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GENERAL STUDIES (TEST CODE : 1511)

Name of Candidate	Anoushka Sharma		
Medium Eng./Hindi	English	Registration Number	1040213
Center	Online	Date	3/12/21

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
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15	15	
16	15	
17	15	
18	15	
19	15	
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** इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. 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।
6. Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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EVALUATION INDICATORS

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

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

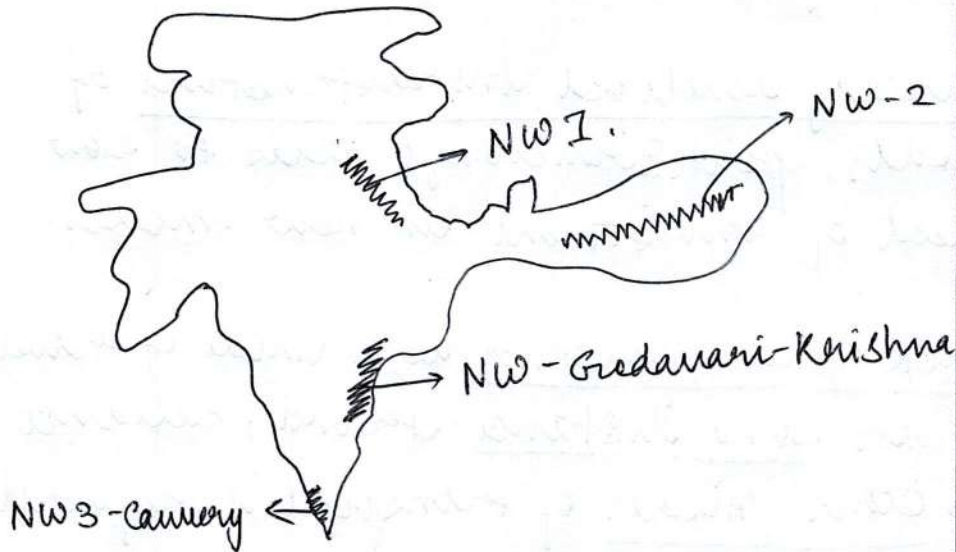
5.

6.

1. Despite a vast coast line and a number of waterways, why has India not been able to achieve its potential in bringing a significant modal shift from rail and road to waterways? **(150 words) 10**

विस्तृत तट रेखा और अनेक जलमार्गों के बावजूद, भारत रेल और सड़क परिवहन प्रणाली से जलमार्गों की दिशा में महत्वपूर्ण प्रणालीगत परिवर्तन (मोडल शिफ्ट) करने हेतु अपनी क्षमता को सार्थक करने में क्यों असमर्थ रहा है?

India has a coastline of ~ 4000 kms with eastern and western coast panning the peninsula. It has various waterways such as NW 1 - Ganga, NW - 2 Brahmaputra, etc.



But despite roadways having various advantages such as cheaper, low maintenance and low infrastructure development required, India has not

developed the waterways

* REASONS FOR NOT ACHIEVING POTENTIAL

1. Biased towards land transportation as evident from higher representation in NIP.
2. Barriers to travel such as dams, non perennial rivers, etc.
3. Already developed infrastructure of roads, ports & railways leads to low need of investment in new modes.
4. Lack of independence as a mode of travel as for long distance travel, reliance on other modes of transport is required.

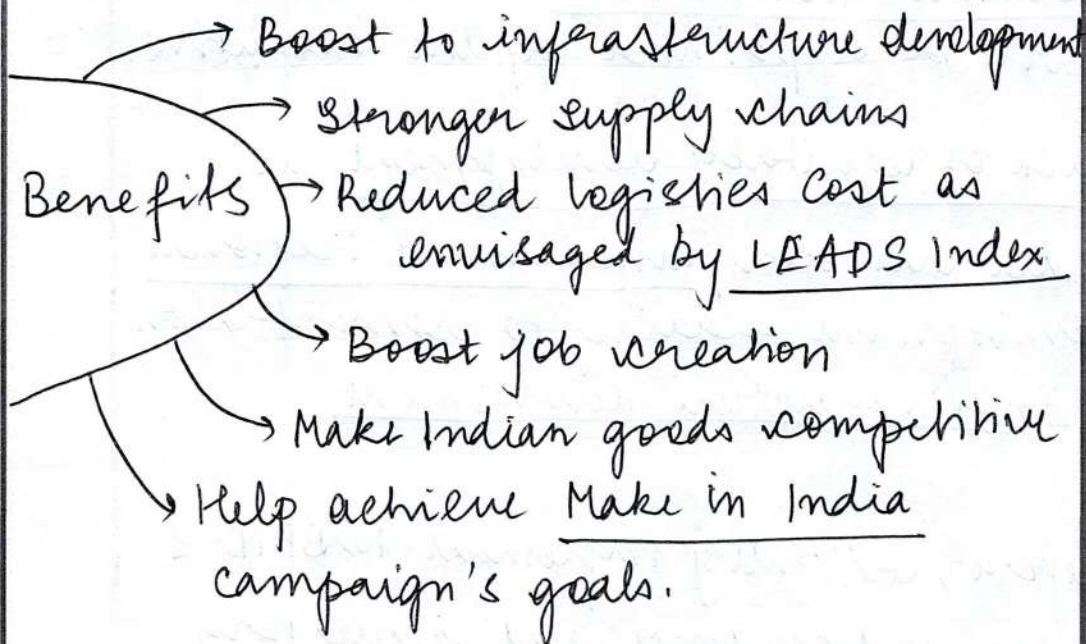
Therefore, waterways have not developed in India. For development of inland waterways, schemes on similar lines of Jagarmala Pariyojna and viability gap funding is required.

2. The move to establish a National Bank for Financing Infrastructure and Development, to reverse the drag on India's growth potential will have its own set of challenges. Discuss. (150 words) 10

भारत की संवृद्धि क्षमता संबंधी अवरोधों को व्युत्क्रमित करने के लिए एक राष्ट्रीय अवसंरचना वित्तपोषण और विकास बैंक की स्थापना के कदम की अपनी स्वाभाविक चुनौतियां होंगी। चर्चा कीजिए।

India improved its ranking in Ease of doing business to 63 in 2020 but still several barriers such as poor infrastructure impede its growth.

Through Budget of 2021, National Bank for financing infrastructure and development has been envisaged.



But despite growth potential, the idea is plagued with certain challenges -

1. Lack of Level Playing field as it will be monitored by government leading to biased behaviour.
2. Low Private sector investment due to poor sentiment as seen in Bihar post repeal of APMC Act.
3. Banks already facing high NPAs, would be unwilling to lend to NABFID.
4. Political Interference as members will be appointed by the executive.
5. Lack of equitable development as India has seen unbalanced regional development leading to concentration of infrastructure development.

