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GENERAL STUDIES (TEST CODE : 855)

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Medium Eng./Hindi	ENGLISH	Registration Number	35234
Center	O.R.N.	Date	25/09/17

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

75, 3rd Floor, Old Rajinder Nagar Market, Near Axis Bank, New Delhi – 110060

103, 1st Floor, B/1-2, Ansal Building, Behind UCO Bank, Dr. Mukherjee Nagar, Delhi – 110009

EVALUATION INDICATORS

1. Alignment Competence
2. Context Competence
3. Content Competence
4. Language Competence
5. Introduction Competence
6. Structure - Presentation Competence
7. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

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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. Discuss the feasibility of using methane as a source of energy and fuel in India. How can it contribute to socio-economic development and environmental protection?

भारत में मीथेन को ऊर्जा एवं ईंधन के स्रोत के रूप में उपयोग करने की व्यवहार्यता पर चर्चा कीजिए। यह सामाजिक-आर्थिक विकास एवं पर्यावरण संरक्षण में किस प्रकार योगदान कर सकता है?

Methane is becoming an alternative source for fulfilling energy needs. Its feasibility ~~to~~ can be seen in view of the following :

- 1) accessibility
its formation is easy and it is accessible, be it coal bed methane (CBM) or obtained from agriculture and farm waste
- 2) cheaper
it is a cheaper source with vast potential resources which are still untapped
- 3) Can be extracted from ice in form of methane hydrates
- such exploration has been undertaken by Japan and China and India is considering its exploration.

It can contribute in the socio-economic development ~~and~~ in the following manner:

- 1) lesser reliance on coal and other means
- 2) with increased use in rural areas it can be a driver of change especially with respect to health of women
- 3) may be extracted from waste, thus reducing its price further

It also has potential positive impacts on environment:

- 1) It is cleaner
- 2) It ~~emits~~ will reduce GHG emissions and ash etc.
- 3) Will reduce burden on other means like coal etc. further improving environment
- 4) Better waste management

Thus, methane provides a sustainable alternative with huge

potentials, which can help in achieving targets under Paris Climate Treaty without hampering development.

2. What do you understand by seasonal shifting of pressure belts? What impact does it have on the formation of various climatic regions across the globe? Discuss its socio-economic significance.

वायुदाब पेटियों के मौसमी स्थानांतरण से आप क्या समझते हैं? विश्व भर में विभिन्न जलवायु प्रदेशों के निर्माण पर इसका क्या प्रभाव पड़ता है? इसके सामाजिक-आर्थिक महत्व की चर्चा कीजिए।

Shifting of pressure belts is the phenomenon of shifting with the apparent movement of the sun in the Northern and Southern hemisphere, due to the change in temperature.

For example, when sun is above Tropic of Cancer in summer in Northern Hemisphere, all the pressure belts shift northwards. The Equatorial Low Pressure Belt can even move $20-22^\circ$ North in summer in the Northern Hemisphere.

Impact on climate :

- 1) Monsoon : the shifting of ITCZ and withdrawal of Jet streams and differential heating of land and sea caused due to sun's movement, leads to Monsoon in India, causing summer rain.

2) Mediterranean Climate : is highly influenced by shift in belts, which leads to rain in winter and dry summer.

3) Impacts as High Pressure belt causes lesser rainfall, and its movement impacts the areas.

Socio-economic significance :

- 1) Monsoon is lifeline of India, and Indian agriculture is 68% rainfed.
- 2) Mediterranean region ~~be~~ is conducive to good quality fruits production especially citrus fruits and good quality wine.
- 3) In India, shifting causes change in weather giving respite from heat.

Thus, shifting of pressure belts is an important phenomenon.

3. What is a sunrise industry? Elaborate on the potential of these industries in India with a special focus on the food processing industry.

सुनराइज उद्योग क्या है? खाद्य प्रसंस्करण उद्योग पर विशेष बल देते हुए भारत में इन उद्योगों की संभावना के संबंध में विस्तार से बताइए।

Sunrise industry is an industry which is at a nascent stage presently and has a high potential of becoming a driver of growth.

