GS SCORE

TEST - 1

PHYSICAL GEOGRAPHY (WORLD AND INDIA)

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

Q.	Marks
1.	4.5
2.	5.5
3.	2
4.	5.5
5.	5.5
6.	6.5
7.	5.5
8.	6.5
9.	4.5
10.	6.5
11.	7
12.	3.5
13.	4
14.	2
15.	2
16.	5.5
17.	1.5
18.	6.5
19.	5
20.	1

90.5

Instructions to Candidate

- There are 20 questions; all questions are compulsory.
- The number of marks carried by a question is indicated against it.
- The paper contains 3 Sections; First Section has direct questions for NCERT text books, while Second Section has questions from wide range of books and study material and the Third Section has inter-disciplinary and application based questions that require knowledge and information of other subjects as well.
- Answers to questions no. 1 to 5 should be in 150 words, answers to questions no. 6 to 15 should be in 200 words, whereas answers to questions no. 16 to 20 should be in 250 words.
- Keep the word limit indicated in the questions in mind.
- Answers must be written within the space provided.
- Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

1. Invigilator Signature _____

2. Invigilator Signature _____ Rohit Lodha

Name MEDHA ANAND

Roll No. _____

Mobile No. _____

Date _____

Signature Medha Anand

REMARKS

Roll No. GSMQA 2019 0199

Section - A (NCERT)

Q1. The interior of the earth can be understood only by indirect evidences as neither anyone has nor anyone can reach the interior of the earth. Elaborate. (10 Marks)

Ans Earth with a radius of 6000 km is to deep to reach and even mines excavated till date are only 12-20 km deep. This leads to furtherance of importance of indirect evidences to study Earth's interior.

While Direct sources include volcanism and mining, Indirect observation is done through seismic waves, magnetism, gravitational value etc. The problem associated with direct sources include -

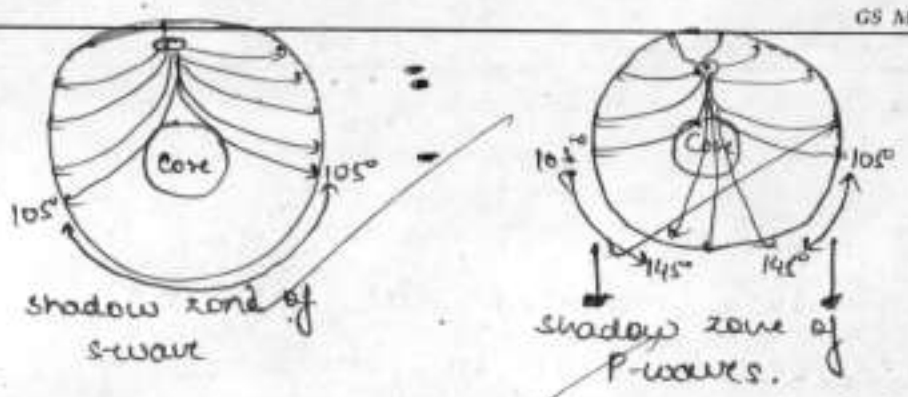
(a) Mining has only reached to a depth of around 12-20 km giving little insight into interior of Earth.

(b) Volcanism - The lava that comes out, do give an insight into earth's interior but the problem remains in figuring out its depth of occurence

The Indirect Evidences are useful in following ways -

(a) Seismic waves - Waves generated due to an Earthquake - P wave and S wave have properties that help in understanding Earth's interior ie since S-waves can't travel through solid only helps in adjudging that outer core is liquid.

Remarks



(b) Gravitational value - The value of gravitat^n at a place is calculated theoretically and the difference it has with actual gravitational value gives us gravitation anomaly. This helps in ascertaining properties of Earth's interior.

