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ABHYAAS MAINS

सामान्य अध्ययन (प्रश्न पत्र-III)/GENERAL STUDIES (Paper-III) (2930)

निर्धारित समय: तीन घंटे
Time Allowed: **Three Hours**

अधिकतम अंक: 250
Maximum Marks: 250

सामान्य अनुदेश

इस प्रश्न-सह-उत्तर (क्यू.सी.ए.) पुस्तिका में 55+1 पृष्ठ हैं। प्रश्न-पत्र, क्यू.सी.ए. पुस्तिका के अंत में संलग्न है, जो अलग (वियोज्य) किया जा सकता है और उम्मीदवार परीक्षा के उपरांत अपने साथ ले जा सकते हैं।

रफ कार्य के लिए, इस पुस्तिका के अंत में खाली पृष्ठ दिया गया है।

पुस्तिका प्राप्त होने पर, कृपया यह जांच कर लें कि इस क्यू.सी.ए. पुस्तिका में कोई कमी न हो, फटा हुआ पृष्ठ न हो अथवा कोई पृष्ठ गायब न हो इत्यादि। यदि ऐसा हो, तो इसके बदले नई क्यू.सी.ए. पुस्तिका प्राप्त कर लें।

General Instructions

This Question-Cum-Answer (QCA) Booklet contains 55+1 pages. Question Paper in detachable form is available at the end of the QCA Booklet which can be taken away by the candidate after examination.

For rough work, blank page has been provided at the end of this Booklet.

On receipt of the Booklet, please check that this QCA Booklet does not have any shortcomings, torn or missing pages etc. If, so, get it replaced with a fresh QCA Booklet.

(उम्मीदवार द्वारा भरा जाएगा/To be filled by the Candidate)

पंजीकरण सं./Registration No. : 61136753

अभ्यर्थी का नाम/Name of Student : SURASHI P H THAKUR

माध्यम: हिंदी/अंग्रेजी
Medium: Hindi/English

Eng

तारीख
Date

25/07/24

**सामान्य अध्ययन (प्रश्न पत्र-III)
GENERAL STUDIES (Paper III)**

केंद्र
Centre

Dehradun

निरीक्षक के हस्ताक्षर
Invigilator's Signature

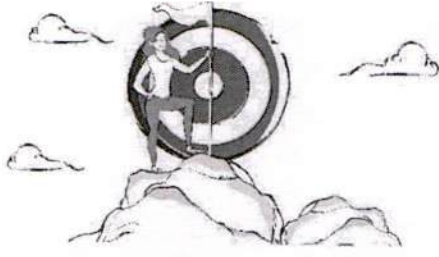
Riya Verma

	महत्वपूर्ण अनुदेश	Important Instructions
	उम्मीदवारों को नीचे उल्लिखित निर्देश सावधानी से पढ़ लेने चाहिए। किसी भी निर्देश का उल्लंघन करने पर उम्मीदवारों को मिलने वाले अंकों में कटौती, उम्मीदवारी रद्द या आयोग के परवर्ती परीक्षाओं के लिए वर्जित करने इत्यादि के रूप में दण्डित किया जा सकता है।	Candidates should read the undermentioned instructions carefully. Violation of any of the following instructions may entail penalty in the form of deduction of marks, cancellation of candidature, debarment from further Examination of the Commission etc.
1	(क) अपना पंजीकरण सं. एवं अन्य विवरण केवल प्रश्न-सह-उत्तर पुस्तिका (क्यू.सी.ए.) में उम्मीदवार के लिए निर्धारित स्थान पर ही लिखें। (ख) इस पुस्तिका में अन्यत्र कहीं भी अपना नाम, पंजीकरण सं., मोबाइल नं., पता अथवा प्रश्न-सह-उत्तर पुस्तिका (क्यू.सी.ए.) संख्या न लिखें जिससे आपकी पहचान का खुलासा हो।	(a) Write your Registration Number and other details only in the space provided in the Question-Cum-Answer (QCA) Booklet for candidates. (b) Do not disclose your identity in any manner such as, by writing your Name, Registration number, Mobile number, Address, Question-Cum-Answer (QCA) Booklet No. etc. elsewhere in the Booklet
2	अपनी प्रश्न-सह-उत्तर पुस्तिका में कहीं भी प्रश्नों के वास्तविक उत्तर के अतिरिक्त कुछ न लिखें जैसे कि कोई कविता/दोहा, अभद्र या अपमानजनक अभिव्यक्ति इत्यादि और न ही कोई ऐसा चिन्ह/निशान बनाएं जिसका उत्तर से सम्बन्ध न हो।	Do not write in the QCA Booklet anything other than the actual answer such as couplet, obscene, abusive expression etc., nor put any sign/mark having no relevance to the answer.
3	परीक्षक को प्रत्यक्ष/अप्रत्यक्ष रूप से कोई भी प्रार्थना/धमकी भरी बातें न लिखें।	Do not make any direct/indirect appeal/threat to the examiner.
4	उत्तर अस्पष्ट अथवा गंदी लिखावट में न लिखें। इस प्रकार के उत्तर का मूल्यांकन नहीं किया जा सकता है।	Do not write answers in bad/illegible handwriting. Such answers may not be evaluated.
5	उत्तर स्याही में ही लिखें। उत्तर लिखने के लिए पेंसिल का उपयोग न करें, हालांकि आरेख, चित्र इत्यादि बनाने के लिए पेंसिल का उपयोग किया जा सकता है।	Write answers in ink only. Do not use pencil for writing the answers. However, pencil may be used for drawing diagrams, sketches, etc.
6	प्रवेश पत्र में उल्लेख किए गए माध्यम के अलावा अन्य किसी माध्यम में उत्तर न लिखें। अधिकृत और अनधिकृत की मिली जुली भाषा का भी उपयोग न करें।	Do not write answers in medium other than the authorized medium in the Admission Certificate. Do not use mixed language either i.e. authorize and unauthorized media together for writing answers.
7	प्रश्नों के उत्तर ठीक उसके नीचे दिए गए निर्धारित स्थान पर ही लिखें। निर्धारित स्थान के अलावा किसी अन्य स्थान पर लिखे गए उत्तर का मूल्यांकन नहीं किया जाएगा।	Write answer at the specific space (right below the question) only. Answers written elsewhere at unspecified places in the booklet shall not be evaluated.
8	यदि आप अपने किसी उत्तर को रद्द करना चाहते हैं तो उसे पेन से काट दें तथा उस पर "रद्द" लिख दें, अन्यथा उसका मूल्यांकन किया जा सकता है।	If you wish to cancel any work, draw your pen through it and write "Cancelled" across it, otherwise it may be valued.

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परीक्षक के हस्ताक्षर Signature of Examiner(s)	

प्राप्तांक के विवरण (परीक्षक द्वारा भरा जाए)/ Marks Details (To be filled by the Examiner(s))

प्रश्न सं. Q. No.	अंक Marks		प्रश्न सं. Q. No.	अंक Marks	
1			11		
2			12		
3			13		
4			14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		
उप-योग (A) Subtotal (A)			उप-योग (B) Subtotal (B)		
सकल योग (A+B) / GRAND TOTAL (A+B)					



सामान्य अध्ययन (प्रश्न पत्र-III)/GENERAL STUDIES (Paper-III) (2930)

निर्धारित समय: तीन घंटे
Time Allowed: **Three Hours**

अधिकतम अंक: 250
Maximum Marks: **250**

प्रश्न-पत्र संबंधी विशेष अनुदेश

कृपया प्रश्नों के उत्तर देने से पूर्व निम्नलिखित प्रत्येक अनुदेश को ध्यानपूर्वक पढ़ें:

कुल बीस प्रश्न दिए गए हैं जो हिंदी और अंग्रेजी दोनों में छपे हैं।

सभी प्रश्न अनिवार्य हैं।

प्रत्येक प्रश्न/भाग के लिए नियत अंक उसके सामने दिए गए हैं।

प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए, जिसका उल्लेख आपके प्रवेश-पत्र में किया गया है, और इस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यू.सी.ए.) पुस्तिका के मुख-पृष्ठ पर निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिखे गए उत्तर पर कोई अंक नहीं मिलेंगे।

प्रश्न संख्या 1 से 10 तक का उत्तर 150 शब्दों में तथा प्रश्न संख्या 11 से 20 तक का उत्तर 250 शब्दों में दीजिए।

प्रश्नों में इंगित शब्द सीमा को ध्यान में रखिए।

प्रश्न-सह-उत्तर पुस्तिका में खाली छोड़े गए कोई पृष्ठ अथवा पृष्ठ भाग को पूर्णतः काट दीजिए।

QUESTION PAPER SPECIFIC INSTRUCTIONS

Please read each of the following instructions carefully before attempting questions.

There are **TWENTY** questions printed both in **HINDI** and in **ENGLISH**.

All questions are compulsory.

The number of marks carried by a question/part is indicated against it.

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 a medium other than the authorized one.

Answers to Questions No. 1 to 10 should be in 150 words, whereas answers to Questions No. 11 to 20 should be in 250 words.

Keep the word limit indicated in the questions in mind.

Any page or portion of the page left blank in the Questions-cum-Answer Booklet must be clearly struck off.

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.

खाद्य प्रसंस्करण उद्योग का तीव्र विकास किस प्रकार भारत में खाद्य सुरक्षा संबंधी चुनौतियां उत्पन्न कर रहा है? (उत्तर 150 शब्दों में दीजिए)
 How is the rapid growth of the food processing industry leading to food safety challenges in India? (Answer in 150 words)

उम्मीदवारों को इस इकाई में नहीं लिखना चाहिए
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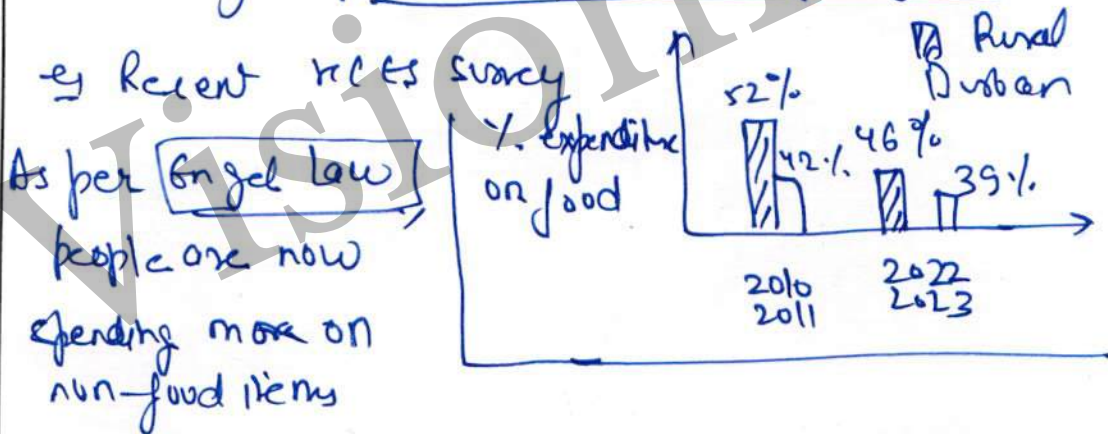
10

Food Processing Industry is a sunshinic sector with 30% contribution to agricultural GVA and employment of over 12 crore people.