Sunrise industries are for example, food processing industries, textile and leather industries etc.

These industries have high potential of causing economic growth due to

- i) rising demand

Food Processing Industry (FPI) is having high demand due to urbanisation and food consumption habits have changed, thus, increasing the demand for processed food.

- ii) Labour intensive → employment

These are labour intensive, thus, can create huge employment opportunities.

iii) Spillover effects

These industries create opportunities for other industries too.

For example, FPE creates demand for packaging products and industries related to that.

iv) Low capital intensive and less gestation period and high productivity

v) These can give boost to export in India

vi) Not skill intensive

vii) Uplifts socio-economic status of people.

viii) Complements agriculture

This has been acknowledged by the Economic Survey 2016-17 and there is need to focus on these industries. The government has started with schemes like MEIS, SEIS, Mega Food Park, MUDRA Bank, SMILE etc. which are in the right direction with increased

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FDI allowance.

4. According to a recently released WHO report, India accounts for 75% of air pollution casualties. In this context, examine the environmental and economic costs of air pollution in India. Enumerate the steps taken by the government and directions given by the Supreme Court to tackle this issue.

हाल ही में जारी WHO की एक रिपोर्ट के अनुसार, वायु प्रदूषण के कारण होने वाली कुल मौतों में से 75% भारत में ही होती है। इस संदर्भ में, भारत में वायु प्रदूषण की पर्यावरणीय और आर्थिक लागत का परीक्षण कीजिए। इस समस्या से निपटने के लिए सरकार द्वारा उठाए गए कदमों एवं सर्वोच्च न्यायालय द्वारा दिए गए दिशा-निर्देशों को बताइए।

India, according to WHO Report, second in world after China, in highest number of deaths due to pollution. This state of affairs is alarming. With the rising pace of urbanisation, air pollution is becoming a serious threat with 13 cities of India in the list of top 20 most polluted cities in the world.

Environmental costs :

- 1) Degradation of air quality
- 2) Formation of smog, causing lesser visibility especially in winters
- 3) Acid rain, which eventually pollutes water bodies, ~~a~~ monum-ental buildings etc. and dry

deposition inhibits photosynthesis.

Economic costs:

- 1) Expense on health, because air pollution causes various diseases from allergy, to asthma etc.
- 2) Increased expenses on abatement of pollution ~~at~~ inside homes and offices
- 3) Loss of productivity
- 4) Loss caused (due to low visibility) due to accidents and cancellation of flights etc.

Steps taken by government:

- 1) Leapfrogging to Bharat Stage VI norms by 2020 and compliance with Bharat Stage ~~2017~~ IV in 2017
- 2) Fly Ash utilization policy
- 3) Establishment of NAAQS and continuous monitoring thereby
- 4) Plan for disposal of paddy straw eg. establishment of bioethanol plant in Punjab
- 5) Odd even policy in Delhi

- 6) Filters and scrubbers in industries
ek.
7) FAME scheme → for hybrid electric vehicle
SC's directions on Air Pollution
- 1) SC approved a phase wise plan to combat air pollution - taking different measures for different levels of pollution - Extreme, Severe, Moderate, Very poor
 - 2) SC directed to phase out 10 year old diesel vehicle
 - 3) SC directed to stop construction activities ~~and~~ in Delhi and closure of Badarpur power plant

Thus, there are processes going on to tackle air pollution but much more needs to be done especially in terms of community participation and compliance with laws.

5. Give an account of the distribution of aluminium industry in India along with the factors that affect its location. Also discuss the challenges faced and future prospects of the aluminium industry in India.

भारत में एल्युमिनियम उद्योग के वितरण और साथ ही इसकी अवस्थिति को प्रभावित करने वाले कारकों का विवरण प्रदान कीजिए। साथ ही, भारत में एल्युमिनियम उद्योग द्वारा सामना की जाने वाली चुनौतियों एवं भावी संभावनाओं पर चर्चा कीजिए।

India is the second largest producer of Aluminium after China. Its properties like ~~the~~ good conductivity for heat and electricity and low density makes it crucial in industrial processes.

