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GENERAL STUDIES (TEST CODE : 1524)

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| Name of Candidate | AISHWARYA SINGH | | |
| Medium Eng./Hindi | English | Registration Number | 39839 |
| Center | | Date | 15/12/20 |

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 | |
| 12 | 15 | |
| 13 | 15 | |
| 14 | 15 | |
| 15 | 15 | |
| 16 | 15 | |
| 17 | 15 | |
| 18 | 15 | |
| 19 | 15 | |
| 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.

All the Best

1. Tenancy reforms are much needed to give a boost to the Indian agricultural sector. Comment. In this context, also discuss the significance of the Model Land Leasing Act, 2016. (150 words) 10

भारतीय कृषि क्षेत्र को बढ़ावा देने के लिए काश्तकारी सुधारों की अत्यंत आवश्यकता है। टिप्पणी कीजिए। इस संदर्भ में, मॉडल भूमि पट्टा अधिनियम, 2016 के महत्व की भी विवेचना कीजिए।

The model land leasing Act by T. Nagaraj committee sought to provide a framework to reform tenancy and make it more just.

Tenancy Reforms include

- Security of Tenant
- Rent control
- Prevent adverse possession.

They are needed to boost Indian agriculture as —

o Help in security to tenants that they will not be illegally evicted.

o Lead to improvement of agriculture due to investment.

o Create scope for more productivity.

o Remunerative for farmer and landlord.

Significance of Model land leasing act are -

- o Provides ground for eviction
- o Protects interests of landowners against adverse possession
- o Provides national baseline for reforms
- o Creates scope for investment as protects tenant from losing the money invested for improvement

CHALLENGES to act

- Only a model
- legislations vary across states
- Seen as pro landlord
- Still illegal eviction occurs

The need of the hour is to -

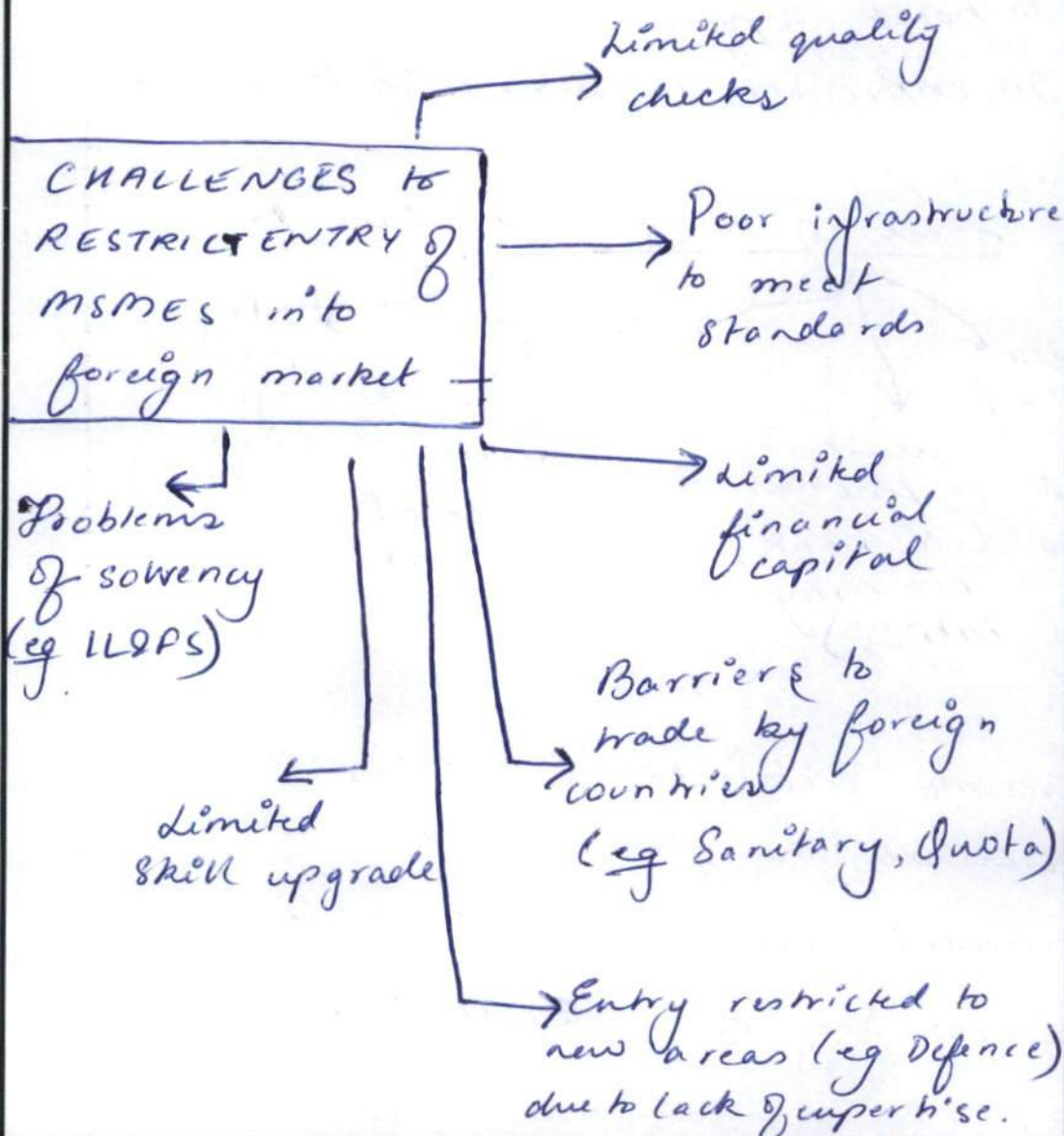
- National legislation for tenancy
- Tenancy in concurrent list
- Take strict action against illegal eviction
- Balance interests of landlord & tenant.

Indian agriculture must be reformed so the country prospers. Security for Tenants is a key area that will enable an improved agricultural system.

2. Identify the various challenges that have restricted the entry of Indian MSMEs into the foreign market. Also mention some government initiatives that have been taken to facilitate MSME exports. (150 words) 10

विदेशी बाजारों में भारतीय MSMEs के प्रवेश को बाधित करने वाली विभिन्न चुनौतियों की पहचान कीजिए। साथ ही, MSME के निर्यात को सुगम बनाने के लिए सरकार द्वारा की गई कुछ पहलों का भी उल्लेख कीजिए।

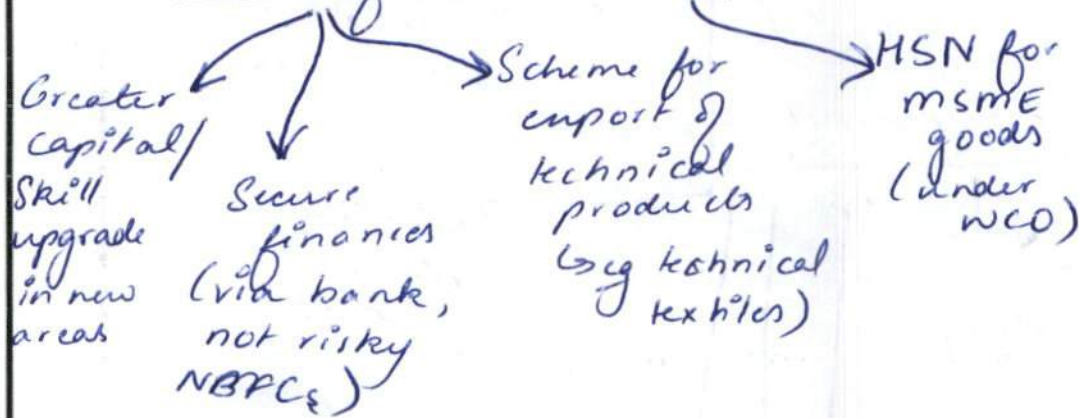
The launch of pm mudra for boosting MSMEs exports (at 45% of total exports) is an effort to empower MSMEs.



