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GENERAL STUDIES (TEST CODE : 1145)

Name of Candidate	Pari Bishnoi		
Medium Eng./Hindi	English	Registration Number	
Center	Online	Date	13/9/18.

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
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18	15	
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20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

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. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   bl eaclh i zu gSa vkSj vksSfgUnh eaN sgSa
3. **All questions are compulsory.**
   I Hkh i zu vfuok; Zgå
4. The number of marks carried by a question/part is indicated against it.
   IRsd i zu@Hkx dsvad mldsl keusfn, x, gSa
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 that the authorized one.
   प्रश्नों के उत्तर उसी माध्;e eafy[ksa tkus pkfg, ftl dk mYys[k 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 ughafeyasA
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना pkfg, A
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर iqfLrdk ea[kkyh NksMk gqvk i "B ;k mldsvak dksLi "V : i I sdkVk tkuk pkfg, A

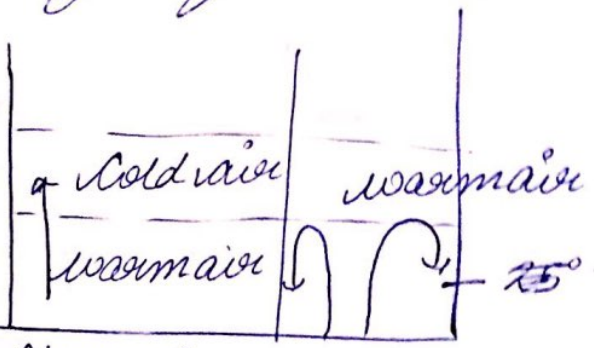
16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

M-1/4, Plot No-A-12/13, Ist Floor, Ansal Building, Dr. Vidya Sagar Homeopathic Clinic, Mukherjee Nagar, Delhi-110009

1. What is inversion of temperature? Discuss the various mechanisms of occurrence of this phenomenon along with its climatic and economic significance. (150 words) **10**

तापमान व्युत्क्रमण क्या है? इसके जलवायविक और आर्थिक महत्व के साथ इस परिघटना के घटित होने से संबंधित विभिन्न क्रियाविधियों पर चर्चा कीजिए।

Inversion of Temperature means rising of temperature with increasing height from surface of Earth.



Mechanisms

1) It can happen at mountains during night when cold air sinks at the lower valley.

2) fronts at middle latitudes. Where warm air rises over cold air.

3) During winters in cities

Climatic and Economic significa

⇒ Frontal Temperature inversion causes much needed rainfall in mid latitudes

→ In cities it causes trapping of water vapour and pollutants

↳ fog - reduced visibility which impacts mobility

↳ trapping pollutants eg Delhi

→ Temp Inversion also takes place over ocean at mixing of warm and cold currents - reducing visibility - ~~it~~ making fishing risky

2. What do you understand by Inter Tropical Convergence Zone (ITCZ)? Discuss the annual fluctuations and shifting of ITCZ belt and its significance for India. (150 words) **10**

अंतः उष्ण कटिबंधीय अभिसरण क्षेत्र (ITCZ) से आप क्या समझते हैं? ITCZ पेटी के वार्षिक परिवर्तन और स्थानांतरण एवं भारत के लिए इसके महत्व पर चर्चा कीजिए।

Inter Tropical convergence Zone (ITCZ) is known as 'Thermal Equator'. It is the low pressure zone where trade winds converge

Annual fluctuations

The planetary wind belts of the world shift along with the movement of sun

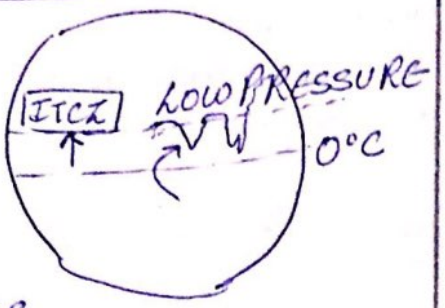
↳ During Summer Solstice when sun is overhead northern hemisphere - the ITCZ shifts north.

↳ During Winters it shifts south.

↳ It represents area of most intense heating and rising air

Significance for India

Shifting of ITCZ to North during summers - brings low pressure over India which attracts the South West Monsoon winds into the sub continent.



Without the shift of ITCZ the western part of India - lying in path of dry North ~~to~~ East Trade winds would have remain dry and prone to being a desert

Thus ITCZ plays a major role in monsoon climate of India.

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3. What role have volcanoes played in formation of earth's atmosphere in the past? Elaborate on the impact of volcanic activity on climate change in contemporary times. (150 words) 10

अतीत में पृथ्वी के वायुमंडल के निर्माण में ज्वालामुखियों ने क्या भूमिका निभायी है? समकालीन समय में जलवायु परिवर्तन पर ज्वालामुखीय गतिविधियों के प्रभाव का सविस्तार वर्णन कीजिए।

Volcanoes are the openings in the Earth crust through which hot molten magma (lava) comes out from the mantle.

Role of Volcanoes

→ They act as stress relievers

→ In early atmosphere during pre cambrian era - It was due to large volcanic eruptions that Earth got its present atmosphere.

Early Earth Atmosphere — Hydrogen, Helium

Volcanic Eruption → Nitrogen, Sulphur, Oxygen.

Gradually over time the combination resulted into water and stabilisation of earth atmosphere.

Contemporary Times

Volcanic impact on climate change is two fold.

POSITIVE (↑ Temp.)