Distribution of Aluminium industry in India :

- ② All the major Aluminium producing industries are situated near the resource base for example NALCO in Koraput Odisha, MALCO in Tamil Nadu ~~the~~ BALCO in Chhattisgarh etc.

Factors affecting location are :

- 1) Raw material
Availability of Bauxite is the most important factor as it is a weight losing industry
Areas are : MP, Chhattisgarh, Odisha,

Jharkhand, Tamil Nadu etc.

2) Power supply

Adequate and cheap power supply is essential for extraction of Aluminium from its ore

3) Market

4) Transport network

All the major Industries are well connected to the Ports and by roads

5) skilled labour

Challenges :

1) competition from China

2) Lower quality

3) unavailability of alumina

4) Environmental challenges

e.g. Niyamgeri Hills Odisha

5) Raw material - high import duty on Coal Tar pitch

6) Import of Aluminium Fluoride

Future prospects in India

1) India is rich in Bauxite

2) Domestic demand and demand rise in emerging markets

Thus, aluminium industry can be
an important contributor in growth.

6. Climate change is one of the many challenges that coral islands face today. Comment. What measures can be taken to prevent the further depletion of coral islands?

जलवायु परिवर्तन, प्रवाल द्वीपों द्वारा वर्तमान में सामना की जाने वाली अनेक चुनौतियों में से एक है। टिप्पणी कीजिए। प्रवाल द्वीपों के और अधिक विनाश को रोकने के लिए क्या उपाय किए जा सकते हैं?

The recent mass coral bleaching in the Great Barrier Reef Australia is alarming. The process has been accelerated due to the phenomenon of climate change.

Coral are very sensitive to temperature and other factors of climate.

Impact of climate change on coral Islands:

- 1) temperature increase
corals cannot survive in extreme of water temperature and with the rising levels of ocean water temperature corals are bleaching
- 2) Rising sea levels
this causes flooding of coral islands and impact the habitat of corals
- 3) Acidification of oceans is the biggest factor behind coral

bleaching

However there are other challenges too, like :

- 1) Increased industrial activities on islands, like mining, shipping, etc.
- 2) Increased trade causes oil spill etc.
- 3) Some islands are even used for phosphate bombs testing etc.
- 4) Inadequate waste disposal
- 5) Excessive pressure caused due to increased tourism etc.

Measures that can be taken

- 1) Lesser emissions of GHGs → which cause ocean acidification
- 2) Preventing run off of chemicals etc. in ocean waters
- 3) Prevent emissions of CO₂ that ultimately inhibit carbonate formation due to acidification
- 4) Geo engineering solutions like fortifying atolls by dredging seafloors (eg. Rasdires)
- 5) Sustainable living and livelihood

6) Implementation of CRZ measures

Coral islands and coral reefs are very productive ecosystems and are ~~beliefs~~ ^{rainforests} of hydrosphere, and there is a need to save them.

7. Rare earth elements are the 'vitamins of modern industry'. Elaborate. Also comment on their distribution and production in the world.

रेयर अर्थ एलिमेंट्स (दुर्लभ मृदा तत्व) 'आधुनिक उद्योग के विटामिन' हैं। संविम्पनार बताइए। विश्व में इनके वितरण और उत्पादन पर भी टिप्पणी कीजिए।

Rare earth elements are considered rare not because of their abundance but their presence in a particular place in adequate quantity. These are sparsely available in the crust which makes their extraction difficult. Examples are scandium, yttrium etc. Rare Earth elements are considered vitamins of modern industry

① because of their use in :

- 1) Computer parts like chips etc.
- 2) Lithium ion batteries
- 3) smartphones

② due to their properties like unique magnetism etc.

③ use in catalytic converters

④ use in solar cells

⑤ Military equipments like night vision goggles, precision guided weapons, armoured vehicles etc.

These 17 elements present in largest amounts in China and the USA (Bastnaesite deposit) and in ~~the~~ Australia, Brazil, India, Sri Lanka (Monazite deposits)

In India these are extracted from monazite sands in Kerala.

