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GENERAL STUDIES (TEST CODE : 1515)

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Medium Eng./Hindi	English	Registration Number	1214161
Center		Date	

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
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20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

- 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 & HINDI**
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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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. Explain the meaning of off-budget borrowings and its role in helping the government raise funds for various expenditures. Also, comment on its desirability. (150 words) 10

बजटेतर उधारी (ऑफ-बजट बॉरोइंग्स) का अर्थ स्पष्ट कीजिए और विभिन्न व्ययों के लिए धन जुटाने में सरकार की सहायता करने में इसकी भूमिका का उल्लेख कीजिए। साथ ही, इसकी वांछनीयता पर टिप्पणी कीजिए।

Answer: In the budget 2021-22, the government laid special emphasis on reducing the dependence on off-budget borrowings.

Off-budget borrowings refers to the funds raised by government company or organisation that is outside the scope of budgetary borrowings.

The role of off-budget borrowing in helping government-

1. It is used to meet the contingent needs posed by the situation.
2. It is not counted in fiscal deficit but is a part of government debt. Therefore, it eases government to satisfy the target laid by FRBM (Fiscal Responsibility & Budget Management Act).
3. Food Corporation of India and NAFED have been taking funds via this method in procurement of food grains.

4. Even in PMAY (PM Awas Yojana), funds were taken from private corporations and issuing bonds to construct houses in a speedier manner.

Desirability
of off-budget
borrowing

- It is hidden from public scrutiny as it is not counted in fiscal deficit.
- It helps when government is facing financial crunch.
- It may pose threat to transparency in handling funds
- lacks accountability, answerability

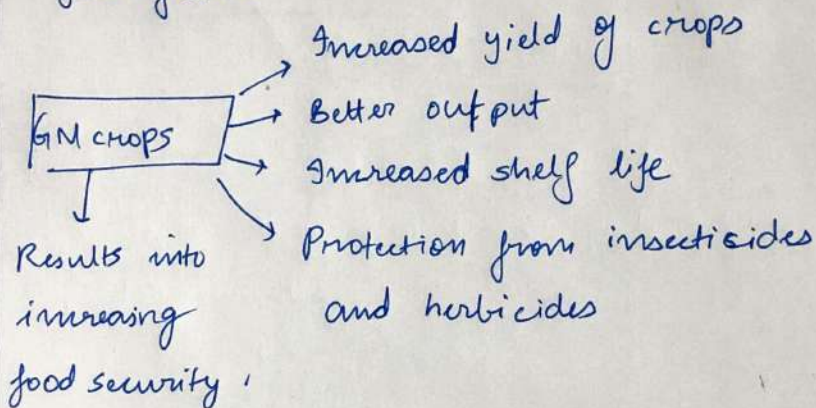
Therefore, off budget borrowing is not considered desirable and government envisages to reduce dependence on it.

2. It is argued that genetically modified food crops are required to ensure food security of India. Examine in view of concerns regarding introduction of GM crops. (150 words) 10

यह तर्क दिया जाता है कि भारत की खाद्य सुरक्षा सुनिश्चित करने के लिए आनुवंशिक रूप से संशोधित खाद्य फसलों की आवश्यकता है। जी.एम. फसलों की शुरूआत से संबंधित चिंताओं के आलोक में परीक्षण कीजिए।

Answer: Till date, India has only granted permission to Bt- Cotton to be grown in agricultural farms.

However, there is a repeated demand of allowing Bt- Brinjal and other varieties of food crops for attaining self sufficiency in food grains.



However there are concerns regarding same-

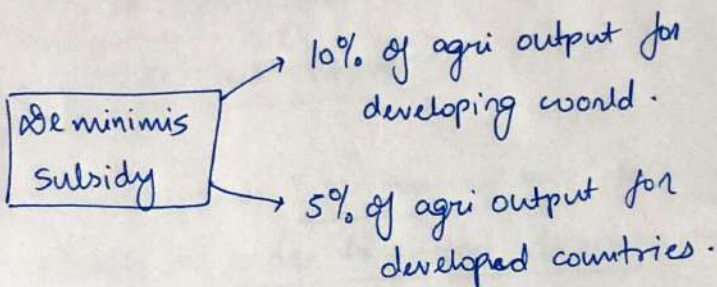
- Introduction of alien species create loss of biodiversity.

- The insects become resistant to genetic modification of crops.
That's why now HtBt cotton is proposed
to make it herbicide tolerant -
- Increased food safety concerns and ethical issues in genetic modification -
- Decreases food trade under sanitary and phytosanitary measures
- Harmful for health

3. India's price intervention policies to support its agricultural sector not only create a broken system but also complicate matters related to international trade rules. Critically discuss. (150 words) 10

अपने कृषि क्षेत्र का समर्थन करने के लिए भारत की मूल्य हस्तक्षेप नीतियां न केवल एक अग्रभावी व्यवस्था का निर्माण करती हैं बल्कि अंतर्राष्ट्रीय व्यापार नियमों से संबंधित मामलों को भी जटिल बनाती हैं। समालोचनात्मक विवेचना कीजिए।

Answer: Recently, India invoked the peace clause in WTO due to breaching its limit of providing agricultural subsidies.



India's price intervention policies -

1. It has increased growing of only wheat and rice which encourages mono cropping - This decreased soil fertility.
2. Dowgrades international relations - Eg: Sugar issue with Brazil.

8.

However on the other hand it must be noted that -

1. Even Japan and USA have breached the limit of de minimis entitlements many times.
2. Developed countries are providing subsidies 5% of agri output. This is far more than 10% of our output.

India supports 'per farmer rule' to enhance subsidy in order to protect domestic markets from dumping.

Effective revamping of WTO dispute resolution board shall be done and peace clause shall be finalised.

4. India has an opportunity to become a leading global food supplier provided it has an efficient supply chain and the right marketing strategies. Elucidate. (150 words) 10

भारत के पास एक अग्रणी वैश्विक खाद्य आपूर्तिकर्ता बनने का अवसर है बशर्ते उसके पास एक कुशल आपूर्ति श्रृंखला और सही विपणन रणनीति हो। विशदीकरण कीजिए।

Answer: India occupies a meagre 2.4% percent share in agricultural exports despite being one of the largest producers of food grains and horticultural products.

We therefore need to find out the root cause of problem that lies in supply chain management and marketing strategies.

1. Creation of brand names : Still various export oriented products lacks GI tag which otherwise serves as source of recognition.
2. Sanitary and phytosanitary measures - Recently, EU has blamed India for increased levels of anthocyanin in tea. This has hampered its exports.

3. Excessive use of pesticides and insecticides
at the downside of supply chain serves
as roadblock to success.

4. Increased marketing reach of co-operatives
and branding their products which otherwise
remain un-noticed.

5. Logistics posed supply issues
The scheme for formalisation of micro food
enterprises serve as correct step in bringing
the unorganised sector into organised one.