It releases certain green house gases eg Carbon monoxide, Carbon dioxide, Sulphur etc. which were pollutants as well.

NEGATIVE

→ It releases ash, under-which forms cloud over the surface.

- They results in cooling by blocking suns rays.

5. Assess the changes in distribution pattern of the 'golden fibre' industry in India over the past half century. Also, giving reasons for its decline, enumerate the measures that the government has come up with in order to revive it. (150 words) **10**

विगत आधी शताब्दी के दौरान भारत में 'गोल्डन फाइबर' उद्योग के वितरण पैटर्न में आए परिवर्तन का आकलन कीजिए। साथ ही, इसके ह्रास के कारणों को बताते हुए, इसे पुनर्जीवित करने हेतु सरकार द्वारा किए गए उपायों को सूचीबद्ध कीजिए।

Jute is known as Golden fibre.
It is mainly grown in West Bengal which has been its largest producer due to
↳ adequate climate - warm summers and moderate rainfall
↳ cheap labour as it is labour intensive
↳ water availability as it needs to be soaked in water.

The distribution pattern in India remains largely confined to Hugli River Basin

Reasons for decline

→ Low demand.
→ Poor incentive to expand.
→ Rising cost of labour.
→ Obsolete technology.
→ Restrictions on water use.
→ Better incentives and certainty in cereal production due to Green Revolution. Therefore declining area of production

Government Initiatives

→ Jute Technology Mission
→ Mandatory use of Jute in Packaging Material eg Sugar.
→ Incentives - Tax cuts.

Way forward

- Prevention of Illegal supply to Neighbours.
- Diversification has done by Bangladesh eg footware.
- Incentives

Don't write anything this margin (इस भाग में कुछ ना लिखें)

6. India has a long way to go in identifying shale gas rich basins and acquiring the necessary technology to extract shale gas. Discuss. (150 words) 10

भारत को शेल गैस से समृद्ध बेसिनों की पहचान करने और शेल गैस के निष्कर्षण हेतु आवश्यक तकनीक प्राप्त करने की दिशा में लंबा रास्ता तय करना है। चर्चा कीजिए।

Shale Gas is unconventional fossil fuel which is proposed as a source of energy. It is increasingly being extracted by USA

India also has shale gas reserves. However they have not been adequately identified. India relies on 80% imported energy. Shale gas can be the alternative

Preliminary study suggest their presence in Gujarat, Krishna Godavari Basin and North East India

India also lacks necessary technology of extraction as possessed by US.

The present technology of hydraulic fracturing is water intensive and expensive

In order to utilise vast reserves of hydrocarbon, and become energy self sufficient, India needs to map the areas using Remote sensing and GIS as well as promote Research and Development and Technology Transfer Agreements with other countries

7. How does the PAT scheme make efficiency in energy consumption attractive in energy-intensive industries? Examining its performance so far, suggest measures for improvement. (150 words) 10

PAT योजना ऊर्जा-गहन उद्योगों के लिए ऊर्जा उपभोग में दक्षता को किस प्रकार आकर्षक बनाती है? इसके अब तक के प्रदर्शन का परीक्षण करते हुए, सुधारात्मक उपायों का सुझाव दीजिए।

Perform Achieve Trade scheme is a part of National mission on Enhanced Energy Efficency which is one of the 8 submissions of National Action Plan on Climate change.

Energy Intensive Industries are given Energy Targets

↓ If achieve
Extra energy saved
↓
Energy saving certificate

Not achieve
Extra Energy consumed.
↑ sold
(1 Escert = 1 mtoe)

Therefore it incentivises energy efficiency through monetary gain/loss.

Performance

2017-20- is the third phase of PAT. In earlier 2 phases.

→ saved 9000 crore rupees

→ reduced energy emission by 2%

Measures for Improvement

↳ More energy sectors should be added.

↳ Aggressive R&D to help industries develop cleaner technology

→ Transparent & online monitoring

8. Energy efficiency in buildings need to be at the core of India's urbanization strategy. Comment. In this context elaborate the significance of Energy Conservation Building Code (ECBC) 2017. (150 words) 10

भवनों में ऊर्जा दक्षता को भारत के शहरीकरण की रणनीति के केंद्र में रखने की आवश्यकता है। टिप्पणी कीजिए। इस संदर्भ में ऊर्जा संरक्षण भवन संहिता (एनर्जी कंजर्वेशन बिल्डिंग कोड: ECBC) 2017 के महत्व का सविस्तार वर्णन कीजिए।

Urbans locales in India suffer from multiple problems such as → urban heat island effect
→ greater pollution eg Delhi 6 times greater pollution than WHO prescribed

Energy Efficiency in Buildings is the only way through which
→ Energy Demand can be met
→ Increasing heat can be contained
→ Sustainable cities can be promoted (SDG 11)

Energy Conservation Building Code 2017

→ More Ventilation in the Buildings - to avoid indoor pollution

→ Greater Reflective Material eg White coating to increase albedo and reduce heat

Significance

→ It can reduce the energy consumption

→ Positive Impact on health of urban population

There is a need to mainstream energy efficiency in Urban Development through implementation of code

9. Provide an appraisal of the vulnerability of the agriculture sector to natural disasters. What can be done to strengthen the resilience of the sector in order to reduce the impact of such disasters? (150 words) 10

प्राकृतिक आपदाओं के प्रति कृषि क्षेत्र की सुभेद्यता का आकलन कीजिए। ऐसी आपदाओं के प्रभाव को कम करने के लिए इस क्षेत्र की अनुकूलन क्षमता को सुदृढ़ करने हेतु क्या किया जा सकता है?