Rapid growth of food Processing Industry

① Increasing per capita disposable income of people → \$2600

② Reducing expenditure on cereal / foodgrain



Yet, as per Bennet Law → share of fruits, vegetables has increased in food basket

③ growing huskiculture production and Yield

→ Cereal / foodgrain → 328 mn tonnes | 2.5 tonnes/hect
 Pulses → 342 mn tonnes | 12.9 "

As per economic survey 23-24

But it has also led to food safety challenges

- (1) lack of scientific storage leads to wastage of approx 20% of food products
- (2) suboptimal quality standards & breaching of FSSAI norms
e.g. Maggi had MSG in more than specified amount
- (3) lack of export potential due to phytosanitary measures as per WTO
- (4) fire and pest infestation in warehouses
- (5)

Measures needed

- (1) Investment in storage infrastructure
e.g. use of Negotiable warehouse receipts
- (2) Policy certainty with respect to exports
- (3) Uniform quality standards as per ISO 9000 & FSSAI guidelines
- (4) mandatory periodic tests to ensure external additives are within limits

value addition in food products can go a long way in doubling farmer income, reducing dependence on agriculture and boost economic growth

2.

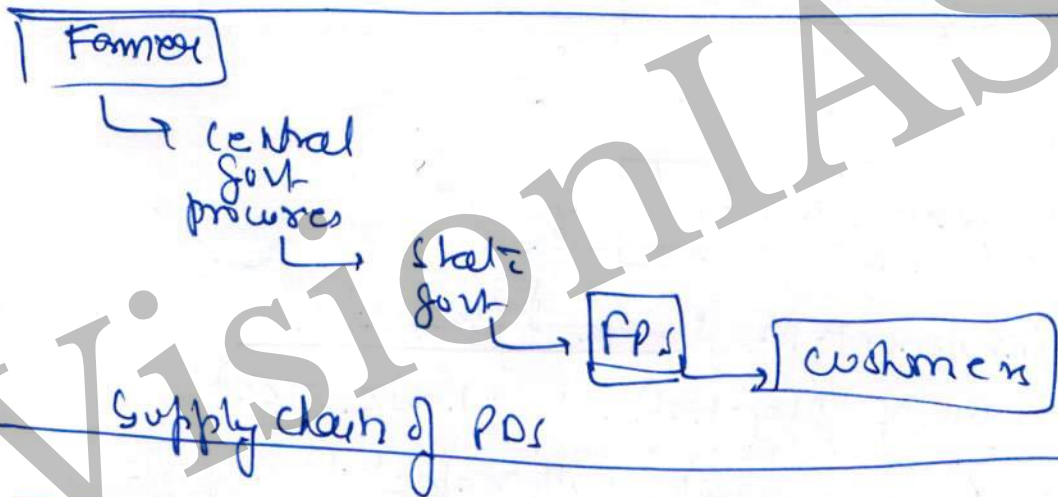
भारत की सार्वजनिक वितरण प्रणाली के अंतर्गत उचित मूल्य की दुकान (FPS) का प्रारंभ एक विकासशील प्रक्रिया है। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

Under the Public Distribution System of India, the Fair Price Shop (FPS) transformation is an evolving process. Discuss. (Answer in 150 words)

10

उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
Candidates must not write on this margin

Public Distribution System has led to increased accessibility of food to poor & vulnerable people with over 10 crore being provided foodgrains under PM Garib Kalyan Anna Yojana.



Fair Price Shops are vital in entire PDS chain
→ help in accurate beneficiary identification using e-POS machine
→ last mile delivery of grains
→ eliminate bypass beneficiaries

Yes, FPS has been facing challenges

- ① Inclusion & exclusion errors lead to non efficient disbursement
- ② Licensing of FPS becomes a competitive process
→ leads to corruption
- ③ e-PoS machine often fail → leading to denial of ration
- ④

Way to make it more effective

- ① Technological integration of e-PoS with Aadhar & Biometrics → full coverage
- ② Auction process of licensing
→ some can be given to STEs on pilot basis
- ③ regular monitoring & audit of FPS

Smart POS is the novel way of improving POS with RFID tags, geography of trucks to ensure last mile delivery & efficient allocation.

3.

भारत में एग्रीटेक स्टार्ट-अप्स किसानों की कृषि उत्पादकता एवं बाजार पहुंच बढ़ाने में किस प्रकार मदद कर रहे हैं? (उत्तर 150 शब्दों में दीजिए)

How are agri-tech startups in India helping farmers in enhancing farm productivity and market access? (Answer in 150 words)

10

उम्मीदवारों को इस इच्छा में नहीं लिखना चाहिए
Candidates must not write on this margin

Indian agriculture contributes to 18% of national GVA but employs over 45% of population leading to low marginal utility & disguised employment.

Indian agri-tech startups are helping in

(a) enhancing farm productivity

(1) Through efficient soil nutrients mapping, need of water use efficiency

by use of expert systems and google vision to map water needs

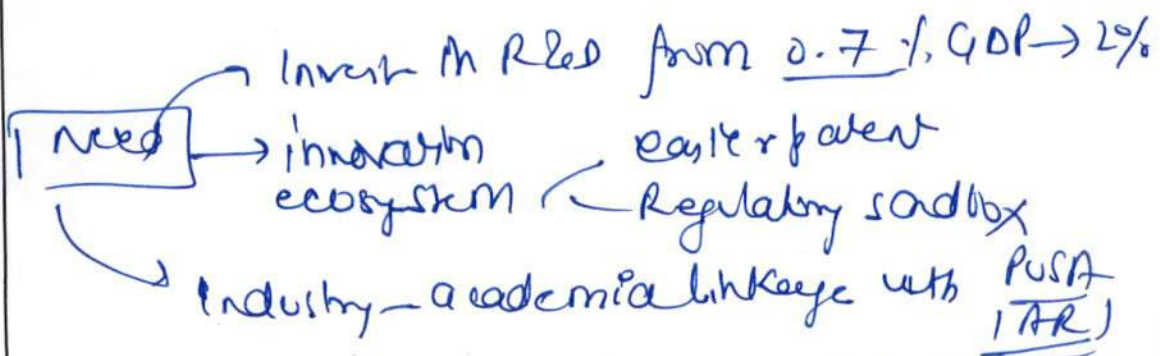
(2) enhanced research in seed to make it pest resistant

by 109 new seed varieties launched

(3) Technology integration in monitoring crop quality

(2) enhancing market access

- (1) use of Technology for market formalization
 ex ITC-eChoupal
- (2) enabling use of negotiable warehouse receipts to enable farm credit & quick inventory turnover
 ex Whire has been working in e-awk
- (3) online exchange for trading and efficient contract farming
 ex Pramaan exchange for contract enforcement
- (4) use of chat GPT / chatbots to resolve farmer's query.
 ex Saagu Saagu-Baagu of Telangana use chatbots



Startups & Technology have the potential to revolutionize agriculture and make agribusiness for economic growth

4. भारत में भूमि सुधारों के प्रभावी कार्यान्वयन में भूमि अभिलेखों के डिजिटलीकरण की भूमिका पर चर्चा कीजिए। (उत्तर 150 शब्दों में दीजिए)
 Discuss the role of digitization of land records in the effective implementation of land reforms in India. (Answer in 150 words) 10

उम्मीदवारों को इस हाथिए में नहीं लिखना चाहिए
 Candidates must not write on this margin

Survey schemes has led to drone mapping over 96% area to ensure land record digitization for achieve the aim of land reforms

Role of digitization of Land Records

1) enable movement from Presumptive → Conclusive land Title

2) ensure reduced pendency in courts
 ex 5 cases cases pendency (NTDG)
 → over 60% land related

3) farmer can use land for credit
 → Boost agricultural growth
 → Personal disposal income

4) Integration of fragmented land holding possible
 ces cadastre maps (70%) digitized → can be

and to allow for farm mechanization

(5) enhance agricultural growth

via allowing for regular plantation of crops

land ceiling can be done

Yet, there are challenges

- ① old, legacy documents are difficult to defile
- ② increasingly family conflicts on land
- ③ different state laws as land is a state subject can create problems in enforcing contracts
- ④ Delay in Judicial proceedings lead to pendency & stalled growth.

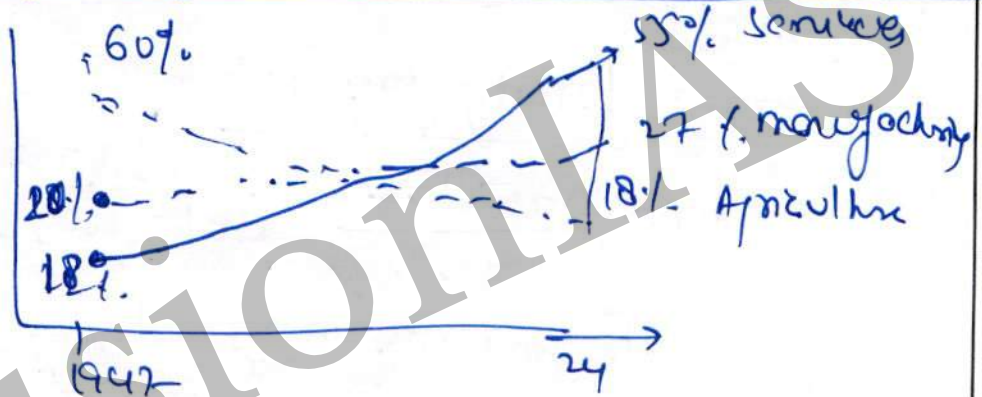
Need to → Integrate Adhaar with land records. (Economic Survey 24)

→ ensure fast-track courts for land related.