Therefore, to fully implement NABFID's vision, independence and regulatory forbearance's absence has to be ensured. This can help achieve India's goal of 25 Trillion economy.

3. Highlighting the issues related to the current fertilizer subsidy regime in India, discuss the need for reforms in this context. (150 words) 10

भारत में वर्तमान उर्वरक सब्सिडी व्यवस्था से संबंधित मुद्दों को रेखांकित करते हुए, इस संदर्भ में सुधारों की आवश्यकता पर चर्चा कीजिए।

According to the Economic Survey, the second highest chunk of subsidy after food is fertilizers, which is dominated by urea subsidy.

* ISSUES WITH SUBSIDY

- ↳ Overuse of fertilizers - In Punjab use of urea : potash : phosphorous is 40:3:1 whereas it is advised to be 4:3:1
- ↳ Contamination of natural resources by leading to water and soil pollution.
- ↳ Increased source of emissions - as nitrogen emissions are dominated by agriculture.
- ↳ No asset creation - As money is used for consumption not capital investment

⑥ → High fiscal burden - leading to increasing deficits.

* REFORMS NEEDED

1. Switch to Nutrient Based Subsidy for urea as currently used for other minerals.
2. Instead of subsidy based on use, money should be transferred using Jan Dhan Accounts.
3. Awareness generation about overuse's ill impact on productivity, through soil health cards.

Therefore, instead of utilizing limited resources in subsidies, according to Ashok Gulati, the money should be utilized in public capital formation which will boost productivity and help double farmer's income by 2022.

4. Identifying the need for a climate resilient agriculture in India, discuss how it can be achieved. (150 words) 10

भारत में जलवायु प्रत्यास्थ कृषि की आवश्यकता की पहचान करते हुए, चर्चा कीजिए कि इसे कैसे प्राप्त किया जा सकता है।

Agriculture employs 45% of the 52 crore workforce of India and helps maintain India's position as a key exporter. With changing climate, need for resilience is crucial.

* NEED FOR CLIMATE RESILIENT AGRICULTURE

1. Increased Climate Vulnerabilities

- 1. → Increasing droughts
- 2. → Increasing floods
- 3. → Highly variable rainfall distribution
- 4. → Rising sea levels. Ex - IPCC Report highlights how some key cities might be submerged by 2050 - Ex - Mumbai

2. Economic aspects

- 5. → Reduce variability in income
- 6. → Reduce food insecurity given high malnutrition status. Ex - Hidden

- hunger.
7. Can increase poverty and disguised unemployment.

* WAYS TO ACHIEVE

1. Organic Farming based on low use of chemicals and fertilisers. Ex - Zero Budget Natural Farming.
2. Learn from various traditional methods of cultivation as seen in Keraput, etc.
3. Empowerment of women through Mahila Kisan Shashaktikaran Yojana.
4. Reduce subsidies and increase capital formation. According to Dreze and Burke, public sector capital formation gives boost to private investment.

Therefore, to help achieve our NDCs and reverse the ticking clock of climate change, traditional and sustainable measures are required.

5. Mega Food Parks (MFPs) were considered to be a gamechanger for the food processing sector in India, but their progress remains stunted. Discuss.

(150 words) 10

मेगा फूड पार्को (MFPs) को भारत में खाद्य प्रसंस्करण क्षेत्रक के लिए एक महत्वपूर्ण चरण (गेमचेंजर) समझा गया था, लेकिन उनकी प्रगति अभी भी अवरुद्ध है। चर्चा कीजिए।

Mega Food Parks scheme was launched in the last decade to give a boost to the sunrise sector of food processing.

* Food Processing - Significance

1. Potential to employ 60 million in the coming decade
2. Boost export competitiveness
3. Reduce disguised unemployment of agriculture.
4. Require ind additional skill development

* ISSUES WITH PROGRESS

1. Low Investment - As private investment was key to lead to agglomeration effect.
2. Quality Standards - Low standards which

are not able to face stringent international norms. Ex - EU Phytosanitary norms.

3. Red Tapeism - Leading to delay in licensing, permits and distributions
4. Overlap of jurisdiction - As agriculture is a state subject, different incentives by different governments.

* WAY FORWARD

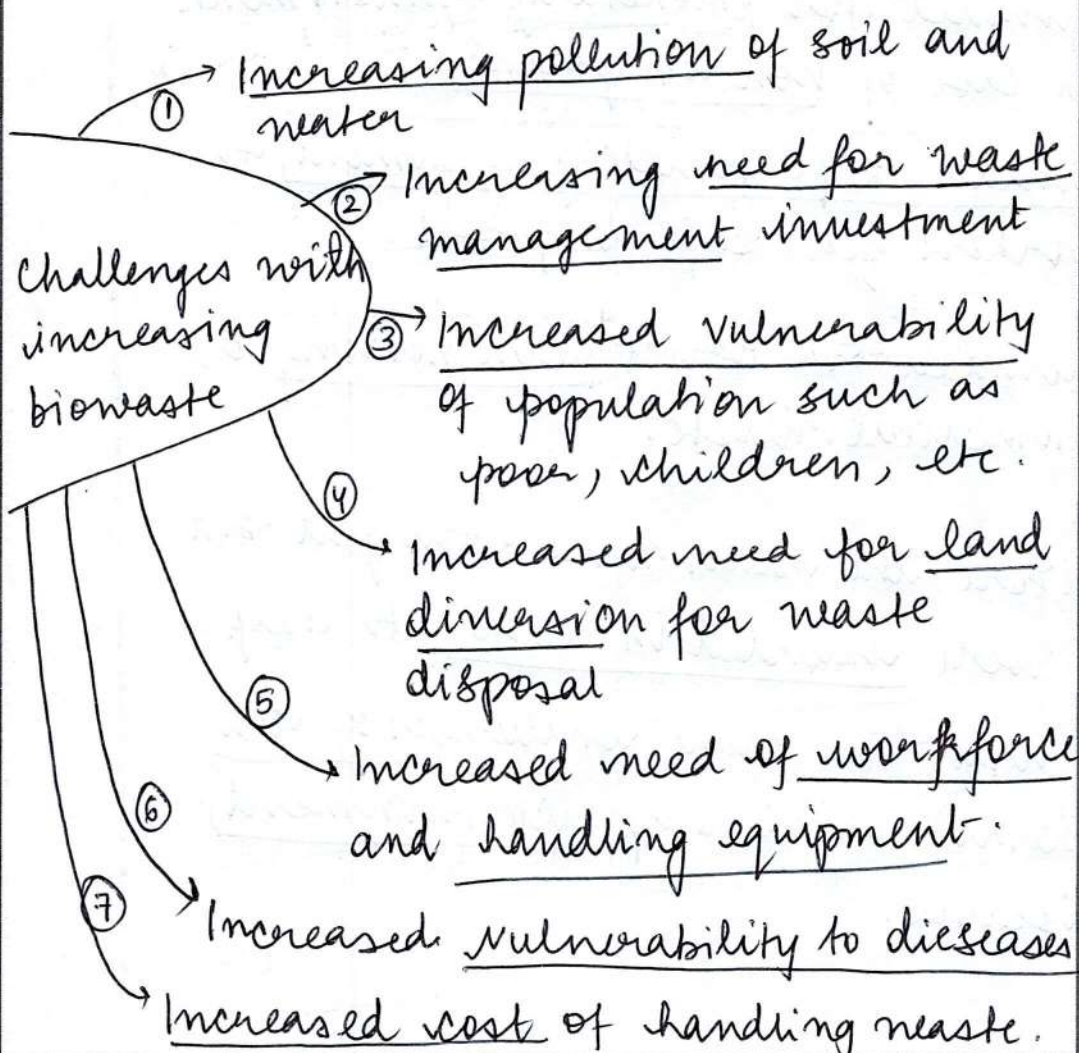
- Viability Gap Funding
- Supporting Infrastructure development
- Increase supply chain resilience.

