Climate & health

↳ Due to excessive heat and
high humidity, people subjected
 to physical & mental handicaps.

2.) Bacteria & insect pests

↳ hot, wet climate ideal for
survival & spread of insects &
pests - wild crops & plague men.

3.) Difficulty in livestock farming

↳ handicapped by absence of
 meadows and frequent attacks
 by flies & insects

4.) hurdle to development

↳ Due to insurmountable hurdle -
difficult to clear forests for
construction.

5.) Depletion of tropical soil

↳ most soil nutrients are
washed out due to potential
downpours, soil erosion & impoverishment.

EQUATORIAL CLIMATE REGION
provides immense biodiversity and
vegetation and needs special
attention and care for its
preservation.

14. Bring out the differences between tropical and temperate cyclones.

उष्णकटिबंधीय और शीतोष्ण चक्रवातों के मध्य अंतर स्पष्ट कीजिए।

CYCLONES is a region of low
atmospheric pressure accompanied
by powerful winds. Occur mainly
in tropical & temperate regions.

~~Atmospheric conditions~~

Tropical cyclone	Temperate cyclone
1) NO frontal system exist	1) clear frontal system
2) Originate over only on sea	2) Originate over both land & sea
3) Occur in tropical Region 5°N & 5°S (absence of winds)	3) form in regions of convergence of air mass (35 - 60 latitude)

Tropical	Temperate
4) east to west movement	→ move from west to east
5) Attain velocities upto 300 kmph	- not more than 200 kmph
6) die as soon as they make landfall	6) bring longer duration weather change
7) cause heavy destruction	7) not that violent
8) common in Bay of Bengal, Caribbean Sea, Gulf of Mexico, South China Sea, & east of Australia	8) common on Western coast of Europe & east coast of USA.

Cyclones are a common
phenomena seen almost every
year in different parts of world.

A Robust preparedness &
planned alert system can
reduce the devastations caused
by it.

15. What are the conditions that are conducive for formation of tropical and cold water corals? Highlight the anthropogenic factors that have led to their decline.

उष्णकटिबंधीय और ठंडे जल में पाई जाने वाली प्रवाल भित्तियों के निर्माण के लिए अनुकूल परिस्थितियां क्या हैं? इनके ह्रास के लिए उत्तरदायी मानव जनित कारकों को रेखांकित कीजिए।

CORAL POLYPS are short lived microscopic organisms, which live in colonies. They secrete hard rock like substances which form coral reefs.

② Ballial Reefs, Atoll etc.

conducive conditions for tropical & cold coral formation.

1.) Shallow water → need to grow
↳ sunlight needed.

2.) Mud free water → sediment & plankton can decrease amount of sunlight.

3.) ~~Warm water~~ 1

3.) Salty water → Fresh water inhibits coral formation

4.) Moving water → As this will be cleared up.

5.) No pollution → sediment can deposited on corals.

How formed

→ Coral Reef result of symbiotic relationship between zooxanthellae and corals in an oceanic ecosystem.

→ corals give shelter to algae in exchange of nutrients

→ corals secrete calcium carbonate which become hardened after their death.

Anthropogenic Factors led to Decline.

1.) Pollution → sediments, industrial garbage disposal in Ocean caused chemical accumulation.
→ hampering coral formation

- 2) Fishing → threat to their
existence
- 3) Oil spills → creates danger of
their wiping off.
- 4) Climate change → induced by
human activities cause
variation in temp.
- 5) Fresh water depletion
→ can also at times create
difficulty for them to survive.

Coral are the 'lungs of the planet' which keeps marine biodiversity safe.