4.5

(c) Magnetism - The geological history preserved in rocks near oceanic ridges as magnetism helps in understanding Earth's North & South Pole changes in chronological order.

good

(d)

Incomplete

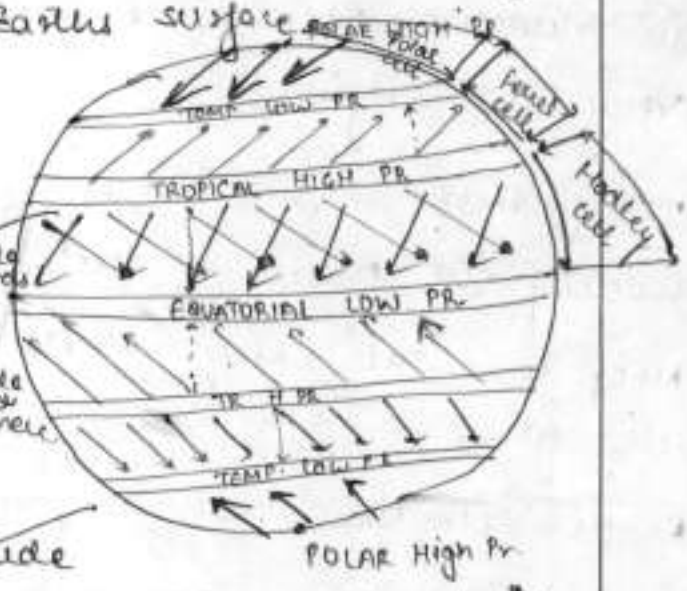
Try to conclude your answer

Remarks

Q2. Give a detailed account of different type of atmospheric circulations. Explain the associated mechanism and their influence on global weather and climate. (10 Marks)

Ans Atmospheric circulation refers to the blowing of wind due to difference in Pressure conditions at various places. Atmospheric circulation can be - Primary circulation and secondary circulation.

PRIMARY CIRCULATION - It includes Trade winds, Polar easterlies. It occurs due to presence of varying pressure belts on Earth surface with winds trying to move from High Pressure to Low Pressure. Coriolis force turns their direct" to right in Northern Hemisphere and to left in southern Hemisphere.



(a) Trade winds - These include NE and SE Trade winds and blow almost in these directions throughout the year.

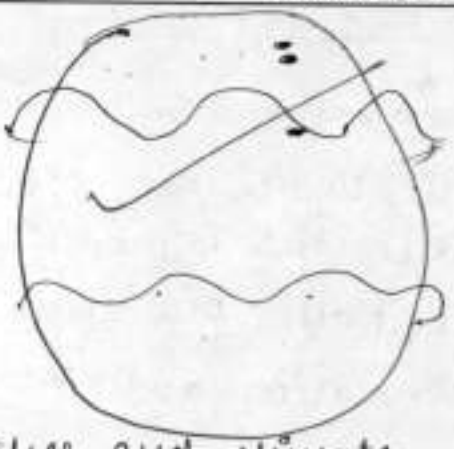
(b) Westerlies - These dont have fixed directions just flow from the west. Hence called westerlies

(c) Polar Easterlies - they blow from East in a random direct" hence called Polar Easterlies

SECONDARY CIRCULATION - It is made up of Jet streams whose origin is usually attributed to intense warming of Tibetan Plateau.

Remarks

This circulation tends to happen in upper troposphere near/above Tropopause. These are Easterly & Westerly Jet stream.



5.5

Influence on global weather and climate-

(1.) Jet streams have a role in bringing in Monsoon responsible for rainfall on a very large region.

(2.) They help in mobilizing oceanic waters leading to Ocean currents.

(3) Help in stabilizing weather conditions of the globe.

(4.) Responsible for local winds like 'Loo' etc.

(5.) Help in controlling weather at a place.

good

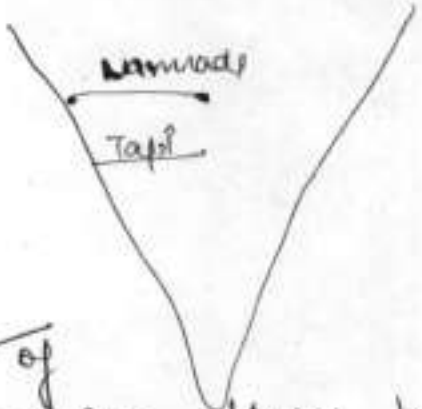
Thus, atmospheric circulation play a vital role in balancing global weather and climate.

Remarks

Q3. Briefly discuss the drainage of India's west flowing rivers. Also discuss their importance in their drainage basin region. (10 Marks)

Ans India's major west flowing rivers are Narmada and Tapi that flow in rift valleys and are hence not affected by slope of Indian mainland

Their drainage is important as they drain into Arabian sea & hence impact the ecology of that area.