Recently, Indian Rare Earths Ltd has set up a processing plant of monazite in Odisha.

In production, China leads and accounts for 97% of total production. India has 3% of deposits → however produces at a small level and relies on China for the same.

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8. Scientific and technological advancements have removed the constraints posed by geographical factors which determine the location of industries. Comment. Giving examples, discuss the new factors that have come into play as a result.

वैज्ञानिक और प्रौद्योगिकीय प्रगति ने उद्योगों की अवस्थिति को निर्धारित करने वाले भौगोलिक कारकों द्वारा प्रस्तुत की जाने वाली बाधाओं को समाप्त कर दिया है। टिप्पणी कीजिए। इनके परिणाम स्वरूप उभरने वाले नए कारकों पर भी सोदाहरण चर्चा कीजिए।

location of industries depends largely on geographical factors for raw material (eg. jute mills in Hooghly region), for energy resources (for example in Jharkhand), plain terrain (provides for transport), climate (for example Western India hosts maximum ~~so~~ textile industries in India) and availability of labour etc.

However, there is a change in situation with technological and scientific advancements.

- 1) Mobility of labour caused by advanced means of transport
- 2) Outsourcing of work due to availability of ICT infrastructure allowing video conferencing etc.

- 3) availability of power due to long and better transmission and even storage
- 4) better means of transport make raw material easily available through air cargo, ports etc.
- 5) Cold storage facility increases shelf life of perishable raw material and products like vegetables and meat and milk
- 6) artificial methods for climate control like humidifiers etc.
- 7) artificial raw material like ~~art~~ synthetic fibre etc.

Following are some new factors that have come into existence:

- 1) Technology availability - with ~~for~~ schemes like Digital India, availability of 4G and 5G, 3D printing, bio inks, artificial intelligence, automation
- 2) Data analytics, skilled manpower

3) Government incentives and policies to set up industries in backward areas

Thus, although geographical factors continue to impart location of industries, the impact the becoming less relevant and government policies investments and ICT are becoming more important.

9. Discuss the environmental impact of electronic waste and the best practices for its handling in the context of the E-waste (Management) Rules, 2016. Also suggest some ways to incentivise consumers to utilise and dispose-off the e-waste properly.

इलेक्ट्रॉनिक अपशिष्ट के पर्यावरणीय प्रभावों एवं ई-अपशिष्ट (प्रबंधन) नियम, 2016 के संदर्भ में इसके निष्पादन के लिए सर्वोत्तम तरीकों पर चर्चा कीजिए। ई-अपशिष्ट के उचित उपयोग और निपटान के लिए उपभोक्ताओं को प्रोत्साहन प्रदान करने हेतु कुछ उपाय भी सुझाइए।

E-waste is old, discarded waste from ~~or~~ appliances themselves containing toxic metals like lead, cadmium, mercury etc. These are found in computers, smartphones, household and industrial appliances etc.

Impact on environment

- 1) ~~The~~ Toxicity, pollutes environment through leaching to groundwater, into soil and to vegetables and crops etc.
- 2) Non-biodegradable hence lead to bioaccumulation and biomagnification
- 3) Pollute water, soil and land, etc.
- 4) Mineralisation causes air pollution and release of toxic gases

Handling of e-waste is the planned

disposal of e-waste causing lesser degradation to environment.

Rules under the E-waste (management) Rules, 2016 -

- 1) Responsibility of manufacturer, producer, dealer and Producer Responsibility Organisation (PRO)
- 2) Buy back deposit scheme for better collection of electronic items
- 3) Bulk consumers to file annual returns
- 4) Producer's responsibility to set up collection centres
- 5) Deposit refund scheme
- 6) Proper recycling and extraction of metals
- 7) ULB to collect and recycle

Way to incentivise customers :

- 1) Giving some gifts or discounts when depositing appliances etc. for disposal
- 2) Awareness creation regarding the

hazards of e-waste

- 3) Refurbishing products
- 4) Subsidies to lower lifetime products
to reduce price

→

10. What factors make the Mediterranean region the leading fruit and wine producer in the world? Also discuss why it has not developed as a prominent animal rearing region.

