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GENERAL STUDIES (TEST CODE : 1392)

Name of Candidate	Sohan Lal	Registration Number	35133
Medium Eng./Hindi	English	Date	24 th Oct. 2019
Center	Old Rajinder Nagar		

INDEX TABLE			INSTRUCTIONS
Q. No.	Maximum Marks	Marks Obtained	
1	12.5		1. 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)।
2	12.5		2. There are TWENTY questions printed in ENGLISH & HINDI इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3	12.5		3. All questions are compulsory. सभी प्रश्न अनिवार्य हैं।
4	12.5		4. The number of marks carried by a question/part is indicated against it. प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5	12.5		5. 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 मिलेगा।
6	12.5		6. Word limit in questions, if specified, should be adhered to. प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7	12.5		7. 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।
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:			

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 what a watershed is. What do you understand by watershed management? Giving suitable examples, discuss its significance in water resource management in India.

जल-संग्रह (वाटरशेड) की व्याख्या कीजिए। जल-संग्रह प्रबंधन से आप क्या समझते हैं? उपयुक्त उदाहरण देते हुए, भारत में जल संग्रह प्रबंधन में इसके महत्व की चर्चा कीजिए।

Watershed!

Watershed is an ^{collective} area which receives water from river, lakes, ponds etc. or collective area or basin of all water bodies is called watershed.

while River Basin is a larger area, watershed is comparatively smaller area.

example:

Ganga River Basin = Chambal watershed + Son watershed +

⇒ * watersheds are separated from each other by hilly areas or mountains which is called watershed divide.

Watershed Management:

"watershed management" is referred for properly managing water resources of any area so that any unforeseen situation like floods, draughts etc. can be avoided.

examples:

by taking care of traditional water conserving techniques, proper management of water bodies, wells, ponds etc. in Rajasthan, Gujarat draught can be avoided or effect of draught can be minimised.

by diverting flood water of any area to draught prone areas both areas can be saved.

for this proper management is required.

Significance in India

- ① * India is both draught and flood affected nation. By directing flood water towards draught prone areas both areas can be saved.
eg.: water of Sardar Sarovar Dam is used for draught affected areas of gujarat (Saurashtra, Kutch)
- ② * Rain water conservation, management of ponds, wells and other water bodies can save both culture and future generations.
- ③ * By proper management of water, water borne diseases can be avoided.
- ④ * Cooperation and self governance at grass root level can be achieved by including local people in water management.

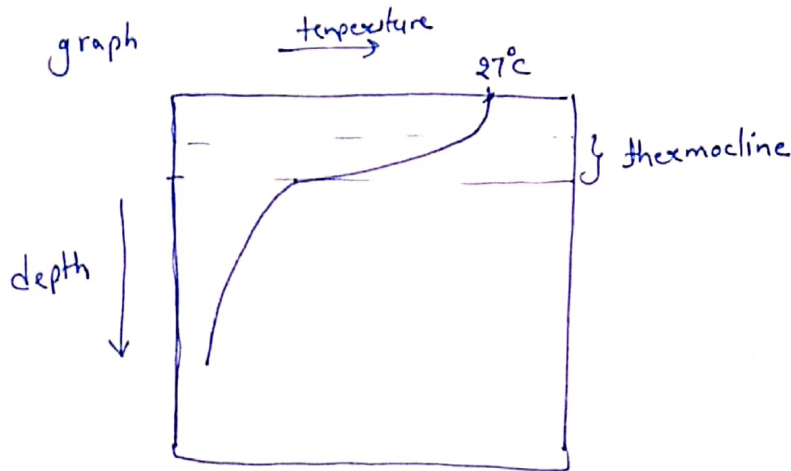
2. Illustrate the vertical and latitudinal distribution of temperature in ocean waters along with factors responsible for such a distribution.

महासागरीय जल में तापमान के ऊर्ध्वाधर और अक्षांशीय वितरण के साथ ही इसके लिए उत्तरदायी कारकों को उदाहरण सहित समझाइए।

Temperature in ocean varies from place to place.

Vertical distribution of temperature:

Temperature in ocean is not constant, it varies according following graph



- (i) Temperature at surface is maximum.
- (ii) when we move towards ocean floor temperature reduces.
- (iii) after a certain depth temperature reduces suddenly. This is called thermocline
- (iv) After this temperature is nearly constant or rate of Temp. reduction is very less.

#: Latitudinal distribution of temperature :

- * temp. at tropics is maximum and towards poles it reduces.
- * temp. of enclosed bodies (water bodies) at poles is colder and at equator is hotter due to effect of continentality

Factors responsible for temperature
Distribution :

- ① Salinity : temperature is proportional to salinity
- ② evaporation & precipitation : where evaporation is more than precipitation those places are hotter (equator)
- ③ inclination of sun or amount of solar insolation : more solar insolation means temp. of ocean is hotter
- ④ open or enclosed body : enclosed body in colder areas (poles) has colder

water than open and in equatorial seas is hotter than open bodies due to effect of continentality.

⑤ when we go towards floger of ocean temperature reduces because sunlight penetration reduces.

⑥ Ocean Currents: ocean currents are responsible for temperature distribution in oceans. Warm ocean currents like Gulf Stream, Kuroshio current ~~reduces~~ increases temp. of ocean when it goes to higher latitudes.

⑦ wind: wind over ocean surface is also responsible for temp. distribution.