2

Since only a small no. of rivers drain into Arabian sea, they become important.

They don't make plains as they flow in rift valleys & don't flood the adjoining areas.

They support a wide range of flora and fauna and help in the economy of that area. They help in irrigat^n of fields etc.

Remarks

Since west flowing rivers are few in numbers ~~then~~ they hold ecological and environmental significance

elaborate more with various rivers

Remarks

Q4. Weathering processes are conditioned by many complex geological, climatic, and topographic and vegetative factors. Explain. (10 Marks)

Weathering refers to the insitu disintegration of rocks due to a complex mix of geological, climatic, topographic and vegetative factors. These help in recreating a buffer of soil, necessary for growth of life.

Various geological, climatic, topographic & vegetative factors influencing weathering include -

(a) Topography - While steep topography would enhance erosion, attrition (banging of rocks onto one another) would be more on such topography as well. This would lead to breakdown of rocks into smaller units

(b) Vegetative factors - Growth of plant on rock surface and its further growth of roots would lead to disintegration of rock surface.

breaking of rock surface

good

(c) Geological factors - These relate to the physical & chemical properties of rocks present. While hard rocks would take longer time to disintegrate, softer rocks would easily disintegrate and in lesser time.

Permeability, Porosity etc are also factors which

Remarks

would influence disintegration of rock surface.

(d) Climatic factors - Intense rainfall promotes weathering, as it weakens a rock from within. Alternate drying and wetting of a surface, weakens it from within leading to its disfiguring.

5.5

Too much heat, also leads to weakening of rock surface

(e) Other factors - Property specific factors like solution of carbonate rocks may lead to caving and karst formation.

Weathering is then followed by mass movement and settlement giving rise to fertile grounds on plains and plateaus this leads to soil accumulation which is necessary for growth of life.

good

Remarks

Q5. Soil is a dynamic medium in which many chemical, physical and biological activities go on constantly. Soil is a result of decay; it is also the medium for growth. Elaborate.

(10 Marks)

Ans. Soil is formed due to weathering, movement and deposition of weathered rock material. It is a medium of growth and survival of life on Earth.

Physical activities -

(a) Weathering - The breaking of material in-situ is the first step in soil formation and provides the base material whose further disintegration would give rise to soil formation.

(b) Transportation This partially decayed material will be transported & on its way broken into smaller pieces to fully attain soil like properties.

(c) Deposition - This would deposit on plains to give rise to fertile grounds.

Biological activities -

(a) Bacterial action - Bacteria like Nitrosomonas will fix Nitrogen in the soil and others will help in enrichment through various processes.

(b) Humus accumulation - Deposition of organic matter on Top soil results in humus collection and gives rise to fertility of soil.