भूमध्यसागरीय क्षेत्र को विश्व में फल और शराब का अग्रणी निर्माता बनाने वाले कारक कौन-से हैं? साथ ही चर्चा कीजिए कि यह क्षेत्र एक प्रमुख पशुपालन क्षेत्र के रूप में विकसित क्यों नहीं हो सका है?

Mediterranean region is known for good quality fruits and wine, which owes much to its climate.

Following are the reasons:

- 1) climate
Dry summers which are ~~short~~^{long} and ~~long~~^{short} wet winters
- 2) less leached soils
- 3) long growing season
- 4) Availability of irrigation facilities
- 5) thick skin of citrus fruits prevent excessive transpiration and long sunny summers enable fruits to ripen.
- 6) Dry summer facilitates drying and processing

Factors for wine production:

- 1) wine - traditional beverage
- 2) climate

3) soil and methods of fermentation

Reasons for comparatively less developed animal rearing :

- 1) non availability of grass
as rain in winters inhibits growth
- 2) grasses not nutritious
- 3) only certain drought resistant crops can support goats etc.

11. Describe the factors responsible for increase in marine pollution in the past few decades. What impact does marine pollution have on the ocean ecosystem? Discuss the measures taken by the international community to deal with it.

पिछले कुछ दशकों में समुद्री प्रदूषण में हुई वृद्धि के लिए जिम्मेदार कारकों का वर्णन कीजिए। महासागरीय पारिस्थितिकी तंत्र पर समुद्री प्रदूषण का क्या प्रभाव पड़ता है? इससे निपटने के लिए अंतरराष्ट्रीय समुदाय द्वारा किए गए उपायों की चर्चा कीजिए।

The recent conference on ocean ecosystem took place, which acknowledged the increasing marine pollution

Factors responsible for marine pollution are :

- 1) Sewage run off from industries, agriculture into the sea
- 2) Oil spills due to accidents etc.
- 3) Increased tourism, especially on islands
- 4) Unscientific and unregulated fishery especially by using modern trawlers which causes dredging on sea floor, polluting ^{the} ecosystem ultimately
- 5) International trade by sea, by ships etc. and emissions from them

- 6) Oil drilling - offshore and underwater pipelines, mineral exploration
- 7) Increased concentration of CO_2 in atmosphere causing ocean acidification
- 8) thermal pollution by industries etc.

Impact of marine pollution on ocean ecosystem :

- 1) Eutrophication and algal bloom due to run off of minerals and thermal mixing (causing upwelling of nutrients)
- 2) Ocean acidification
- 3) Destruction of habitat
 - bleaching of coral reefs
 - fish dying due to increased temperature of waters
 - species extinction due to changed habitats eg. Olive Ridley Turtles leaving to other places

Measures taken:

- 1) Sustainable Development Summit (Earth Summit)

- 2) International Maritime Organisation established → monitors oil spills
- 3) Recent conference on ocean ecosystems
- 4) Summits and conferences to reduce global emissions of greenhouse gases like Paris Treaty, Kyoto Protocol etc.

12. Highlight the factors that affect the location of nuclear power plants. Also discuss the potential benefits of building nuclear power stations on floating platforms.

परमाणु ऊर्जा संयंत्रों की अवस्थिति को प्रभावित करने वाले कारकों पर प्रकाश डालिए। फ्लोटिंग (चैरते हुए) प्लेटफॉर्मों पर परमाणु उर्जा स्टेशनों को निर्मित करने के संभावित लाभों की भी चर्चा कीजिए।

Location of nuclear power plants is a very important factor as it has strategic dimensions.

Following are the factors:

- 1) Ecological concerns to be kept in mind

There has to be proper and Comprehensive EIA for the purpose

- 2) Strategic factor

Nuclear power plants are strategically sensitive and need to be secured properly

- 3) Shouldn't be in the high risk zones of disasters like earthquake etc.