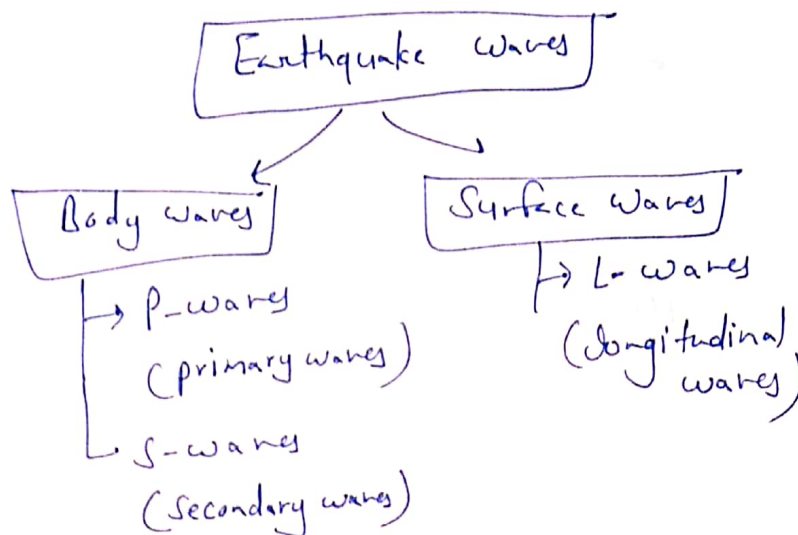
3. Explain how earthquake waves are used as an indirect source for understanding the structure of the interior of the earth.

ब्याख्या कीजिए कि पृथ्वी के आंतरिक भाग की संरचना को समझने के लिए भूकंपीय तरंगों का एक अप्रत्यक्ष स्रोत के रूप में किस प्रकार उपयोग किया जाता है।

Earthquake waves

By sudden release of energy in interior parts of earth along any fault, earthquake waves are generated.

these are of two types



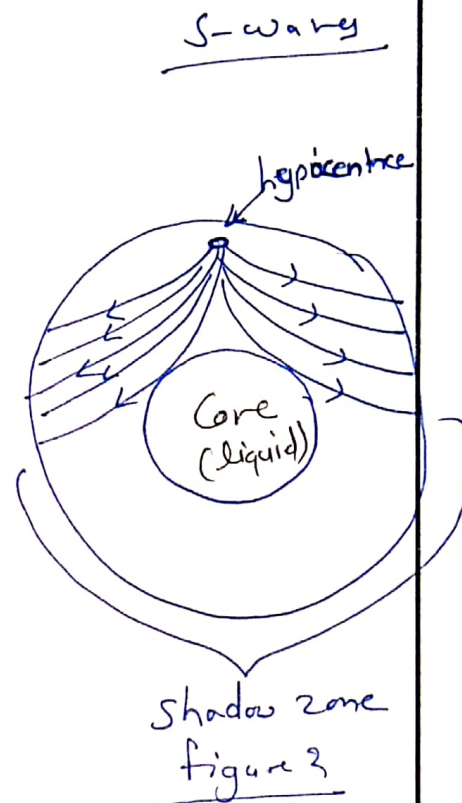
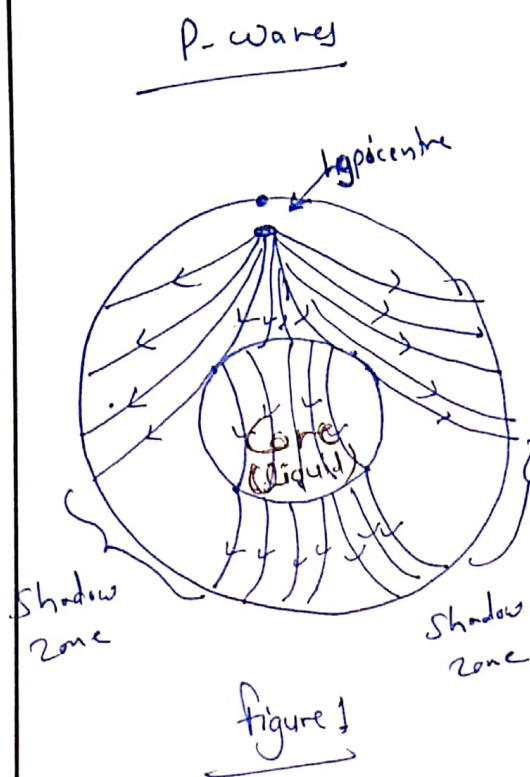
Earthquake waves in understanding Earth's Interior

Important facts

- ① P-waves are faster than S-waves
- ② P-waves travel in all mediums while S-waves can travel in solid only.

⇒ P-waves arrives at surface first
and then S-waves

⇒ By recording P-waves and S-waves on
seismograph interior of earth can be
understand



as we know p-waves can travel in
all mediums but velocity of p-waves
is different

$$V_{\text{solid}} > V_{\text{liquid}} > V_{\text{gas}}$$

hence when p-waves go from one
medium it deflects from its path

as seen in figure 1 P-waves deflected from its path and we got to know about a-shadow zones where P waves did not arrive

⇒ it shows velocity of P-waves decreased. It means core of earth is made of fluid

in figure 2 we know that there is one shadow zone that covers the major part of earth. it is also proved from here that interior of earth is made of fluid.

⇒ Thus by understanding P and S waves and their arrival times, their deflection we come to know that earth's outer part is made of solid materials, outer core is made of liquid and then again inner core is made of solid materials.