Vulnerability of Agriculture Sector to Natural Disasters

→ Since 85% of farmers are small and marginal who cultivate 40% of land and lack resilience, they make agriculture vulnerable.

→ Natural Disasters such as

Regional	Local
- Floods	- Hailstorms
- Droughts	- Inundation
- Landslide	- Thunderstorm.
- Heatwave.	- Lightening

Vulnerability → Poverty.
↳ Lack of Insurance
↳ Lack of climate Resilience.

It leads to destruction of livelihood and threatens food and nutritional security.

To strengthen the Resilience

1) Climate Resilient Agricultural practices such as:
   - Better Quality seeds
   - watershed management
2) Diversification of livelihood eg through livestock.
3) Crop insurance eg - PM Fasal Bima Yojana.
4) Better weather forecast and warning
5) Integrated crop protection schemes.

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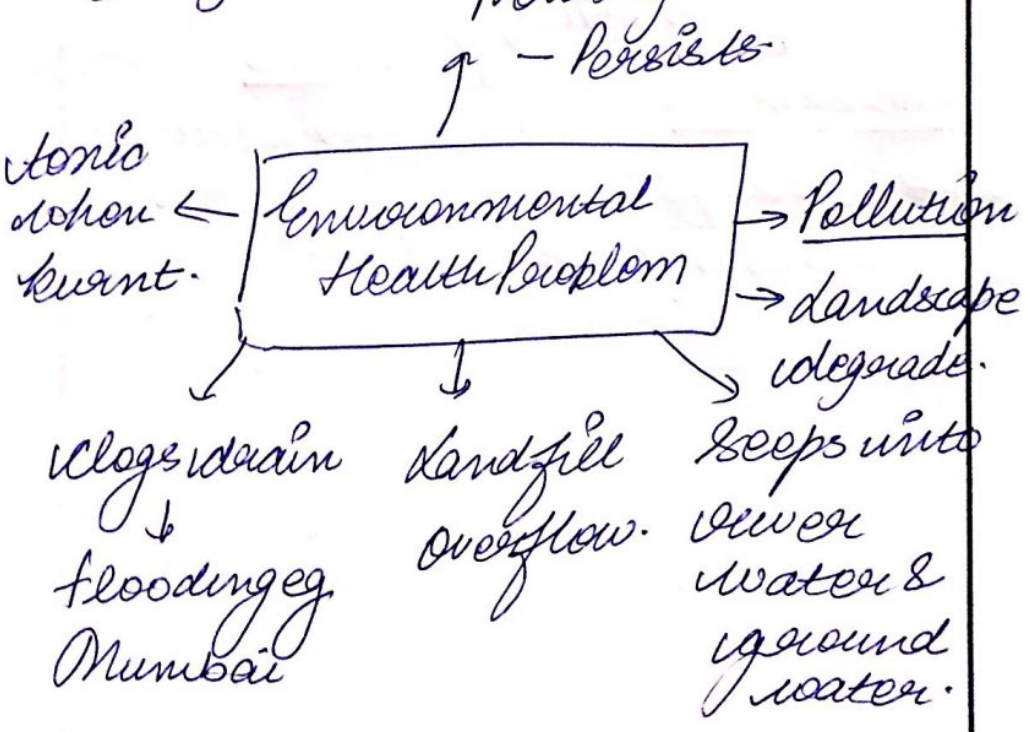
10. Plastic waste is a major environmental and public health problem in India, particularly in the urban areas. Elucidate. Can the Plastic Waste Management Rules, 2016 help in addressing the problems related to plastic waste? (150 words) **10**

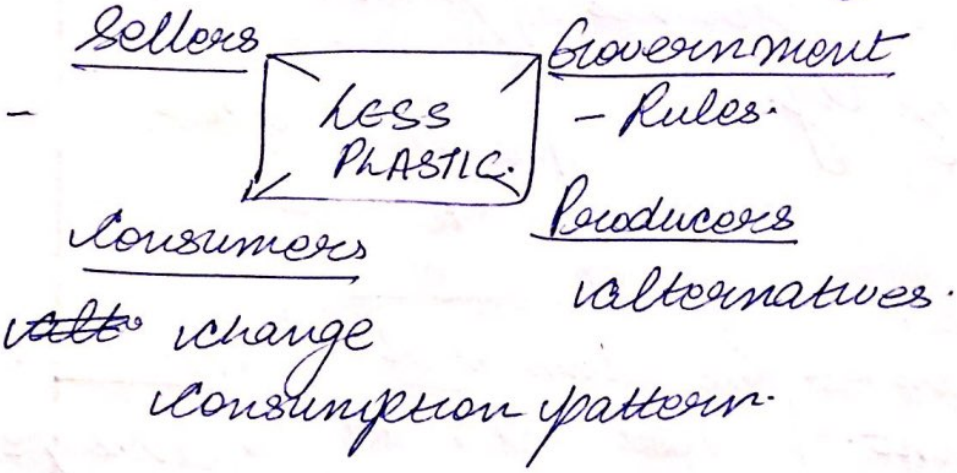
भारत में, विशेषकर शहरी क्षेत्रों में, प्लास्टिक अपशिष्ट एक प्रमुख पर्यावरणीय और लोक स्वास्थ्य संबंधी समस्या है। स्पष्ट कीजिए। क्या प्लास्टिक अपशिष्ट प्रबंधन नियम, 2016 प्लास्टिक अपशिष्ट से संबंधित समस्याओं को हल करने में सहायता कर सकते हैं?