Land reforms can go a long way in reducing the agriculture problems & create farmer friendly growth

5. भारत को अपने जनसांख्यिकीय लाभांश का पूर्ण उपयोग करने और आर्थिक विकास में तेजी लाने के लिए एक विनिर्माण-केंद्रित विकास मॉडल को अपनाने की आवश्यकता है। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)
- To fully exploit its demographic dividend and accelerate economic growth, India needs to adopt a manufacturing-led growth model. Discuss. (Answer in 150 words)

India has traditionally been an agriculture economy, moved to service sector directly leading to premature deindustrialization of manufacturing sector.



manufacturing led growth model

(i) exploit demographic dividend

18-59 years
- 65%
population

manufacturing
is labor
intensive

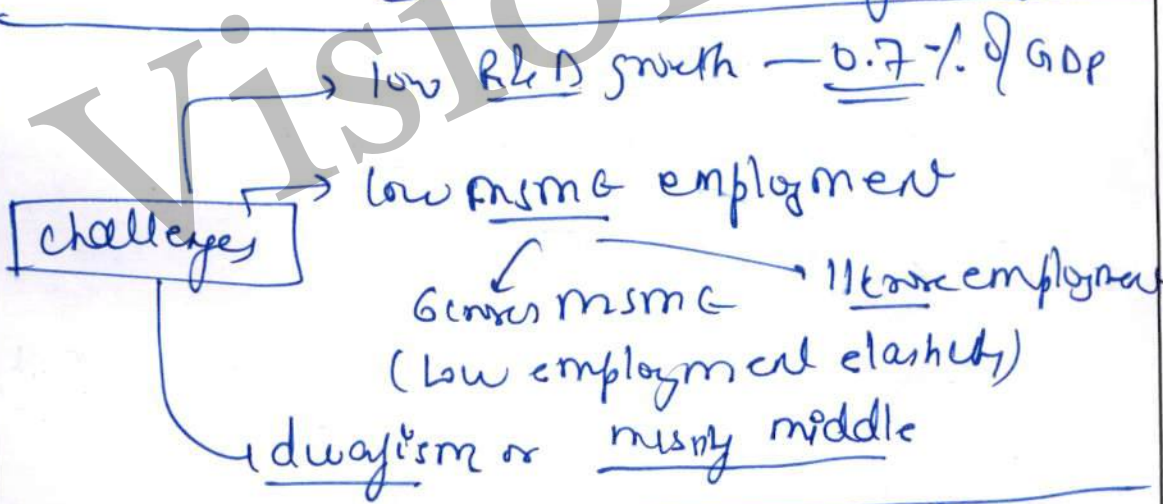
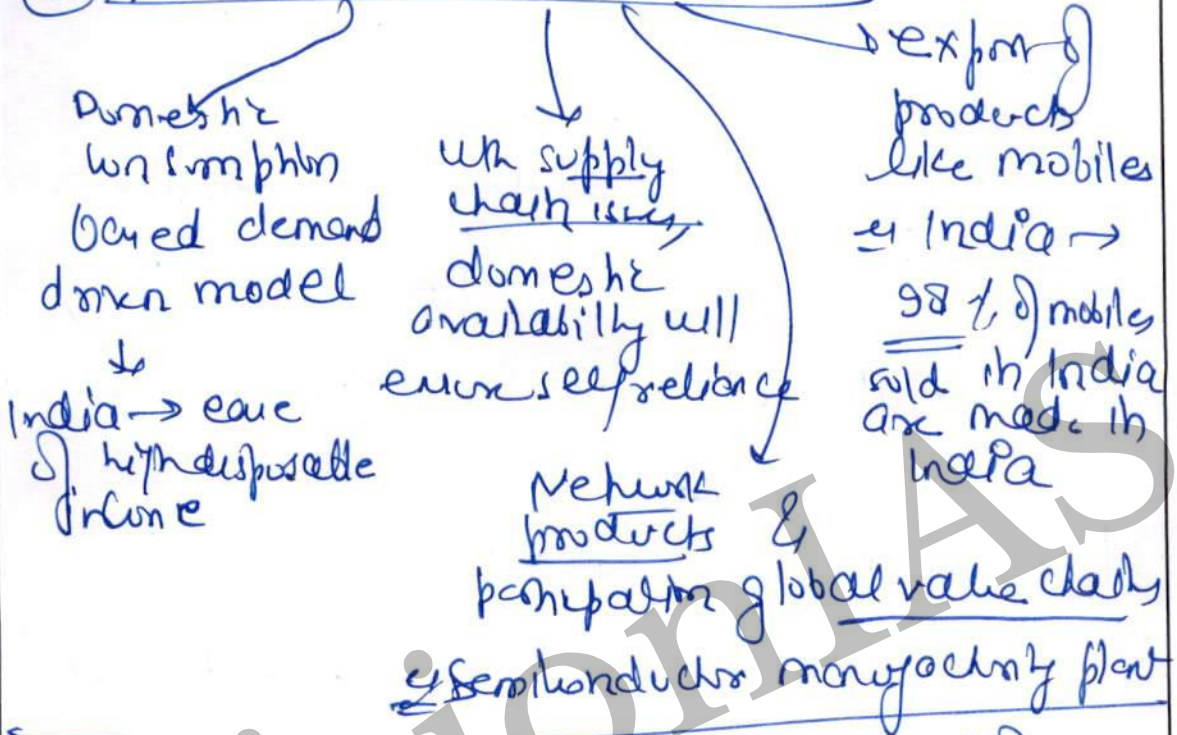
low level
of skills
@ 5% formal
skills → can be
absorbed in
manufacturing

max people
from agriculture
to manufacturing

→ schemes like PM Vishwakarma can be used in skillity, Reskillity & Upskillity

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
Candidates must not write on this margin

② accelerate economic growth



Adequate regulatory oversight care of entry and exit, regulatory sandbox for innovation for patents and investment is needed for boosting manufacturing & making India a manufacturing powerhouse

6. जलवायु परिवर्तन के परिणामस्वरूप बढ़ते प्राकृतिक खतरों से निपटने के लिए भारतीय तटीय समुदायों की प्रत्यास्थता को किस प्रकार मजबूत किया जा सकता है? (उत्तर 150 शब्दों में दीजिए)
- How can the resilience of Indian coastal communities be strengthened to tackle the growing natural hazards resulting from climate change? (Answer in 150 words)

10

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
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Global climate change induced warming and unresponsively rise in sea level is leading to increasing coastal hazards as Mumbai is sinking by 1cm/per year showing the grave situation

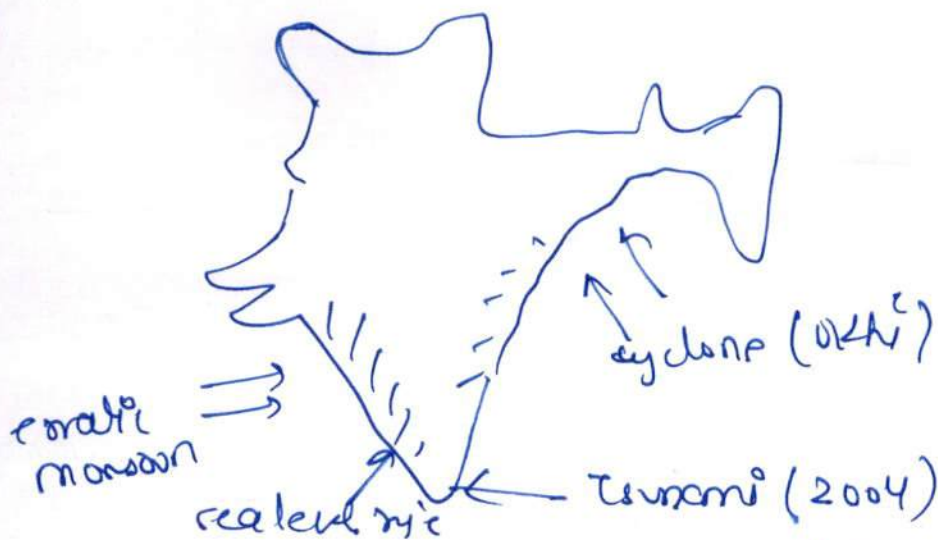
Increasing natural hazard

① sea level rise leading to likelihood crisis & impact on coastal lives
e.g. sinking of Munroe Island in Kerala

② Ocean acidification leading to stratification → reducing fishes & biodiversity loss

③ Amplified monsoon rain due to global temperature rise

④ Increasing the biodiversity & wetland → protecting aquifers & groundwater



India's 2 coastal communities & records

To enhance the resilience of coastal communities

- ① **Managed Retreat** of respecting coastal space as per CRZ norms
 - ↳ limited infrastructure build up
- ② **Traditional methods**
 - ↳ Kulkand - below sea level
 - ↳ stony homes using mud.
- ③ **Collaboration** of state government with traditional communities
 - ↳ ex. SUG - SWAMIH is working on reviving wetlands in Maharashtra
- ④ **Sensitivity Biodiversity**
 - ↳ Amrit Dhanbare
 - ↳ protection by mangroves
 - ↳ use of MISHTI against cyclone for mangrove conservation

Revitalizing old Indian ways along with modern technology can go a long way

7. भारत में अधिक संधारणीय पर्यावरण को बढ़ावा देने के लिए ग्रीन क्रेडिट प्रोग्राम किस प्रकार कार्बन प्रबंधन से कहीं अधिक विस्तृत है? इसके कार्यान्वयन के संबंध में विभिन्न चिंताएं क्या हैं? (उत्तर 150 शब्दों में दीजिए)
- How does the Green Credit Programme extend beyond carbon management to promote a more sustainable environment in India? What are the various concerns about its implementation? (Answer in 150 words)

Green credit programme has been launched recently by Ministry of Environment as a voluntary trading of credits to protect environment & contribute to sustainable development.

It extends beyond carbon management to promote sustainable environment

- ① Voluntary in nature → creates an inner drive to contribute
- ② Reduced legal hassles as compared to earlier schemes
- ③ may be used by CSR funds
- ④ Lack of targets may lead to generative achievements
- ⑤ Open portal → people can take up

Concerns about Implementation

- ① Greenwashing by companies under the
scope of green credit
- ② Regulatory compliances may deter
companies
- ③ limited sector → trees afforestation
water conservation
- ④ overlap with existing models like PFT
may create confusion
- ⑤

To make it more robust

(1) enhanced awareness among public
→
social media

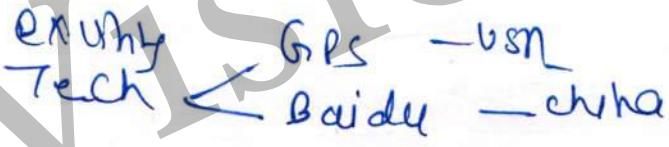
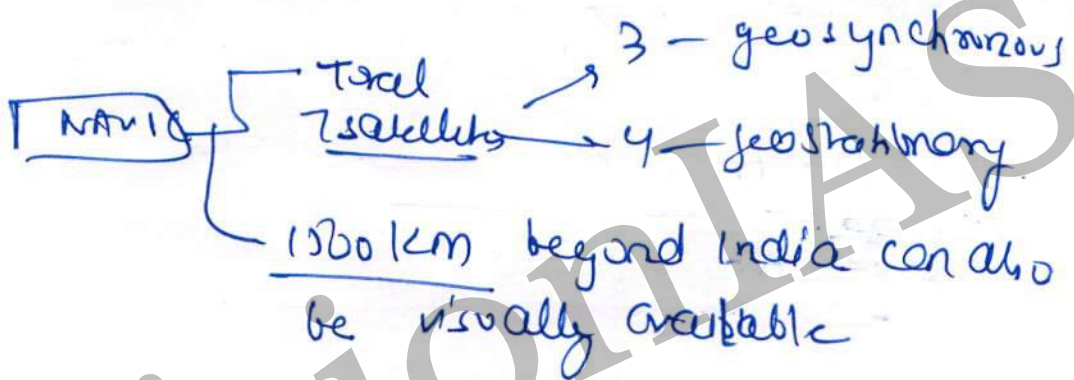
(2) enhanced tangible benefits → Quick
scope of certificate ~~benefit~~ can be done

It can help in achievement of India's
Panchamrit targets & accelerate
India's energy transition.

8. जब पहले से ही अन्य उपग्रह नेविगेशन सिस्टम उपलब्ध हैं, तो NavIC की आवश्यकता क्यों है? (उत्तर 150 शब्दों में दीजिए)
 What is the need for NavIC when existing satellite navigation systems are already available?
 (Answer in 150 words) _____ 10

उम्मीदवारों को इस इतिहास में नही लिखना चाहिए
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Navigation in Indian constellation
 has been designed & developed indigenously
 to enhance capability of India in Civil & military navigation systems.