4. Differentiate between tropical and extra-tropical cyclones.
उष्णकटिबंधीय और वहिरुष्ण कटिबंधीय चक्रवातों के मध्य विभेदन कीजिए।

Cyclone :

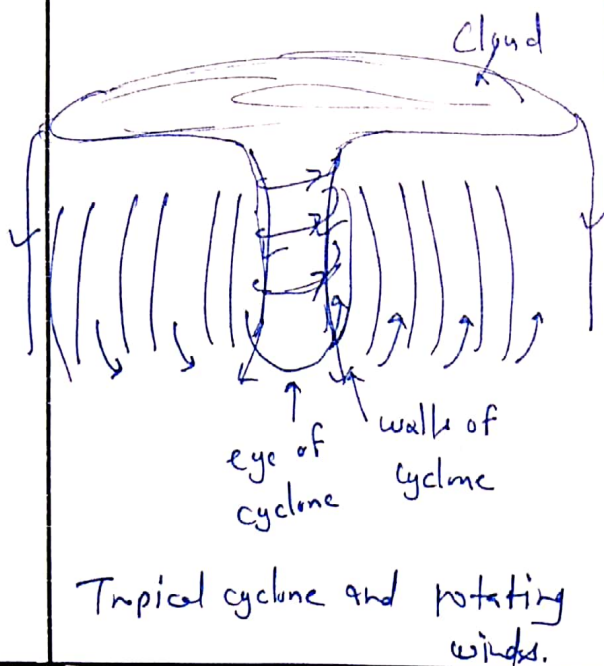
Cyclone is low pressure area which makes winds from High pressure areas to travel towards it and then these coming winds takes rotational motion due to coriolis force of earth.

Cyclones can be divided in 2 Categories

① Tropical cyclones

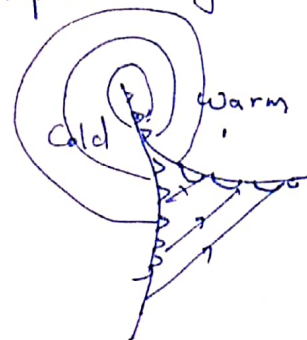
② Temperate cyclones (Extra tropical cyclones)

Tropical cyclone



Tropical cyclone and rotating winds.

Temperate cyclone



Temperate cyclone & cold and warm fronts

Difference Between Tropical and Temperate Cyclones:

<u>Tropical Cyclones</u>	<u>Temperate Cyclones</u>
① Usually develop in <u>tropical areas</u> where temperature of <u>sea surface</u> is $\geq 27^{\circ}\text{C}$	① usually develop in temperate areas where strong mixing of <u>cold and warm</u> wind is possible
② <u>Centre</u> of tropical cyclone is low pressure area which is called <u>eye</u> and winds circulate around this area clockwise in Southern Hemisphere and <u>Anticlockwise</u> in Northern Hemisphere	② Mixing of warm and cold winds creates <u>cold and warm fronts</u> . Cold front travels faster than warm front and finally takes over warm front and cyclone dissipates
③ develop on <u>sea surface</u>	③ Both on <u>sea and land</u>
④ limited to small Area than Temperate cyclone	④ Affects larger Area

⑤ speed is greater than
Temperate cyclones

⑤ less fast

⑥ Centre is calmest area
and convective rain happens
on outer Area (Maximum
at Eye wall)

⑥ ~~Orographic~~ or
frontal Rain happens
due to cold and
warm fronts

⑦ Incoming is marked by
strong winds which are
outbursts of cyclone and
are calm without rain
and thunderstorm
(Anticyclonic condition)

⑦ incoming is when
cold wind comes, after
it warm wind and
at last again cold
wind and then
cyclone dissipates

⑧ lasts for some
days

⑧ lasts for longer
period

5. What were the major geological events that have shaped the present day drainage system of Peninsular India? What role has been played by geographical factors in the peninsular drainage pattern?

प्रायद्वीपीय भारत के वर्तमान अपवाह तंत्र को आकार देने वाली प्रमुख भूवैज्ञानिक घटनाएं क्या थीं? प्रायद्वीपीय अपवाह प्रतिरूप में भौगोलिक कारकों द्वारा क्या भूमिका निभाई गई है?

Drainage pattern in peninsular India

is due to

- ① western and eastern ghats :
all major rivers are
flowing from west to east and
are originated in western ghats
- ② Deccan plateau has its slope from
west towards east, Thus all major
rivers are east flowing.
- ③ Due to hard and rocky structure
of plateau meandering is lesser
in peninsular rivers.

6. Highlight the reasons behind high concentration of Jute mills in West Bengal. Also give an account of the problems that the jute industry of India is confronted with.

पश्चिम बंगाल में जूट मिलों के अति संकेंद्रण हेतु उत्तरदायी कारणों पर प्रकाश डालिए। साथ ही, भारतीय जूट उद्योग के समक्ष व्याप्त समस्याओं का भी विवरण दीजिए।

Jute Mills in West Bengal :

Jute Mills and their location

is decided by following factors.

- (i) Raw Material source
- (ii) River water for primary processing
- (iii) cheap labour
- (iv) Market demand & Connectivity
- (v) Coastal Area/ port for Export
- (vi) Climate should be suitable for Cultivation
- (vii) favourable government policies

In west Bengal climate is suitable for cultivation of jute crop and also cheap labour is available from North Eastern states, Bihar, U.P. Also these people are skilled from colonial times

for processing of jute. After harvesting of jute River water or any other water source is required for primary processing which is available in west Bengal as many rivers flow from west Bengal (like Hugly River).