According to SC of India - Plastic waste is a bigger threat to future generation than atom bombs. Delhi alone produces 500-600 tonnes of plastic waste everyday.



Plastic Management Rules

→ to eliminate single use plastic
→ to ~~ban~~ eliminate plastic less than 50 micron.
→ Polluters pay
→ waste segregation at source.
→ waste collection
→ & circular plastic economy.



11. Explain what a drought is and describe its different types. Discussing the environmental and societal impacts of droughts, enumerate the factors that aggravate these. (250 words) 15

व्याख्या कीजिए कि सूखा क्या है तथा इसके विभिन्न प्रकारों का वर्णन कीजिए। सूखे के पर्यावरणीय और सामाजिक प्रभावों पर चर्चा करते हुए, इनकी गंभीरता को बढ़ाने वाले कारकों को सूचीबद्ध कीजिए।

A draught is a situation of shortage of water. It is a condition when sufficient water is not available for variety of usage – irrigation drinking etc.

Draught is of different types – such as hydrological draught measured in terms of soil moisture and meteorological draught (rain fall scarcity)

Environmental Impact

→ Agriculture - since 60% of Indian agriculture is non irrigated. / draught results into crop failures

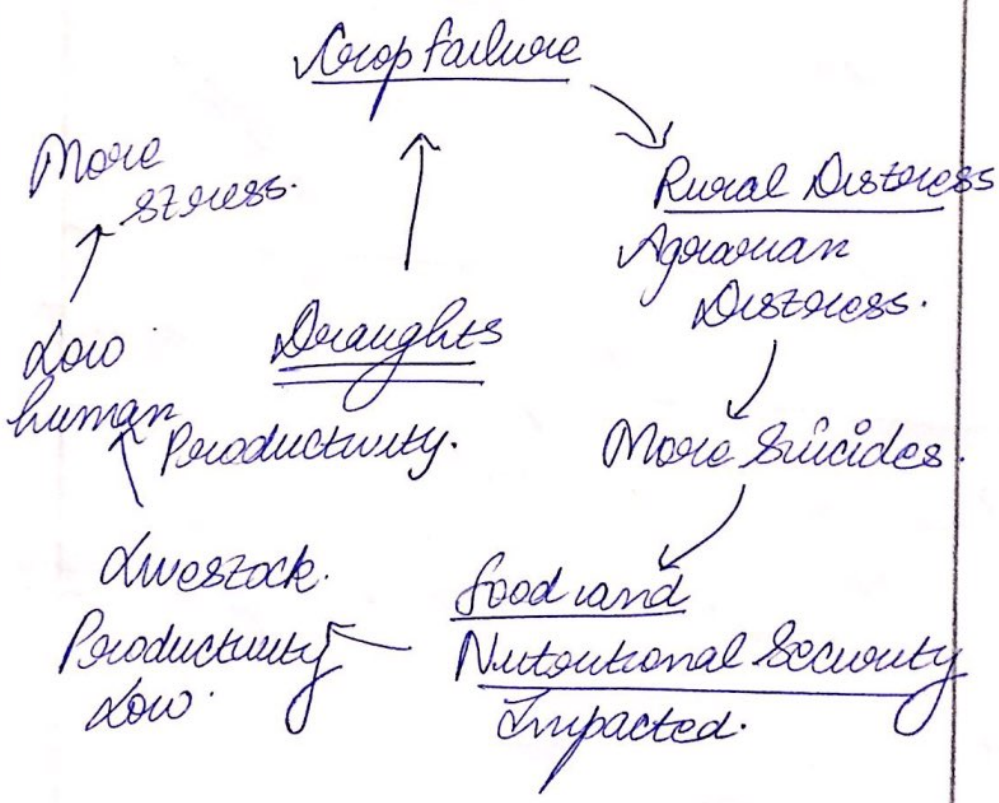
→ flora and fauna - are also adversely impacted.

→ Rivers - have lesser flow and are not able to sustain aquatic animals

→ Biodiversity - is adversely impacted.

Societal Impacts

- Agriculture is the mainstay of rural population (70%).



Factors that aggravate

→ Draught is not entirely due to shortage of water. It is also due to lack of proper management of water.

→ Water Intensive crop - eg Sugarcane needing more than 100 cm water given in water stressed area.

→ Lack of Rainwater harvesting

→ Majority of water flows unused into drains

There is a need to do decentralised water management as suggested by Nitin Shah committee to deal with future water stressed situations.

12. A need has been felt to demarcate aquifer systems in the country so as to provide critical information to plan for their sustainability. Analyse. Also, mention the steps taken by the Government of India in this regard. (250 words) **15**

देश में जलभृत (एक्विफर) प्रणालियों को सीमांकित करने की आवश्यकता का अनुभव किया जा रहा है, ताकि उनकी संधारणीयता संबंधी योजना बनाने हेतु महत्वपूर्ण सूचना प्रदान की जा सके। विश्लेषण कीजिए। साथ ही, इस संबंध में भारत सरकार द्वारा उठाए गए कदमों का भी उल्लेख कीजिए।

India is characterised as a water scarce country by World Bank which will soon become 'water stressed' (less than 1000kg/ percapita) soon if the aquifer systems in the country are not managed sustainably.

The need to demarcate aquifers was first expressed by Dhiraj Shah Panel. This was due to.