Remarks

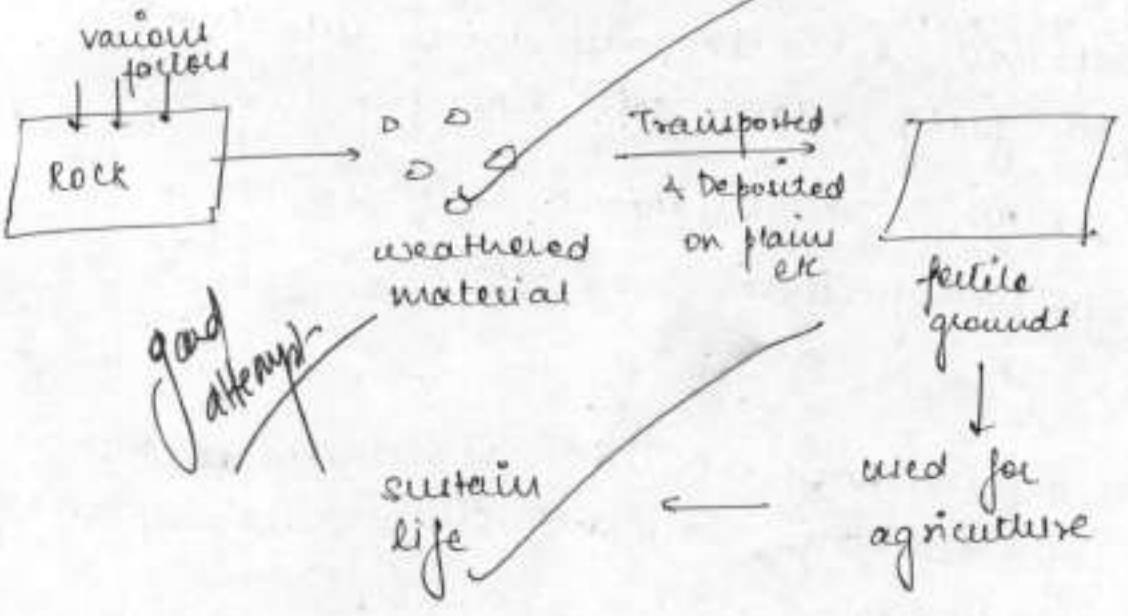
(c) Chemical Activities -

(1) Acidic / Basic salts from parent materials may result in increased acidity or baricity of soil.

(2) Rain (Acid rain) may increase acidity of soil and change its chemical composition.

5.5

Thus, soil formation starts from decay of rocks and finally act as a medium of growth of plant life, on which humans and other animals sustain.



good attempt

Remarks

Section - B

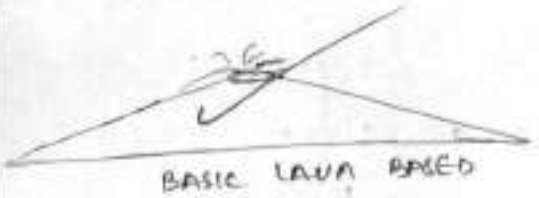
Q6. Volcanoes are classified on the basis of nature of eruption and the form developed at the surface. Elaborate. Also, discuss the volcanic land forms? (12.5 Marks)

Ans Volcanoes may be faults or plugs through which lava from below ejects out. This is a constructive process as it leads to formation of various features on land surface.

Based on nature of eruption -

(a) BASIC LAVA BASED - Basic lava lacks in silicon and is hence less viscous, giving rise to gentle slopes. It is usually less violent as lava gets enough opportunities to escape. They usually form shield type of structure. Ex - Deccan Traps

(b) ACIDIC LAVA BASED - Acidic lava is rich in silicon and highly viscous, giving rise to steep slopes. Eruptions are usually violent as magma is blocked due to decreased outflow.

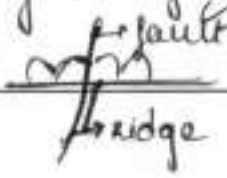


BASIC LAVA BASED

ACIDIC LAVA BASED

Based on form developed at surface

1) Fault volcano - When faults develop on surface lava comes out of it forming ridges. Ex - mid oceanic ridges

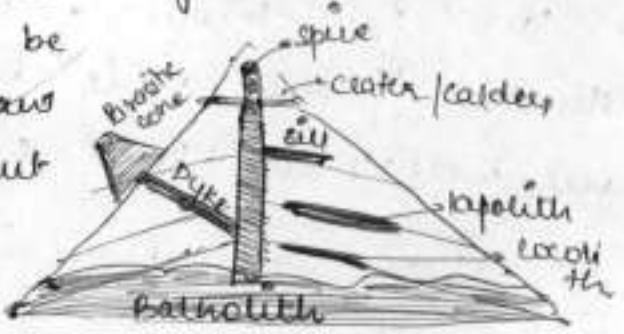


Remarks

(b) Plug Volcano - when magma comes out through a plug.

Volcanic landforms - There may be -

(a) Intrusive landforms - These are formed inside the volcano and may be concordant & disconcordant



(1) Sill - These are concordant i.e lie parallel to the country rocks. made from magma

6.5

(2) Dykes - These are discordant magma based sheets

(3) Batholith - sort of store house of magma

(4) lopolith, cocolith, phacolith - other features made out of magma inside the volcano.

(b) EXTRUSIVE LANDFORMS -

(1) Parasitic Cone - Dykes feed subsidiary cones on surface of volcanoes

(2) Caldera - When original volcano top falls off auto they it forms caldera

(3) Spine / Plug - when magma chamber is left to be cooled while nearby volcanic structure has collapsed it results into a weak plug.

very good

Remarks

Q7. 'It is desirable to consider relationships between climate and human settlement in different climatic regions of the world'. Illustrate. (12.5 Marks)

Ans Climate is an essential determinant of the type of human settlement and leads to a diverse set from Igloos of Eskimos to bamboo houses of khasi tribes. good intro

While in hot areas, human settlement are well spaced, with mesh in windows to help take in cold air. They have double ceiling of roof & wall to employ water flow in it. good

Colder regions leads to people encompassing in a smaller region with features of the house being suitable to cold climate. 5.5

Rains affect human settlement & bamboo etc since it adumbrant there, hay cut bamboo is put on top of roofs to to drain the water out. good

In deserts, dried leaves are kept on top of the houses to ensure that inner house is relatively colder.