Therefore, food processing has the potential to reduce job creation burden and help increase export competitiveness, as highlighted in NITI Aayog's India @ 75 document.

6. Give an account of the challenges associated with rapidly increasing biomedical waste in India. Also, state the key features of the Bio-medical Waste Management (Amendment) Rules, 2018. (150 words) 10

भारत में तीव्रता से बढ़ रहे जैव-चिकित्सा अपशिष्ट से जुड़ी चुनौतियों का विवरण दीजिए। साथ ही, जैव-चिकित्सा अपशिष्ट प्रबंधन (संशोधन) नियम, 2018 की प्रमुख विशेषताओं का भी उल्लेख कीजिए।

As the world masked up, the pandemic unmasked leading to increasing waste burden worldwide. COVID-19 Pandemic has led to increased focus on biomedical waste management.



* Key Features of Biomedical Waste Management Rules

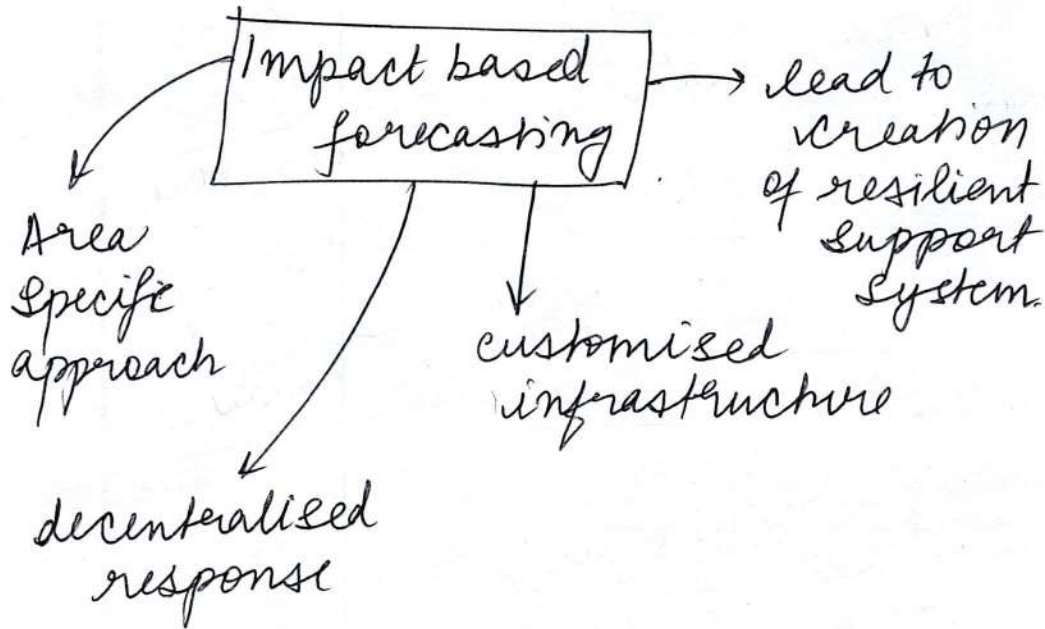
1. Included Rural Areas in ambit due to waste reaching even hinterlands.
2. Segregation of materials in 8 categories
3. Increased Liability of waste creating institutions
4. Provided for monetary punishments in case of non-compliance.
5. Mandate safe handling equipment to workers for safe disposal.
6. Provided for strict non mixing of biomedical waste.

Therefore, the rules were stringent but they were amended in 2020 to help deal with the new challenges of the pandemic to ensure containment of diseases.

7. What do you understand by impact based forecasting in disaster management? How can such forecasting strengthen the disaster management preparedness? (150 words) 10

आपदा प्रबंधन में प्रभाव आधारित पूर्वानुमान से आप क्या समझते हैं? ऐसा पूर्वानुमान आपदा प्रबंधन की तैयारियों को कैसे मजबूत कर सकता है?

India due to global warming and climate change is witnessing increasing disasters.



* Help in Disaster management by above measures.

Impact based forecasting refers to early warning systems based on area specific impact of the,

disaster. This will help measure magnitude and intensity like Richter and Mercali scale.

8. Low Earth Orbit is becoming increasingly crowded as countries race to launch satellites into space. Highlighting the associated issues, discuss international efforts taken in this regard. (150 words) 10

देशों द्वारा अंतरिक्ष में उपग्रहों को प्रक्षेपित करने की बढ़ती होड़ से निम्न भू-कक्षा में इनका संकेन्द्रण बढ़ता ही जा रहा है। इससे संबंधित मुद्दों को रेखांकित करते हुए, इस संबंध में किए गए अंतर्राष्ट्रीय प्रयासों पर चर्चा कीजिए।

Low Earth Orbit refers to the orbit starting from 160 km to 2000 km from earth. Though it has large ambit, still majority of satellites are concentrated in 160 - 900 km radius.