Government initiatives to facilitate MSME exports include -

- Bilateral treaties with countries
- launch of schemes to boost finance
↳ eg MUDRA
- Schemes for quality checks for MSME
- Technical expertise (eg CHAMPIONS) to boost upgrade
- Incentive scheme, subsidies to export

The need of the hour is thus to -



The MSME sector has immense potential to dominate the global market. The government must ensure that its challenges are overcome so it can prosper.

3. India's march towards inclusive growth and it achieving the Sustainable Development Goals are intricately linked. Discuss. (150 words) 10
समावेशी विकास की दिशा में भारत की प्रगति और संधारणीय विकास लक्ष्यों की प्राप्ति जटिल रूप से जुड़े हुए हैं। चर्चा कीजिए।

The adoption of schemes like Beti-Bachao Beti Padhao not only point to inclusive growth, but also keep SDGs in mind.

India's march towards inclusive growth includes —

- Empowerment of the weaker sections (eg women, SCs etc)
- Creating sustainable growth with future generations in mind.
- Ending misery of poor, who face hunger (India has the highest number of stunted)
- Basing assessment on quality on quantity.
- Ending divides (eg rich-poor, urban rural) with equitable benefits.

This march is intricately linked to
SDGs as —

- BBBD will lead to women empowerment
- Postan mission to end hunger
- PMKSY to end poverty.
- Access to infrastructure leading to sustainable growth.
- Global collaboration to create peace and partnerships.
- Gender inequality, regional inequality to end.

It is thus evident that in all efforts of creating inclusive development, there is some linkage to SDG. It is this nature of SDGs which make them essential to be achieved if there is to be shared prosperity and cooperation.

4. Highlight the need for evolving an appropriate system of Rules Of Origin in regional trading arrangements. What steps have been taken by India recently in this regard? (150 words) 10
- क्षेत्रीय व्यापार व्यवस्थाओं में उत्पत्ति के नियमों की एक उपयुक्त प्रणाली विकसित करने की आवश्यकता पर प्रकाश डालिए। हाल ही में, भारत द्वारा इस संबंध में क्या कदम उठाए गए हैं?

One of the reasons India didn't join RCEP is the lack of clarity of Rules of Origin (ROO).

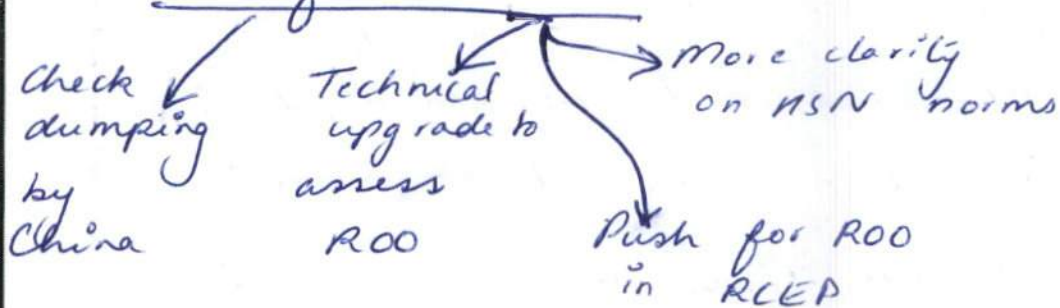
There is a need for evolving an appropriate system of ROO in trading agreements as -

- It leads to clarity on the origin of the product.
- Prevents activities like dumping
- Can help reduce trade imbalances
- Enable state to take action in case of re-routing via another country
- Help in taking counter measures if clauses violated.
- Ensure rules of WTO, MFN etc are followed if origin is clear.

Recent Steps Taken by India for this include —

- Customs Rules (2020) call for clear ROO.
- May lead to cancelling of product if norms violated
- HSN norms more regularised
- Push for ROO in international agreements
- Stricter check and new categories (eg basic requirements for deciding origin reconfigured).

The need of the hour is —



ROO serve as a buffer to enable implementation of national priorities in trade. They must be implemented to prevent misuse.

5. MSP regime is a creation of an era of scarcity in the 1960s. Discuss its relevance in the current era of surplus agricultural production.

(150 words) 10

MSP व्यवस्था 1960 के दशक के अभावग्रस्तता के युग का एक आविष्कार है। अधिशेष कृषि उत्पादन के वर्तमान समय में इसकी प्रासंगिकता की विवेचना कीजिए।

The recent farmer agitations are demanding continuation of MSP as one of their key issues.

MSP regime — All procures seeds from farmers
 — Issues them to states
 — Storage for volatile times
 — Announced for 24 products.

It is a creation of era of scarcity as —
 • It was devised during severe shortage / famines.
 • Now, lot of wastage
 • Food security a challenge in 1960s.

Relevance of MSP in surplus production exists as —
 • Provides farmers assured

remuneration

- Ensures buffers for scarce times (eg COVID)
- Ensures price stability in times of low production.
- Enables setting of minimum price farmer to get (standard for market)

However, its relevance has faced challenges as -

- Wastage (WB says 1/3rd poor can be fed with this amount)
- Poor quality checks
- MSP only for 24 products
- Creates bias for rice and wheat
- Enables manipulation in market of farmers (as MSP is usually low).

MSP regime has both pros and cons. However, till a better system is devised, it cannot be taken away, as there will be greater insecurity for farmers.

6. Examine the link between the recent locust attack and climate change. (150 words) 10

हाल ही में हुए टिड्डियों के हमले और जलवायु परिवर्तन के मध्य संबंध का परीक्षण कीजिए।

India faced locust attack in Rajasthan, Gujarat, Karnataka in May 2020, one of the worst attacks recorded.

Recent locust
Attack

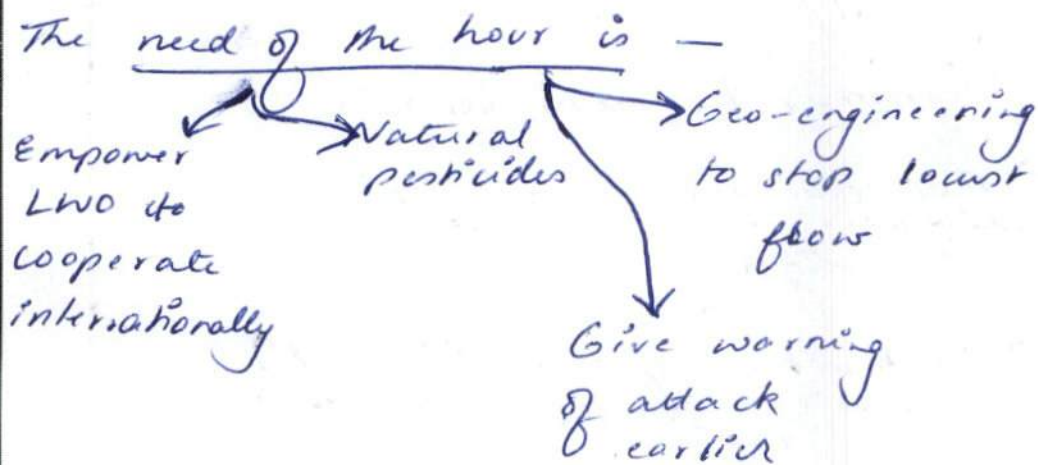


- ↳ Occurred in Western India (eg Rajasthan, Gujarat)
- ↳ Summer breeding season
- ↳ They can eat upto 2 times their weight
- ↳ Destruction of crops (Kharif) in the region.