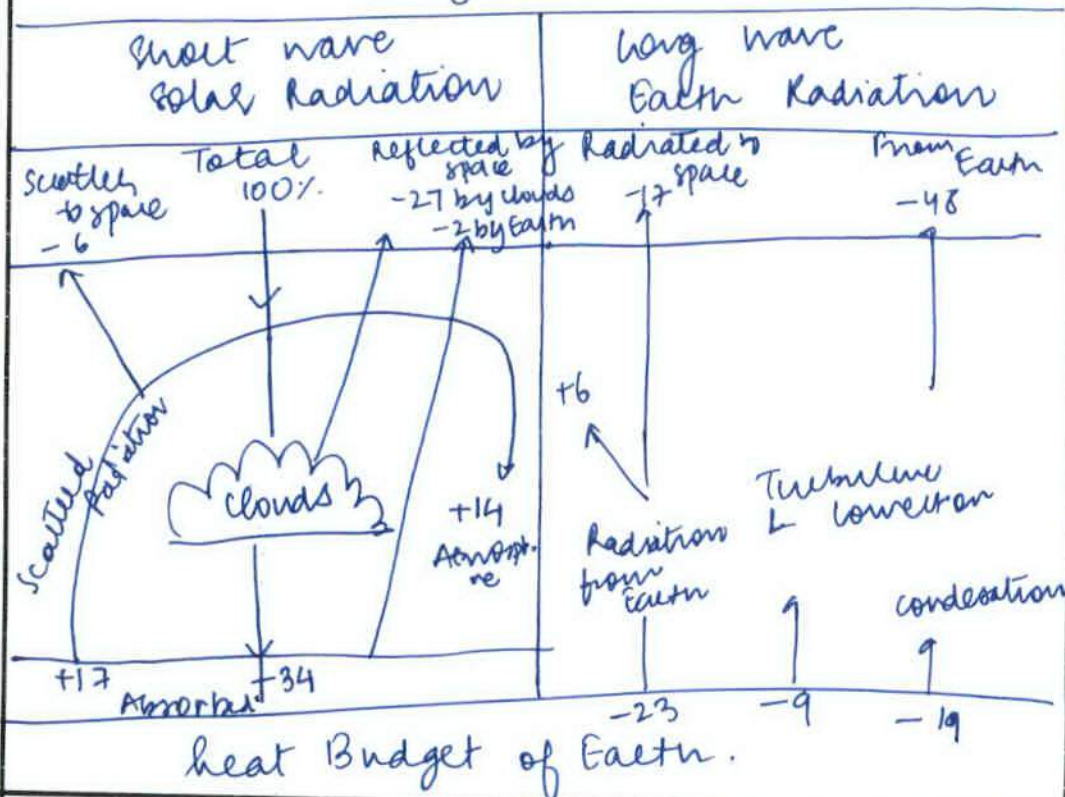
16. Explain the processes by which the Earth maintains its heat budget.

उन प्रक्रियाओं की व्याख्या कीजिए जिनके द्वारा पृथ्वी अपने ऊष्मा बजट को बनाए रखती है।

The earth as a whole does not accumulate or lose heat. It maintains its temperature through process of heat Budget.

What is heat Budget?

↳ Maintenance of earth's temperature when the amount of heat received in form of insolation equals the amount lost by terrestrial radiation.



SOLAR RADIATION

↳ If insolation received is 100 percent.
Roughly 35 units reflected back to
space even before reaching earth's
surface.

→ 27 from top of clouds

→ 2 from snow & ice covered areas.

↳ Remained 65 units are absorbed.

→ 14 within atmosphere

→ 51 units by earth's surface.

Terrestrial Radiation

↳ earth radiates back 51 units

→ 17 directly

→ 34 absorbed by atmosphere.