* ISSUES

1. Increased chances of accidents given overcrowding of Orbit.
2. Increasing space debris causing less space for missions
3. Increasing private sector participation leading to competition for space.
Ex - Starlink is planning to launch 60 missions.
4. Increasing misuse to demonstrate soft power by nations such as China, etc

5. Increased chances of surveillance by nations.

* International Efforts

1. Outer Space Treaty - of which India is a signatory, prohibits militarisation of space.

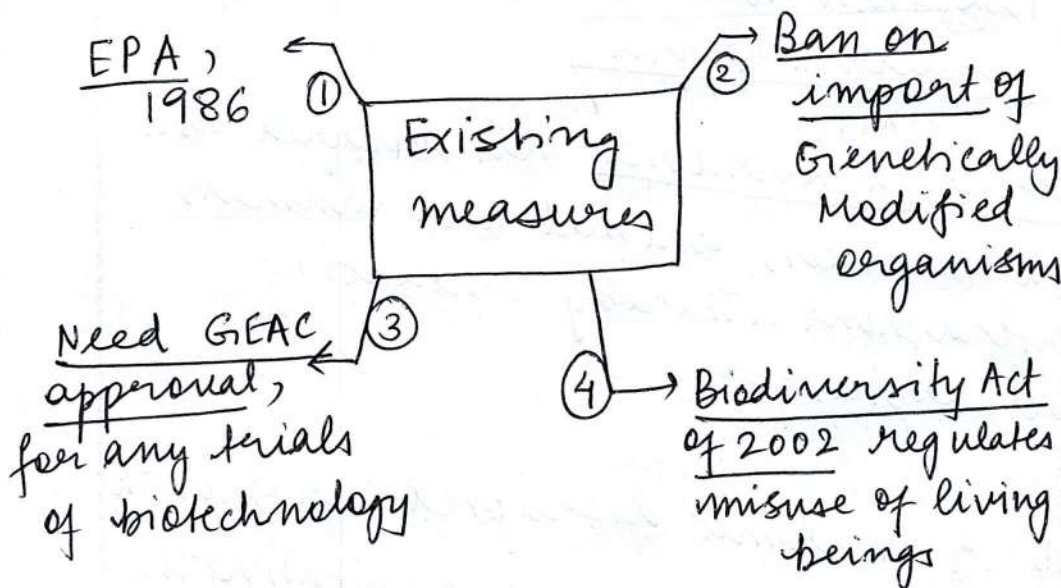
2. Artemis Accords - Propagated by USA, they are a set of principles to follow for space missions.

As a international agreement is missing and new private and state actors are entering the space field, we need to build consensus on common space utilisation rules.

9. Enumerating the existing measures to counter bio-terrorism in India, highlight the need for a bio-terrorism law. (150 words) 10

भारत में जैव-आतंकवाद का मुकाबला करने के लिए मौजूदा उपायों को सूचीबद्ध करते हुए, एक जैव-आतंकवाद कानून की आवश्यकता को रेखांकित कीजिए।

Bio-terrorism refers to use of modified living organisms to spread terror and disrupt normal life to leave a lasting impact. COVID-19 highlighted the doubts associated with bioterrorism.



* Need for Bioterrorism law in India

1. Increasing international tensions between neighbouring and non neighbouring states such as USA-China, etc.

2. Scientific Advancements - Given the rapid advancements of biotechnology in the last 30 years.
3. Lack of regulation - Both at the international and national level, leading to lack of accountability.
4. Poor morals of scientists - Ex - Dr Khan of Pakistan who was held in espionage of nuclear weapons.
5. Increased Zoonotics - has blurred the line between animal and human interactions, thereby increasing vulnerability.

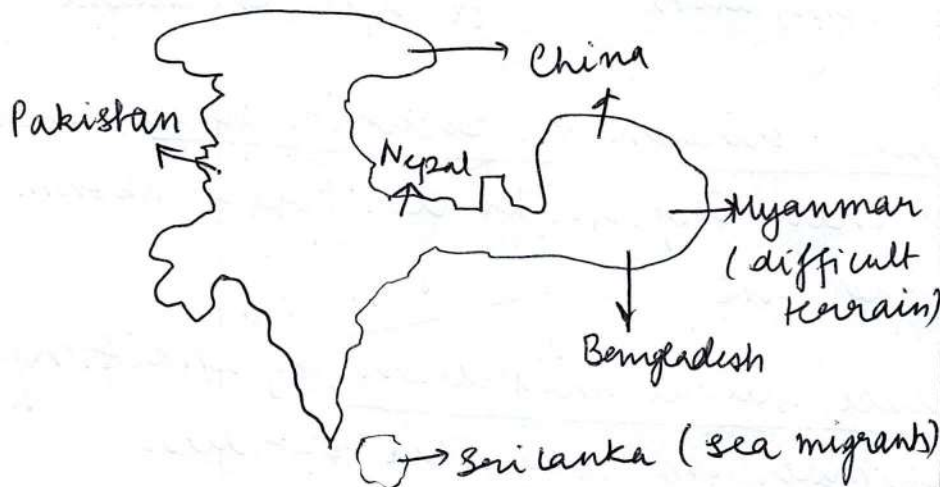
COVID-19 Pandemic disrupted our growth and ambitions; thereby necessitating the need of Bioterrorism law as we need to utilize 'one health Approach' to ensure our safety.

10. Discuss the potential of "Integrated Law Enforcement Centres" and "Smart Walls" on India's border areas to address the prevailing security challenges.

(150 words) 10

मौजूदा सुरक्षा चुनौतियों से निपटने के लिए भारत के सीमावर्ती क्षेत्रों में "एकीकृत कानून प्रवर्तन केंद्रों" और "स्मार्ट वॉल" की क्षमता पर चर्चा कीजिए।

India is faced with several security issues, given its proximity to several nations, thereby requiring smart surveillance.



* Potential of Integrated Law Enforcement Centres

1. Reduced duplication of work.
2. Increased speed of processing cases under Foreigners Tribunal Order, etc.

3. Reduce burden of lack of experienced workforce.
4. Reduce case load of litigation.

* Potential of Smart Walls

1. Easy to guard difficult terrains
 - Rivers ← Ex - Feni, Teesta
 - ↓ Mountains Ex - Lipulekh, Chusul
 - ↘ Forests. Ex - Myanmar
2. Reduce burden on security forces such as Indo-Tibetan Border Police, Assam Rifles, etc
3. Reduce illegal migration by utilising loopholes in physical borders.
4. Increase regulation of anti-productive activities such as arms smuggling, drug trafficking, etc.

Therefore, by utilizing above measures, as highlighted by Shekhar Committee Report, border management can be made more effective

11. Farm loan waivers are neither adequate nor recommended for promoting sustained agricultural growth. Analyse. (250 words) 15

सतत कृषि विकास को बढ़ावा देने के लिए कृषि ऋण माफी न तो पर्याप्त है और न ही अनुशंसित। विश्लेषण कीजिए।

Increasing instances of farm loan waivers have been witnessed as political vote bank tactics. This has led to debate on viability of these measures.

* Benefits of Farm Loan waivers

1. Provide income security to farmers as they have high debt burden.
2. Reduce the increasing vulnerability of farmers due to climate change as highlighted in Climate Vulnerability Index.
3. Reduce the dependence on informal credit methods which charge high interest rates.
4. Provide funds to banks and reduce their losses due to rising NPAs.