Link between recent locust attack and climate change is as -

- Warmer temperature leading

- to increased breeding
- Rain and cyclones (unpredictable) in Yemen enabled eggs to be laid.
 - Swamp like conditions enhanced attack.
 - Disrupted wind patterns boosted the flight of locusts
 - More seasons of breeding due to rising temperature (earlier India only face the summer breeding).



Locusts pose a threat to India's food security, and create losses for farmers. All efforts must be taken to ensure climate change is stopped to prevent such disasters.

7. Highlighting the properties of Carbon Nanotubes, discuss its applications. (150 words) 10

कार्बन नैनोट्यूब्स के गुणधर्मों पर प्रकाश डालते हुए, इसके अनुप्रयोगों की विवेचना कीजिए।

Recently, there were experiments of using Carbon nanotubes in space flight as an alternative to regular tubes.

PROPERTIES OF CARBON NANOTUBES

- ↳ Made out of Carbon
- ↳ Can bear greater temperatures
- ↳ Many nano-tubes bound together
- ↳ Sturdy in nature
- ↳ Enable use in various climates/environments
- ↳ More resilience and not susceptible to electro magnets

The application of Carbon nanotubes are as follows -

- Use in spaceflight (as it will

not heat up easily

→ Use in medicine (due to easier transport of medicine)

→ Use in agriculture to deliver nutrients, water etc.

→ Use in Aircrafts to reduce weight.

→ Use in industrial machines, vehicles as they are sturdy.

Challenges to use include —

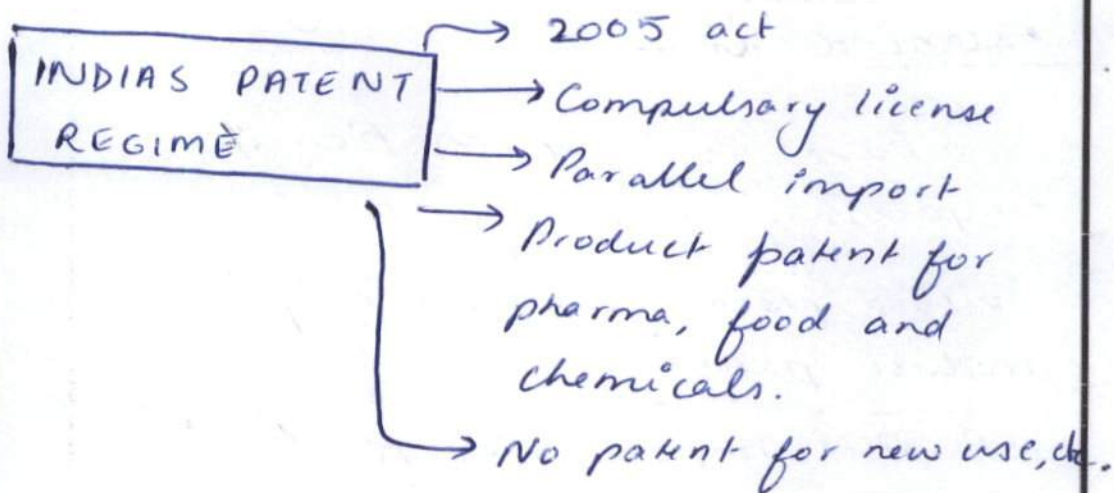
- High cost
- Limited expertise
- Limited scalability
- Still under trial

Carbon Nanotubes present a revolutionary upgrade, with widespread uses in various fields. The world will benefit if the technology comes into widespread use.

8. India's domestic patent regime privileges public health over pharmaceutical industry's interests. Comment. (150 words) 10

भारत की घरेलू पेटेंट व्यवस्था औषध उद्योग के हितों पर सार्वजनिक स्वास्थ्य को विशेषाधिकार प्रदान करती है। टिप्पणी कीजिए।

India signed the patent legislation in 2005 under WTO, to balance the patents with health needs.



The regime privileges public health over pharma industry's interest as —

It provides for parallel import during health crisis if patent holder unwilling to cooperate.

Issue compulsory licence (with

- compensation to patent holder)
- limits grounds for granting patent
 - Process patent for many products
 - No evergreening of patent
 - Support to generic medicines and their export.

However, interest of pharma industry is also balanced as -

- There is compensation if compulsory license given
- Food, pharma, chemicals only have product patent.
- Parallel import only for limited time.

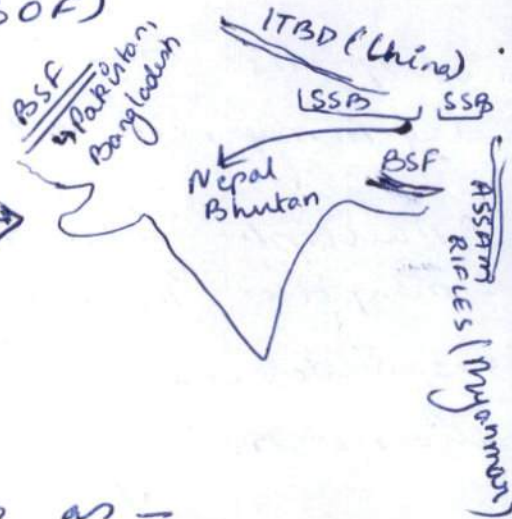
It is thus evident that India has sought to create a fine balance between the health requirements and the interests of Patents.

9. Bring out the arguments surrounding the idea of employing the principle of 'one border - one force' on Indian borders. (150 words) 10

भारतीय सीमाओं पर 'एक सीमा-एक बल' के सिद्धांत का उपयोग करने के विचार के चतुर्दिक व्याप्त तर्कों को स्पष्ट कीजिए।

The recent border challenges with China point to debates over one border, one force (OBOF)

BORDER FORCES
in India



Need for OBOF is seen as -

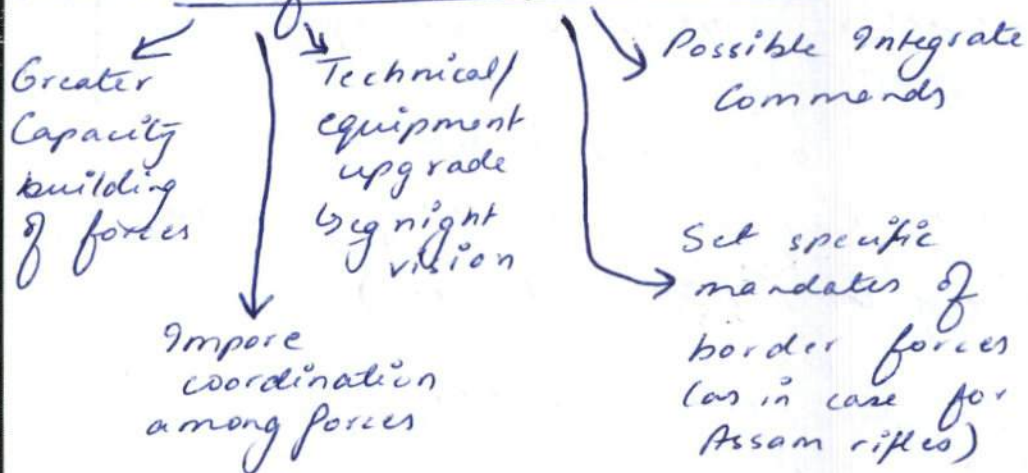
- Better cooperation among personnel.
- Limits scope for tension with personnel of other force (eg BSF and Army on Pakistan border)
- Helps in acclimatisation and specialisation (eg ITBP in high altitude areas)
- Enable knowledge of area, if there is long term stationing

of focus on border instead of internal problems (presently, Assam Rifles responsible for border and insurgency, leading to overstretched capacity)