Need of NAVIC

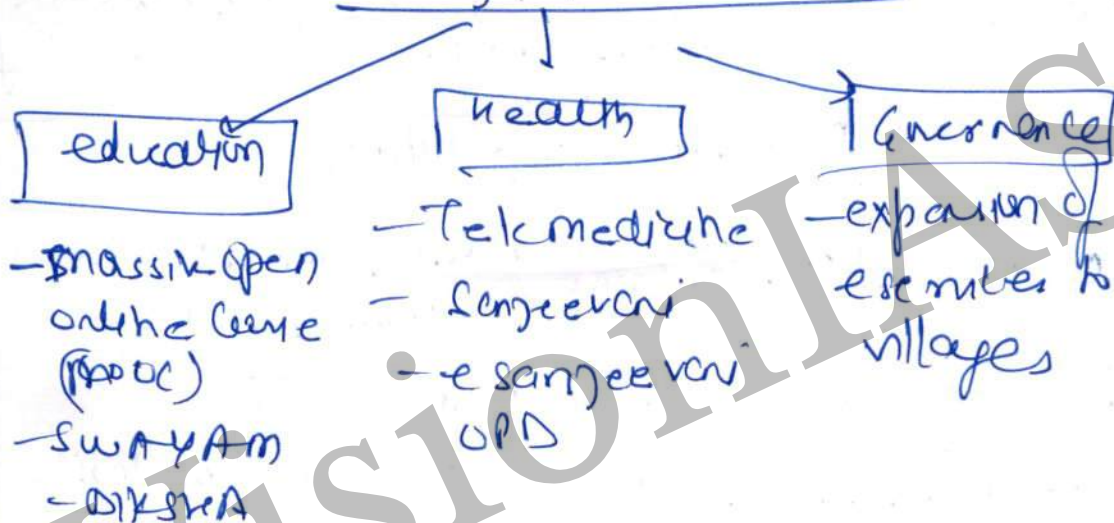
① use in military secce & armed conflicts

② During Kargil war, USA denied GPS to India

③ enhanced space situational awareness



- ③ Boost innovation by attaching startups to ISRO
- ④ Promote international collaboration with countries who have such technologies
- ⑤ Used in reaping the potential of demographic dividend



- ⑥ enhance India's defence capability as our defence movement will become more proactive

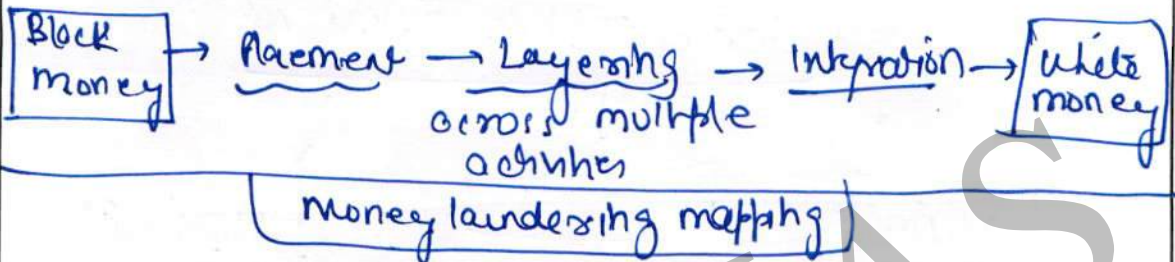
Shankar committee & Kejriwal Review Committee

had both recommended setting up our navigation system to put India on the global map & enhance our defence

9. साइबर-सक्षम वित्तीय अपराध वैश्विक धन शोधन (मनी लॉन्ड्रिंग) के नए क्षेत्र के रूप में उभरा है। चर्चा कीजिए। सरकार इस मुद्दे का समाधान किस प्रकार कर सकती है? (उत्तर 150 शब्दों में दीजिए)
- Cyber-enabled financial crime has emerged as the new frontier of global money laundering. Discuss. How can the government address this issue? (Answer in 150 words) 10

उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
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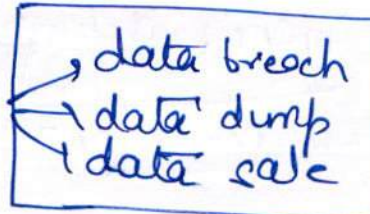
As per FATF, 3-5% global GDP is reduced due to the impact of money laundering leading to financial implication in India & abroad.



① use of deep dark web to steal data

⇒ Recently held that data of 840mn Indians is on dark web

② modern financing using AI/ML



breaching the sovereignty of country laws

③ explosion through Blockchain → phishing
→ ransomware

④ use of organized crime syndicates for internet radicalization & procurement of weapons

⇒ recent reports claim is procuring weapons via Twitter sale

⑤ Use of facebook for connecting different communal groups → ensuring regular contact

To address the issue

① Strengthening laws of domestic countries → Government has to
 → Banami Transaction
 → Kawala Transactions
 → NRPS Act

② Intelligence sharing among the institutional setups along with Interpol, Mossad, etc

IB
 RAAW
 NTRO

③ Global cooperation through AFTF, RATS-SLO and UNIDO for cross border money laundering.

④ Investment in Tech-upgradations

ex → startups in cyber domain
 ex → Taanbom or upgrading

⑤ watch over external financing into NGOs

Regulatory methods, strengthening cross border cooperation, better investments are need to create a robust anti-money laundering framework & create a safer economy

10. इंडियन आर्मी वर्ष 2024 को 'प्रौद्योगिकी समावेशन वर्ष (Year of Technology Absorption)' के रूप में मना रही है। इसके आलोक में, स्पष्ट कीजिए कि भारत के रक्षा क्षेत्रक में प्रौद्योगिकी के समावेशन की आवश्यकता क्यों है। इस पहल में भारत को किन चुनौतियों का सामना करना पड़ सकता है? (उत्तर 150 शब्दों में दीजिए)
- The Indian Army is observing the year 2024 as the 'Year of Technology Absorption'. In light of this, explain why there is a need for technology absorption in the defence sector of India. What challenges can India face in this initiative? (Answer in 150 words)

10

India has achieved a new milestone of 21,000 crore of defense exports in FY24 → a new paradigm of innovation in defense.

Need of Technology adoption in defense

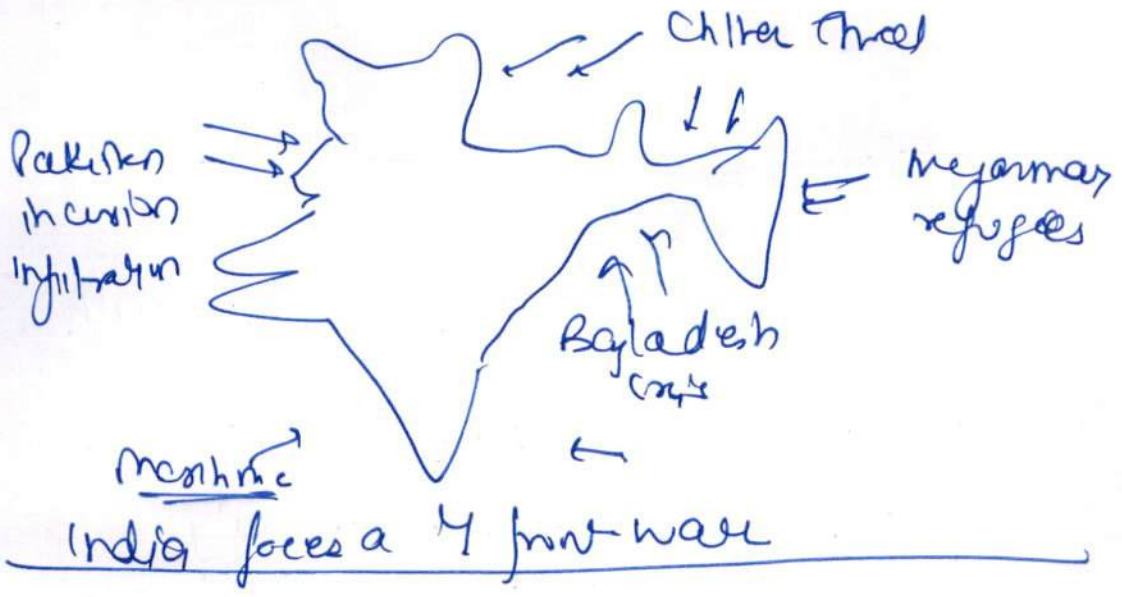
① Self reliance & Indigenization of ^{defense} economy

ex → India is 2nd largest importer of arms

② For quick response in times of conflict and enhance India's defence

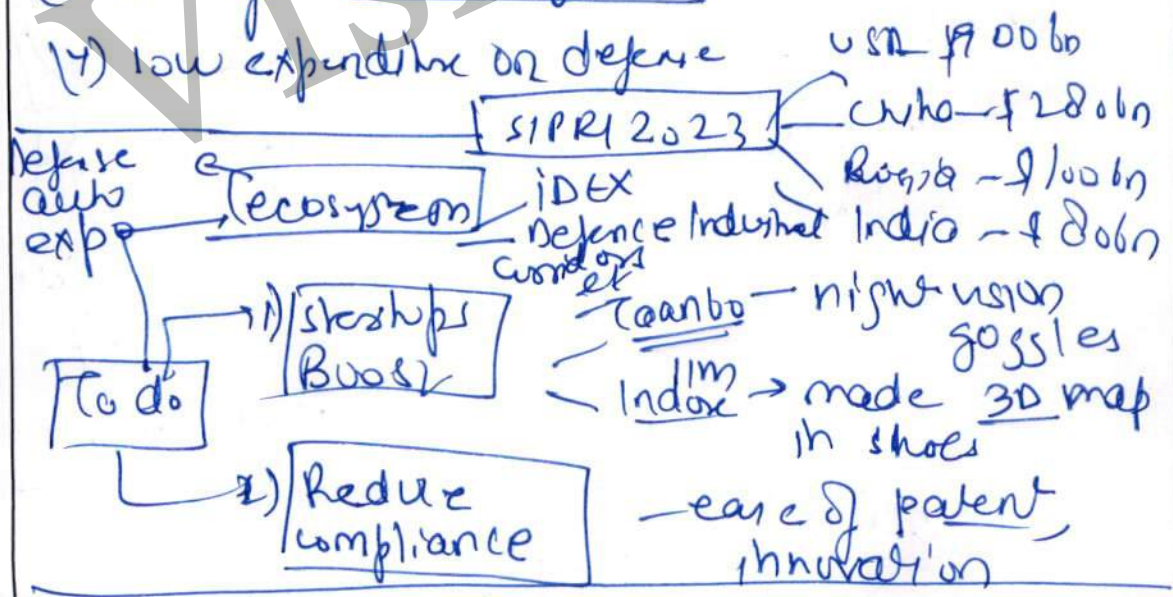
③ move from a reactive / defense movement to a proactive engagement with enemy

④ deal with pitfalls strategy of China, protect & prepare India for geopolitical crisis.