Remarks

Thus, climatic conditions widely lead to a change in patterns of human settlement.

good attempt.

But you could have added more points

Remarks

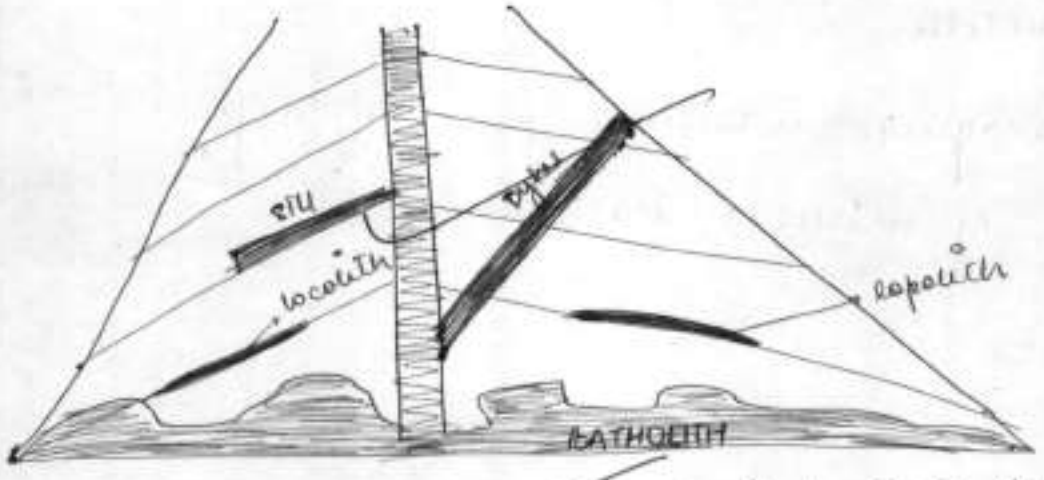
Q8. Discuss the intrusive landform of igneous intrusion in volcanic region while enumerating their examples. (12.5 Marks)

Ans Landforms of igneous intrusion in volcanic region may be classified as intrusive ie those forming within the volcano and Extrusive ie those formed outside it.

The various intrusive landforms are -

(a) Scorcia - It refers to small and fragmented irregularly shaped intrusive igneous landforms.

(b) Batholith - It is a discordant (ie not parallel to country rocks) structure formed in a volcano and usually acts as a source of magma.



(c) SILL - Concordant structure deposited as a sheet onto the country rocks are called as sills.

Remarks

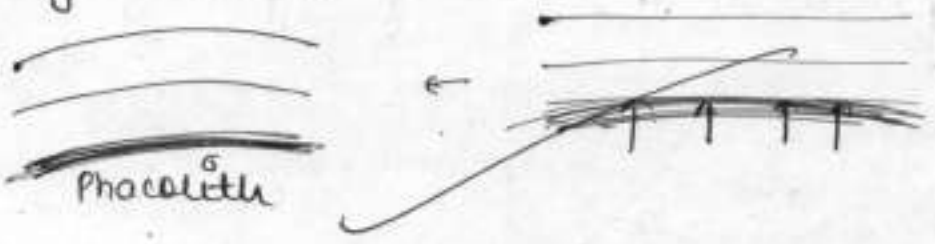
(d) Dykes - Discordant structures passing through a series of country rocks are called as Dykes. Usually act as feeder to Parasitic cones.

(e) Lopolith - Lens shaped structure formed by magma intrusion in country rocks

(f) Loccolith - saucer shaped intrusions.