- 4) Availability of fuel and water

- 5) Availability of vast stretches of land away from population dense areas

Benefits of a floating plant :

- 1) would help solve difficulty in land acquisition and availability
- 2) lying below surface would be the cooler of reactor $\rightarrow$ would help in faster cooling
- 3) could be dismantled easily after easy towing
- 4) Could be protected efficiently against disasters

However, terrorism and environmental concerns regarding these prevail. But there have to be found new way to fulfil energy aspirations of increasing population.

13. How is the coal bearing strata of India classified in geological terms? Why does coal remain the most important source of energy in India and what are its implications?

भूवैज्ञानिक शब्दावली में भारत के कोयला धारण करने वाले संस्तर को किस प्रकार वर्गीकृत किया जाता है? कोयला भारत में ऊर्जा का सबसे महत्वपूर्ण स्रोत क्यों बना हुआ है एवं इसके निहितार्थ क्या हैं?

Classification of coal bearing strata in geog geological terms :

1) Gondwana coals

- found in river valleys of Damodar, Mahanadi, Godavari etc.

2) Tertiary coals

- lignite coal type is prominent here
- found in Assam, Tamil Nadu etc.

Coal is most important source of energy in India because:

(i) availability of coal is higher than other raw materials

(ii) existence of infrastructure - already existence of numerous thermal power plants

(iii) expensive resources other than

coal, mainly because of lack of infrastructure like solar energy needs heavy investment and hydro power plants have huge investment demands and long gestation periods

(iv) comparatively safer
eg. Nuclear power plants have inherent safety concerns

Implications of coal being the major source of energy are the following:

1) Environmental impacts

- negative effects
- pollutes air, water, soil etc.
- increases GHGs

2) Health effects

- due to gases and fly ash etc.

3) image in international arena

- when there is pressure to move to renewable sources.

Energy from coal is the dirtiest

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of all sources and there is need to move away from it. Beginning has been made which is evident from India's INDCs to Paris treaty and National Mission on Renewable Energy at home.

14. Explain the reasons for the formation of Sargasso Sea. Also, examine the factors for it being a region with one of the highest ocean salinity.

सारगैसो सागर के निर्माण के कारणों की व्याख्या कीजिए। साथ ही, उन कारकों का भी परीक्षण कीजिए जिनके कारण यह उच्चतम महासागरीय लवणता के क्षेत्रों में से एक है।

Sargasso sea lies in the North Atlantic Ocean named after free floating seaweed found in it called Sargassum.

Sargasso sea is without land boundary and boundaries are defined by ocean currents with Gulf stream in West, North Atlantic drift in North and Canary current in East and North Equatorial current in south. It is a gyre.

These great currents bring to these weeds and the weeds sustain themselves without any roots or attachments and grow through vegetative propagation. The currents encircle the sea area thus enriching it.

It has high salinity which is due to the following factors:

- 1) less mixing of water due to encircling by currents and thus the boundary created
- 2) low winds
- 3) location → high evaporation
it is located in subtropical region → causing high evaporation due to less cloud cover

~~2/3~~

15. How does the Shailesh Nayak Committee on coastal zone regulation addresses the concerns of CRZ notification of 2011?

तटीय क्षेत्र विनियम पर शैलेश नायक समिति, 2011 के CRZ अधिसूचना की चिंताओं का समाधान किस प्रकार करती है?

Coastal Regulation Zones are created to protect coastal ecosystem and to regulate economic activities therein.

CRZ 2011 has taken care of needs of local communities, but with the following demerits:

- 1) No development zone of 200 m from HTL has been reduced to 100 m
- increases chance of increased construction etc.
- 2) No restrictions for expansion of housing for rural communities in CRZ III

Recommendations of Shailesh Nayak Committee:

- 1) All activities except those requiring environmental clearance should fall under ambit of local bodies and state govern-

ment
2) for rural areas with population density more than around 2100 persons per sq. km $\Rightarrow$ no development zone be limited to 50 m.

For other, 200 m.

- 3) Allowing reclamation of land for infrastructure like ports etc in 'larger public interest'
- 4) tourist facilities on seaward sides of highways when passing through these zones
- 5) limiting of central govt's role.