Challenge

- (1) Lack of Research & Innovation → 0.7%
- (2) Traditional bureaucratic red tapism
e.g. Bus on L or G or GSR
- (3) Lack of civil military fusion
- (4) low expenditure on defense



As Chanakya say →
 If you lose shastra → you lose culture
 If you lose shastra (defense) → you lose nation
 Defence Technology is needed.

11.

भारत के पूर्वोत्तर क्षेत्र (NER) में व्यापार एवं उद्योगों के विकास में किन समस्याओं का सामना करना पड़ा है? इन समस्याओं से निपटने हेतु किए गए उपायों पर टिप्पणी कीजिए। (उत्तर 250 शब्दों में दीजिए)
What are the issues faced in the development of trade and industries in the North-Eastern Region (NER) of India? Comment on the measures that have been taken to tackle these issues. (Answer in 250 words)

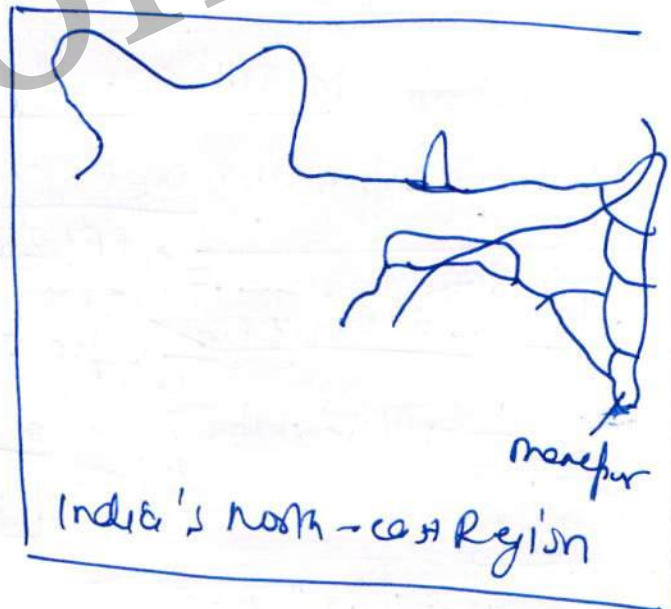
उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
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15

North-eastern Region is abundant with raw material for Industry and huge hydropower potential & oil availability. Yet it has been facing issues in development of Trade & Industries

① Terrain & Topography Issues

- Height is varying across the north eastern states
- mountains & over rivers
- lack of integration with far flung areas



② Insurgency

- from myanmar, copts
- Refugee & infiltration
- costs leads to instability
- Manipur consists

③ **Supply chain bottlenecks** due to lack of integration with the rest of country & low transportation avenue

Roads are the favorite mode of transaction due to ease of availability

underdeveloped railways leads to huge cost to industries

④ **vulnerability to disasters**

frequent landslides

earthquake prone - whole north east is in zone V

Glacial lake outburst flood in Sikkim damage industries

⑤ **Low cultural connect**

→ not integrated with mainstream

→ cultural resilience & resistance towards Indian industries

measures taken to enhance the development of trade & industries

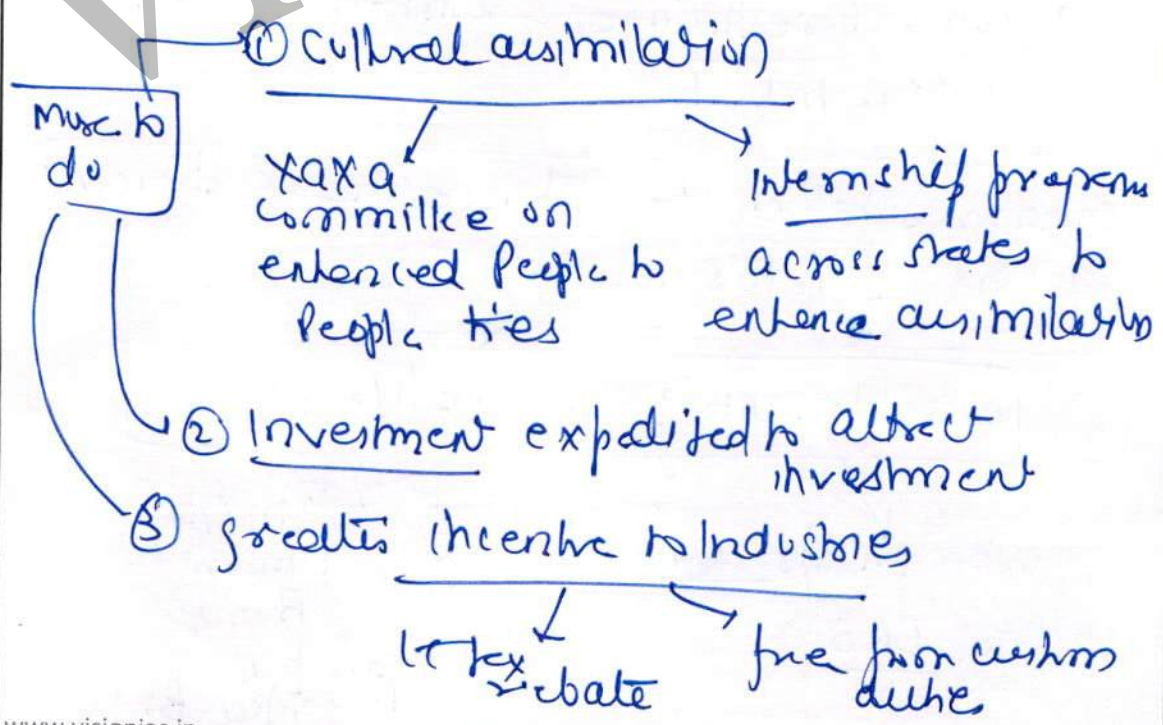
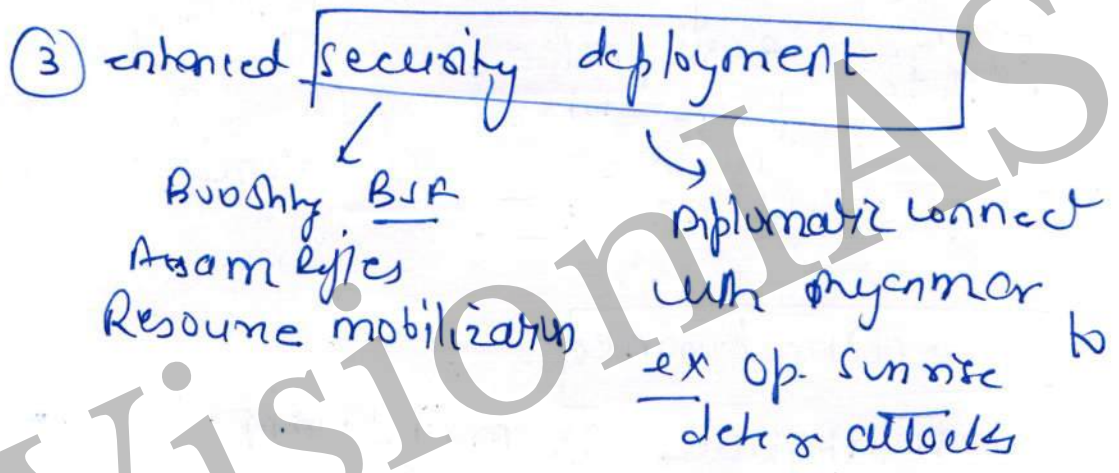
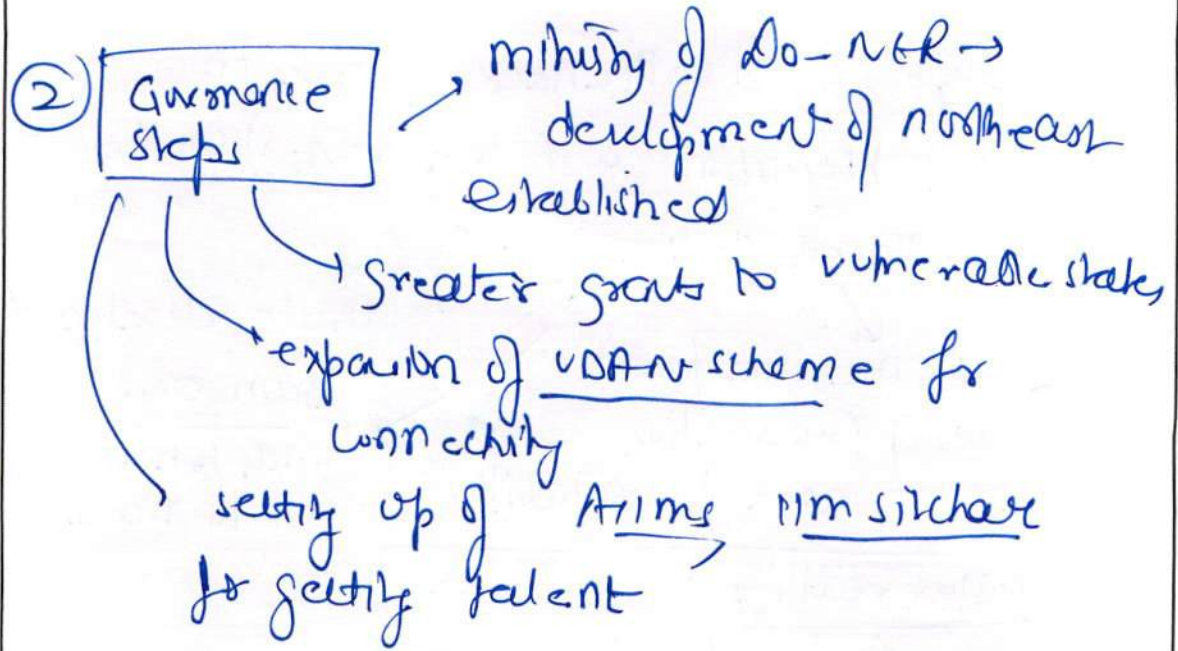
① **Development of concrete infrastructure**