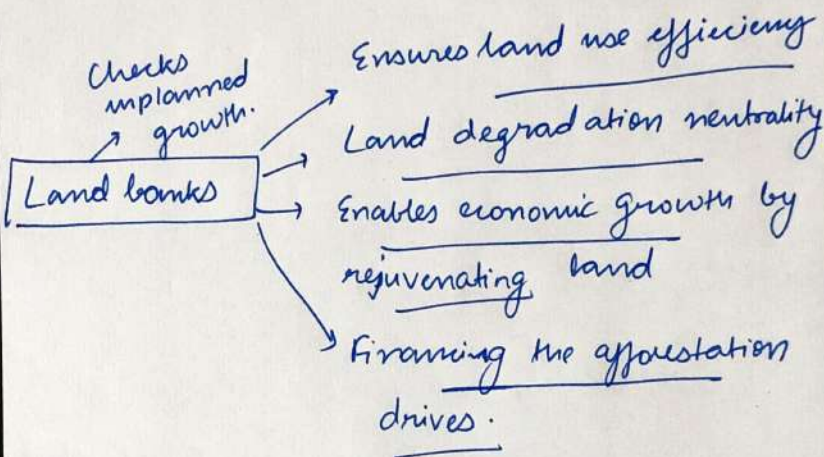
This will increase transparency.

Along with this, promotion of brands
(like Manipuri Black Rice, Kasturi Cotton)
needs to be undertaken for effective price
utilisation.

5. Land banks are increasingly gaining prominence in India to encourage land-use efficiency and enable economic growth. In this context, discuss the benefits of a land bank and state the concerns associated with it. (150 words) 10

भूमि उपयोग दक्षता को प्रोत्साहित करने और आर्थिक वृद्धि को सक्षम बनाने के लिए भूमि बैंक भारत में तेजी से प्रमुखता प्राप्त कर रही हैं। इस संदर्भ में, भूमि बैंक के लाभों तथा इससे संबंधित चिंताओं का उल्लेख कीजिए।

Answer: Land Banks have been in use in India since 1990's.



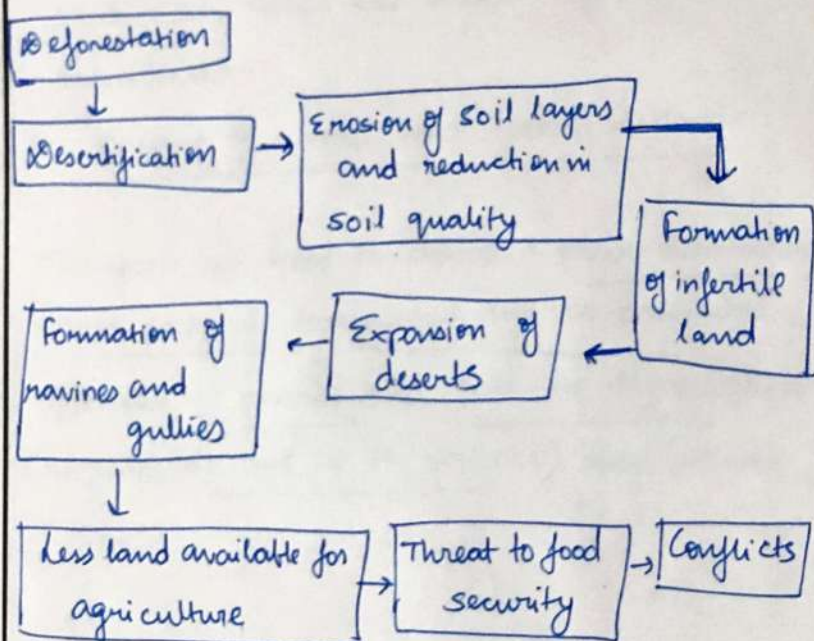
PM in COP14 had called for attaining Land Use neutrality by reversing and halting deforestation.

This results into simultaneous economic growth by using GIS/GPS technology in delimiting the use of lands.

6. Desertification has been described as one of the greatest environmental challenges of our time and climate change is making it worse. Discuss. (150 words) 10

मरुस्थलीकरण को वर्तमान समय की सबसे बड़ी पर्यावरणीय चुनौतियों में से एक के रूप में वर्णित किया गया है तथा जलवायु परिवर्तन इसे और बदतर बना रहा है। चर्चा कीजिए।

Answer: Recently, PM announced the Land Degradation Neutrality (LDN) agenda as part of COP14 summit of UN-CBD-UNCCD (UN convention to combat desertification).



Desertification is therefore described as greatest environmental challenges. However, climate change is making it worse -

1. Monsoonal vagaries - Large downpours washes away the nutrients in top soil making it infertile.
2. Enhanced and prolonged drought conditions
This enlarges the area under desertification.
3. Rise in temperature - Causes loss to biodiversity which has direct impact on desertification.
4. Drying of rivers and loss of wetlands.

Therefore we need to adopt a multi disciplinary, cross sectoral, integrated and co-ordinated approach to reverse and halt the degradation (as said in COP 26 to UNFCCC) and achieve LDN.

7. In the context of intellectual property rights, discuss the advantages and disadvantages of releasing projects under an 'Open Source' license. (150 words) 10

बौद्धिक संपदा अधिकारों के संदर्भ में, 'ओपन सोर्स' लाइसेंस के तहत परियोजनाओं को जारी करने के लाभ और हानियों पर चर्चा कीजिए।

Answer: Recently, India and South Africa moved to WTO (World Trade Organisation) for making vaccines of COVID under open source license.

The advantages of open source license are -

1. It ensures proper utilisation of brainwork of others for the benefit of society.
2. It is used to meet the emergency needs like that posed by pandemic.
3. It helps in consolidating information whereby similar products can be manufactured in people's interest.
4. It prevents evergreening of patents.

The disadvantages of open source license are -

1. The UN charter calls for protection of intellectual property rights as a human right.

2. It deprives the originator of IPR from the remuneration that they are entitled to.

Eg - Royalty fees.

3. This creates reduced importance for brainwork of others by making it 'generic'.

Use of open source license shall therefore be restricted upon contingent situations It shall be available for those products which are in public interest - Eg treatment of cancer.

The brainwork of human shall be otherwise protected under UN charter.

8. "Indian space sector has been dominated by a single umbrella of government and government institutions." In light of the statement, discuss the significance of Indian Space Association in providing an impetus to space technology in India. (150 words) 10

"भारतीय अंतरिक्ष क्षेत्र पर सरकार की एकमात्र संस्था का प्रभुत्व रहा है।" इस कथन के आलोक में, भारत में अंतरिक्ष प्रौद्योगिकी को प्रोत्साहन प्रदान करने में भारतीय अंतरिक्ष संघ के महत्व की विवेचना कीजिए।

Answer: Recently, Government created In-space (Indian National Space Promotion and Authorisation centre) as the regulator and NSIL as the commercial arm of ISRO. This has opened gates for private sector entry into space sector.