Thus, the committee has sought to create a balance between development and environmental considerations and livelihoods of communities, thus, trying to achieve the object of the notifications.

16. Give a brief distribution of major grasslands of the world. Discuss the reasons behind the temperate grasslands becoming the grain baskets of the world. Also compare their performance vis-a-vis tropical grasslands in this regard.

विश्व के प्रमुख घासस्थलों के वितरण का एक संक्षिप्त विवरण प्रस्तुत कीजिए। शीतोष्ण घासस्थलों के विश्व की खाद्यान्न टोकरी बनने के निहित कारणों की चर्चा कीजिए। इस संबंध में उष्णकटिबंधीय घासस्थलों की तुलना में उनके प्रदर्शन की चर्चा भी कीजिए।

Grasslands form very important ecosystems and support various species of animals and plants. Mainly there are two kinds of grasslands :

1) Tropical Grasslands

Also called Savannas. These are transitional ecosystems between equatorial forests and deserts. They are located in semiarid areas in subtropical and tropical latitudes.

They are also called Sudan type, as they are best developed in Sudan.

2) Temperate Grasslands

These lie in the temperate regions of the world, in the interiors

of the continents. Also known as steppes. They are stretched in vast areas in Northern hemisphere but lesser found in Southern hemisphere.

They are mainly found in Central Asian Republics and Russia.

Temperate grasslands are known as 'granaries of world' being the largest wheat exporters. Following are the causes of the same:

- 1) Spring season is cool and moist with light showers
- 2) Warm summer is favourable
- 3) Steppes land is vast and levelled
- 4) high mechanization and better investments in forward linkages.

Performance of temperate grasslands with tropical grasslands:

- 1) temperate grasslands are wide thus less attention given as compared to ~~small~~ smaller areas

in tropical grasslands
2) temperate grasslands have
high mechanization and milder
climate

17. The Paris Climate agreement sets ambitious goals but does not go far enough in mechanisms to achieve the aims. Comment. Also highlight the challenges which a developing country like India faces to achieve the targets it has set for itself.

पेरिस जलवायु समझौता महत्वाकांक्षी लक्ष्यों को तो निर्धारित करता है किन्तु इन लक्ष्यों को प्राप्त करने के लिए पर्याप्त प्रावधानों की व्यवस्था नहीं करता है। टिप्पणी कीजिए। साथ ही, भारत जैसे विकासशील देश द्वारा अपने लिए निर्धारित किए गए लक्ष्यों को प्राप्त करने में सामना की जाने वाली चुनौतियों पर भी प्रकाश डालिए।

Paris Climate agreement is a milestone in the run up to the environmental mechanisms undertaken by international communities. It is ambitious with seeking to control the global temperature below 2°C at the end of century, ~~of~~ above pre industrial levels.

However, the agreement doesn't focus much on the mechanisms to achieve this. When compared to the Kyoto protocol, it ~~is~~ falls even shorter, even though it has established market based mechanism ITMO. Moreover, the agreement is not binding legally.

Challenges for developing countries
in achieving the targets :

1) Funds

This is the single most biggest
challenge, although there is
GCF mechanism but developing
countries need more funds

2) Technological incapacities

There is a need for technological
capacity building and finance
in the area.

3) With the USA withdrawing ,
there is a need to convince
developing countries to stick with
their commitments

4) Balance between growing energy
demand to drive development
and environmental sustainability

Thus, Paris Agreement is a step in
right direction and the COP22
in Marrakech ¹⁹⁹ took steps to
frame rules and ~~for~~ action
framework to effectuate the
agreement.

18. Why are river deltas important? Discuss the existing threats to river deltas and the measures needed to overcome these threats.

नदी डेल्टा क्यों महत्वपूर्ण होते हैं? नदी डेल्टाओं के समक्ष विद्यमान खतरों एवं इन खतरों से निपटने के लिए आवश्यक उपायों पर चर्चा कीजिए।

River deltas are formed by the deposition of sedimentation in the lower reaches of the ~~carried~~ river which is carried from the upper reaches.