However, there are challenges to ORBF as -

- Expertise may be difficult (eg Army need with BSF for Pakistan)
- Multiple forces bring more manpower, technology, equipment etc. ahead to enhanced vigil due to diverse training.

The need of the hour is thus to -



ORBF presents a novel idea to deal with border tensions. A detailed framework, with proper analysis must be done before its implementation.

10. Assess the need to create a new cadre of Indian Frontier Administrative Service to undertake the vital tasks at Indian frontiers. (150 words) 10
भारतीय सीमांतों पर महत्वपूर्ण कार्यों को संपादित करने के लिए भारतीय सीमांत प्रशासनिक सेवा का एक नया संवर्ग बनाने की आवश्यकता का मूल्यांकन कीजिए।

Recently, with the security challenges increasing on India's frontiers (border and meritime), there have been calls for specific frontier forces and cadres.

Need to create a cadre of Indian Frontier Administrative Service as -

- They'll have specific training for frontier areas.
- lead to improved management of personnel.
- Better coordination with other forces
- improved efficiency in protecting/ assessing actions of adversaries

They can undertake vital tasks at India's frontiers such as -

- Providing expert advise
- Helping data collection
- Policy making for frontiers
- Challenge specific solutions

However, there are also challenges to creation of IFAS as -

- Logistical problem of RS passing a vote.
- May have overlapping mandate with other forces.
- Their functions already being performed by bureaucracy / forces.
- May lead to another layer of delayed decision making.

The need of the hour is -

- Creation of a cadre of IFAS within MHA.
- Capacity building of existing personnel
- Digitisation of tasks at frontiers
 - ↳ eg technical upgrade, surveillance, aid etc

The idea of IFAS has potential, but its challenges must be met before its inception to enable it to work to its full potential.

11. The main objective of Union Budget 2020-21 is to provide "Ease of Living" to all citizens. Analyse the framework proposed in the Budget 2020-21 to achieve this objective. (250 words) 15

केंद्रीय बजट 2020-21 का मुख्य उद्देश्य सभी नागरिकों को "ईज़ ऑफ़ लिविंग" (जीवन सुगमता) प्रदान करना है। इस उद्देश्य को प्राप्त करने के लिए बजट 2020-21 में प्रस्तावित ढांचे का विश्लेषण कीजिए।

The Budget 2020-21 made several proposals to achieve the goal of an easier life for the people of India across fields like taxation, GST, agriculture, energy etc.

OBJECTIVE of UNION Budget to provide ease of living to all citizens is seen as -

o Creation of framework for reduced tax (GST) on items like footwear.

o Imposition of higher tax on import of various goods like electronics (ease for manufacturers)

o Focus on creation of infrastructure for animal husbandry (eg cattle)

via digitalisation.

The framework proposed to achieve this objective involves -

- Creation of more scope for public participation in budget planning.
- Greater resource allocation to social sector (eg health, education)
- Focus on citizen centric governance and allocation.
- Performance based assessment
- Thrust to small and local industry, manufacturers.

However, there are challenges in achieving "ease of living" for all as -

- Limited resource availability (only 1.3% allocation for health)
- COVID-19 pandemic induced economic slowdown.

- Focus on stimulus to overcome pandemic (overlook budgetary demands)
- Uncontrolled inflation (6.1%)

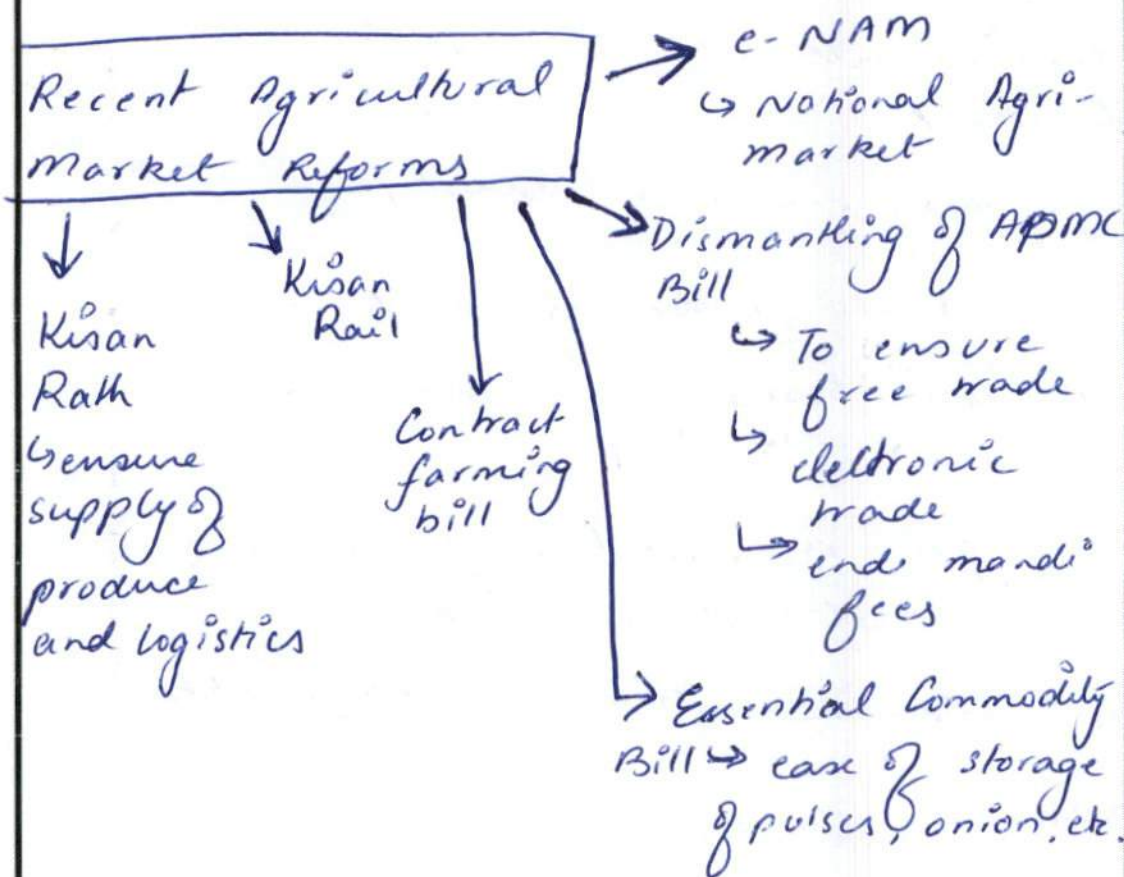
The need of the hour is thus —

- Boost stimulus to ensure recovery post pandemic
- Enhanced allocation for social infrastructure
- More thrust to local industry
- Outcome based budgeting
- Zero base budgeting to ensure efficiency

The budget is reflective of a nation's priorities, and it must be in sync with the ideals of atmanirbhar Bharat.