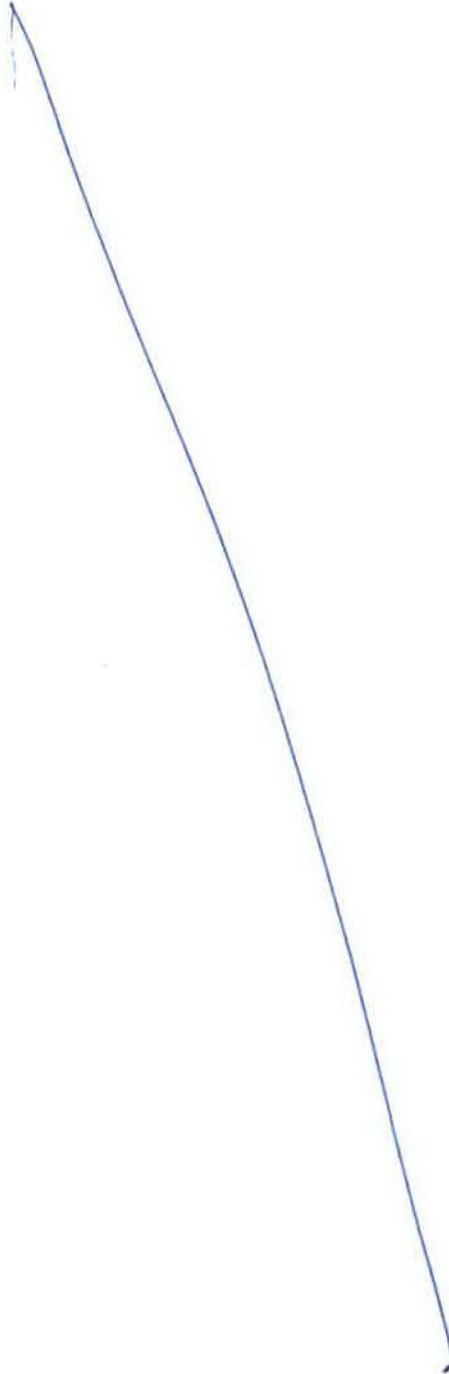
→ Atmosphere also reflect back its
48 units

Thus, the total amount
of heat received is reflected
back to space → termed
as Heat Budget

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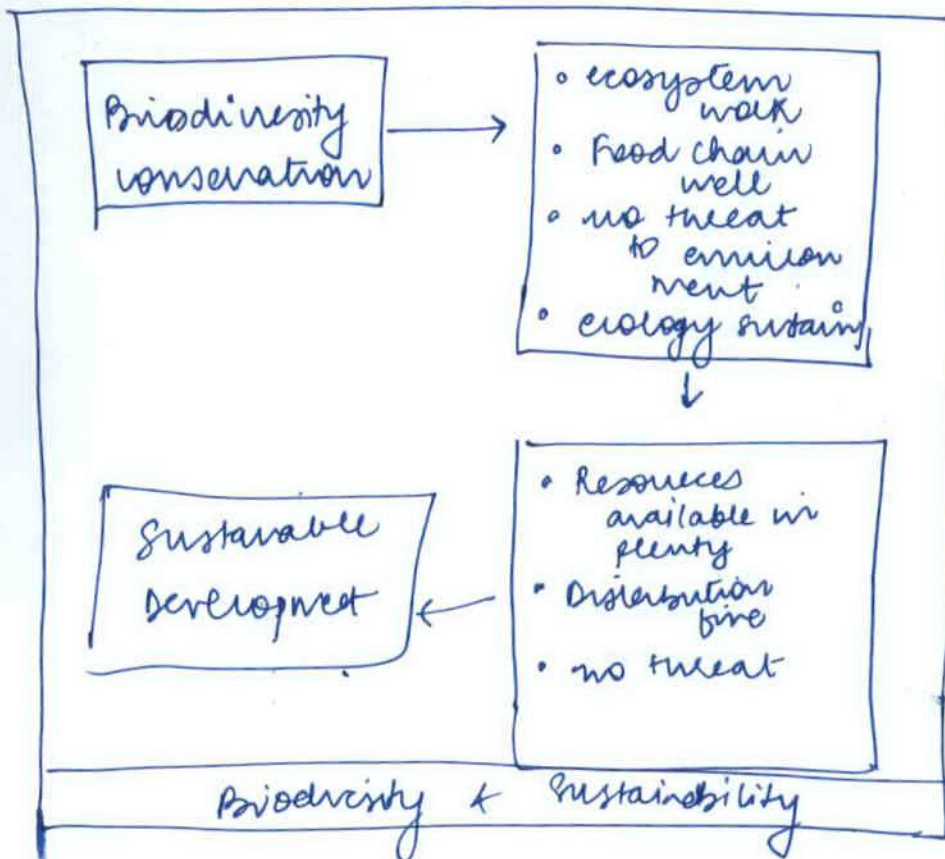