* Issues with Farm Loan waivers

1. Moral Hazard - As farmers have tendency to not fulfil their loan obligations in expectation of waivers
2. Poor Credit Formation - As overburdened banks will reduce credit to farmers thereby reducing benefits of Nationalisation of Banks.
3. Increased Inequity - As banks would rather deposit money in Priority sector lending fund with NABARD or with lending to areas having low defaults like Punjab, etc.
4. Poor access to credit for even deserving farmers due to changing political policies, given high risks.

* Way Forward

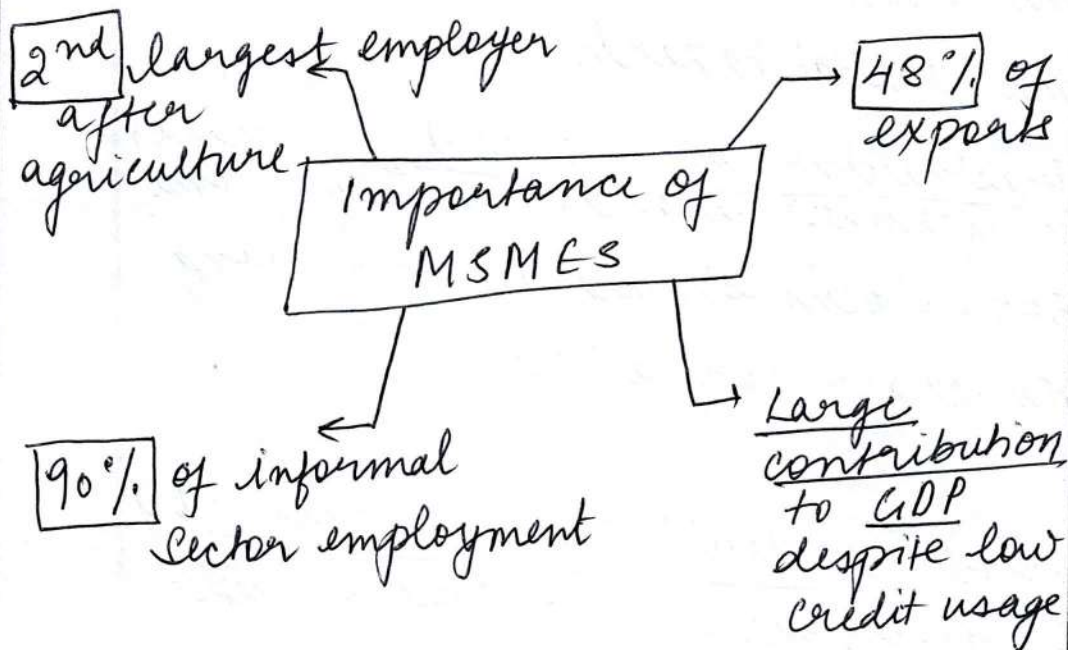
1. Reduce farm loan waivers to the most vulnerable areas. Ex - Disaster hit areas, etc.
2. Transfer funds quickly to banks to ensure their financial health in cases of waivers.
3. Model Act to act as torchbearer for any future waivers to reduce losses and moral hazards.
4. Infrastructure development - In India, Given farmers average monthly income ₹ 1500, focus should be on strong supply chain formations.

Therefore, to double farmers income by 2022, efforts need to be taken to implement long term measures rather than engage in petty politics.

12. A number of initiatives in recent years have focussed on the MSME sector. Why is there a need to focus on this sector? Also, identify the measures taken by the government and further scope of action. (250 words) 15

हाल के वर्षों में अनेक पहलों ने MSME क्षेत्रक पर ध्यान केंद्रित किया है। इस क्षेत्रक पर ध्यान केंद्रित करने की आवश्यकता क्यों है? साथ ही, सरकार द्वारा उठाए गए कदमों और आगे की कार्रवाई के दायरे की पहचान कीजिए।

MSME Act was amended in 2020 under the Atmanirbhar Bharat Abhiyaan to enhance the investment limits of various categories to embrace changing realities.



MSMEs play a crucial role in the economy, therefore various measures have been taken to boost them.

* Measures

1. MUDRA Scheme - where Shishu, Kishor loans are provided at concessional rates.
According to R. Nagraj, MUDRA has created 27% jobs.
2. STAND UP INDIA Scheme - where loans are provided to women, SCs, STs to start their businesses.
3. GEM Procurement - where MSMEs are favoured for procurement by government departments.
4. Fund of Funds - to provide credit guarantee to banks who provide loans to MSMEs.
5. Increased limits for categories to incentivise growth while retaining the benefit of the MSMEs.

* Further Scope of Action

2. Implementation of mandatory procurement
-ent quotas of government departments
which currently provide various
exemptions
2. Increase access to formal credit by
providing increased incentives to
banks under Priority sector lending
norms.
3. Creation of strong supporting infrastruc-
-ture through NIP, etc.

Therefore, MSMEs are key to achieve
the Sarnodaya vision of Mahatma
Gandhiji and increase social
justice.

13. Skilling the Indian population faces a 3E challenge - Education, Employment and Employability. Discuss. Also suggest interventions required to effectively manage this challenge. (250 words) 15

भारतीय जनसंख्या को कौशल युक्त बनाने में 3E चुनौतियों, यथा- शिक्षा (एजुकेशन), रोजगार (एम्प्लॉयमेंट) और नियोजनीयता (एम्प्लॉयबिलिटी) का सामना करना पड़ता है। चर्चा कीजिए। साथ ही, इन चुनौतियों का प्रभावी ढंग से प्रबंधन करने के लिए आवश्यक हस्तक्षेपों का भी सुझाव दीजिए।

India's average age is 25 years. This demographic dividend is expected to last for a decade. But various challenges exist for achieving ₹ 5 Trillion economy target by 2025.

Skilling in the increasingly changing era of sectoral transition is plagued with various issues.

* Challenges

1. Education

- ① → Low gross enrolment ratio of 25% in higher education
- ② → Lack of development due to outdated coursework. Ex - Poor performance in PISA Test.
- ③ → Poverty leading to 'hands required'

for learning rather than studying.

2. Employment

- ④ → Jobless growth - 7% GDP growth
vs 1.2% job growth.
- ⑤ → Automation of industries leading
to less jobs
- ⑥ → Capital Intensive goods production
leading to disguised unemployment
in agriculture

3. Employability

- ⑦ → According to LinkedIn
survey, only 47% graduates
have employable skills
- ⑧ → Poor Vocational training
- ⑨ → Focus on rote learning rather
than skill development.

Therefore, these factors lead to not
utilizing demographic dividend.
which is India's comparative advantage

* Interventions

1. Education

- New Education Policy 2020
- Samagra Shiksha Abhiyan
- Scholarships to SC, ST and other vulnerable groups.