→ Decreasing ground water availability in various parts of the country.

13. State the conditions that are conducive for the formation of coral reefs. Mention the anthropogenic factors that have resulted in their decline. Also highlight its consequences. (250 words) **15**

प्रवाल भित्तियों के विकास के लिए अनुकूल दशाएँ बताइए। उन मानवीय क्रियाकलापों का उल्लेख कीजिए जिनके परिणामस्वरूप प्रवाल भित्तियों का ह्रास हुआ है। साथ ही, इसके परिणामों पर भी प्रकाश डालिए।

Coral reefs are regarded as the most productive marine ecosystem. There is a symbiotic relation between coral polyp and Zoo xanthallae algae.

The conditions conducive for their formation are

→ adequate amount of sunlight. They do not form in muddy turbulent water.

→ Temperature - 25-30°C.

→ Corals are also sensitive to salinity of the water -

→ Clear Transparent water

Anthropogenic factors resulting in their decline rate

→ Rising sea water temperature due to global warming
→ Ocean acidification - which dilutes their calcareous shell.
→ Greater Turbulence in the ocean due to navigational activities
→ Pollution eg Plastic accumulation
→ Oil spills negatively impact them
→ Eutrophication - due to greater influx of nutrients in sea - leading to reduced oxygen.

Consequences

→ As seen in the example of Coral Bleaching off the

Australian coast. Loss of corals have adverse consequences on the marine life.

1) The symbiotic relation breaks down - resulting into bleaching and ultimately - death of corals.

Coral Death → not support phytoplanktons → The associated marine life - fishes lose source of food

Impacts Blue Economy

Reduces climate Resilience

Disrupts Environmental Balance

decline marine biodiversity

Way forward lies in conservation and protection.

14. The metallic minerals found in India are mainly confined to the Peninsular plateau region. What are the reasons for their uneven distribution? Also, discuss the impact it has on the location of industries in India. (250 words) **15**

भारत में पाए जाने वाले धात्विक खनिज प्रमुखतः प्रायद्वीपीय पठारी क्षेत्र तक सीमित है। इनके असमान वितरण के क्या कारण है? साथ ही, इसके भारत में उद्योगों की अवस्थिति पर पड़ने वाले प्रभावों पर भी चर्चा कीजिए।

The location of minerals on Earth is a result of geological, climate and historical reasons.

The metallic minerals are confined to Peninsular Plateau

1) It is the oldest land mass which contains shield region made up of ferrous minerals.

2) Deccan Trap was formed due to passing over hotspot

3) Peninsular Plateau lies in tropical location.

Intense Heating + Rainfall.

↓

Leaching of Silica

↓

Aluminium and Iron-rich surface.

→ Hence here Peninsular plateau contains metallic minerals due to its geological features of formation.

Impact on location of Industries

1) Majority of Industries- like coal based power plants Steel. Iron. are located in Peninsular Region due to availability of Raw material. eg. in Jharkhand. (Kendujhar, Mayurbhanj) Odisha. Maharashtra.

2) Cotton Mills are located in Maharashtra- due to Black soil supported cotton.

Availability of raw material and fuel played a major role in location of heavy Industries in Peninsular India.

15. Why is the distribution of major fishing areas skewed towards the higher latitudes as compared to the tropics? What are the challenges that the fishery industry is facing globally? Enumerate the measures taken by the various international bodies in order to make the activity more sustainable.(250 words) **15**

प्रमुख मत्स्यन क्षेत्रों का वितरण उष्णकटिबंधीय क्षेत्रों की तुलना में उच्च अक्षांशों की ओर क्यों झुका हुआ है? विश्व स्तर पर मत्स्य उद्योग द्वारा सामना की जा रही चुनौतियां क्या हैं? इस गतिविधि को अधिक संधारणीय बनाने हेतु विभिन्न अंतर्राष्ट्रीय निकायों द्वारा किए गए उपायों को सूचीबद्ध कीजिए।

fishing is the mainstay of coastal economy. with a global shift in protein fish contributes to 30% of Global average diet

The reason for more number of fishing areas in higher latitudes are.

→ Majority of developed countries lies at higher latitudes - which have better expertise and more role in fishing

→ Presence of nutrient such waters at higher latitudes

due to – • larger fishes at higher lat.
• mixing of cold and warm currents eg along Japanese coast
• Warm waters of tropics are not rich in nutrients and also have higher temperature which reduces - fish diversity
• More upwelling at higher latitudes eg along Peru coast

• Challenges to fishing Industry
→ Declining fish resources
→ Declining diversity and productivity due to global warming
→ Lack of expertise and Capacity

for deep sea fishing

→ Inequality in fishing industry dominated by better equipped developed countries

Measures by International Bodies

→ WTO - seeks to regulate IUU (Illegal Unregulated fishing)