(g) Phacolith - when magma presses from beneath the country rocks tend to bulge in such direct^n.

b.c



Thus, magma intrusions form a large number of intrusive features

good

Q9. What happens in the asthenosphere plays a powerful role in life on the surface. Explain. (12.5 Marks)

Ans Asthenosphere is a plastic layer in the mantle which acts as a source of magma for the volcanic eruptions that take place. Not always

It plays a powerful role in life on the surface as -

The main role of asthenosphere is that it allows plates to move smoothly & allow them to cause convergence or divergence

(i) Chemical composition - The chemical composition of the rocks is determined by the chemical composition of the magma in the Asthenosphere.

While basic lava and acidic lava differ in the amount of silica they possess, it leads to a change in chemical composition of rocks on the surface Not always

(ii) landforms - While basic lava forms plainar structures like Deccan traps, Acidic lava is responsible for steeper structures. Thus, the shape of the landforms on Earth are also manipulated by property of magma held by asthenosphere.

Remarks could have explained better

(c) Presence of faults - While weaker planes are abundant, convective currents in magma determine from where it would blast off and come out.

Thus, feature's location is also determined by what goes on inside the asthenosphere

(d) Convective currents - Currents in magma, make it travel distances and hence lead to formation of diverse rock types in areas where such diversity was hitherto unknown.

Thus, what happens in the asthenosphere greatly influences the features on Earth's top surface

You could also relate formation of landforms due to asthenosphere with evolution of climate & its resultant effect over human & other living beings

Remarks

-

Q10. Discuss the genesis and impact of western disturbances and highlight its role in influencing the India's climate and agriculture during winters. (12.5 Marks)

Ans Western Disturbances owe their genesis to Temperate or frontal Cyclones which are brought to Indian waters by Primary Air circulations. Mention their name

These are responsible for bringing rains in winter seasons in the Indian subcontinent.

IMPACT ON INDIA'S CLIMATE -

- It helps in bringing rain in Indian subcontinent during winter which otherwise wouldn't have been possible as almost majority of rain occurs during monsoon.
- It helps in maintaining a soothing winter season with winds blowing in winter season due to them.

IMPACT ON AGRICULTURE -

- Rabi crops are rainfed due to rains in winter due to western disturbances.
- Green revolution was possible in Punjab & Haryana for wheat due to presence of western disturbances.

Remarks

Rainfall in winter is a product of western Disturbances and sustain flora & fauna of the region. Wheat production owes its growth to rainfall due to western disturbances.

Further, air circulation ensures that frost formation doesn't take place in winter season, leading to a better crop harvest.

6.5

Frost otherwise harms the crop in numerous ways and absence of it ensures that crop growth is suitable and sustainable.

good

Remarks

Q11. Discuss the importance of oceans and also mention some of the anthropogenic activities and human activities that had severely affected the marine life of the oceans. (12.5 Marks)

Ans Oceans are water bodies that serve functions ranging from fishing, maintaining temp across the globe to transportation. The earliest human settlements were around water bodies, showing the importance they hold in human life.

good intro

Importance of Oceans -

1. They act as fishing grounds - a livelihood concern of coastal people
2. Ocean currents help in maintaining temperature across the globe
3. Source of minerals - help in economy of a nation
4. Transportation - Water Transport is cheaper than other modes of transport.
5. Connectivity - landlocked countries lack direct access to other nations due to absence of water connectivity.
6. Source of River Drainage - Rivers drain into oceans, else would have inundated land surface

good

Remarks

Anthropogenic activities affecting ocean life-

① Deep Sea Trawling - leads to over exploitation of marine resources, by destructing habitats of underwater species.

② Poln due to oil spills - Transport vessels often spill oils on oceans leading to lack of oxygen supply leading to death of fish.

③ Ocean Acidificatn - Industrial activities are leading to ocean acidificatn leading to ↓ coral reefs.

④ Introductn of Invasive species - Ballast water from ships lead to introduction of invasive species in new areas.

⑤ Capture of mouth of oceans - Overuse of resources, building new islands on oceans, badly prone to disasters is leading to overuse of oceanic resources

⑥ Overexploitatn of marine flora & fauna for human benefit.

good attempt

Remarks

Q12. Discuss the importance of soil forming factors in determining the soil types in different parts of India. Elaborate with suitable examples. (12.5 Marks)

The following are the soil forming factors which determine the soil type -

(1) Parent material - They help in determining the characteristics of the soil that would be formed on top of it. Ex - Black soil on Deccan Traps

(2) Climate - It affects the weathering process and leads to changes in differentiation of rates of weathering

(3) Topography - Rugged Topography enhances weathering and leads to changes in soil factor

(4) Presence of minerals etc add or subtract colour from the soil while iron rich soil is red in colour, add + of water makes it yellow in colour

(5) External factor - They help in development of various features of the soil and change it appropriately.