2. Employment

- Boost to MSMEs
- Under Stand Up Scheme, Mudra
- Increase infrastructure development through NIP, Bharatmala and Sagarmala.

3. Employability

- National Skill Mission
- Vocational training in 6th-8th class under NEP 2020
- Reskilling Fund under new labour codes.

Therefore, to achieve human development, as highlighted by Amartya Sen, overall social, economic, political freedom needs to be increased.

14. Despite its importance, agricultural marketing faces various institutional and infrastructural related issues in India. Elaborate. Also, enlist the measures that have been taken in this context. **(250 words) 15**

अपने महत्व के बावजूद, कृषि विपणन को भारत में विभिन्न संस्थागत और अवसंरचना संबंधी मुद्दों का सामना करना पड़ता है। सविस्तार वर्णन कीजिए। साथ ही, इस संदर्भ में किए गए उपायों को भी सूचीबद्ध कीजिए।

Agriculture contributes 16% to the GDP and has made India the key exporter of goods such as rice, tea, pulses, horticulture, etc.

But despite this issues exist in various parts of process from farm to plate.

* Issues with Agricultural Marketing

1. Procurement

- ↳ Open ended Procurement leading to oversupply
- ↳ Concentrated in few areas
- ↳ Promoted cereal centric growth

2. Transportation and Storage

- ↳ Lack of cold storage leading to waste
- ↳ Reliance of old methods such as cover and Plinth.
- ↳ Lack of perinate investment due to poor public investment - J
Curve effect.

3. Supply to consumers

- ↳ Leakages, Ex - 47% according to Bealla.
- ↳ Overinclusion and exclusion of beneficiaries
- ↳ Overlap of State agencies work with FCI.

Therefore, to implement reforms, measures are required such as :-

- ### 1. Capital Formation
- ↳ Viability Gap Funding
 - ↳ Storage facilities
 - ↳ APMC Infrastructure

2. Curb on Open Ended Procurement and rather utilise DBT for any price difference.
3. Utilisation of PM-AASHA to increase procurement of other goods as well.
4. Curb regular use of Essential Commodities Act to increase private investment.
5. Digitisation of process as envisaged in 'One Nation, One Ration Card'.

Therefore, agricultural marketing is key to ensure that minimum food is wasted given India's increasing prevalence of ~~higgen~~ hidden hunger - FAO and increasing stunting, wasting according to NFHS.

15. Marine litter is not just an environmental issue but poses a socio-economic challenge as well. Discuss. Also, enumerate the initiatives taken by the global community to reduce marine litter. (250 words) 15

समुद्री कचरा न सिर्फ एक पर्यावरणीय मुद्दा है, अपितु यह एक सामाजिक-आर्थिक चुनौती भी खड़ी करता है। चर्चा कीजिए। साथ ही, समुद्री कचरे को कम करने के लिए वैश्विक समुदाय द्वारा की गई पहलों को भी सूचीबद्ध कीजिए।

According to a study, 90% of plastic waste deposits in the deep oceans leading to concentration of waste in the benthic layers.

* Issues with Marine Litter

1. Environmental

- ① → Increased marine pollution
- ② → Reduced carbon sequestration due to mortality
- ③ → Increased Eutrophication leading to dead zones
- ④ → Disrupt food chains due to harming vulnerable biodiversity
- ⑤ → Biomagnification of waste

2. Socio - Economic

- ⑥ → Reduce livelihood of fishermen and other allied sectors
- ⑦ → Enter human food chains leading to increased diseases
- ⑧ → Reduced tourism potential due to decrease in biodiversity
- ⑨ → Increase costs of cleaning, further exacerbating already strapped funds.

* Measures to reduce Marine litter

1. Colombo Declaration - to reduce waste.
2. International Whaling Commission's limits on fishing activities
3. Global initiatives such as Re(ef)build and Re(ef)grow to prevent damage to coral reefs
4. International Seabed Authority norms

to use resources sustainably.

Therefore, international collaboration is required to achieve SDG - Life under water.

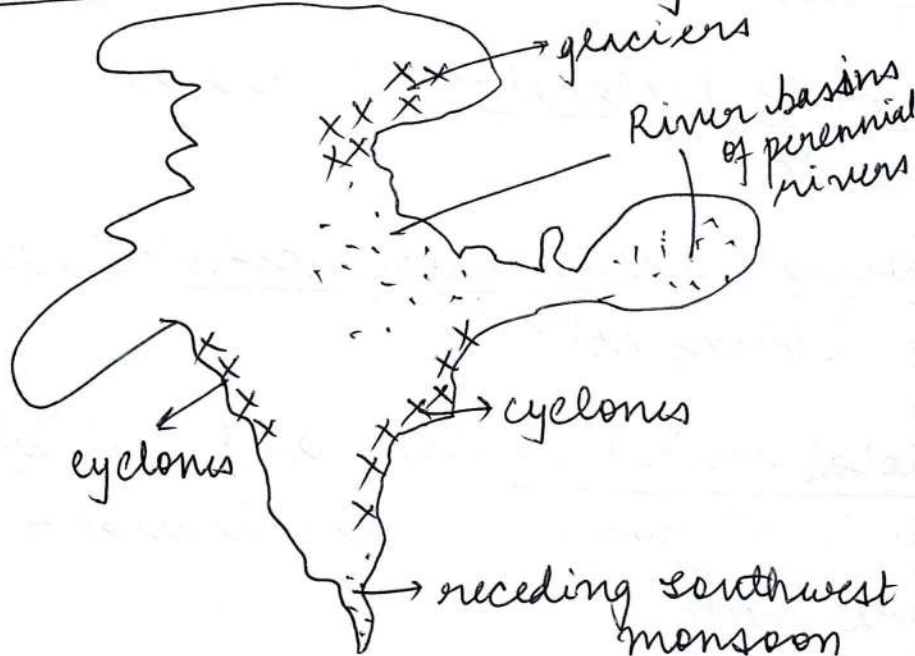
16. Assess India's vulnerability to flash floods and suggest measures for better resilience to flash floods. In this context, also briefly highlight the significance of recently launched Flash Flood Guidance System (FFGS) operated by the Indian Meteorological Department (IMD).