→ UNEP has guidelines against bottom trawling which distorts biodiversity

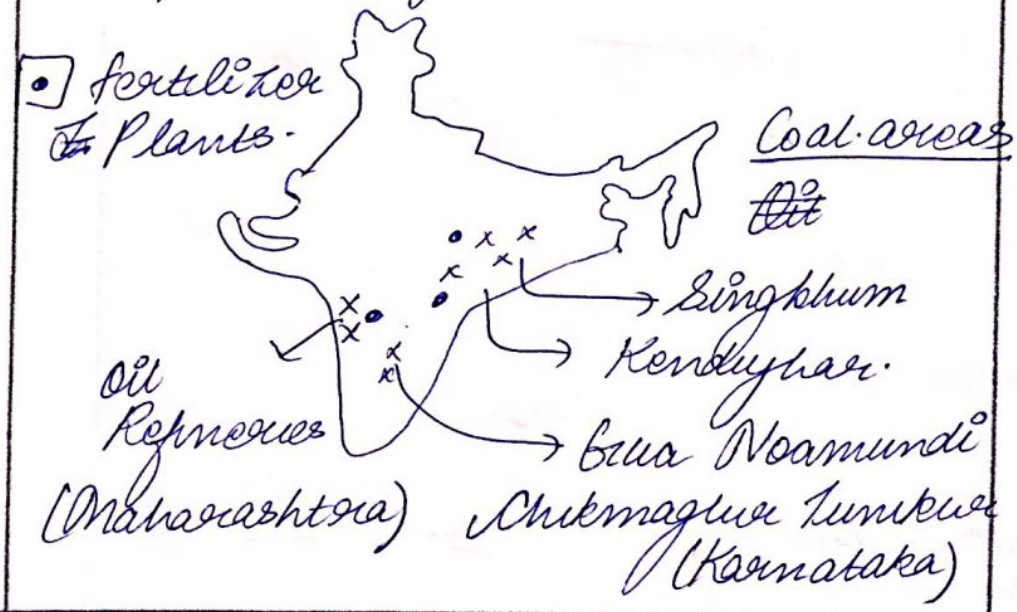
→ International Whaling Commission bans fishing of whales.

There is a need for better implementation of International Guidelines to make fishing SUSTAINABLE and RESILIENT

16. The location of fertilizer plants is closely related with location of oil refineries and coal producing areas. Elaborate. Also, account for the setting up of fertilizer plants nearer to consumer centres such as in Uttar Pradesh. (250 words) **15**

उर्वरक संयंत्रों की अवस्थिति, तेल शोधन संयंत्रों और कोयला उत्पादक क्षेत्रों की अवस्थिति से घनिष्ठ रूप से संबंधित है। सविस्तार वर्णन कीजिए। साथ ही, उपभोक्ता केंद्रों के निकट उर्वरक संयंत्रों की स्थापना (जैसा कि उत्तर प्रदेश में है) का सविस्तार कारण बताइए।

One of the key ingredients for fertilizer plants is the energy requirement and raw material. Owing to these two factors fertilizer plants are closely related to oil refineries and coal producing areas.



→ Since they are energy intensive industries - they are close to oil and coal.

→ These places have well developed transport and port connectivity

→ Also fertilizers are being used throughout India Therefore these industries are proximate to Green Revolution areas of south.

→ Setting up of fertilizer plants near UP is due to multiple factors

1) The government policy incentive via subsidies and tax cuts

2) closeness to market as UP is one of the largest states of

India majorly agriculture dependent

3) Cheap labour availability in UP

4) Coal is no longer the only form of energy. There is availability of hydro and solar power

5) UP is closer to nearby North agriculture intensive regions such as Bihar.

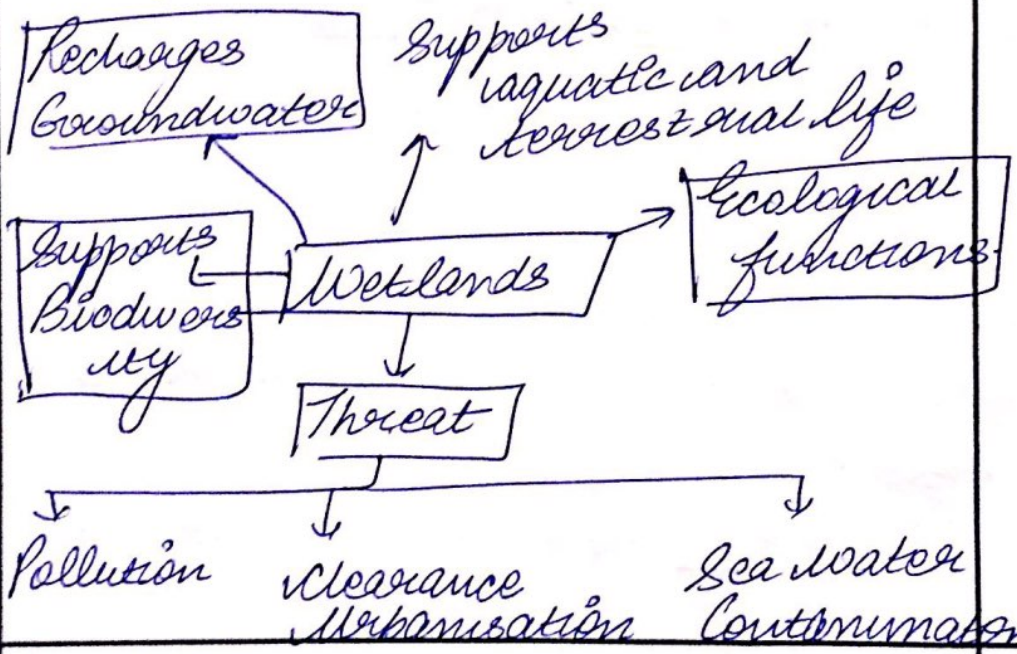
The fertilizer industry is gradually diversifying itself from Nitrogen focused to other minerals like Sodium and Potassium. The southern big states like Andhra and Telangana are moving towards Organic farming

17. Wetlands are being lost rapidly due to encroachment and rapid urbanization. In this context, critically analyse the provisions of the new Wetland (Conservation and Management) Rules 2017 notified by the Government in dealing with the situation. (250 words) **15**

अतिक्रमण और तीव्र शहरीकरण के कारण आर्द्रभूमियाँ तेजी से खत्म हो रही हैं। इस संदर्भ में, इस स्थिति से निपटने हेतु सरकार द्वारा अधिसूचित नवीन आर्द्रभूमि (संरक्षण और प्रबंधन) नियम 2017 के प्रावधानों का आलोचनात्मक विश्लेषण कीजिए।

The world lost 94% of its wetlands since pre industrial times. Ramsar Convention mentions wetlands as most important aquatic ecosystem

However they are being rapidly encroached upon.