Balcutta in west Bengal is connected to other states by Rail, Road and waterways, so connectivity and market both are suitable conditions for development of jute mills in west Bengal. Also government policies are favourable for jute mills development.

problems Before Jute Industry

① Marketing! Indian Jute Industry needs proper marketing so that people can lure towards state.

→ after plastic ban, there should be proper marketing for jute and its products.

② Government Policies :

government policies are not favourable for jute industry and many mills are closing. and labourers are migrating to other policies. Also labour laws are not simplified.

③ Pollution :

River water is polluted which affects productivity of processed jute.

④ Other Commercial crops :

farmers find cultivation of other cash crops more suitable than jute as this is not in much demand.

⑤ Quality :

Quality (Standards) are not properly maintained so demand is lesser in International Market.

→ In India also jute products of Bangladesh are more preferred than our own.

⑥ Major jute cultivation area is with Bangladesh after partition and due to this proper policies and management is reqd.

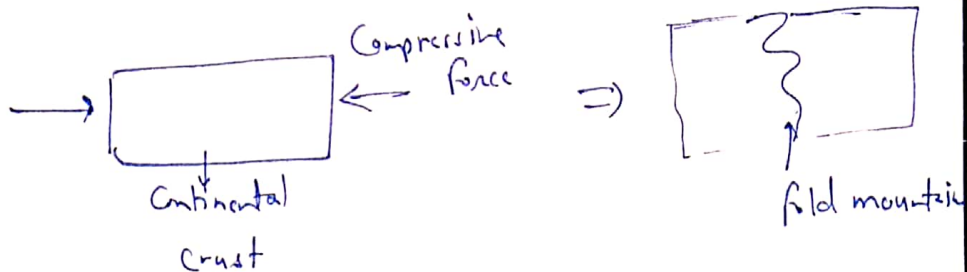
7. Explain the mechanism behind formation of fold mountains. Why are they mostly found along the margins of continents?

वलित पर्वतों के निर्माण के लिए उत्तरदायी क्रियाविधि की व्याख्या कीजिए। ये अधिकांशतः महाद्वीपों की सीमाओं पर क्यों पाए जाते हैं?

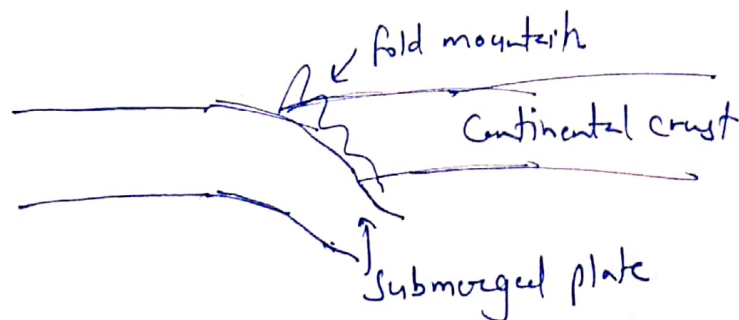
Fold Mountains

Fold mountains are formed when crust, sediments deposited are folded due to compressive force. This force comes from internal forces in earth (endogenic forces)

Mechanism of formation

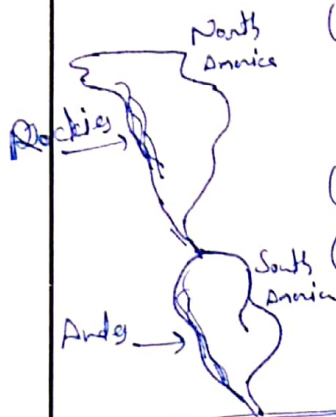


Tectonics & Fold Mountain (Converging Boundary)



When continental (denser plate) or oceanic plate is submerged below lighter continental plate then compressive force is generated and this compressive force pushes either continental crust of upper plate or sediments deposited (alluvium carried by river) in boundary area to fold. This process or compressive force leads to folding and finally fold mountains are generated on continental crust that is upthrust by submerged plate.

Example: (i) Andes in South America
(ii) Rockies in North America
(Continent-Ocean Convergence)



(iii) Himalays
(iv) Urals } Both Continent-Continent Convergence.

Why Along Margins of Continents?

→ as we know that (earlier explanation)
fold mountains are generated due to
compressive forces. this compressive force
is due to plate tectonics

→ when 2 plates converge these put
compressive force on each other and
result is fold mountains.

As these are generated due to compressive
force of convergence, which is maximum
on plate boundaries, thus most of
the fold mountains are on continent-
continent convergence boundary or at
continent-ocean convergence boundary.

On diverging or transform boundaries
this compressive force is absent and
also in mid of continents this compressive
force is absent

So fold mountains are on continental boundaries.

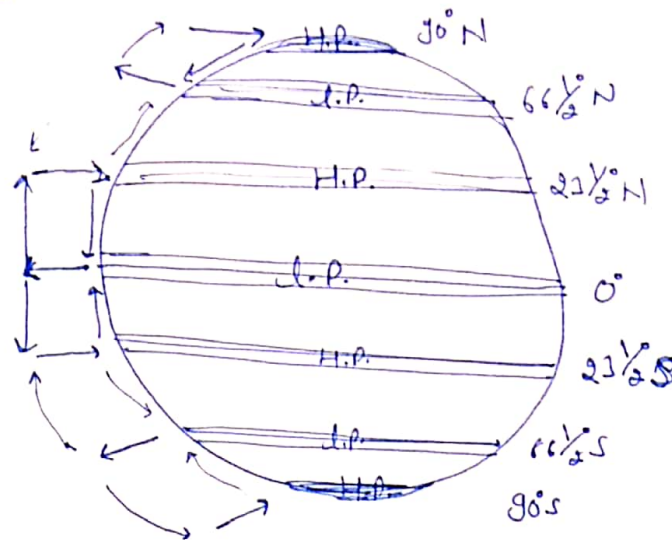
8. Briefly explain the world distribution of pressure belts and general circulation pattern in the atmosphere.