However, in past Indian space sector was dominated only by ISRO.

The Indian Space Association thus formed will provide an impetus to opening opportunities for utilising skills of private sector.

→ This includes the new space remote sensing policy where the information regarding space assets will now be democratised.

→ ISA will help in promoting private sector in space building assets Eg - Satellites.

- New and dynamic space technology will be built. Eg - Using AI/ML for space debris tracking and detection. This will prevent our space assets from debris.
- Creation of low cost advanced satellites -
Eg Digantara is making nano satellites for 24x7 space based monitoring and research.
- Making important products in supply chain of PSLV, GSLV rockets.

Therefore Indian Space association will democratise and decentralise the space sector which was otherwise solely occupied by govt -

9. Man and machine both have an important role in national security and making urban areas secure. In this context, discuss how technology is a major stakeholder in addressing the internal security challenges of India.

(150 words) 10

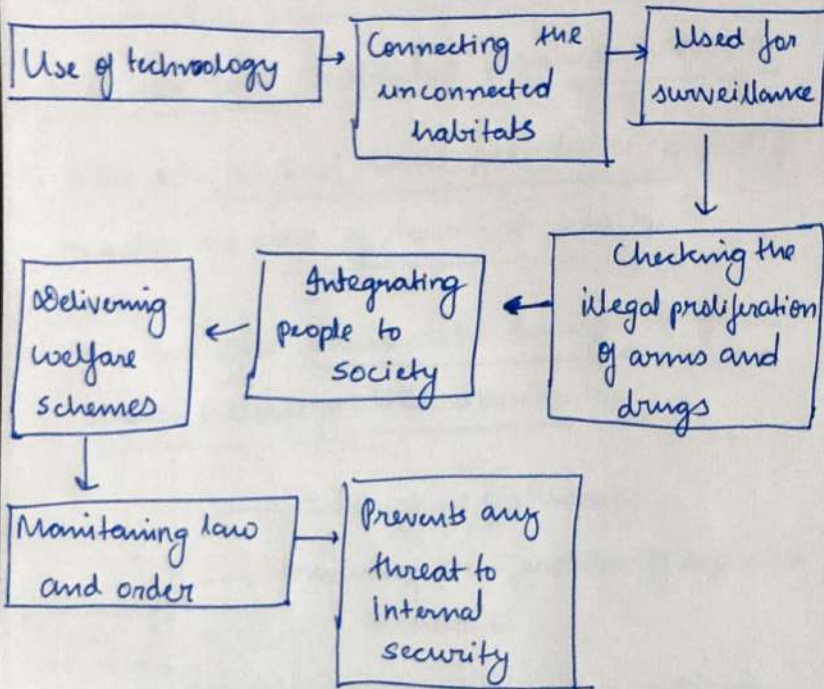
राष्ट्रीय सुरक्षा और शहरी क्षेत्रों को सुरक्षित बनाने में मानव और मशीन दोनों की महत्वपूर्ण भूमिका है। इस संदर्भ में, चर्चा कीजिए कि प्रौद्योगिकी किस प्रकार भारत की आंतरिक सुरक्षा चुनौतियों से निपटने में एक प्रमुख हितधारक है।

Answer: DRDO has been making robots DAKSH for detecting bombs that play an important role in internal security of India.

Man operates the machine which is powered by technology and thus both assumes central role in maintaining internal security.

1. Making urban areas secure : Use of data from Earth observing satellites.
2. Use of drones : This helps to keep a watch on far flung areas where it is otherwise harder to reach. Eg - Indo Bangladesh border during floods.
3. Perception management - Role of IT and social media in filling the trust deficit among extremist organisations.

4. Enhancing connectivity via internet - Use of white-fi to provide internet services. This ensures developmental aspect and enhances communication and co-ordination.



However, adept measures are required to prevent use of technology in inciting more extremism.

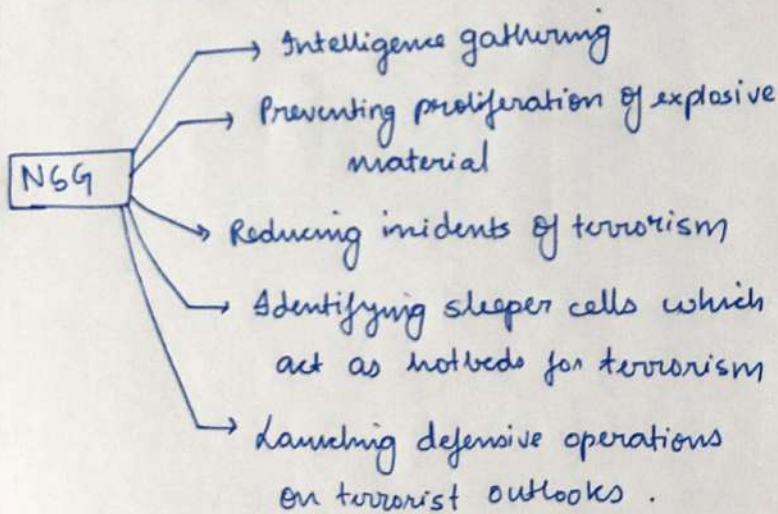
* The challenges posed by cyber warfare needs to be addressed.

10. National Security Guard (NSG) has emerged as a formidable force equipped to handle various manifestations of terrorism. Discuss the mandate and achievements of this force. (150 words) 10

राष्ट्रीय सुरक्षा गार्ड (NSG) एक पराक्रमी बल के रूप में उभरा है जो आतंकवाद के विभिन्न रूपों से निपटने के लिए सुसज्जित है। इस बल के अग्निदेश और उपलब्धियों की विवेचना कीजिए।

Answer: National Security Guards (NSG) under administrative control of PMO was formulated in 2008 following the Mumbai attacks.

- NSG acts as a watchdog against terrorism.
- NSG acts as first hand provider of security to nation in case of terrorist attacks.
- It's role was commendable during Surgical strike following URI attacks.