Wetland Conservation Rules 2017

1) Specifies activities which are restricted in wetlands eg:- dumping of plastic waste.
2) Protection of Wetlands from Illegal encroachment
3) Mandates- solid waste management and treatment of Industrial waste water before dumping
4) Promotes Ecological Rejuvenation of wetlands through dredging silitation
5) Construction of Buffer zones around wetlands eg planting trees.
6) Institute - eg ~~of~~ Wetland Management

authority to supervise their management.

⇒) Creation of database about wetland information.

However there is a need for decentralised control and responsible use. The rules are not sufficient to prevent illegal sand mining and diversification of wetlands.

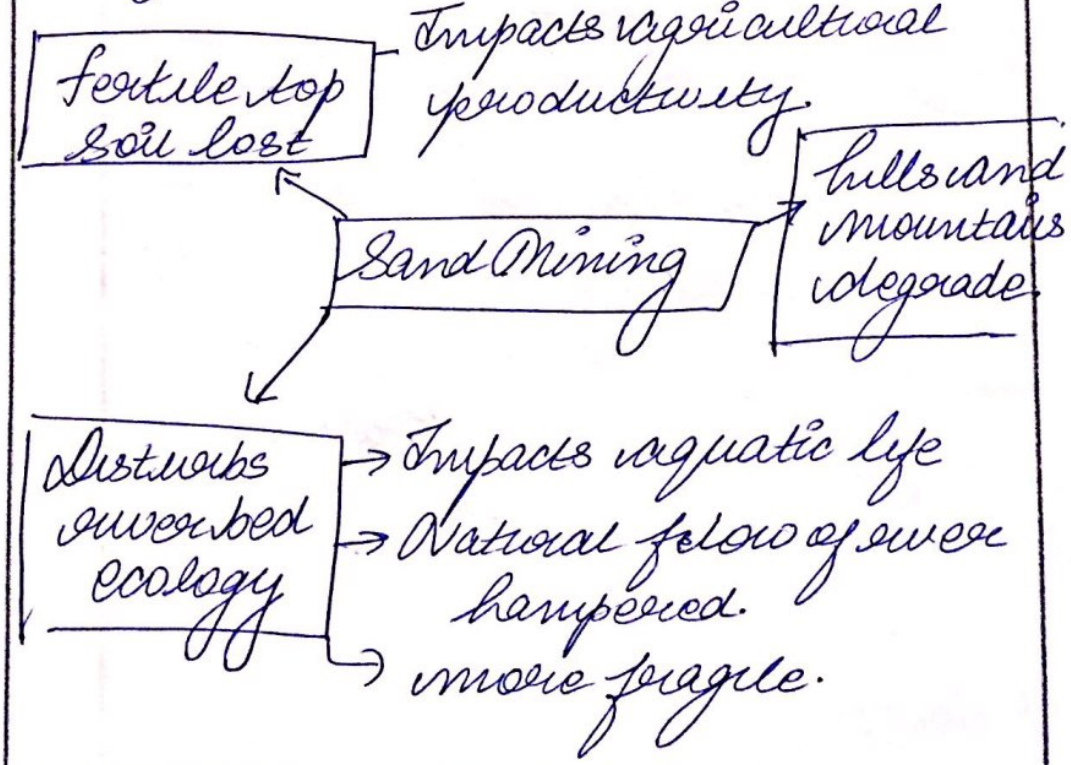
There is a need to realise the importance of wetlands and their sustainability for local as well as nations biodiversity.

Don't write anything in this margin

18. The mining of sand and gravel has reached a level that is threatening the environment and ecosystem. Comment. What can be done to ensure that such mining is carried out in a sustainable manner? Discuss in context of the guidelines issued by the Ministry of Environment, Forest and Climate Change. (250 words) **15**

रेत और बजरी का खनन एक ऐसे स्तर तक पहुँच गया है जो पर्यावरण एवं पारिस्थितिक तंत्र को संकट में डाल रहा है। टिप्पणी कीजिए। इस प्रकार के खनन की संधारणीयता सुनिश्चित करने के लिए क्या किया जा सकता है। पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी किए गए दिशानिर्देशों के संदर्भ में चर्चा कीजिए।

Too million tonnes of sand and gravel – is the market demand. It is continuously increasing due to construction sector boom. However it is threatening to environment.



Sand is a ~~mining~~ minor mineral and hence comes under jurisdiction of the state

Guidelines by Ministry of forest

→ gives greater control to the state. (less than 100 ha)

→ Mandates permission from centre only if area > 100 ha

→ Permission of DM if area < 5 ha.

→ The Guidelines mentions sustainable mining - prohibiting such in sensitive zones such as hills and mountains.