वायुदाब पट्टियों के वैश्विक वितरण और वायुमंडल में सामान्य परिसंचरण के प्रतिरूप की संक्षेप में व्याख्या कीजिए।

pressure Belts

pressure on earth is not same on all latitudes. it varies from one latitude to other this is due to temperature variation or coriolis force of earth.

So, there are 7 pressure belts on earth.



- ① equatorial low pressure belt — one
- ② tropical High pressure belts — two
- ③ Subtropical low pressure belts — two
- ④ Polar High pressure belts — two

Explanation of 7 pressure belts:① Equatorial low pressure belt

Equator receives highest insolation thus it is warm places. This leads to warm air to rise thus creates low pressure

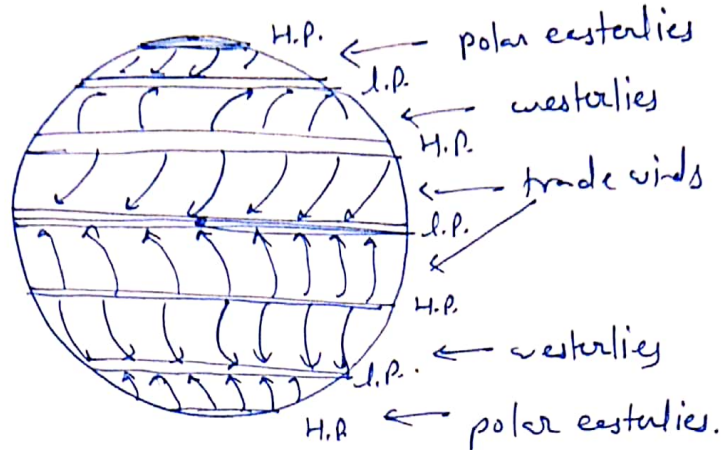
② Tropical High pressure belt

When warm air of equatorial region reaches troposphere, it starts dispersing when this dispersed air reaches 30°N/S latitude, due to Coriolis force it starts subsiding, thus tropical High pressure belt.

③ Polar High pressure

poles are coldest place so air starts subsiding and goes ^{from} here to all nearby places. thus High pressure belt

④ Temperate low pressure → air from poles and tropics come here and starts uplifting thus low pressure (due to Coriolis force)

General Circulation pattern

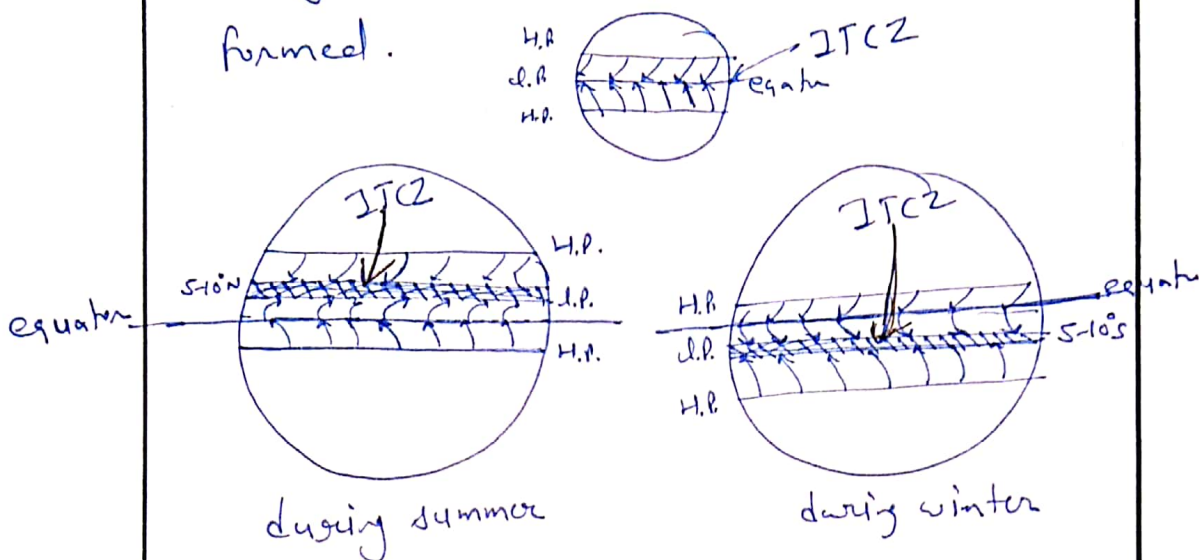
- air goes from High pressure to low pressure because of pressure gradient force
- air deflects to its right in Northern Hemisphere and to its left in Southern Hemisphere due to Coriolis force
- Thus temperature induced (thermal induced) and dynamic (mechanically induced) forces, Hadley, polar cells are formed.

9. What is inter-tropical convergence zone? How does it influence the Indian monsoon?

अंतः-उष्णकटिबंधीय अभिगमन क्षेत्र क्या है? यह भारतीय मानसून को किस प्रकार प्रभावित करता है?