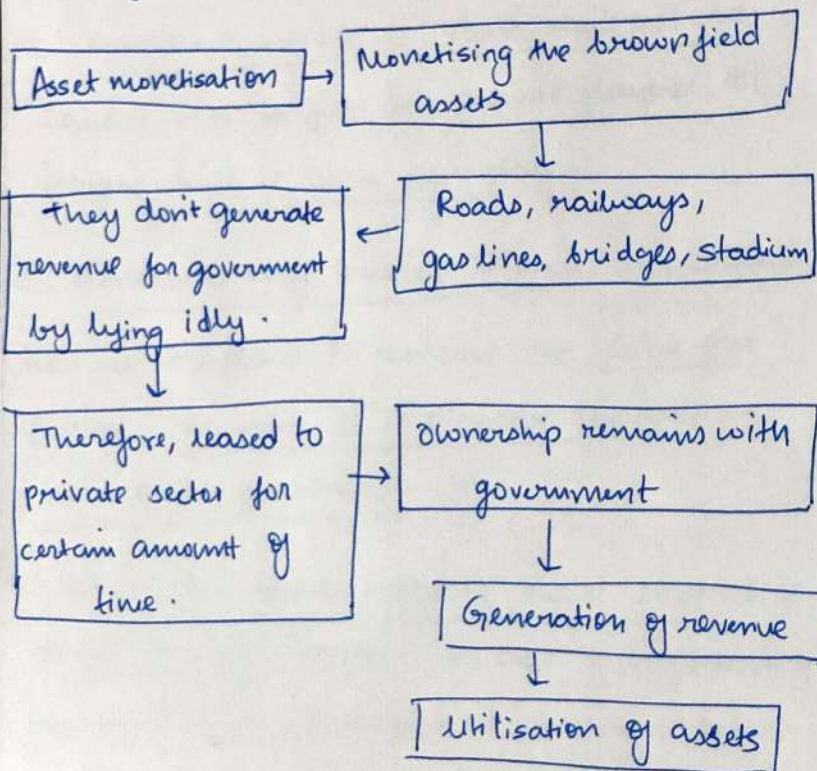


NSG had prevented major outbreaks of terrorism. Simultaneously it has played a formidable role in -

1. Surgical strikes
2. Handing over ground workers in Jammu and Kashmir.
3. Information and Intelligence gathering via IMAC.
4. Reduce proliferation of JeM (Jaish e Mohamad) and Lashkar e Toiba.

11. What do you understand by asset monetisation? Why is it needed in India? In this context, discuss the issues that need to be addressed for the National Monetisation Pipeline to succeed. (250 words) 15
- परिसंपत्ति मुद्रिकरण से आप क्या समझते हैं? भारत में इसकी आवश्यकता क्यों है? इस संदर्भ में, उन मुद्दों पर चर्चा कीजिए जिन्हें राष्ट्रीय मुद्रिकरण पाइपलाइन के सफल होने के लिए समाधान करने की आवश्यकता है।

Answer: Recently, government launched National Monetisation pipeline that will move simultaneously with National infrastructural pipeline. Government will ensure 6 lakh crore money via this method.



It is needed in India because huge amount of government assets like stadiums are hardly used in one year. But the government has to regularly pay on its maintenance and security purposes. This strains our coffers.

There are various issues that need to be resolved for making NMP a success.

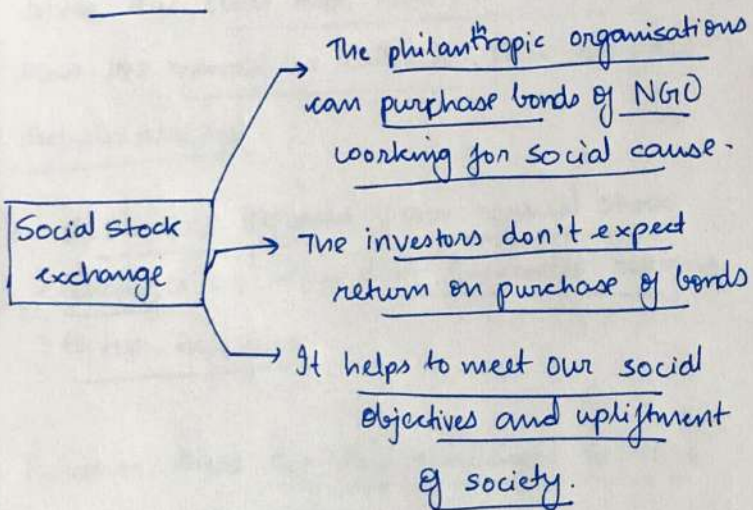
1. Kreation of monopolies : Asset shall not be handed over to just few private players. All players shall be given fair play.
2. Monetising only brownfield assets : Government has set its plans to monetise the GAIL gas pipeline. However it is already generating revenue for government.
3. Moving for revenue sharing model instead of profit sharing model. In case of profit sharing models, the private players adopt various tactics to show lesser profits resulting in loss for government.

4. Adept utilisation of funds in National infrastructural pipeline projects - The money thus raised shall be used for its intended use only.
5. The lease of government assets shall be taken back after completion of time.
6. The private sector land lying idly shall also be monetised.
7. It shall be transparent, accountable process since government's assets are made by people's money.

Therefore, above mentioned issues needed to be taken care of and judicious monetisation of assets must take place.

12. What is social stock exchange (SSE)? Discuss the need for setting up of SSEs and key challenges in their effective implementation. (250 words) 15
- सोशल स्टॉक एक्सचेंज (SSE) क्या है? SSEs की स्थापना की आवश्यकता और उनके प्रभावी कार्यान्वयन में विद्यमान प्रमुख चुनौतियों पर चर्चा कीजिए।

Answer: Recently SEBI (Security and Exchange board of India) has drafted guidelines for setting up social stock exchange apart from BSE and NSE.



The need for setting up SSE is -

1. Lack of funds with NGO's - This prevents them for achieving the targets that they aim for.

2. Propagation of socialistic agenda of a welfare state. It enhances the networked form of governance where development takes place via bottom top approach.

3. Injecting transparency in working of NGOs. Since it is clear that who has invested and how the money is utilised. This ensures accountability.

4. SSE's are different from normal stock exchanges as they don't guarantee returns to the investors.

However, there are key challenges in their effective implementation as -

1. Lack of guidelines on their operation.
2. It shall be made clear as to where the money is being invested by NGOs.
3. The outcomes remain uncertain in regards with attaining development.

4. There is no methodology to measure whether expected outcomes have been achieved or not, as it will be a long term phenomenon.

Therefore, above mentioned challenges needs to be addressed while delimiting well laid out strategy for SSE. The regulation needs to be proper without any overlap between various organs.

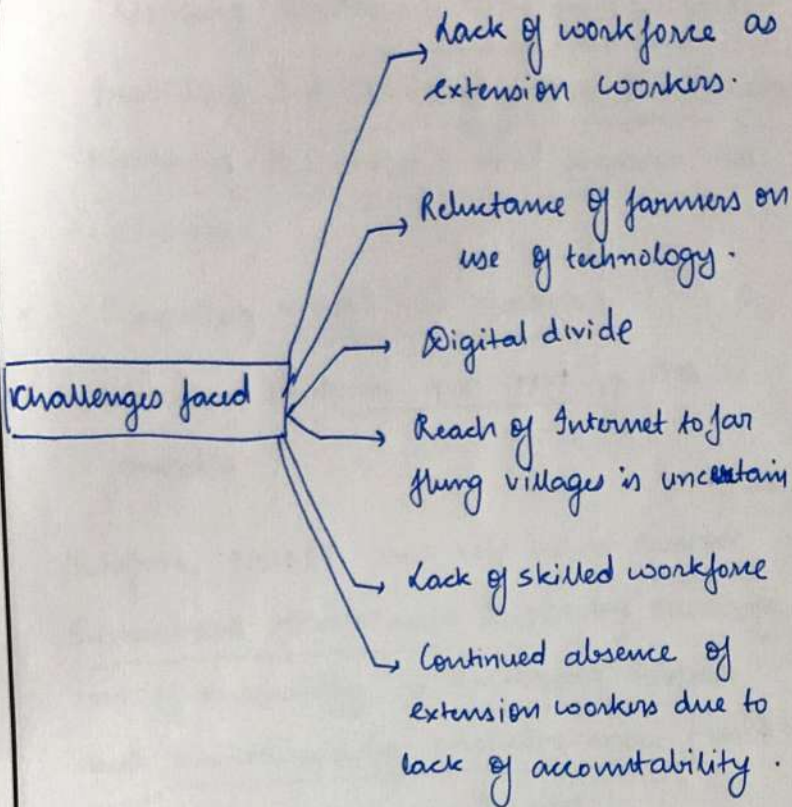
13. In the context of India, highlight the importance of agriculture extension. What are the challenges faced in provisioning of agriculture extension services? How does the National Mission on Agricultural Extension & Technology (NMAET) address these issues? (250 words) 15