— you could have elaborated each of them in detail

3.5

Remarks

Remarks

Q13. Oceans are suffocating as dead zones have been quadrupled in size since 1950s. In this context, discuss the causes and effects of Ocean Dead Zones on marine ecosystem. (12.5 Marks)

Ans lack of oxygen leads to formation of Dead zones in oceans. They are called Dead zones due to death of flora & fauna in such regions

Causes of Dead zones

- Eutrophicat^n - Excess nutrient supply in oceans result in algae boom which decrease oxygen in it.
- Increased Nitrogen in atmosphere - leads to mixing of some of it in oceans, reducing oxygen content of oceans.
- warm water - reduce the dissolved oxygen present in oceans.
- anthropogenic factor like climate change etc

Effects of Dead zones

- reduced generic diversity
- death of marine flora + fauna
- loss of diversity

good points

4.

Remarks

Thus, dead zones cause heavy damage to ecology & environment.

Add more points.

Remarks

Q14. Gulf Dust storm is considered as one of the contributing factors (apart from stubble burning) behind the smog that had smothered Delhi and its neighborhood, as per Scientific Assessment of Delhi Winter Air Quality Crisis Report by SAFAR. Elaborate on the factors that increase dust storm and analyze its impacts? (12.5 Marks)

Ans: Factors that increase dust storms are-

Abrupt start

(1) Temperature inversion - these lead to accumulation of pollutants in lower strands only and thus not allowing them to flow away

you could have explained origin of dust storm

(2) Crop burning in neighbouring areas occompanied by winds in a particular direction

(3) Less Trees - to absorb the effects of poll^n

(4) Gulf Dust storm blowing Dust to Interior region.

2

Impacts

- increased poll^n
- threat to vulnerable poll^n
- respiratory decrease
- outdoor intoxification
- poor aesthetics.

Incomplete

Remarks

Remarks

Q15. Rising sea level will have an adverse impact on flora and fauna particularly the small island countries. In this context, discuss what are the remedial measures required to address this issue. (12.5 Marks)

Rising sea level will have an adverse impact on flora & fauna & may totally submerge small island nations.

Remedial Measures -

1. Increasing forest cover
2. Developed countries to transfer technology for reduced climatic poll^n.
3. Enforcement of Paris climate change policy
4. Building of a more strict policy for enhancing efforts towards climate change.
5. Disaster management should be strictly enforced (Sendai Framework etc)
6. Displace people to safer areas.
7. To utilize Build Back Better.

Examples

2

Remarks

Remarks

Section - C (Inter-disciplinary and Applied Question)

Q16. The oceans influence the weather from local to global scales; while changes in climate can fundamentally alter many properties of the oceans. Elaborate. (15 Marks)

Ans. Ocean influence the weather by oceanic currents whose hotness or coldness may bring onshore and offshore winds to a particular area and considerable alter weather pattern of the region.

Ocean's influence on weather -

① Ocean current - cold ocean currents leads to desert like conditions. warm ocean currents often increase air temp above it, giving rise to rainfall over those areas.

A location where warm & cold ocean currents mix give rise to pleasant weather conditions and act as huge fishing grounds.

② Moderating effect - Near oceanic areas usually have a pleasant climate & neither see very hot climates nor very cold climates.

③ Warming effect in colder areas - Warm ocean current help in keeping ports frost free leading to enhanced economic activities

Remarks

even in winter season.

(4) Soothe world climate - Ocean currents maintain balance in climate across the globe by taking waters to far off areas.

Climatic changes leading to oceanic changes-

(1) Heavy rainfall - heavy rainfall may decrease salinity of the ocean of that areas

(2) Higher Evaporat° due to hot climate - This may ~~reduce~~ increase the salinity of that area due to lesser water per area than the salt present.

5.5

(3) Cold climatic conditions - These may invariably decrease oceanic temperature changing the resistance of many flora and fauna of the region.

Climatic changes can fundamentally alter the various properties of the ocean beneath them and in a similar way oceanic properties may

Remarks

significantly impact the prevailing climatic conditions.