Inter tropical Convergence zone (ITCZ):

It is the latitudinal area where trade winds (coming from high pressure of tropics to low pressure) converges and low pressure area is formed.



air deflects towards its right in Northern Hemisphere

air deflects towards its left in Southern Hemisphere.

ITCZ and Indian MonsoonSummer

① During summer ITCZ shifts northwards. Hence low pressure area is created over Tibetan plateau.

② Similarly High pressure is created over ~~mega~~ Madagascar.

③ So winds start coming from High pressure (Madagascar) Indian Ocean towards Tibetan plateau (low pressure).

④ As winds are coming from Indian Ocean it has moisture content in it.

⑤ These moisture containing south westerly winds lead to rainfall in Indian landmasses.

⑥ This is called Monsoon or

Summer Monsoon

Winter :

① during winter ITCZ is formed towards south of equator

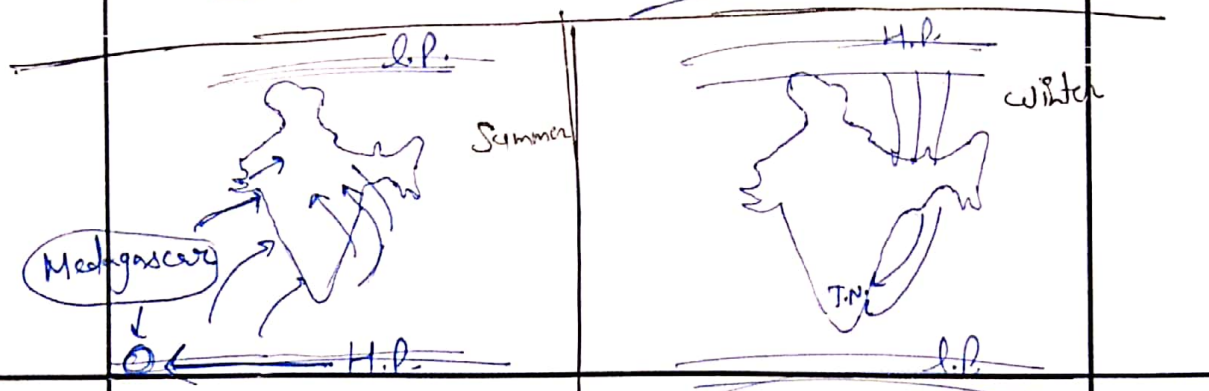
② this leads to anticyclonic condition over Indian subcontinent and Tibetan plateau

③ thus winds starts travelling towards south (North Easterly winds)

④ As these winds are coming from continent, thus there is less or no moisture content thus there is lesser or no rain

⑤ when these winds reach Bay of Bengal Region. these winds get some moisture this leads to rainfall in Tamil Nadu.

⑥ this is called North East Monsoon.



10. What do you understand by (social forestry) Highlight its socio-economic significance for India.

सामाजिक वानिकी से आप क्या समझते हैं? भारत के लिए इसके सामाजिक-आर्थिक महत्व पर प्रकाश डालिए।

Social forestry :

it is used for forestry done by society for society itself for mutual benefits.

Society takes care of forests, wild animals and try to develop relationship with nature

Socio-Economic Significance:

- ① environmental protection leads to lesser natural disasters.
- ② Conservation of wild flora & fauna leads to several direct & indirect benefits like Homeopathic importance and other medicinal importance of forests and species.

- ③ Habit of environmental protection develops and which leads to well civilized place & population.
- ④ environmental awareness.
- ⑤ lesser pollution reduces occurrence of climate change, reduces CO₂ emission.
reduces disease burden.

11. Giving examples, highlight the importance of location as a factor of desert formation.

उदाहरण प्रस्तुत करते हुए, मरुस्थल निर्माण के एक कारक के रूप में अवस्थिति के महत्व पर प्रकाश डालिए।

Desert formation

Desert are areas where annual precipitation is less than 25 cm.

Deserts are formed ~~where~~ due to :

① Continentality :

moisture containing winds.

lose moisture when it reaches interior part of continents.

→ Gobi, Taklamakan, ^{Ladakh} ~~Siberian~~ Desert.

② Global Ocean Currents :

when onshore winds.

Comes from areas of Global ocean currents it have less moisture, thus less rainfall.

→ example : Atacama Desert, Namib Desert.

③ Offshore winds

offshore winds lose moisture when it reaches from one shore to another shore. Thus desert are found on western side of ~~the~~ continents within most 20° - 30° latitudes.

example → great Sahara Desert,
Sonoran Desert, Mojave Desert, Great Basin Desert.

④ Leeward side of Mountains

Windward side of Mountains. Receive High Rainfall. But when it reaches other side it loses moisture thus lesser rainfall which leads to formation of Desert.

example → Kalahari Desert of Africa,
pategonian Desert of South America

12. What are the primary forces that initiate movement of water in oceans as currents? Also, giving examples, highlight the effects that ocean currents have on human activities.

वे कौन से प्राथमिक बल हैं जो महासागरों में जल का समुद्री धाराओं के रूप में संचलन प्रारम्भ करते हैं? साथ ही, उदाहरण देते हुए, मानवीय गतिविधियों पर महासागरीय धाराओं के प्रभावों पर भी प्रकाश डालिए।

Ocean Currents :

Ocean currents are horizontal movement of ocean water from one place to another place.