भारत के संदर्भ में, कृषि विस्तार के महत्व पर प्रकाश डालिए। कृषि विस्तार सेवाओं के प्रावधान में सामना की जाने वाली चुनौतियां कौन-सी हैं? कृषि विस्तार और प्रौद्योगिकी पर राष्ट्रीय मिशन (NMAET) इन मुद्दों का कैसे समाधान करता है?

Answer: Agriculture extension services includes the technical assistance to be provided by extension workers to the farmers. Eg- via Krishi Suvidha Kendras.

Importance of agriculture extension -

1. Educating and empowering the farmers.
2. Hands on approach to use of technology.
3. Water use efficiency will be increased if farmers are educated about importance of sprinklers and drip irrigation.
4. Increased yields with help of soil health cards.
5. Integrating science with agriculture.
Eg- Krishi Vigyan Kendras.



The National Mission on Agriculture Extension and Technology is a right step in empowering the farmers.

1. It will provide kiosks in villages to help farmers understand technological use.
2. Making farmers aware of various technologies schemes of government.

3. Linking academia with agriculture.
4. Providing a determined cadre of extension workforce to educate and empower the farmers.
5. Promotion of self help groups.
6. capacity building and training the farmers.

Therefore, NMAET will help us to achieve Sustainable Development Goals by ensuring use of technology in increasing yields and simultaneously protecting crops from disasters by empowering farmers.

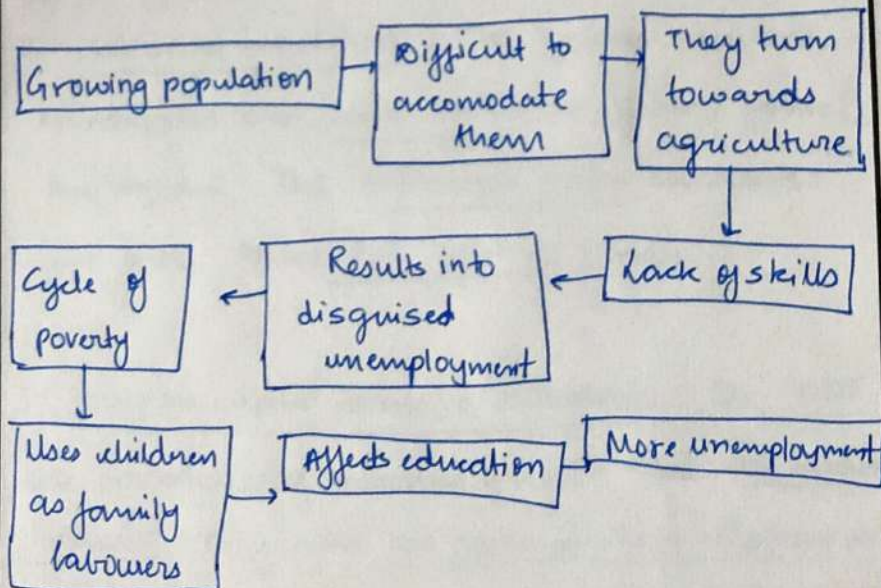
14. Clearly delineate the 'employment problem' that India currently faces. Also, explain the fundamental reasons behind existence of this problem.

(250 words) 15

भारत वर्तमान समय में जिस 'रोजगार समस्या' का सामना कर रहा है, उसे स्पष्ट रूप से निरूपित कीजिए। साथ ही, इस समस्या के अस्तित्व के मूल कारणों की व्याख्या कीजिए।

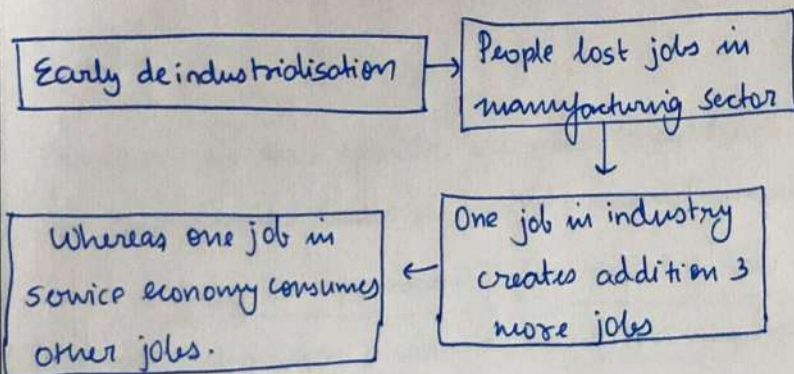
Answer: India adds 35 lakh more people to the eligible workforce every year. However, we have seen an ^{un}employment rate of 3% in normal years. This has further exacerbated to 12% amid pandemic.

We are in phase 3 of demographic cycle and our population is continuously growing. We will surpass China by 2027 as predicted by World Bank estimates.



The fundamental reasons behind existence of unemployment is -

1. Early deindustrialisation (as said by former CEA Anvind Subramaniam) : We shifted to service economy without peaking our industrial output.



2. Growing population : The youths remain uneducated and lack skills for getting formal employment. The informal sector accounts for more than 80% jobs in India.

3. Focus on capital intensive industries : Our MSME are powerhouse of economic growth that are labour intensive. They have not received deserved attention.

4. Use of technology And Industrial Revolution
4.0 - Lack of upskilling and re-skilling
 the employees who have lost jobs.
5. Burnt of pandemic - Many companies have
 shut down. The female workforce has drastically
 decreased as they have to take up the care
work.

Therefore, in my opinion, we need to address
 the fundamental reasons behind unemployment.
 We can grab the opportunity for making low
low cost technology products to fill the gap left
by China. This will make our focus more on
labour intensive jobs rather than capital
intensive.