17. Elucidate the link between biodiversity and sustainable development. Also, mention steps taken by India to address the concern of biodiversity loss.

जैव विविधता और सतत विकास के बीच परस्पर संबंध को स्पष्ट कीजिए। साथ ही, जैव विविधता की हानि की चिंता को दूर करने के लिए भारत द्वारा उठाए गए कदमों का भी उल्लेख कीजिए।

Sustainable Development is the concept of using resources in such way to ensure their production for future generation as well.

SDG Goal 15 talks of sustainable use of ecosystem & halt biodiversity loss.



Biodiversity & Sustainable Development

1.) Conserving of ecosystem

- ↳ increase natural ecosystem area.
- ↳ Resource availability.

2.) Species protection

- ↳ genetic diversity preservation
- ↳ ecological cycle work.

3.) Managing forests

- ↳ timber & wood availability
- ↳ climate change effects in control.

4.) Combat desertification

- ↳ landforms intact
- ↳ human resources.

5.) Halt Biodiversity loss

species survive
 ↓
 food chain not disturbed
 ↓
 ecology survive
 ↓
 economy survive
 ↓
 humanity survive.

Steps taken by Government

- 1) Wildlife Protection Act, 1972
 Is time to time amendments
 as well provides major
 protection & preservation goals
 for Biodiversity
- 2) Projects like Project Tiger,
 Elephant, Rhino provides
 specific protection to endangered
 species.
- 3) Environment Impact Assessment
 to check upon the impact of
 construction of new building &
 factories before hand.

Government has taken steps to
 protect Biodiversity, but would
 be possible only with people's
participation actively.

18. What is meant by High Technology or Hi-Tech industry? Giving examples of some of these industries, highlight their important features.

उच्च प्रौद्योगिकी या उच्च प्रौद्योगिकी उद्योग (हार्ड-टेक इंडस्ट्री) से क्या तात्पर्य है? इन उद्योगों में से कुछ का उदाहरण देते हुए, उनकी महत्वपूर्ण विशेषताओं पर प्रकाश डालिए।

High Technology Industries are the latest generation of manufacturing industries, which involve intense research & development, mechanised machines and automation technology.

EXAMPLES OF HIGH TECH

- ↳ genetic engineering
- ↳ nanotechnology
- ↳ telecom & network
- ↳ software technology
- ↳ computing & automation
- ↳ modern pharmaceuticals.
- ↳ advanced instrumentation