In order to make mining **sustainable**

→ Resource Mapping should be done

to locate areas that can be mined without obstructing ecology.

→ Mining can be done in rivers which need desiltation eg Northern Rivers which have heavy sediment flow.

→ fertile productive agricultural land should not be mined.

Alternatives such as → m sand
↳ flyash. (eg Maharashtra)
↳ Import of sand
↳ quarrying - rock breaking

should be considered.

Sand as a precious resource

More than 30% of India's land is degraded. It needs to be preserved.

19. While overcrowding in public places cannot be wished away in India, what we need are better infrastructure and more effective crowd-control measures. Comment. Also, briefly enumerate NDMA guidelines for crowd management. (250 words) **15**

यद्यपि भारत में सार्वजनिक स्थलों पर अत्यधिक भीड़भाड़ को कम नहीं किया जा सकता है, तथापि हमें बेहतर अवसंरचना और अधिक प्रभावी भीड़-नियंत्रण उपायों की आवश्यकता है। टिप्पणी कीजिए। साथ ही, भीड़ प्रबंधन के लिए NDMA के दिशानिर्देशों को संक्षेप में सूचीबद्ध कीजिए।

Overcrowding is a common issue in India especially in Metropolitan cities and at religious places which often converts into stampede eg Mumbai Bridge Collapse

Such mishaps warrants - better Infrastructure as well as crowd control.

Infrastructure

→ Public Transport carries 66% passengers and occupy 4-5% of road space - There is a need to build robust Infrastructure with adequate carrying capacity

→ Public places – where over crowding is expected should have strong railings adequate number of entry and exit points

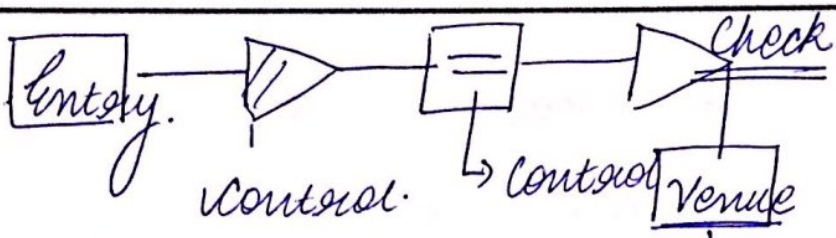
→ There is a need for Risk Mapping of old architectures which attract crowd eg temples monuments.

→ New construction should be well planned and robust

Crowd control

→ can be done via -

- Technology eg cameras, satellite communication devices
- Inter Agency coordination
- Awareness of citizens
- Barricading and regulating flow
- Emergency services ready.

eg 

Regulating entry and exit
- allowing controlled flow.

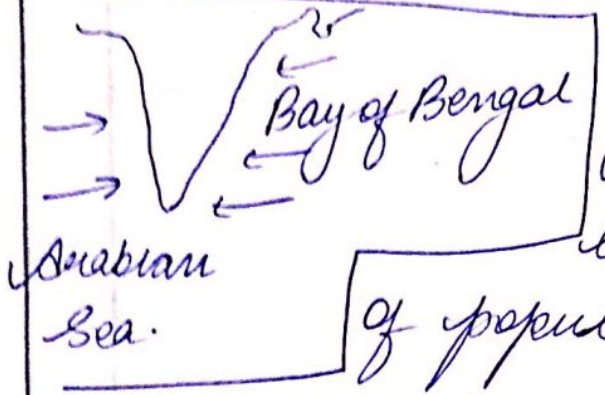
NDMA Guidelines for crowd management

↳ Training of Management Personnel
↳ Augmentation of security force
↳ Better Preparedness
↳ Ensuring resilience of infra structure.
↳ Training/Advisories to crowd

Crowd control and management is crucial for any successful event and to prevent mishap - It needs active participation of citizens for success.

20. Assess the vulnerability of Indian coastal regions to cyclones. Also, mention the objectives and approach adopted by the National Cyclone Risk Mitigation Program (NCRMP) in this regard. (250 words) **15**

चक्रवातों के प्रति भारतीय तटीय क्षेत्रों की सुभेद्यता का आकलन कीजिए। साथ ही, इस संबंध में राष्ट्रीय चक्रवात जोखिम शमन कार्यक्रम (NCRMP) द्वारा अपनाए गए उद्देश्यों और दृष्टिकोण का भी उल्लेख कीजिए।



India has 7500 km long coast line and 20% of population living in coastal location & Indian coastline from both sides is vulnerable to Tropical Cyclones

Vulnerability

→ Greater chances of Tropical cyclones on Eastern coast as it lies in Trade wind path - which carries tropical cyclones from Pacific Ocean

eg Cyclone Phailin in Odisha.

→ Western coast has local cyclones eg Ockhi

→ Cyclones have great speed and destruction potential

- disrupting coastal lives and livelihoods
- damaging critical infrastructure

→ Coastal Regions being low lying get submerged due to cyclone waters.

→ Poor preparedness of poor regions

→ Destruction of natural buffers like wetlands increases the vulnerability

National Cyclone Risk Mitigation Program aims to reduce the

Vulnerability and enhance the resilience of coastal communities in dealing with cyclones.

→ The Approach

↳ Robust early warning system

↳ coordination with neighbouring states in Indian Ocean Region

↳ Developing communication mechanism to alert the coastal communities

↳ Training Personnel in Evacuation

↳ Promoting development of Buffer Zones.

Every year cyclones hurt the coastal economy, there is need to build more resilient infra structure and community