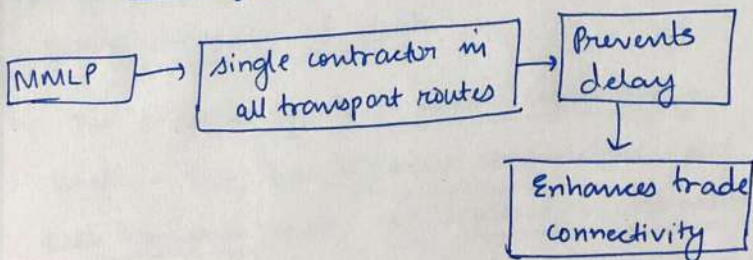
15. Although steps have been taken for integrating the dispersed logistics activities of maritime trade, much more needs to be done to make India a maritime powerhouse. Discuss. (250 words) 15

हालांकि समुद्री व्यापार की बिखंडित लॉजिस्टिक गतिविधियों को एकीकृत करने के लिए विभिन्न कदम उठाए गए हैं, फिर भी भारत को एक समुद्री पावरहाउस बनाने के लिए और भी बहुत कुछ किए जाने की आवश्यकता है। चर्चा कीजिए।

Answer: Recently India launched LEADS (Logistics Index) which represents our efforts in integrating the dispersed logistics sector with special mention to maritime trade. It must be noted that 90% of our trade occurs via ports.

There are various steps taken in this regards-

1. Sagarmala Model : Creation of port led industrialisation model with integrated network of roads with ports.
2. Multi Model Logistics Parks^(MMLP) - It has been made in Assam and West Bengal. This will ensure Ease of doing business.



3. The Economic Survey 2020 has highlighted that our ship turnaround time has reduced to 3 days from earlier 7 days.
4. Port Authority Development Act - This favours landlord model of ports. It will increase connectivity with regards to maritime trade with private sector participation.
5. Developing new ports - like Vadhavan and increasing the capacity of old ports by enhanced dredging activities.

However, Economic survey also noted that for a good to reach from Delhi to USA, it will take more than 40 days in India itself. This includes the loading and unloading at ports.

→ Much of the time, the ships stand without getting unloaded at ports.

→ The presence of Inter modal connectivity mode - This has different contractors for each transport route. It creates co-ordination issues.

- Getting clearances on ports - Since it is the responsibility of importer to check origin of goods, it consumes ample amount of time.
- Many ports have not yet adapted technological intervention of SWIFT (single window interface for facilitating trade). This causes delays in filing and tracking of goods.

Therefore, interventions are required to enhance our maritime trade by improving logistics sector. The NITI document on India achieving 75 years of independence calls for improving the connectivity and integrated management of logistics to make India maritime powerhouse.

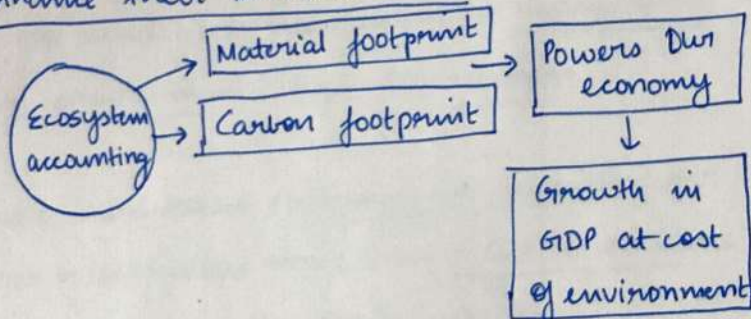
16. Accounting for natural capital and ecosystem services is crucial to understand the link between the economy and environment. Discuss with specific references to India's initiatives in this regard. (250 words) 15

अर्थव्यवस्था और पर्यावरण के मध्य संबंध को समझने के लिए प्राकृतिक पूंजी और पारिस्थितिकी सेवाओं के लिए लेखांकन महत्वपूर्ण है। इस संबंध में भारत द्वारा की गयी पहलों के विशिष्ट संदर्भ के साथ चर्चा कीजिए।

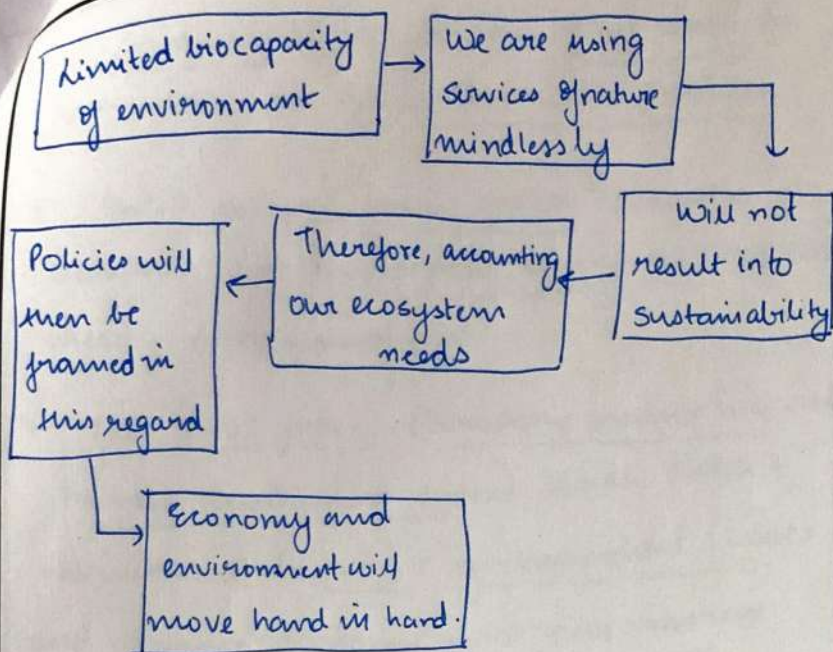
Answer: Recently NCAVES (Natural Capital and Valuation of Ecosystem Services) was revamped for India, Brazil, Mexico, China and South Africa by EU and UNEP.

Understanding link between ~~the~~ economy and environment -

1. NCAVES helps to understand the loss of ecosystem incurred by humans in order to enhance their economic needs.



2. It is pertinent to mention that our biological capacity is growing at 0.5% every year while our material footprint increases at 2.7% per year.



3. NCAVES help to achieve and calculate our Green Domestic product. This tells as to how much we have helped in rejuvenating the environment. Eg - Afforestation.

India has taken initiatives in accounting for loss of ecosystem services in a bid to enhance our move towards sustainability.

1. MOSPI (Ministry of Statistics and Program Implementation) releases Envistats manual that gives account for the same.

2. Uttarakhand has become first state to calculate the green domestic product.
3. India favours 'Green growth' resulting into achieving intergenerational equity rather than merely intra generational.
4. The PHDI index (Planetary pressure adjusted Human Development Index) shows India's commitment to reduce environmental losses and balance economy with environment.

Therefore, NCAVES is a medium to frame just policies resulting in intensive production and attainment of UN SDG's.