(250 words) 15

आकस्मिक बाढ़ के प्रति भारत की सुभेद्यता का आकलन कीजिए और इसके प्रति बेहतर लचीलेपन के उपायों का सुझाव दीजिए। इस संदर्भ में, हाल ही में आरंभ की गयी तथा भारत मौसम विज्ञान विभाग (IMD) द्वारा संचालित आकस्मिक बाढ़ मार्गदर्शन प्रणाली (FFGS) के महत्व पर भी प्रकाश डालिए।

Floods refers to increase in water levels beyond the water holding capacity of water channels. Flash floods refer to sudden inundation of water beyond channel's capacity

* India's vulnerability



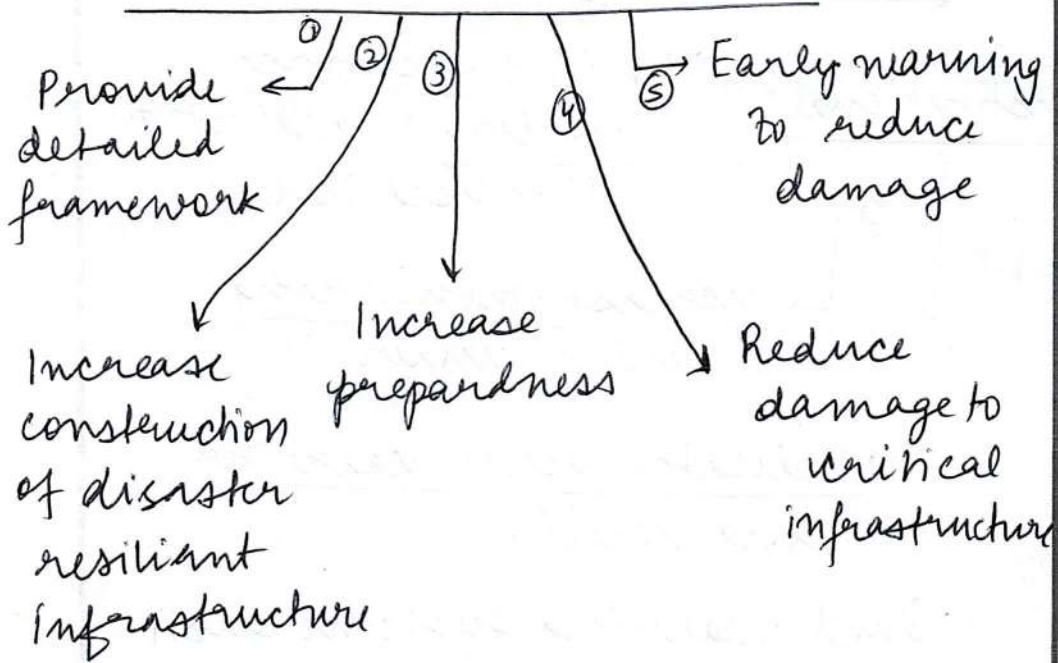
* Measures for better Resilience

1. Institutional
- ① NDMA's taskforce skilling to deal with increased floods
 - ② Increase monitoring centres under IMD.
 - ③ Dedicated force / cadre for flood relief.
 - ④ Quick warning systems such as IFLOWS, etc

2. Socio Political

- ⑤ Policy on flood management for States to emulate
- ⑥ Mock drills for awareness
- ⑦ Stocks of food, medicines, shelters for resilience
- ⑧ Increased international collaboration like under Tsunami warning centres

* Significance of Flash Flood Guidance System



Therefore, as the IPCC Report highlighted, given increasing urbanisation, India should prepare accordingly for increased flash floods by focussing on coherent policy and measures.

17. Hydrogen based energy production can play a key role in a clean, secure and affordable energy future. In this context, identify the potential and opportunities for utilising hydrogen based technologies. What are the challenges that need to be addressed to fulfill the potential?

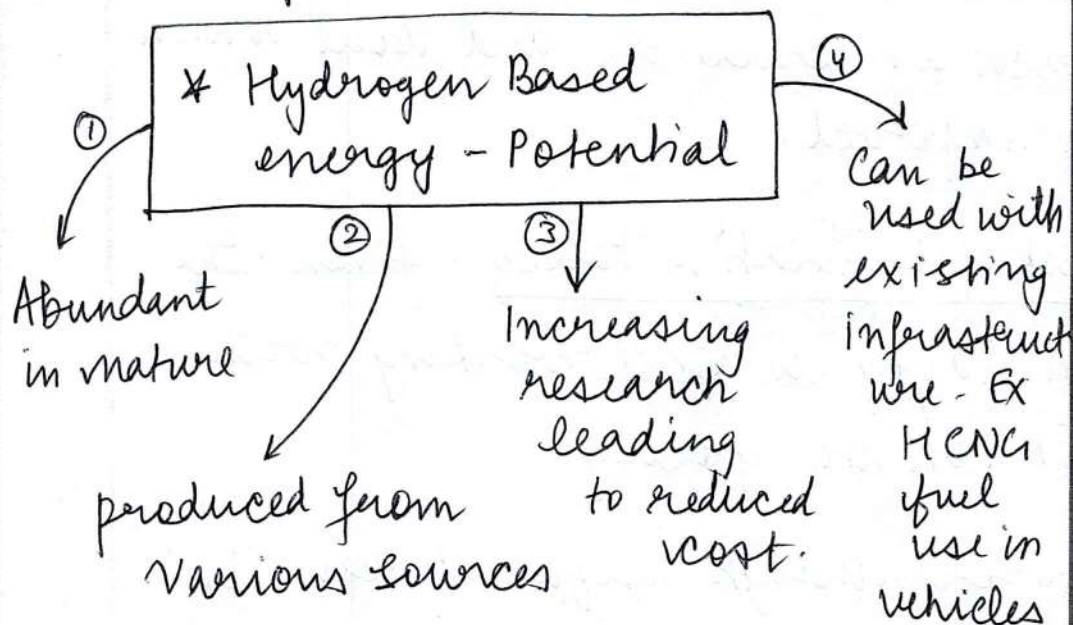
(250 words) 15

हाइड्रोजन आधारित ऊर्जा उत्पादन एक स्वच्छ, सुरक्षित और वहनीय ऊर्जा के भविष्य में महत्वपूर्ण भूमिका निभा सकता है। इस संदर्भ में, हाइड्रोजन आधारित प्रौद्योगिकियों के उपयोग करने की संभावनाओं और अवसरों की पहचान कीजिए। इस क्षमता को साकार करने के लिए किन चुनौतियों का समाधान करने की आवश्यकता है?

India has recently updated its NDCs in the glasgow COP26 leading to

150 GW of renewable energy target.

Given that now India's renewable energy addition is more than non renewable energy, since 2017, hydrogen can help achieve the targets.



* Challenges

1. High Cost of Production - given conventional energy is produced at ₹ 2 us hydrogen energy require ₹ 30.
2. Not so green production - Given blue, grey hydrogen is produced from gas and without carbon capture.
3. Nascent Technology - efficiency is limited due to research loopholes.
4. Reliance on conventional sources such as crude oil and coal which is imported.
5. Lack of Legislative Policy - given the Niti Aayog is still working with TERI on its policy.