Factors responsible for movement of water in Ocean Currents :

- ① Temperature Difference
- ② pressure Difference
- ③ Salinity.
- ④ Coriolis force
- ⑤ Wind Direction (Monsoon in Indian Ocean)
- ⑥ Influx of River water
- ⑦ precipitation & Evaporation
- ⑧ latitudinal position of place

water travels from Higher Temperature towards lower temperature. sea on surface.

water travels ^{towards.} ~~from~~ Higher salinity ~~to~~ ^{from} lesser salinity.

wind takes water along its direction

Ocean Current & Human Activities

① Navigation & Sea travel

Human beings prefer travelling in ocean current direction to save fuel & energy

② Fishing

Convergence of warm & cold ocean currents are regions. for fishing.

③ Deserts

Offshore currents have lesser moisture contents thus less rainfall But Onshore currents are cold ocean currents

Coast leads to less moisture content
thus deserts on coast of peruvian current
(Atacama desert.) thus less human settlement
& less human activities

④ Coral Coasts

Ocean currents also affects
coral development which are sensitive to
temperature.

⑤ Minerals & Important sea objects

Cold current are subsurface
currents which comes to areas where warm
current has taken water. Thus to those
areas it takes important minerals with it.
(peruvian coast)

⑥ El Nino or Effect on Monsoons

13. Give a brief account of locational factors that have influenced the distribution of iron and steel industry in India. What are the challenges that this industry faces?

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

Iron & Steel Industry

Locational factors:

- ① Smelting of Iron requires electricity & limestone, so nearness to coal mines is important factor
- ② Market: local of International Market
- ③ Connectivity
 - for import-export is preferred coastal areas or ports
 - for local market good Rail, Road, waterways connectivity is required.
- ④ Availability of labour (Odisha, Jharkhand's industries)
- ⑤ Iron Ore Reserves (Bokaro-Rourkela)
- ⑥ Heavy or Light Engineering Industry's ~~reserves~~ Demand

Iron & Steel Industry in India

- ① Nearness to Iron ore and Coal Reserves:

Bokaro (Coal Reserves) & Raurkela (Iron Ore Reserve) is a developed Iron-Steel Industrial Area.

Jamshedpur → developed industrial town
labour availability
near to both coal & Iron ore reserves of West Bengal, Odisha, Jharkhand.

- ② Government Policies:

Vishakhapatnam's iron ore is transported to Salem (Tamil Nadu) due to political reason. Salem has steel industry.

- ③ Heavy & Light Engineering Market:

Vishakhapatnam & Salem are in Coastal Areas. Its products required

demand in Tamil Nadu & Andhra Pradesh's
Heavy Engineering & ship Building Industry.

④ port cities :

in west Bengal Durgapur &

2 in South India (Vishakhapatnam)
are port cities which are suitable
location for import-export.

Challenges :

- ① Good Quality Iron Ore is required.
- ② Industrial Inertia : when Iron-ore or
Coal reserves ends then it's very
difficult to transfer/relocate industry.
- ③ Capital requirement : this industry requires
higher capital investment.
- ④ Technology : Now a days Coal is not
must for energy requirement
other energy sources can be used which
India is lacking
- ⑤ Environmental pollution & Govt Policies :
- ⑥ Skilled labour is difficultly available.

14. Why are Himalayan regions vulnerable to landslides? What steps can be taken to check frequent landslides in the region?

हिमालयी क्षेत्र भूस्खलनों के प्रति सुभेद्य क्यों है? इस क्षेत्र में बार-बार होने वाले भूस्खलनों की रोकथाम हेतु क्या कदम उठाए जा सकते हैं?

Landslides in Himalayan Region.

Landslide is a geographical phenomenon which leads to massive down-coming of landmasses from mountains or higher areas.

it can be both natural & human induced.

Himalayan Region:

Himalayan Region is vulnerable to landslides due to following reasons.

① Himalaya is tectonically unstable.

~~tectonic~~ tectonic activity in Himalayan region gives force to landslides & earthquakes.

② steep slopes

Himalaya is steeper

In south (Indian side). steep slope is a reason behind frequent landslide in Indian Himalaya.

③ Water Reservoirs & Dams :

There are many rivers in Himalayas on which Hydropower generation projects are constructed. which contains big dams & reservoirs. This leads to landslides.

④ Tunnels & other Infrastructure projects :

⑤ Deforestation & Floods in Rivers.

Steps to check frequent landslides :

- ① Landslides prone area should be avoided for Human activities for this proper mapping is needed
- ② ~~proper~~ early warning system & Disaster management & Awareness is Required.

- ③ Infrastructure projects should be well planned & managed.
- ④ Large Dams & Reservoirs should be well planned & constructed while consulting with concerns of local population.
- ⑤ Afforestation is needed and Conservation of local ecology.
- ⑥ proper management of River Basin so that frequent floods can be ~~see~~ stopped.
- ⑦ proper planning of Human settlements.
- ⑧ Though landslides are also by natural reasons but its ^{impact} can be mitigated by awareness and reducing Human activities which causes these landslides.

15. Highlight the significance of corals in marine ecosystem. Also, throw a light on the phenomena of coral bleaching.

समुद्री पारिस्थितिकी तंत्र में प्रवालों के महत्व पर प्रकाश डालिए। साथ ही, प्रवाल विरंजन की परिघटना पर भी प्रकाश डालिए।

Corals

Corals are calcium containing skeleton of aquatal living organisms called polyps. these living organisms ~~live~~ in symbiotic relationship with zooxanthalae which give it colors.