12. Several challenges are needed to be addressed to realise the full benefits of the recent agricultural marketing reforms. Discuss. (250 words) 15
- हालिया कृषि विपणन सुधारों के पूर्ण लाभों को साकार करने के लिए अनेक चुनौतियों का समाधान करने की आवश्यकता है। चर्चा कीजिए।

The government recently introduced bills to dismantle APMCs leading to widespread protests.



There are various challenges that need to be addressed as -

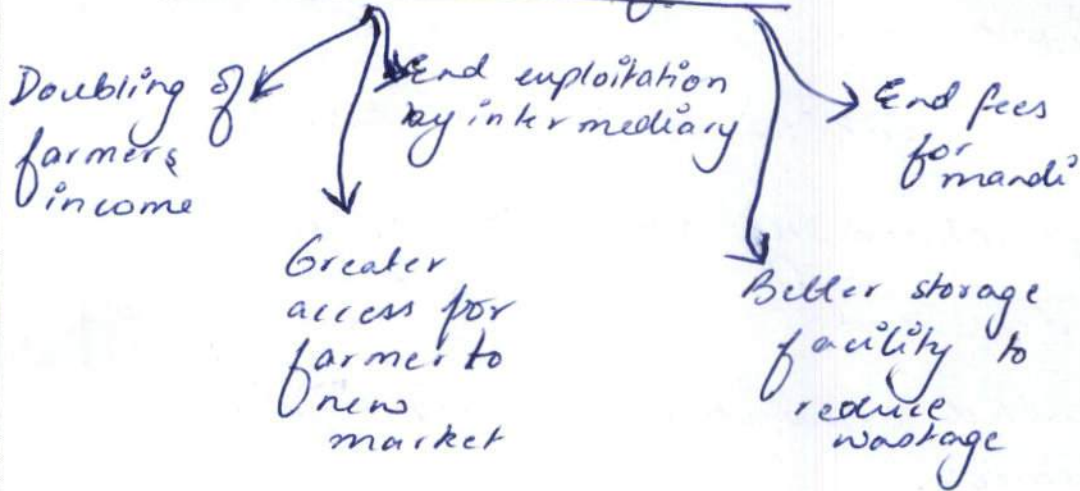
- APMCs enjoy monopoly over trade

- There is limited marketing infrastructure
- Intermediaries control markets
- Legislations by states to stop cross-border trade.
- Limited e-warehouse receipts with farmers.
- Focus on electronic trade needs greater boost (not all have internet)

The need of the hour is thus -

- Passing of the 3 new legislations to ensure seamless trade.
- Greater digital infrastructure to farmers (eg digital id for e-NAM)
- Removal of intermediaries by allowing government to provide facility.
- Agriculture to be put in concurrent list for uniform legislation.
- Spread awareness amongst farmers to counter misinformation

This will lead to benefits like -



Farmers are the key pillar of food security in India, and all efforts must be taken to ensure that reforms are in their best interest.

13. Multimodal transport requires multiple integrations across different modes of transportation. Substantiate. What are the challenges and opportunities associated with multimodal transportation for India? (250 words) 15

बहुविध परिवहन (मल्टीमॉडल ट्रांसपोर्ट) के लिए परिवहन के विभिन्न साधनों के मध्य विविध रूप से एकीकरण की आवश्यकता है। पुष्टि कीजिए। भारत के लिए बहुविध परिवहन से जुड़ी चुनौतियां और अवसर क्या हैं?

The recent launch of Inland Waterways and sea planes for connectivity point to India's thrust to multimodal transport.