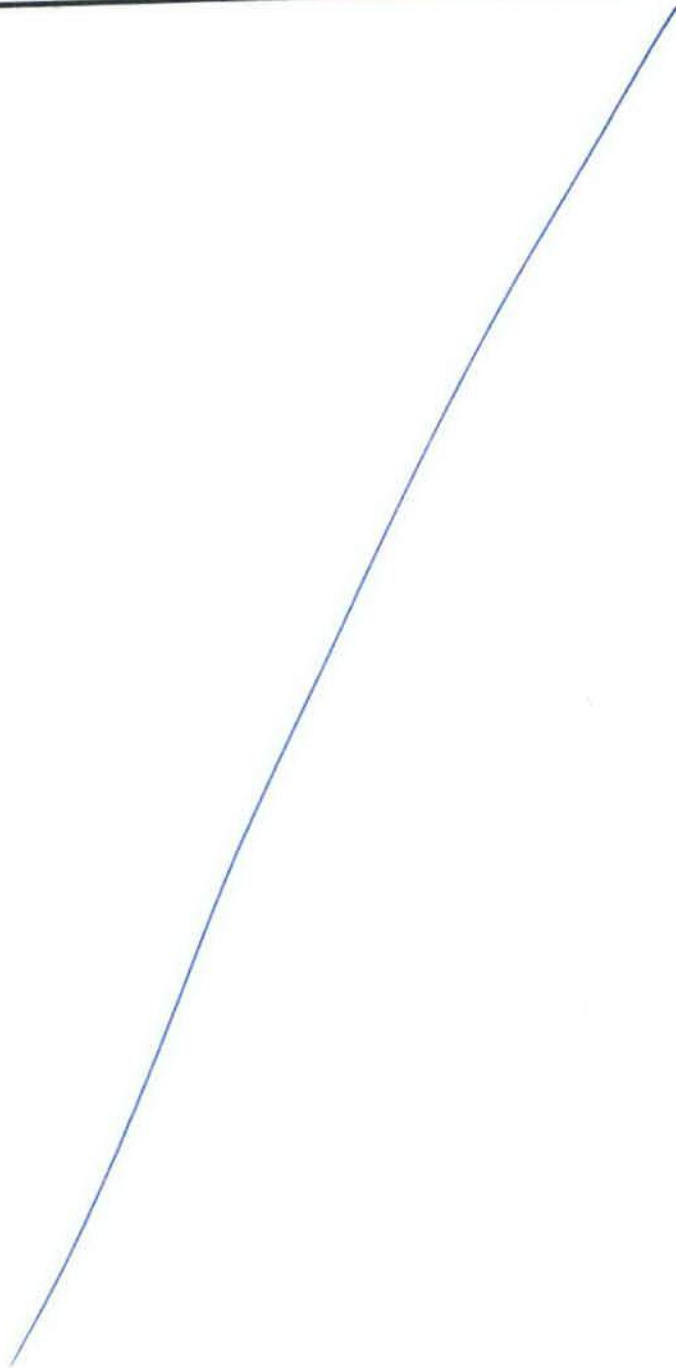
IMPORTANT FEATURES

- 1.) Require highly skilled labour
↳ all tech companies need specialised skills.
 - 2.) use latest technology
↳ needed to be updated.
 - 3.) characterised by neatly spaced, expanses, big areas of building
 - 4.) mostly workforce composed of white collar (professional) workers.
 - 5.) more technology reliant
work - flexible to work from home. in most.
- ↳ The high tech companies are commonly regarded as the epitome of harnessing latest human Resource.

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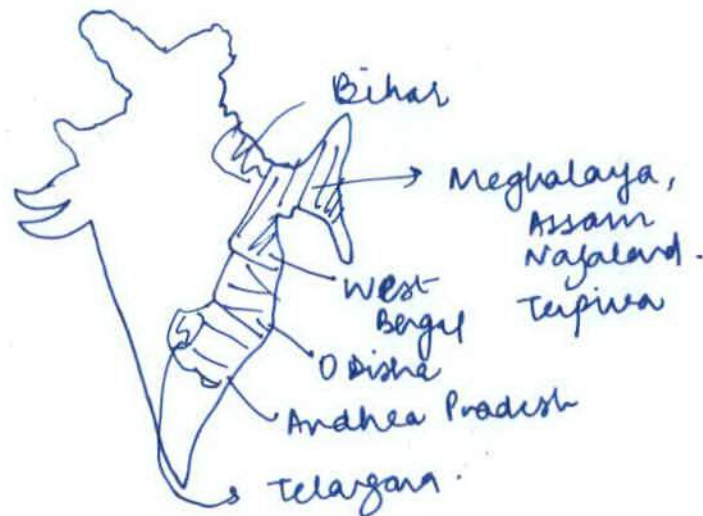
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19. Give an account of locational factors that have influenced the distribution of jute industry in India. What are the challenges that this industry faces?