expansion of roads under BRO

Sela Tunnel

'Sadia Dhubri' Bridge

BRUPen Kezenker Bridge 27



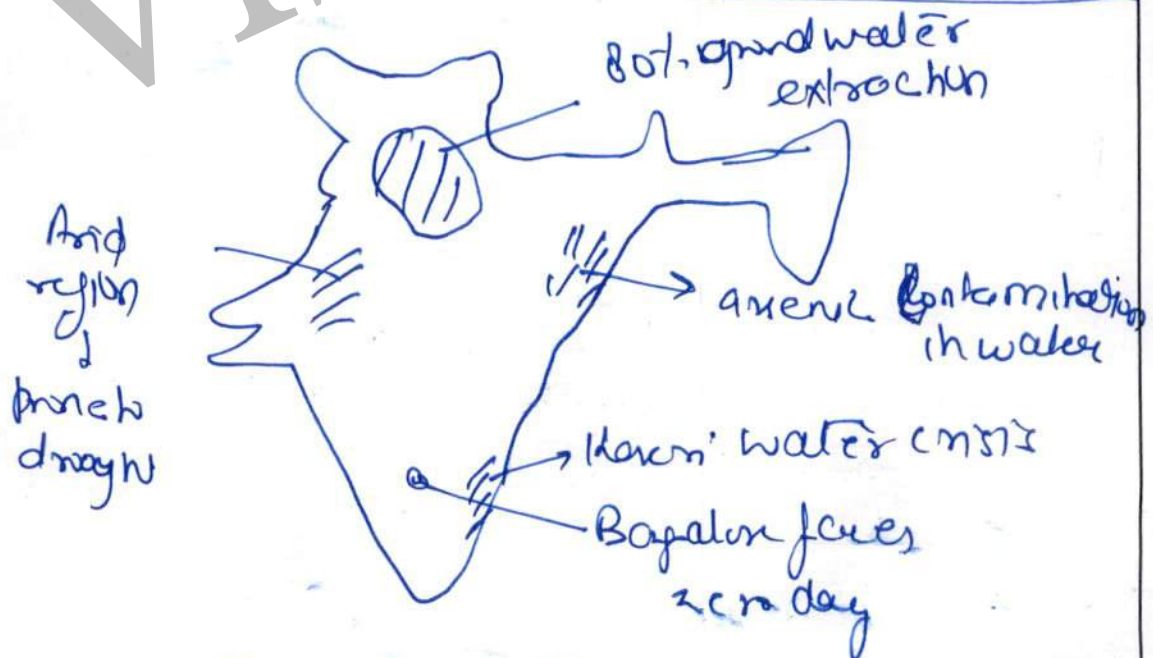
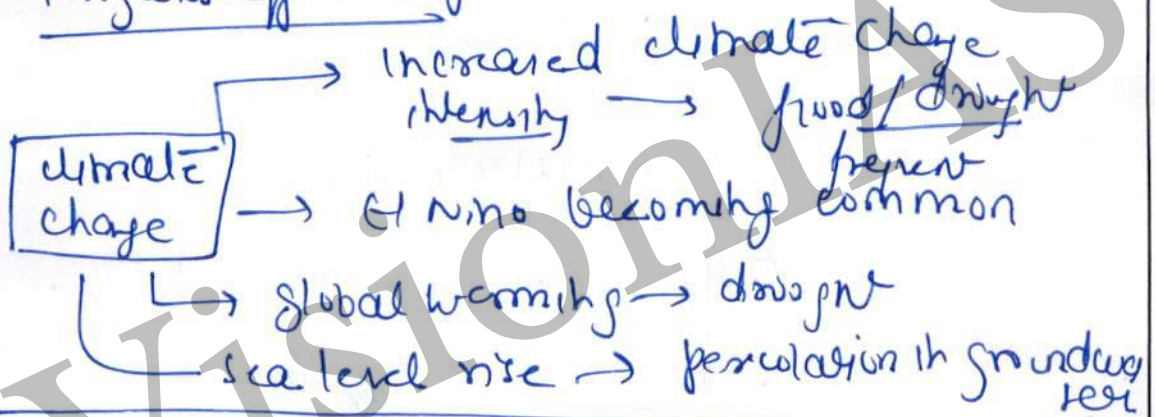
12.

जलवायु परिवर्तन और बढ़ते जल संकट के युग में, सूक्ष्म सिंचाई प्रणालियां भारत में संधारणीय कृषि पद्धतियों में किस प्रकार योगदान दे सकती हैं? (उत्तर 250 शब्दों में दीजिए)

In the era of climate change and growing water scarcity, how can micro-irrigation systems contribute to sustainable agricultural practices in India? (Answer in 250 words) 15

उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
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India has 16% of world's population yet 4% of global water resources and 45% of population dependent on agriculture. This shows the dire need of ensuring better irrigation efficiency.



India & water crisis

growing water ~~scarc~~ scarcity

① **Availability**

1952 →	186000 m ³ /pppd
2000 →	1370 m ³ /pppd

ANUR report

groundwater recharge sub-optimal
Between 2007-2017 → over 60% extraction (150)

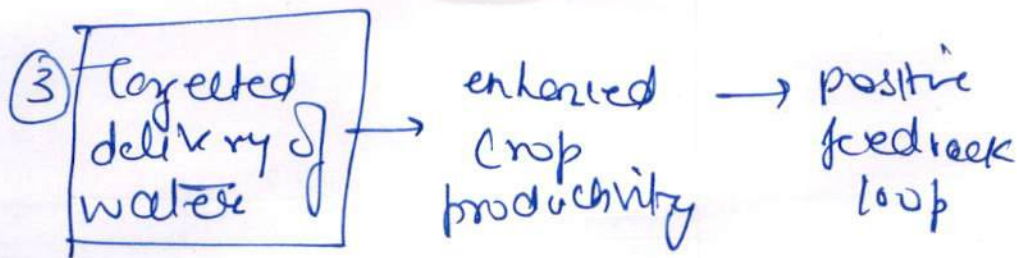
falling aquifer levels
water now available at 400-500m depth in Punjab/Kerala

② **Quality**

→ arsenic contamination in West Bengal
→ groundwater contaminated with agriculture runoff - pesticide fertilizer

micro-irrigation systems

- ① **improve per drop efficiency** of crops & water is enhanced
- ② **sustained & quick release** will lead to saving on extra flow

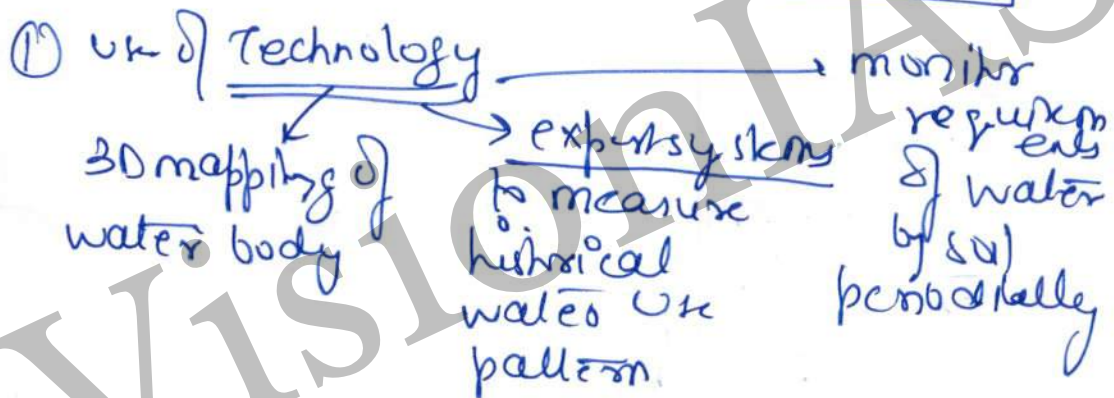


④ Recharge of groundwater will be efficient

⑤ Reduced surface Runoff → saving nearby lakes & ponds

↓
Recharge of aquifers ← biodiversity will thrive

For enhanced minimization efficiency



② Investment in water saving technologies → drip irrigation, sprinkler, etc.

③ Collaboration with countries like Israel

India needs to move from land use productivity to irrigation use productivity
i.e. from tonnes/hectare to m³/hectare
to ensure sustainable & reliable agriculture
for moving irrigation to economic growth

13.

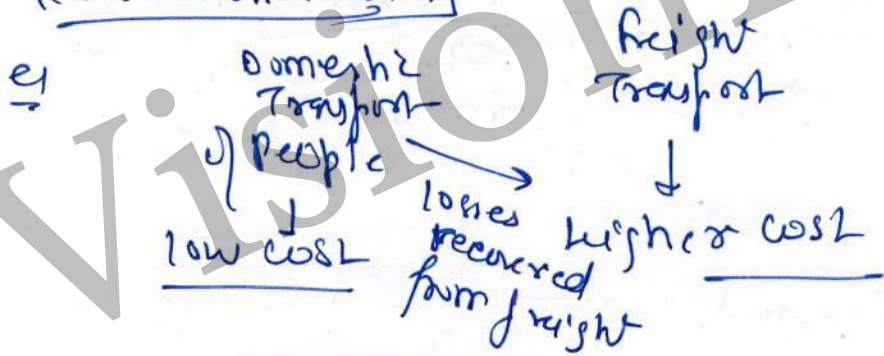
भारतीय रेलवे में माल परिवहन से संबंधित समस्याओं का समाधान करने तथा घरेलू माल ढुलाई में इसकी हिस्सेदारी बढ़ाने के लिए कौन-सी रणनीतियां अपनाई जा सकती हैं? (उत्तर 250 शब्दों में दीजिए)
 What strategies can be adopted to overcome the issues pertaining to freight transportation in the Indian Railways and increase its share in the domestic freight? (Answer in 250 words) 15

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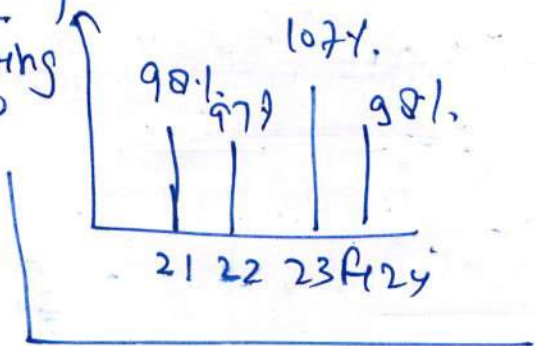
Indian railways have the 4th largest network with over 65,000 km of railway tracks promoting movement of over 3.5bn people annually and significant contribution to freight movement

Issues pertaining to freight Transportation

① higher freight transportation cost due to
(cross subsidization)



② higher operating ratio due to excess expenditure
Operating Ratio



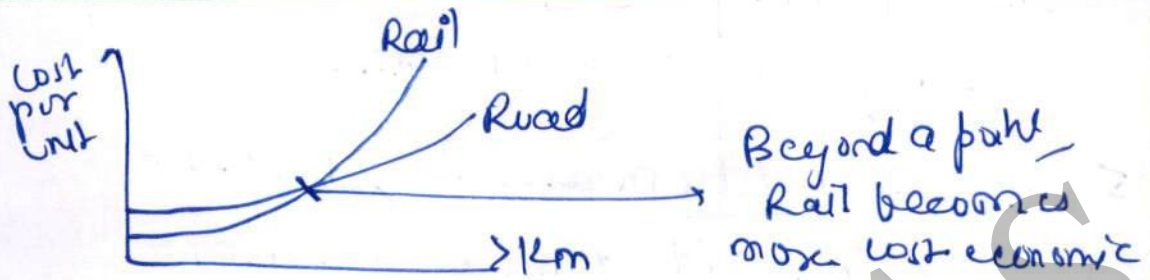
③ lack of modernized tracks

or Both passenger and freight move on some tracks →

Priority given to passenger movement

(4) lack of investment in freight movement as modern technologies like KAVACH and collision brake systems are used on passenger vehicles first