River deltas are very important, for the following reasons:

- 1) they provide fertile soil
→ river ~~deltas~~ formed by Ganga and Brahmaputra, and Krishna and Godavari are very fertile
- 2) Support critical ecosystems
eg. mangroves
- 3) prevent coastal erosion
- 4) Support biodiversity like in Sunderbans and migratory birds

There are various threats to the delta ecosystem, following

are the same :

- 1) increased economic activities
- 2) increased infrastructural construction eg. ports and bridges and river linking projects
- 3) diversion of water for irrigation etc reduce sedimentation
- 4) Climate change and sea level rise

Measures to overcome the threats:

- 1) implementation of CRZ notifications
- 2) proper EIA of the projects
- 3) sediment management
- 4) Proper monitoring of projects ~~and~~
- 5) involvement of local communities in the conservation
- 6) Also, conservation of mangroves directly impacts delta conservation

Thus, maintenance of deltas is important from ecological as well as

economic viewpoint.

19. Transfer of water from one river basin to another is not, per se, either a novel or an untested idea. However, the river linking project in India requires going beyond mere transfer of water. Assessing the feasibility of the interlinking of rivers, analyze its potential in addressing water related challenges in India.

एक नदी बेसिन से दूसरी नदी बेसिन में जल का स्थानांतरण वास्तव में कोई नवीन या अपरीक्षित विचार नहीं है। परन्तु, भारत में नदी जोड़ो परियोजना को केवल जल के स्थानांतरण से आगे बढ़ने की आवश्यकता है। नदियों को जोड़ने की व्यवहार्यता का आकलन करते हुए, भारत में जल से संबंधित चुनौतियों से निपटने में इसकी क्षमता का विश्लेषण कीजिए।

India is undertaking river inter-linking projects to deal with the spatial and temporal distribution of water and the problems created thereby. However, there are certain problems with the same:

1) Ecological concerns

The linking causes vast area to be submerged causing problems to ecosystem and biodiversity eg. Ken-Betwa project though cleared but still the environmentalists have concerns.

2) Community displacement and rehabilitation

3) Only solves problem of availability of water but doesn't address

the real causes of water table depletion like excessive use of groundwater and unscientific agricultural practices.

- 4) Problems of disaster management
- 5) Pollution of one river would affect another
- 6) Certain issues are due practices of neighbours like Nepal, which can't be controlled

However, there are potential advantages in addressing water related challenge in India like:

- 1) availability of water from flooded areas to water deficient areas
- 2) inland navigation
- 3) increased canal network

Moreover the feasibility of these projects is questioned by questioning the assumptions on which these are based:

- 1) no river basin is ^{water} surplus as every

drop has some function
ii) floodwaters can't be channelized
so easily.

Here, there remain issues and
challenges which must be looked
into urgently, before taking the
project forward

20. With increasing urbanisation in India, the land usage pattern is undergoing major changes. Comment.

भारत में बढ़ते शहरीकरण के साथ ही भू-उपयोग प्रतिरूप में भी महत्वपूर्ण परिवर्तन हो रहे हैं। टिप्पणी कीजिए।

The pace of urbanisation has been increasing and with that land usage pattern is also changing. Following can exemplify the same:

- 1) with increased migration to urban areas, more and more land is needed which leads to congestion and more burden on segments of lands
- 2) More and more ecologically sensitive areas are being converted into residential and industrial areas to cater to increased population
→ this even results in disastrous situations like Chennai floods
- 3) decline in agricultural land, waste land and recreational areas
- 4) unsanitary landfills have emerged causing disasters
- 5) heat island effects

- 6) unscientific development of satellite cities
- 7) more burden on old buildings and lesser concentration on their maintenance
- 8) emergence of more number of slums
- 9) Buildings are coming up in seismically dangerous zones without taking care of required planning
- 10) land encroachments and pollution in flood plains ~~not~~ for agriculture, animal husbandry and other such activities.

Thus, urbanisation has caused unplanned use of land on one hand with state of the art buildings on the other. There is a need for adequate planning for making cities sustainable in regard to SDGs and UN Habitat III commitments.