Multimodal Transport includes

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graph TD
    A[Multimodal Transport includes] --> B[Airway]
    A --> C[Rail]
    A --> D[Road]
    A --> E[Water (inland)]
    A --> F[Sea]
  
```

It requires multiple integrations across different modes of transportation as —

• Help in case of mobility due to greater sync between modes

• Requires infrastructural connectivity (eg rail tracks to be of some container capacity, single or double tracks)

◦ Need for creation of ancillary industry (eg repair) across the route.

◦ Require uniform legislation and financial allocation across country (eg e-vehicles and sea planes)

Challenges associated with multimodal transportation are —

◦ limited infrastructure ability to create sync.

◦ lack of financial allocation

◦ Not uniform across India (eg western dedicated freight corridor is double stack, while Eastern is single stack)

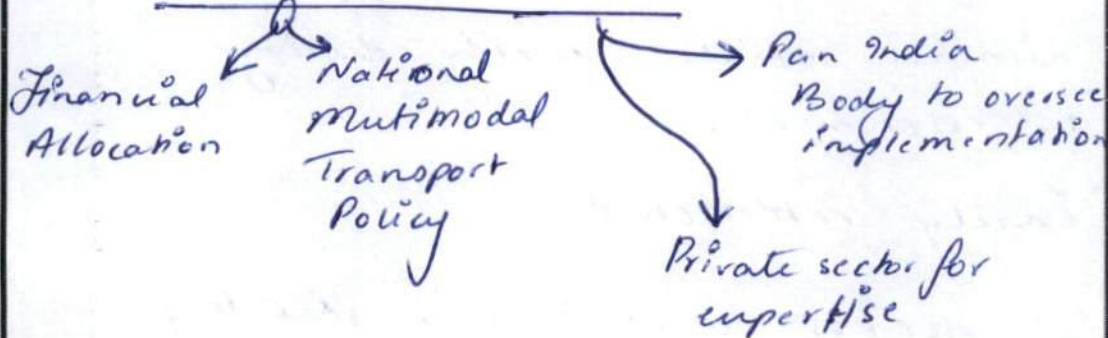
◦ lack of adequate engineering expertise.

◦ Delay in implementation of projects.

Opportunities of multimodal projects
are —

- ↳ Greater scope for tourism (ease of access)
- ↳ Economic growth (due to transportation)
- ↳ Ease of living / doing business
- ↳ India has vast resources (eg lakes for inland water, rail tracks etc)
- ↳ Ecologically sound (water transport less polluting than road)

The need of the hour is thus —



Multimodal transport has immense potential to revolutionise the way transport functions, for the better. India must utilise it for its growth.

14. Though COVID-19 pandemic exposes the vulnerability of Informal sector and associated labor force in India, it also presents an opportunity to rebalance formal-informal economy dynamics in the country. Discuss.

(250 words) 15

हालांकि, कोविड-19 महामारी भारत में अनौपचारिक क्षेत्रक और संबद्ध श्रम बल की सुभेद्यता को उजागर करती है, लेकिन साथ ही यह देश में औपचारिक-अनौपचारिक अर्थव्यवस्था की गतिशीलता को संतुलित करने का एक अवसर भी प्रस्तुत करती है। चर्चा कीजिए।

The launch of Social Security Code points to the need to safeguard the informal sector, especially after COVID-19.

COVID-19 exposed vulnerability of informal sector and its labour force as-

- limited social security during retrenchment.
- Easily retrenched
- No access to ancillary statutory benefits (eg health, ration)
- No savings to fall back on
- limited skill upgrade in workforce
- Contractual nature leads to exploitation at very low wages

- No rush for greater say in working (due to limited unions etc)
- Informal sector leads to migration pressure, without employing locals.

The COVID-19 pandemic presents an opportunity to rebalance the formal - informal dynamic in the country as -

- Greater scope to create new industries with social security.
- Government can start upskilling the youth while they resume work.
- The codes of social security, industrial relations can be passed.
- Economic stimulus can lead to better opportunities via fixed term employment, platform workers etc.
- Can help in more formalisation by increasing accountability of firms by inspections.

The need of the hour is thus to -

- Greater boost to FTE, platform workers by ensuring security (eg maternity benefits)
- Passing of labour codes immediately.
- Centre to pass labour laws for minimum standards.
- Skill India mission, IIT etc to be more proactive
- Greater financial allocation for formalisation.
- Financial support via capital access to small industries so they ensure benefits.

The informal sector comprises over 90% of the economy, and it is high time India strives to provide benefits to the sector so India can prosper.

15. Highlight the drivers and challenges facing India's ambition to become a gas-based economy. Mention the steps that have been taken by the government recently in this regard. (250 words) 15

गैस आधारित अर्थव्यवस्था बनने की भारत की महत्वाकांक्षा के चालकों और सामना की जाने वाली चुनौतियों को रेखांकित कीजिए। इस संबंध में हाल ही में सरकार द्वारा उठाए गए कदमों का उल्लेख कीजिए।

The recent launch of policy of pricing of gas points to the reforms in the sector to boost India's position as a gas based economy.

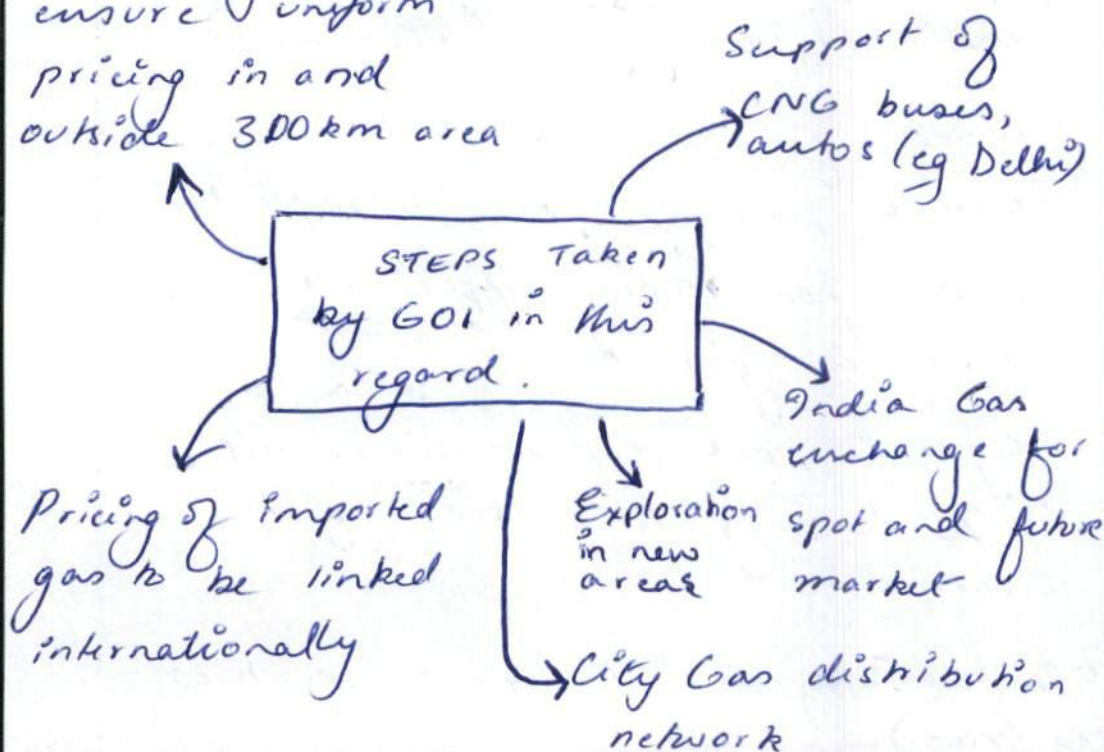
DRIVERS to become a gas based economy are —

- High availability of gas in India (eg Godavari, Ankleshwar)
- Need for clean fuel to reduce pollution, ease transport
- Scope for more efficient economic growth.
- High import dependence on oil (80%) leading to search for alternatives.