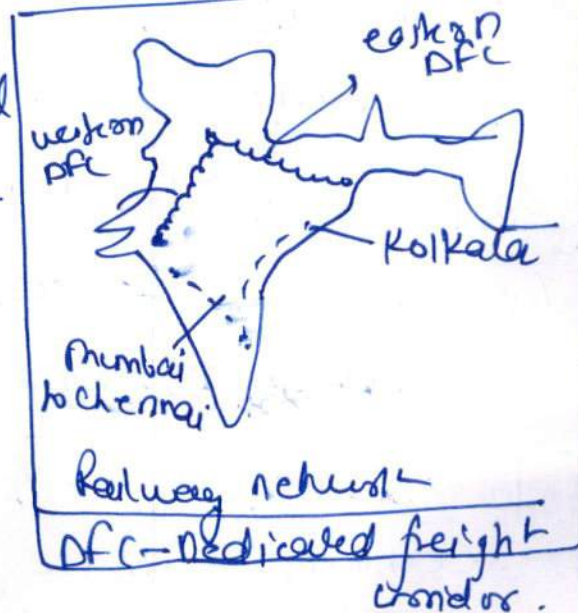
(5) lower government budgeting to freight domain



Strategies to overcome issues

① Adequate investment in Ru-Ro for Rail on par of efficient multi-modal connectivity & ease of Transport

② Integration with 'Sakti', National monetisation pipeline to enhance revenue for investment



(3) expansion of railway lines dedicated to freight and regular MRO (maintenance, repair and overhaul)

(4) International collaboration with countries like Germany, Russia who use mostly railway for freight movement

(5) enhanced safety measures, to ensure no accidents and efficient movement

(6) Integrated channels for seamless connectivity, quick generate retrieval and e-services for companies using rail network

Champions 12.3 have been advocating for use of railways under Kishi (Kisan Rail) for movement of agricultural products

Railways need to be driven by Man Manak (Better human Resources), Man Arjan (Innovation) and Man Sanrachna (Investment in R&D) for ensuring they are the new partners of economic growth

14.

उन कारकों पर चर्चा कीजिए जिन्होंने नवीकरणीय ऊर्जा क्षेत्र में प्रभावशाली प्रगति करने और वैश्विक नवीकरणीय ऊर्जा परिवर्तन में अग्रणी के रूप में स्थापित होने में भारत की सहायता की है। (उत्तर 250 शब्दों में दीजिए)

Discuss the factors that have aided India in making impressive strides in the renewable energy sector and establishing itself as a frontrunner in the global renewable energy transition. (Answer in 250 words)

उम्मीदवारों को इस हार्जिफ में नहीं लिखना चाहिए
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India has been ranked at 8th position in climate change performance index (2023) for significant achievements in renewable energy sector.

Factors that have aided India in making strides in renewable energy

① Institutional factors in setting up right mechanism for coordination & collaboration
 ↓
 Ministry of environment
 ↓
 Policy → natural solar, wind policy
 ↓
 Regulatory Bodies like BEE

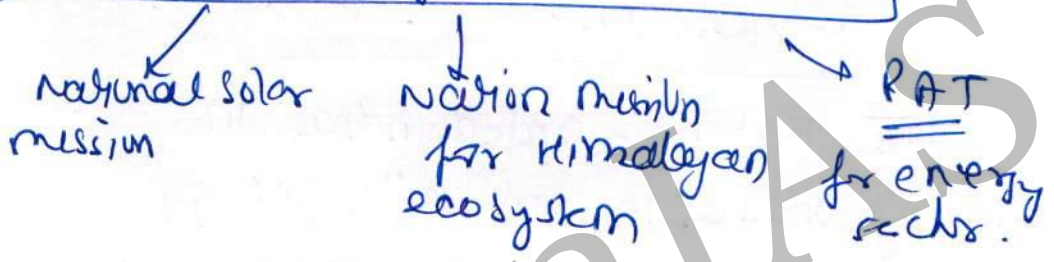
② Commitment by the government at forums like COP-26 → Panchamrit Targets (2070-climate neutral)

(3) Research & Innovation by startups leading to growth of sectors ex solar parks created by startups

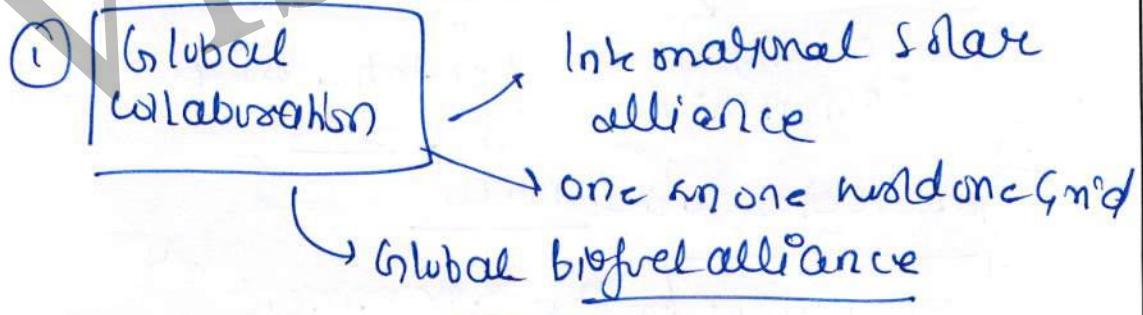
(4) Investment

- Green Hydrogen → 19,600 crore
- Pm Suryodaya Yojana

(5) Dedicated bodies for different issues



India - forrunner in global renewable energy transition



(2) Collaboration on New areas

ex MAARUMI for millets production at IS20

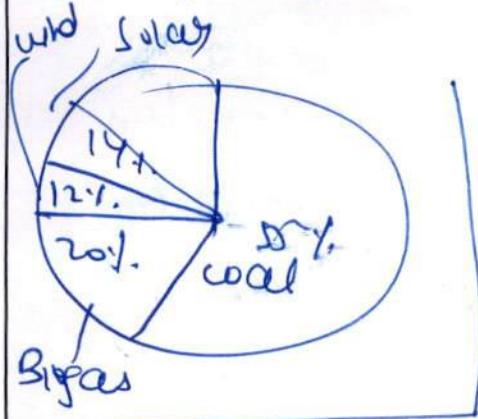
(3) India has achieved INDC as per the commitment held at COP26

Yes, India faces challenges

उम्मीदवारों को इस हार्शिए में नहीं लिखना चाहिए
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1) high dependency on

coal - energy
↳ (imported fossil fuel for vehicles)

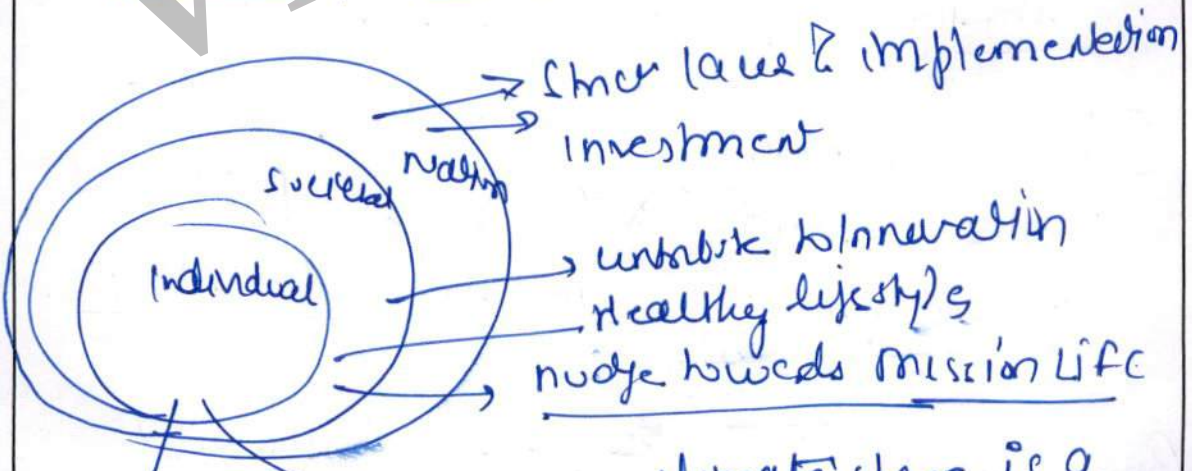


2) dilemma over energy
needs of 1.4 billion people
vs Transition

3) Investment needs - As per UPI, India needs \$ 1.7 trillion for climate neutrality by 2070.

4) Issues with Performance Trade - Carbon Trade
Greenwash

To go forward, multi-pronged approach is needed



Individual Behavior
e.g. AC @ 26
campaign

↳ responsibility

Climate change is a reality. The sooner we adopt mechanisms to deal, better will be the future

15.

उर्वरकों और कीटनाशकों से युक्त कृषि अपवाह पर्यावरण प्रदूषण में किस प्रकार योगदान देता है? कृषि अपवाह के प्रभाव को कम करने के लिए क्या उपाय अपनाए जा सकते हैं? (उत्तर 250 शब्दों में दीजिए)

How does agricultural runoff containing fertilizers and pesticides contribute to environmental pollution? What measures can be taken to mitigate the impact of agricultural runoff? (Answer in 250 words)

15

Overuse of pesticides & fertilizers has been a concern as mentioned by economic survey 23-24 where N:P:K ratio is

$4:2.8:1$	$7:4:1$
Ideal	Actual

Agricultural runoff → environmental pollution

① Degradation of soil quality leading to lack of nutrients availability in soil

↳ leads to damage of ecologically restorative capacity of soil due to continuous supply

② Water pollution due to runoff of water carrying pesticides & fertilizers leading to eutrophication & nutrient contamination

③ Groundwater becomes contaminated with pesticides rendering it non-useful.

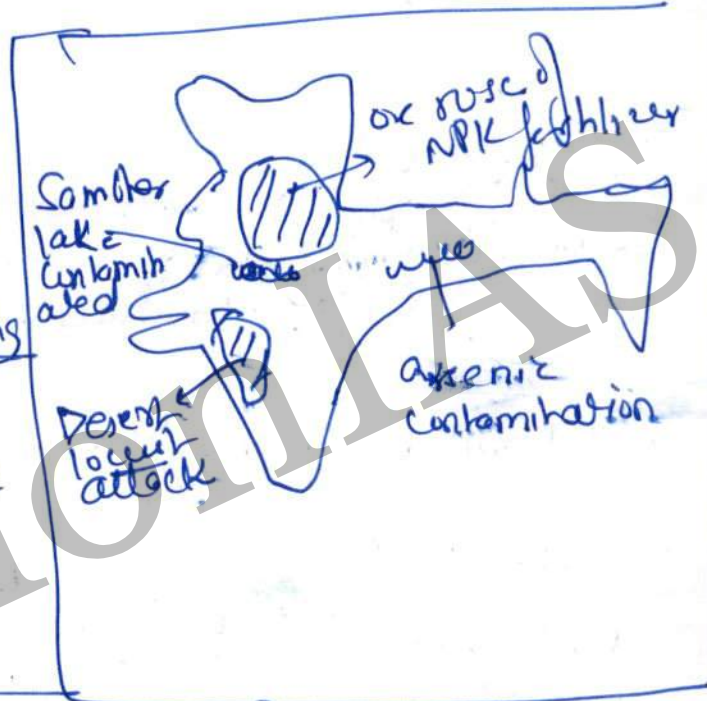
④ Biodiversity impact on Birds local species
 who cannot survive in poor quality water

⑤ Affecting quality & availability of water
 as per capita consumption
 availability
 due to increased usage

	1950	→	2020
	6000 m ³		1300 m ³
	per person		pppd
	per day		

⑥ Damage the
streams flowing
 downstream
 of pollution in Ganga

⑦ Drying and turning
 of lakes
 of Bellandur lake
 caught fire in
 Bangalore



measures to mitigate impact of agriculture

① Institutional measures → Regulation by Central
 Ground water body &
 CWC

उम्मीदवारों को
 इस हार्शिय में
 नहीं लिखना
 चाहिए
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 write on
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② strict implementation of laws to regulate the use of pesticides

- Regular audit
- quality mapping

③ Technology Integration with farmers to analyze adequate quantity of fertilizer & pesticide needed.

eg use of expert systems Google photos, 3D mapping to check nutrient levels

④ Rent subsidy policy of fertilizer

Integrate Pos with land records to ensure only farmers use

Rent MRP norms to help in private sector

Industry compliance needs to be enhanced

Agriculture contributes 18% to GDP yet it suffers from overemployment & underused employment. Agriculture needs to be made more viable, farmer friendly and efficient to protect both economy & environment for a healthy India @ 75

16.