भारत में जूट उद्योग के वितरण को प्रभावित करने वाले अवस्थिति संबंधी कारकों का विवरण दीजिए। इस उद्योग को किन चुनौतियों का सामना करना पड़ता है?

India is the largest producer of raw jute and jute products and stands second as an exporter after Bangladesh.



Jute Distribution in India.

Locational Factors

There are about 70 mills in India. Mostly in West Bengal along Hugli River.

- 1.) Proximity to Raw Material
 - ↳ Jute producing area in West Bengal and in Bangladesh.
- 2.) Transport
 - ↳ inexpensive water transport
 - ↳ supported by good network of railways, roadways & waterways
- 3.) Abundant water
 - ↳ available for producing jute
- 4.) Cheap labour
 - ↳ available from West Bengal, & adjoining states of Bihar, Odisha, Uttar Pradesh.
- 5.) Kolkata as urban centre
 - ↳ provides Banking, insurance & port facilities for export of jute goods.

CHALLENGES

- 1.) Wage Rates needs to linked with productivity.
- 2.) new sophisticated machinery needed
- 3.) After Partition, jute producing area went to Bangladesh.
- 4.) Competition from synthetic fibre

WAY FORWARD

- 1.) Increase Marketing Strategy
↳ promote Jute as eco-friendly
bio-degradable packaging material
- 2.) environmental consciousness
- 3.) products needs to be diversified

2005 National Jute Policy and the recent mandatory use of Jute Packaging are steps in right direction.

20. State the conditions that are conducive for the occurrence of temperature inversion. Also, highlight its consequences.

तापमान व्युत्क्रमण की परिघटना के लिए अनुकूल परिस्थितियों का उल्लेख कीजिए। साथ ही, इसके परिणामों को भी रेखांकित कीजिए।

Usually, temperature decreases with increase in elevation i.e. normal lapse rate. When the normal lapse rate is inverted, it is Temperature Inversion.

conditions for Temperature Inversion

1.) Long winter nights → so that loss of heat by terrestrial radiation from ground surface during night is greater than incoming radiation.

2.) Clear skies
↳ allows unobstructed escape of radiation.

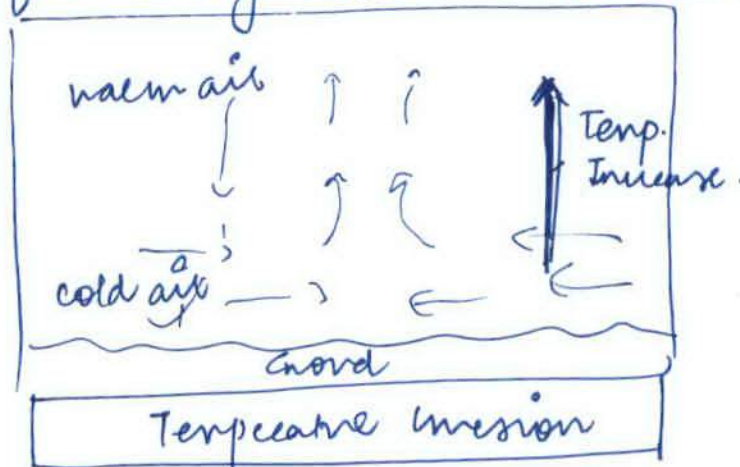
3.) Calm and stable air
↳ no vertical mixing at lower levels.

4.) slow movement of air

↳ no transfer and mixing of heat in lower layers of atmosphere.

5.) slow covered ground surface

↳ There is maximum reflection of incoming solar radiation



Consequences of Inversion.

1.) Absolute Stability

↳ low chance of rain

2.) Hygroscopic Nuclei

↳ cannot move vertically
causes lower temp. - results
into foggy conditions

3.) Pollutants increase in air which makes air unhealthy for breathing like PM 2.5, PM 10, CO₂.

4.) Poor visibility increases road accident, delay, in transportation and flights.

Temperature inversion is quite normal phenomenon in polar areas throughout the year.