- Instability in oil export countries (eg Iran)

Challenges to become a gas based economy are -

- o Still not fully used our own gas resources (we import 50%)
- o limited skill to upgrade/retrofit transport.
- o limited gas infrastructure in remote/rural areas.
- o Natural gas pipeline is expensive to put.
- o lack of uniform pricing.
- o Gas injected mostly on West Coast

Gas policy to ensure uniform pricing in and outside 300km area



The need of the hour is —

- Place domestic gas also in the India gas exchange (only imported till now)
- Financial push for retrofitting
- Technical expertise (via private sector) for fuel cells etc.
- International collaborations for discovery.
- Enhance City Gas Distribution Network
- Inject gas at East Coast also (till now, focus on west coast)
- Better pricing mechanism (based on distance at present).

Gas based economy presents a new future for Indian economy, which is cleaner. India must grab the opportunity before it's too late.

16. Climate Change and the associated events endanger the marine and coastal ecosystems while increasing the vulnerability of coastal population. Examine. (250 words) 15

जलवायु परिवर्तन और संबद्ध घटनाएं तटीय जनसंख्या की सुभेद्यता को बढ़ाते हुए समुद्री एवं तटीय पारिस्थितिक तंत्रों को खतरे में डालती हैं। परीक्षण कीजिए।

UNEP report suggest that emissions at present levels will lead to a 3°C rise in temperature against the goal of 1.5°C.

Climate change and associate events include —

- ↳ Temperature rise
- ↳ melting glaciers
- ↳ Unpredictable phenomenon (eg cyclones).
- ↳ Rise in sea level
- ↳ Greater erosion

There is an endangerment of marine and coastal ecosystems as —

- ↳ Acidification leads to coral bleaching, (dying zooxanthellae)

↳ De-oxygenation of oceans leads to rise of toxic bacteria (eg clostridium)

↳ Deadly for marine ecosystem (as they are vulnerable with temperature changes)

↳ Erosion of coastal belts (eg Sunderban mangroves turned yellow after Amphan)

↳ Threat to systems like sea grass etc on coast (as they require stable waters)

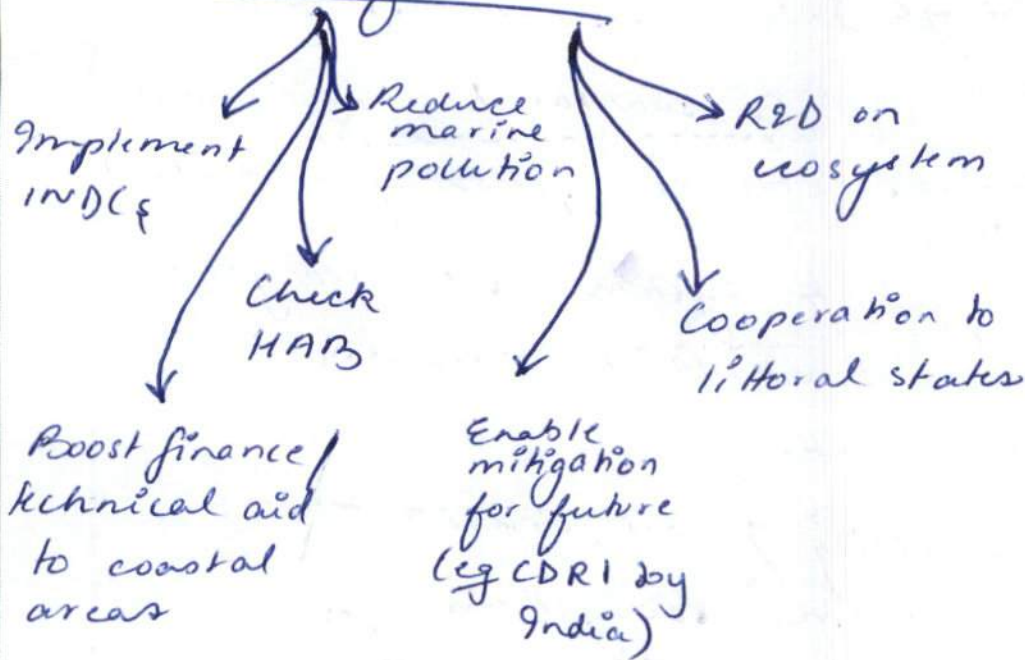
↳ Upwelling of cool, undernutritious water harms ecosystems

Climate change increases the vulnerability of coastal population as-

- More chances of cyclones, tornadoes, surges etc.
- Rising sea level creates inundation
- Increasing erosion leading to inability to live in coastal areas.
- Loss of life and property due to disasters

- o Fear of erratic behaviour of marine population (eg whales in Japan beaches in 1000s).
- o Poisonous algae bloom (HAB)

The need of the hour is thus to -



The coastal and marine ecosystems are the worst hit due to unprecedented climate change, and it is imperative to take action to curb these ill effects before it's too late.

17. Using examples, highlight how natural ecosystems perform different hazard mitigation functions. (250 words) 15

उदाहरणों का उपयोग करते हुए, रेखांकित कीजिए कि प्राकृतिक पारिस्थितिक तंत्र किस प्रकार अलग-अलग संकट के शमन का कार्य करते हैं।

The recent cyclone Amphan showed how natural ecosystems perform various hazard mitigation function (eg Sunderbans)

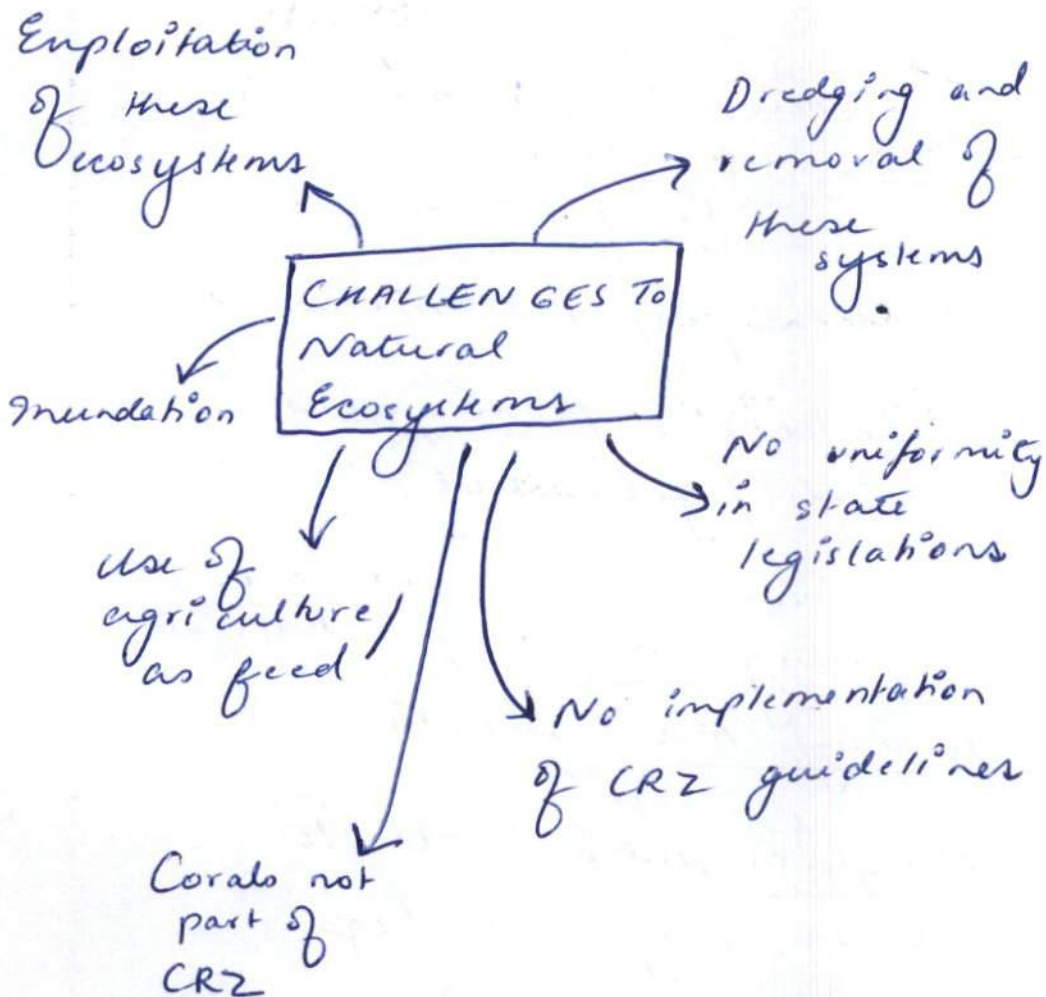
Various hazard mitigation functions include

- Recycling of nutrients (prevent algal blooms)
- Security from surges
- Cleaning of trace metals
- Protection from strong winds / cyclones etc.

Natural ecosystems play a key role in performing these functions as -

o Mangroves put a halt to cyclones, surges etc (eg Sunderbans in Amphan)

- Corals lead to cleaner and more stable coasts (eg 2004 Tsunami in Andaman)
- Trees (shelter belts) in dry areas prevent erosion (eg in Rajasthan)
- Small sea grass reduce trace metals and enable stability of coasts.
- Mountains check unstable rains etc



The need of the hour is thus to -

- Include corals / sea grass in CRZ to protect them.
- Use CAMPA funds for mangroves.
- Strict definition of 'wise use' in Wetland Rules
- Pan India laws to protect natural ecosystems.
- Greater infrastructure to predict surges / cyclones so ecosystems can be safeguarded before hand.

Natural ecosystems are the lifeline of India, for they protect from major hazards. All efforts must be taken to ensure our protectors are also protected.

18. Explain what genome sequencing is and state the challenges in scaling up genome sequencing projects. Also, throw some light on the recently launched IndiGen Project. (250 words) 15