17. Rapid and unplanned urbanisation accompanied by population growth have increased both the risk and impact of natural disasters. Discuss the statement along with adequate measures to address the relevant concerns in India. (250 words) 15

जनसंख्या वृद्धि के साथ-साथ तीव्र और अनियोजित शहरीकरण ने प्राकृतिक आपदाओं के जोखिम और प्रभाव दोनों को बढ़ा दिया है। भारत में विद्यमान प्रासंगिक चिंताओं के निवारण हेतु यथोचित उपायों के साथ इस कथन की व्याख्या कीजिए।

Answer: The ongoing Chennai floods are the perfect example of rapid and mindless urbanisation with paying heed to environmental conditions.

1. The Chennai floods are not caused by extreme rains but due to following reasons -

- Airport in Chennai has been built on wetland.
- The canals meant for checking floods are themselves blocked by construction of highways.
- Increasing concretisation of wetlands and encroachment on rivers.

2. The landslides in Kerala's Idukki district were caused by -

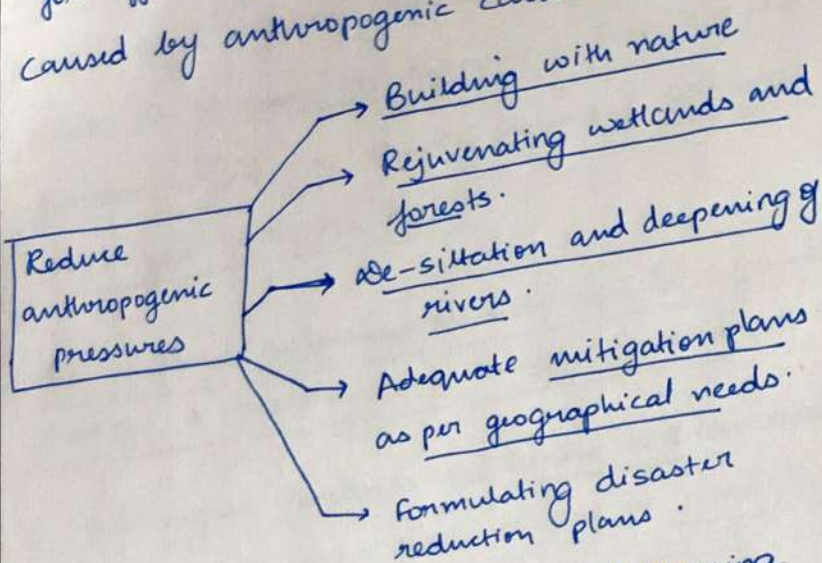
- Making houses on hill tops to accommodate growing population (given that we are in phase 3 of demographic cycle).
- This causes disruption in natural slope of hills.

3. Similarly, the Glacial Lake Outburst flood in Uttarakhand (Feb 2021) was ignited by construction of dams (Vishnugad). This disturbs ecology of area and obstructs the way of accommodating nature.

Adequate measures are required to address these concerns in India -

1. Making room for nature : We can do a comparative study with Netherlands's model of Ruimte Voor de Rivier (making room for river) project.
2. Topographical planning : The planning of cities must not be in an organic fashion but must be combined by adequate geological, and hydrological studies.
3. Resolving the problem of census towns : These are unaccounted settlements that encroach on nature's land.

4. Risk informed decision making : The UNDRR (UN Disaster risk reduction) framework calls for effective prevention of natural hazards caused by anthropogenic causes.



The recently launched GHTC (Global Housing Technology Challenge) and Lighthouse Project are correct steps in this regards.

Also, the rapid population growth needs to be adjusted by expanding vertically rather than horizontally.

18. National Hydrogen Mission can be a game changer for India's rising energy demands. Comment. (250 words) 15

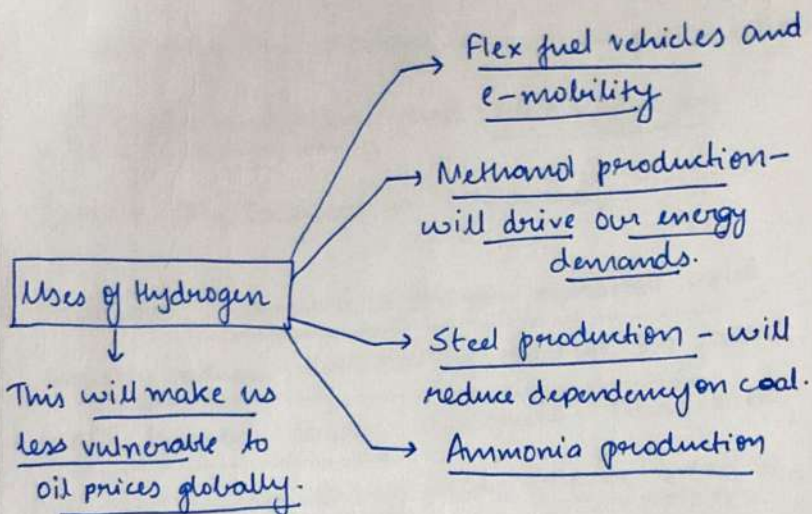
भारत की बढ़ती ऊर्जा मांगों के लिए राष्ट्रीय हाइड्रोजन मिशन एक गेम चेंजर हो सकता है। टिप्पणी कीजिए।

Answer: Recently, IDCL (Indian Oil Corporation Ltd.) has started working for installing green hydrogen plant in Mathura oil refinery. This is a step further to ^{ful}fill the recently launched National Hydrogen mission by PM.

The National Hydrogen Mission can be a game changer in meeting our energy demands -

1. Our energy demands are bound to grow and peak by 2030 given that we are in phase 3 of demographic cycle.
2. Commitment to phase down coal: The on-going coal crisis all over world has revealed once again that coal is non-renewable and will exhaust sooner or later. This gives enough room for hydrogen.

3. Fulfilling our COP26 commitments : We have committed to be net zero by 2070. In such a case, National Hydrogen mission serves as a stepping stone in achieving our target.



4. Since hydrogen run vehicles represent the future of 'green world', therefore investing in technology and research becomes our key priority to meet energy demands.

However, we need to keep certain facts in mind before formulating policy in this regard.

1. Since 100% (approx) hydrogen is produced by natural gas in India.

This will increase dependence on fossil fuel instead of reducing it.