Significance of Corals in Marine Ecosystems :

- ① pollution check : Corals are sensitive to pollution. when pollution level rises coral bleaching happens. This phenomenon indicates rising pollution level.
- ② Global warming or climate change checks
extremen cold & hold temp are unfavourable for corals.

So death of corals or coral bleaching indicates climate change

③ Tourism

Corals are very colourful and attracts tourists.

④ Sea food

Corals provides foods and are also itself source of foods, which has high nutrition content.

⑤ Barrier Reef & Islands

Calcium containing skeletons after coral bleaching helps in formation of Islands (eg. Lakshadweep Island)

Coral Bleaching

Corals survival demands:

① mild temperature (neither too cold nor too hot)

② lesser pollution

- ③ Continental shelf seas
- ④ Sunlight for food production or
chemi zooxanthalae for symbiosis.
- ⑤ Less turbidity

⇒ when temperature rises or pollution level changes (due to effluents carried by rivers) or turbidity level changes this symbiotic relationship between coral polyps and zooxanthalae breaks and it leads to bleaching of corals.

Colour of corals is due to zooxanthalae. when zooxanthalae leaves corals or coral polyp itself dies this leads to colourless structure.

This colourlessness is called
Coral Bleaching

16. Giving an account of various soil forming factors, explain the process of pedogenesis.

मृदा का निर्माण करने वाले विभिन्न कारकों का विवरण देते हुए, मृदाजनन (मृदा निर्माण) की प्रक्रिया की व्याख्या कीजिए।

Soil forming factors & pedogenesis.

Soil formation is not a sudden process. It takes many years for soil to develop and take its form. Factors for soil formation are -

① Weathering :

it is initial process for formation of soil

② Erosion :

weathered soil is taken to places by soil, wind, ice etc.

③ Humus or organic content :

it is the factor which decides how important the soil is.

④ Rock Nature :

Rock from which weathered particles are carried defines the

Chemical composition of soil.

pedogenesis:

- (i) Initially weathering happens
- (ii) weathered rock is carried by water or wind to different places
- (iii) these rock particles are further eroded into small small particles
- (iv) tree leaves, animals etc are buried in these areas leads to organic content enrichment or humus formation.
- (v) Rain in this area leads to decomposition of dead animals, leaves, trees, plants.
- (vi) this process continues for many years and finally soil is formed

18. Explain the different methods of mining. Highlight the factors affecting mining activity in India. Also, discuss the concerns associated with mining activity.

खनन की विभिन्न पद्धतियों की व्याख्या कीजिए। भारत में खनन गतिविधियों को प्रभावित करने वाले कारकों पर प्रकाश डालिए। साथ ही, खनन गतिविधियों में सम्बद्ध चिंताओं की भी विवेचना कीजिए।

Factors affecting mining activity in India :

① Lack of technology :

Technological backwardness is sole reason that shale gas extraction, thorium mining is not performed in India. In these resources India has good reserves.

② Environmental Activisms :

Environmental concerns and civil society, NGOs had made many mining operations to halt.

③ Lack of Capital :

Some mining activities requires capital investment and due to

fear of govt and environmental activities
Investors hesitate to invest in mining
operations

④ govt policies & environmental clearance

due to unfavourable policies

it is sometimes not viable to invest in
mining operations.

⇒ several loans has turned into
NPAs due to these unfavourable
policies

⑤ No cooperation in govt departments

Sometimes clearance for
single mining operation requires clearance
from more than one departments which
leads to Red tapism & unnecessary hindrance

⇒ Coal & Coal Bed Methane comes
under two different Ministries while
resources are in same areas for both.

Concerns Associated:

① landslides, Earthquakes,
Mining beyond limits
leads to natural disasters and
in Natural gas Reserves fires ~~accidents~~
happens frequently

② loss to environment
Mining Area is
badly destroyed by contractors

③ Rights of Tribals and local people
Mining affects livelihood
and general rights of local people and
it gives them polluted and hostile
environment.

④ Minerals in earth are not infinite:
so unnecessary mining for
making profit leads to loss to
future generation

19. Bringing out evidences in support of continental drift theory, highlight the forces behind it.

महाद्वीपीय विस्थापन के सिद्धांत के समर्थन में साक्ष्यों को उद्धृत करते हुए, इसके लिए उत्तरदायी बलों पर प्रकाश डालिए।

Continental Drift Theory :

Alfred Wegener gave this theory to explain present position of major landmasses or continents and oceans.

Evidences in support :

- ① Apparent affinity of major landmasses

→ North America fits in Europe
and South America fits in Gulf
of Guinea of Africa
→ India, Madagascar, Australia
fits with African Continent

- ② Botanical evidences along boundaries of
Continents

- ③ Geological evidences in some continents

- ④ placer Deposits

↳ Gold and Diamonds mining in Africa and Australia

⑤ Tillite Deposits

↳ Rocks of same periods and glacial deposits are found on some tropical areas which are not nearby places.

Forces Behind It :

① Forces Responsible for Eastward movement of Continents :

- # Tidal force of Sun & Moon,
- # Coriolis force of Earth

② Forces Responsible for ~~poleward~~ (Equatorward) movement :

- # pole fleeing force
- # Tidal force.

→ This theory was not able to explain many other geological phenomena like

Earthquakes, volcanoes, mountains etc.
and it ~~has some~~ was not able to
explain oceanic Relief features But
It was helpful in explanation of
other theories like Plate tectonics
theory, Convectional current theory which
are widely accepted today.