व्याख्या कीजिए कि जीनोम अनुक्रमण क्या है और जीनोम अनुक्रमण परियोजनाओं को बढ़ावा देने में विद्यमान चुनौतियों का वर्णन कीजिए। साथ ही, हाल ही में आरंभ की गई इंडिजेन (IndiGen) परियोजना पर कुछ प्रकाश डालिए।

The recent participation of India in the Genome project points to the importance of genome sequencing in India and globally.

GENOME SEQUENCING

- ↳ It involves collection of genome data of individuals
- ↳ Analysis to understand the entire genome pattern of an individual
- ↳ Works across DNA, genetics, chromosomes etc.
- ↳ Collected data then creates select patterns in Indian population.

Challenges in scaling up genome sequencing are -

- limited infrastructure to understand genome of 1.3 billion people
- limited expertise/personnel with CSIR
- Privacy concern
- Consent issue
- May lead to profiling
- May set ground for bio-weapons
- Ethical concerns

The IndiGen Project involves -

- ↳ Collaboration of CSIR, foreign experts
- ↳ Genome sequencing of Indian population
- ↳ Assess various common patterns of Indian genome.

↳ Study for various diseases, problems etc.

↳ Focus on genetic disorder predisposition / its remedy.

It is thus evident that the IndiGen project and genome sequencing have immense potential to shed light on our composition and possible uses. India must take this opportunity and analyse the data in the best interest of all.

19. India needs to avert radicalisation and societal dissention, as internal faultlines are a breeding ground for cyber and transnational terrorism. Discuss. (250 words) 15

भारत को कट्टरपंथीकरण और सामाजिक मतभेदों को रोकने की आवश्यकता है, क्योंकि आंतरिक दरारें साइबर एवं पार-राष्ट्रीय आतंकवाद का जनन स्थल होती हैं। चर्चा कीजिए।

The launch of Cyber dome points to efforts to curb various forms of terrorism, including radicalisation and its cyber manifestation.

Internal faultlines are breeding ground for transnational terrorism as-

- They help the vulnerable to be manipulated easily.
- Can risk lone wolf attackers
- lead to suspicion in communities
- Enable people to establish links with terror groups abroad

There is also a risk of cyber terrorism due to internal faultlines as-

- More scope to connect and radicalise.
- People easily persuaded to act (as cyber world provides anonymity)
- Easier use of deep web, Dark net, etc
- limited ability of state to check misuse of internet.

India thus needs to avert radicalisation
and social disention as -

- Radicalised people are not easily deradicalised.
- Threat to national security
- Creates ground for violence, riots,
- May lead to young minds being coaxed into terrorism
- It creates ground for mistrust and marginalisation based on prejudice.

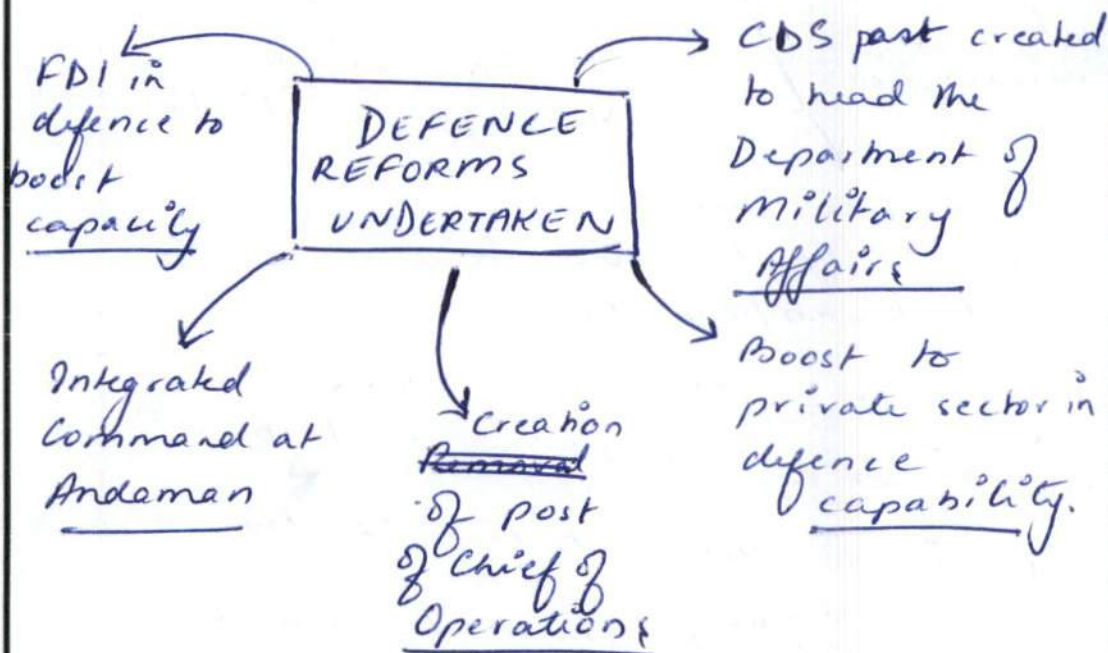


Terrorism is a bane which must be ripped in the bud before it too late. India must strive to ensure it doesn't become a victim of radicalisation.

20. Given the emerging security challenges, discuss why the establishment of Integrated Theatre Commands is being seen as an important defence reform. (250 words) 15

उभरती हुई सुरक्षा चुनौतियों को देखते हुए, चर्चा कीजिए कि क्यों एकीकृत थिएटर कमान की स्थापना को महत्वपूर्ण रक्षा सुधार के रूप में देखा जा रहा है।

The government has taken various defence reforms such as creation of 4 star post of CDS to deal with security challenges.



There are various emerging security challenges as -

o Nuclear weapons states as adversaries (eg Pakistan)

- o Border disputes creating escalations (eg Galwan) with China
- o Scope for violation of UNCLOS at seas (eg South China Sea, and rising presence of China in Indian ocean)
- o Need to boost capability to withstand terror attack (eg 26/11)

The establishment of Integrated Theatre Command is an important defence reform as -

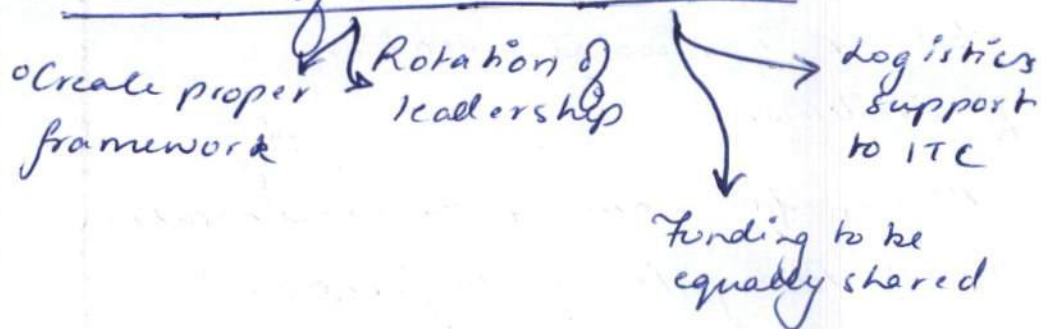
- o Set up in crucial location of Andaman
- o Allow for seamless communication between Army, Navy, Airforce.
- o Better coordination for retaliation
- o Ends extra costs (eg army need not spend resources on helicopters, can use faculty of airforce)

- Enables quick response time
- Allows for forces to be led by one person (ending scope of miscommunication).

However, there are challenges such as-

- fear of army domination
- logistical problems
- Possible unwillingness to be ordered by another force's commander
- May lead to tensions among forces.

The need of the hour is thus -



Integrated Theatre command has the potential to transform India's security Architecture. With ever increasing threats, India must be quick to push for these reforms.