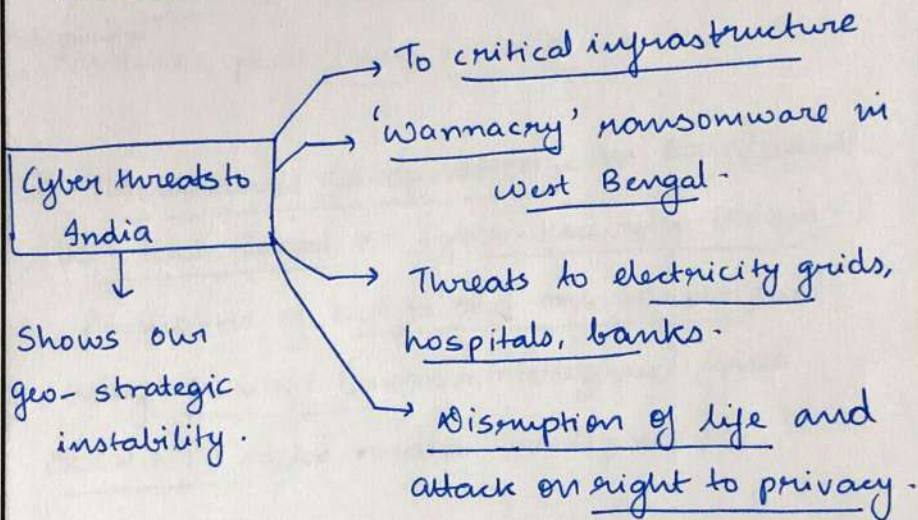
2. Coal powers another 23% production of hydrogen. This enhances the coal prices.
3. Ramping up storage as well as production of green hydrogen and blue hydrogen (where CO_2 released is captured).

Therefore, National hydrogen mission will greatly reduce India's dependence on fossil fuels to meet energy demands. This will engender sustainability and help in meeting SDG's. However, above mentioned points need to be kept in mind while formulating policy.

19. Despite geo-strategic instability of its region and a keen awareness of the cyber threat it faces, India has made only 'modest progress' in developing its policy and doctrine for cyberspace security. Critically examine. (250 words) 15

अपने क्षेत्र की भू-रणनीतिक अस्थिरता और इसके समक्ष विद्यमान साइबर खतरों के संबंध में व्यापक जागरूकता के बावजूद, भारत ने साइबरस्पेस सुरक्षा के लिए अपनी नीति और सिद्धांत विकसित करने में केवल 'साधारण प्रगति' की है। समालोचनात्मक परीक्षण कीजिए।

Answer: Cyber warfare is now recognised as 4th domain of warfare. This is proven by recent attacks by Chinese shadowpad (Red Echo) on Mumbai's electricity grid.



Even the recent Pentagon's report on China has warned India of the threats it faces including cyber terrorism.

India has made considerable progress in enhancing cyberspace security -

1. Cert-In (Computer Emergency Response Team)
2. Cybercrime Volunteer Program by Ministry of Home Affairs.
3. National Security Advisor's Office under PMO. (NSA)
4. NCIIPC (National Critical Infrastructure Information Protection cell) under NSA.
5. International Co-operation with Bangladesh, USA and Israel on cyber-security issues.
6. Promotion of end to end encryption and using HUMINT (human intelligence) and SOCMINT (social media intelligence).
7. Propagating use of Public key infrastructure and quantum computing (using quantum dots - photons for transferring crucial messages)
National quantum computing mission is correct step in this regards.

However, we need to put enhanced efforts
and recognise the new domain of warfare.

1. Our public offices are still susceptible to cyber attacks.
2. Our National Security doctrine does not mentions 'cyber threats'.
3. Lack of co-ordination between concerned ministries and departments.

Therefore, in my opinion, we need to frame
our National security doctrine keeping in regards
the increasing threats faced by cyber terrorism.

Along with this, we can opt for ethical hacking
to find out the vulnerabilities in our own
systems.

20. Developmental interventions alone cannot play a defining role in the resolution of existing and protracted internal conflicts in various parts of India within a reasonable time frame. Discuss. (250 words) 15

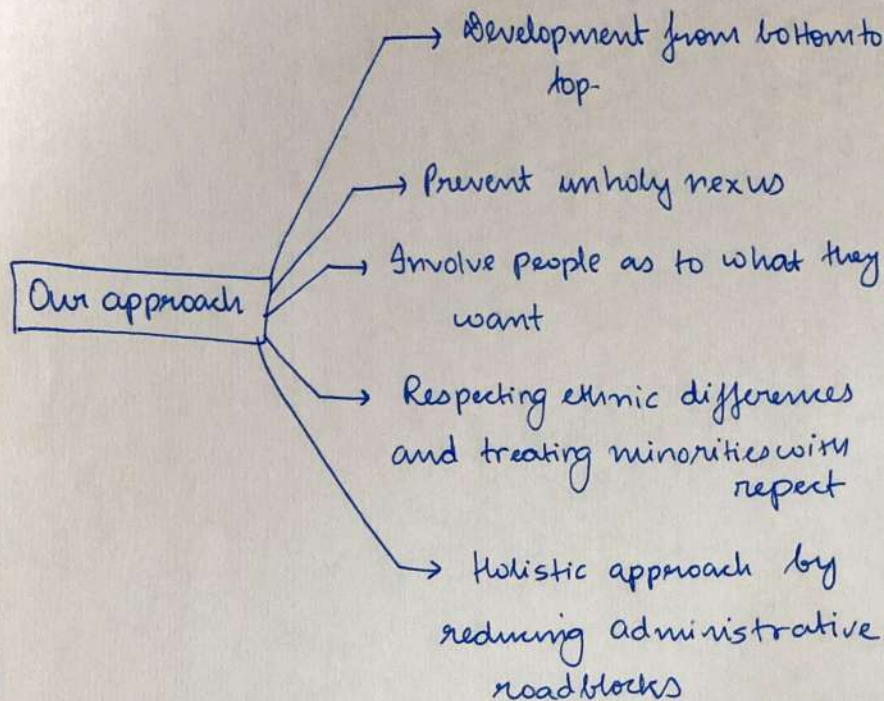
भारत के विभिन्न हिस्सों में व्याप्त और दीर्घकाल से जारी आंतरिक संघर्षों को उचित समय सीमा के भीतर हल करने में केवल विकासात्मक हस्तक्षेप एक निर्णायक भूमिका नहीं निभा सकते हैं। चर्चा कीजिए।

Answer: The internal conflicts within India are present due to variety of reasons. Development being the foremost reason. However, only developmental interventions cannot shield us from internal threats. These remain multi-dimensional in nature.

1. Co-relation of development and law and order situation - Even when development is taking place, but extremists destroy our efforts by attacking on them.
2. Solution lies within the problem approach - We need to understand the root cause of problem. This calls for participative decision making from bottom to top rather than merely top to bottom approach.

3. Developing skills and leadership abilities among youths. This will reduce unemployment which is thrice as high as in rest of India.
4. Perception management - We often consider them as outsiders which results into increasing alienation with our homeland.
5. Making them pearls of same thread which binds India together. The North East people are often discriminated - eg Bangalore exodus in 2017. This enhances the hiatus and results into internal conflicts.
6. Connection with terrorist outfits and arms smuggling.
7. Creating trust among people.
8. Saying Engendering good governance approach.
Eg: IAS OP Chaudhry has built tribal schools in North East along with maintaining law & order.
9. Respecting the differences instead of trying to kill them.

we often try to homogenise tribals
in one culture. This increases their resistance
towards India.



Therefore a well co-ordinated, integrated,
multi dimensional approach is required to
bind India together resulting in Internal
consolidation.