You have to increase your content. ~~[illegible]~~ point are good though

Remarks

Q17. Global climate change has already had observable effects on the environment. Glaciers have shrunk, ice on rivers and lakes is breaking up earlier, plant and animal ranges have shifted and trees are flowering sooner. Inlight of this, discuss how climate change affects oceans? (15 Marks)

Ans. Climate change refers to adverse changes in the normal climatic conditions of a region and leads to adverse impact on the normal well being of humans as well as flora and fauna of a region.

1.5

IMPACT OF CLIMATE CHANGE ON OCEANS-

① Increased El Nino & La Nina phenomenon- The intensity of El Nino & La Nina has increased due to changes in climate patterns in this decade.

② Changing Oceanic Currents- Ocean currents are changing their paths due to the increased effect of climate change on local weather phenomenon.

③ Decreased Corals- Ocean acidification has led to decrease in Corals which are a keystone species

Incomplete

④

Remarks

Remarks

Remarks

Q18. Inter-linking of rivers will address economic, political and social issues, but pose threat to the ecological and environmental diversity. Comment and mention some alternative strategies in this regard. (15 Marks)

Ans Interlinking project is suggested in 3 parts viz ~~Ganga link~~, ~~Brahmaputra~~ N. Indian river linking, S. Indian river linking & Intra river linking of rivers.

It will adress the following issues-

(A) ECONOMIC-

- fishing activity will increase
- transportat" facilities will increase
- hydroelectric power generat"

(B) POLITICAL-

- Parties fighting over rivers will be solved
- Tribunals for river disputes will become defunct

(C) SOCIAL

- livelihood opportunities
- varied cuisine (marine)

But this might pose ecological threat to environmental diversity viz-

Remarks

- Increase of invasive species as species from North may reach south etc.
- Invasive species may hamper the growth of other species

add more points

- This will lead to loss of diversity.
- mixing of waters of diff. Temp, Poll^n etc may result in death of some species.

ALTERNATE STRATEGIES -

6.5

1. Use of Watershed Management Plan
2. Increase of social Forestry
3. Use of Traditional water harvesting systems
4. Compulsory Water Harvesting systems in new buildings
5. Digging of wells for water storage
6. Reduct^n in concrete parks
7. Increased forest cover.

Remarks

(8) More irrigation facilities

(9) Agro climatic conditions to be surveyed and crops grown according to it.

(10) Use of Technology to solve agricultural issues

good

Remarks

Q19. Discuss the disadvantages for those countries that lack access to international waters. Examine in context to Central Asia. (15 Marks)

Ans Access to International waters help in accessing huge trade opportunities which land locked countries lacks hence suffer from a disadvantage. Central Asian countries like Afghanistan etc lack access to oceans & hence suffer from great disadvantage.

Uzbekistan, Kazakstan, Tajikistan, Kyrgyzstan though have mineral reserves but are economically underdeveloped due to lack of access to exporting facilities.

5

They have to rely on land territories of other nations to procure their basic import - export needs. Even air routes travel require permission of other countries to enter in.

Chabahar port in Iran is a mean by India to take wheat shipment to Afghanistan without requiring passage through Pakistan.

Border relations in such countries are intense due to issues related to livelihoods

Remarks

Kazakstan is rich in Uranium deposits & only recently a Uranium bank has been opened there. Lack of direct access to ocean makes matter worse for them.

Land charges need to be paid to countries through which the cargo moves and thus incur heavy losses on pockets of the people & the economy as such.

Crisis situation make matter worse and countries suffer immensely if a embargo is setup by its neighbouring country.

These countries are also devoid of oceanic resources like Coal Bed Gases in Barren etc.

Highlight your imp point

Remarks

Remarks

Q20. Why Bay of Bengal region is regularly affected by tropical cyclones? Examine why despite the regular occurrence, the region lacks the advance planning and institutional infrastructure. (15 Marks)

Bay of Bengal sees regular influx of rivers and hence has lesser salinity ideal for format^n of tropical cyclone.

BoB's connect^n with Pacific ocean also increases the number of tropical cyclones in those regions.

Coriolis force acts as another factor that leads to increase in the no. of tropical cyclones in BoB.

Arabian sea experiences lesser number of tropical cyclones than BoB.

Incomplete

Remarks

Remarks

_Remarks