Therefore, though useful, it can be

used viability not in the near future.

* Way Forward

1. Under National Hydrogen Mission, increase focus on research.
2. Private Public Collaboration to reduce cost outlays and reduce risks.
3. Utilization of USAID and PACE to get funding from USA for increased adaptation.
4. Increase pressure on nations to fulfil COP-Paris and COP-Glasgow fund transfers of \$100 Billion/year.

Therefore, hydrogen holds the potential to help India transition to a greener economy and achieve SDG 1, 2, 7.

18. Despite the huge promise of satellite-based internet connectivity, it hasn't gained traction on a significant commercial scale, especially in India. Discuss. (250 words) 15

उपग्रह आधारित इंटरनेट कनेक्टिविटी में निहित विशाल संभावना के बावजूद, इसने विशेष रूप से भारत में, वाणिज्यिक पैमाने पर महत्वपूर्ण पकड़ स्थापित नहीं किया है। चर्चा कीजिए।

Recently, Elon Musk highlighted the potential of Starlink Project in increasing internet connectivity and speed.

But despite its popularity, it has not achieved the traction as seen in case of India due to technical issues.

* Reasons for Adoption

1. Increase internet penetration - given only 14% of rural India has access to Internet.
2. Provide job creation by boosting supply chains in formation of satellites
3. Reduce the monopolisation of

telecommunication by a few firms such as Jio, Airtel, etc.

4. Increase self Reliance by reducing dependency on other nations for key developments in space.
5. Boost Soft Power - by highlighting the expertise of India in space domain which was traditionally dominated by developed nations.

* Reasons for not gaining traction

1. High Costs of Formation - given minimum $\boxed{7}$ satellites are required for connectivity to a single location.
2. Energy Intensive - As require utilisation of various natural resources such as rare metals, fuel, etc.

3. Overburdened Low earth orbit - given maximum satellites in the orbit.
4. Time lag in connectivity - due to increased distance, thereby leading to slow internet connection.
5. Low Chances of error correction - given less of satellite once its launched.

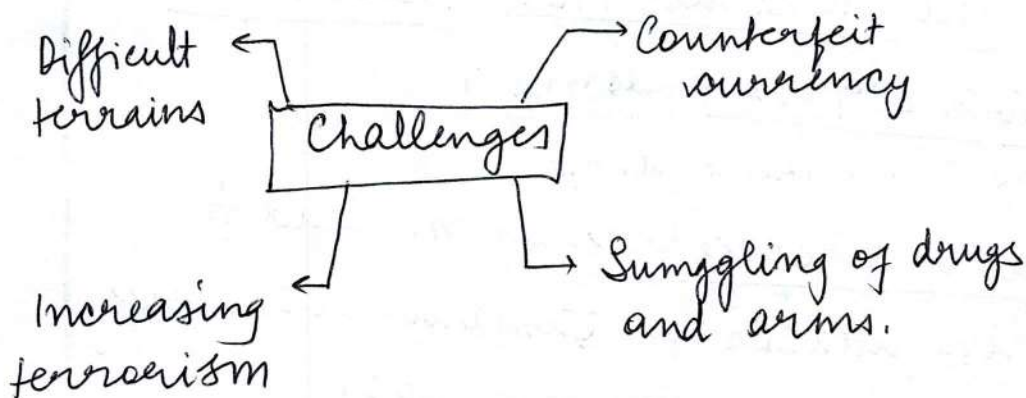
Therefore, due to these reasons, space based communication has not gained traction. India should wait and learn from Starlink and then formulate its own plan.

19. India's attempts at strengthening its intelligence infrastructure and capabilities have historically been reactive and incremental, rather than holistic and sustainable. Discuss. Also, provide a concrete framework in transforming the country's intelligence capabilities.

(250 words) 15

अपनी आसूचना अवसंरचना और क्षमताओं को मजबूत करने के भारत के प्रयास समग्र और स्थायी होने के बजाय ऐतिहासिक रूप से प्रतिक्रियाशील और वृद्धिशील रहे हैं। चर्चा कीजिए। साथ ही, देश की आसूचना क्षमताओं के रूपांतरण हेतु एक ठोस ढांचा भी प्रदान कीजिए।

India faces security issues not only on land but also on sea. Being surrounded by hostile neighbours and insurgent groups, security critical infrastructure is crucial.



* Measures - Reactive and Incremental

1. 26/11 Attacks - due to overlapping jurisdiction, clear information of attacks was ignored, leading to

attacks. NIA was formed in its aftermath

2. Tsunami caused destruction due to poor monitoring. Therefore, India formed IFC-IOR and ITEWS for better monitoring of Indian disaster management and Indian Ocean.
3. Legislations - Such as TADA, POTA, UAPA have been passed in the backdrop of Indo China war 1967, India Pakistan war of 1992, etc.
4. Lack of airspace regulation - lead to drone attacks in Jammu, 2021 leading to new drone rules of 2021.

Therefore, instead of piecemeal efforts, India requires comprehensive framework.

Framework for Intelligence

1. Institutional Capacity - to reduce overlap of jurisdiction and red tapism.
2. Coherent legislation - As between 2004 and 2008, no law on terrorism in India.
3. Dedicated Cadre for terrorism and internal security challenges. Ex - Integrated Commands.
4. Awareness generation through mock drills, awareness campaigns and school work.

Therefore, security of a nation is crucial for its unimpeded development to achieve the goal of welfare state.

20. In light of the prominent instances of drone attacks by both state and non state actors, assess the challenges and capabilities of India in dealing with such security threats. (250 words) 15

राज्य और गैर-राज्य दोनों अभिकर्ताओं द्वारा ड्रोन हमलों के प्रमुख दृष्टांतों के परिप्रेक्ष्य में, ऐसे सुरक्षा खतरों से निपटने में भारत की चुनौतियों और क्षमताओं का आकलन कीजिए।

Recently, Jammu and Kashmir military establishment saw a drone attack which led to physical damages as well as pointed out chinks in Indian army's security infrastructure.

* Challenges

1. No need for an organisation as drones can be controlled by individuals
2. Lack of policy on handling drone attacks.
3. Cheaper forms of terrorism leading to increased risk
4. Hard to regulate as airspace does not have any borders.
5. Lack of counter abilities - given small

Size of drones,

* Capabilities of
India

1. Draft drone rules → delineate green and red zones
 mandates registration and approval. ← require permission for flying rights
2. Iron Dome System - imported from Israel, can help deal with offensives such as drones.
3. Smart Borders - Under CIMBS to monitor any quick movements.
4. Protect military areas with covered spaces through which radiation cannot occur leading to no surveillance

But as India has no coherent rules, India needs to work on developing its offensive and defensive capacities.