हिमालयी राज्यों में पर्यटकों की बढ़ती संख्या ने उनके पारिस्थितिकीय समावेशन क्षमता को पार कर लिया है, जिसके कारण बड़े पैमाने पर मानव-जनित आपदाएं उत्पन्न हुई हैं। संधारणीय पर्यटन को बढ़ावा देते हुए ऐसी आपदाओं को रोकने के लिए क्या उपाय किए जा सकते हैं? प्रासंगिक उदाहरणों के साथ चर्चा कीजिए। (उत्तर 250 शब्दों में दीजिए)

The growing influx of tourists in Himalayan states has breached their ecological carrying capacity, leading to significant man-made disasters. What measures can be implemented to prevent such disasters while promoting sustainable tourism? Discuss with relevant examples. (Answer in 250 words)

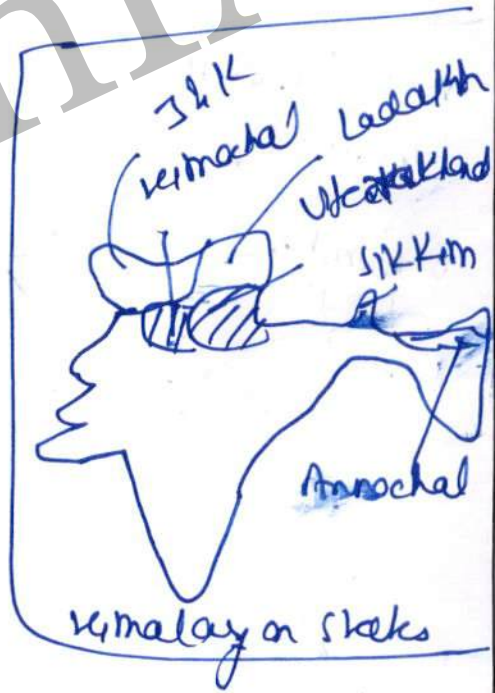
उम्मीदवारों को इस हाशिये में नहीं लिखना चाहिए
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15

Increasing cases of disasters in the Himalayan region have become common due to human interventions leading to environmental and livelihood damages

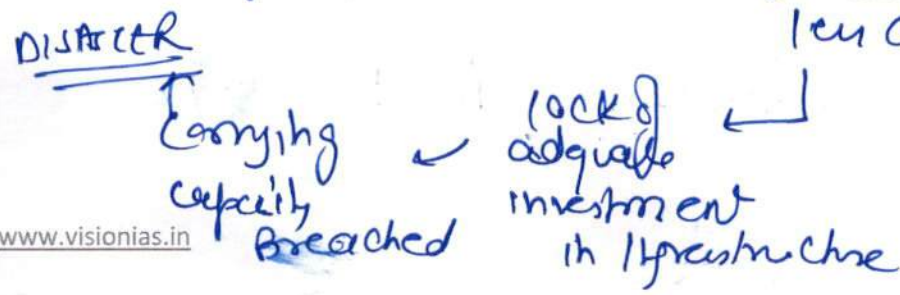
Growing influx of tourists

- 1) Rise of social media
- 2) Rise of influencers & wander travel
- 3) Rising disposable income
- 4) Increasing awareness
- 5) Better connectivity through udaan, van de Bhandar



- ↓
- 1) intense pollution
 - 2) Over dependence on tourism

→ economy becomes less diversified



Measures to implement ~~such~~ to prevent disaster

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
Candidates must not write on this margin

① Infrastructure measures

- People friendly & accessible → Atal Tunnel (Manali)
- environmentally safe → Bamboo Crash Barrier
- Development of Homestays in Auli
- Push to green transport of EV
- Renters building byelaws of Jashimath (Mushra Committee recommended)

lack of snow
& gulmarg

Dharamtala
cloud
burst

Landslide in
Manali
2023

Kedarnath
Flood of 2013

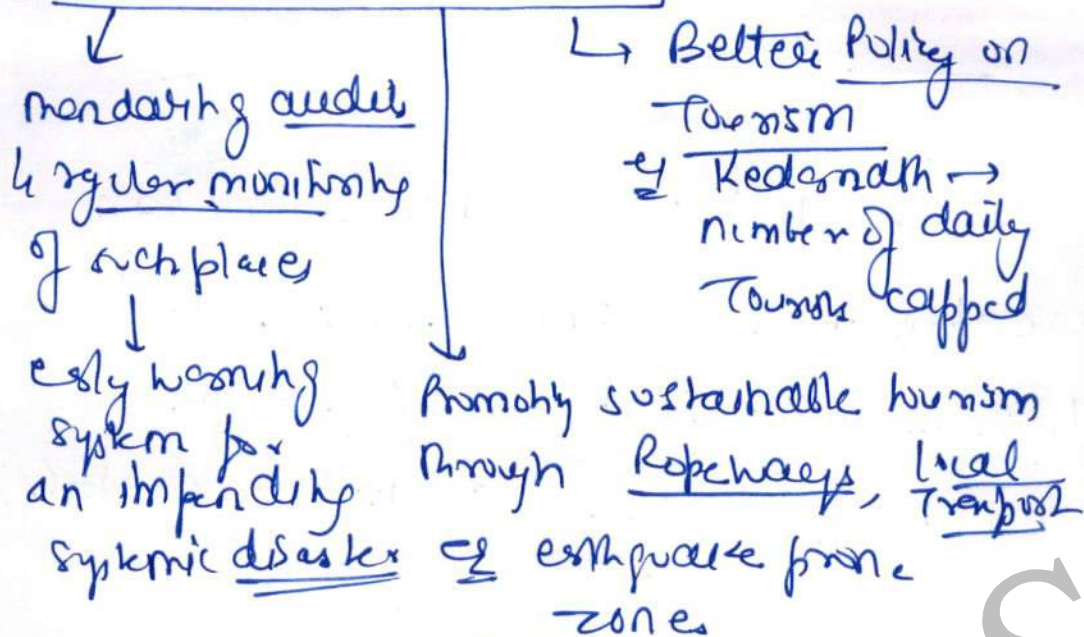
54 Km
flood

Manipur Rail
accident &
Landslide

Jashimath
land subsidence
2023

Recent disasters in Himalayas

② Institutional measures



③ Behavioural measures

- Nudge Theory for responsible tourism
↳ UK capped bottles can be returned for
WRs in Tungnath to reduce plastic
pollution
- mandating use of dustbins in every
at cor entrance Rishikesh.

→

Responsible & sustainable Tourism is essential
to maintain Kinjalaya or states pristine
and pure for a long time

17.

सुपरकंडक्टर्स विज्ञान एवं प्रौद्योगिकी के विभिन्न क्षेत्रों में नवाचार को किस प्रकार बढ़ावा देते हैं? उदाहरण सहित स्पष्ट कीजिए। (उत्तर 250 शब्दों में दीजिए)

How do superconductors fuel innovation in diverse fields of science and technology? Illustrate with examples. (Answer in 250 words)

15

Superconductors are devices that can have properties of zero resistance and 100% conductive powers for smooth movement of electrons through the metals.

They are not found naturally as they require zero tolerance to heat, temperature, humidity etc.

Yet they have been made in labs under extreme environment.

Superconductors fuel innovation in science & tech.

① Advanced Post hole Physics for research in deep technology & innovations in metro physics

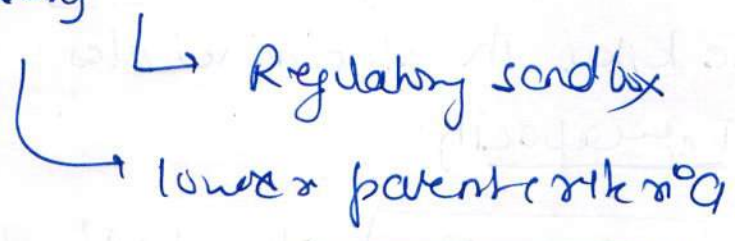
② Nanotechnology to show how movements in metal occur at a concrete level

4 11/11/11 study on nanomaterials in a healthy manner.

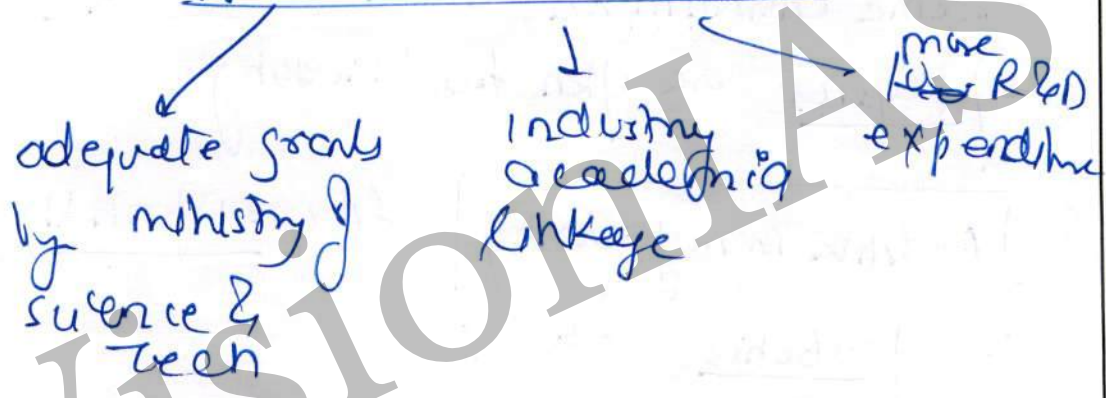
- ③ Boost bio genomics & development of vacines under a controlled environment
- ④ enhance Mobility Innovation as they can be used in electric vehicles & resistor-capacity
- ⑤ Quantum Technology often works under extreme environments where natural law of physics are often found breaking,
- ⑥ Additive manufacturing like 3D printing, use of robotics
- ⑦ Nuclear reactors where super superconductivity can help in achieving criticality
- ⑧ Develop of medicines through well researched test & trials

To boost superconductor research

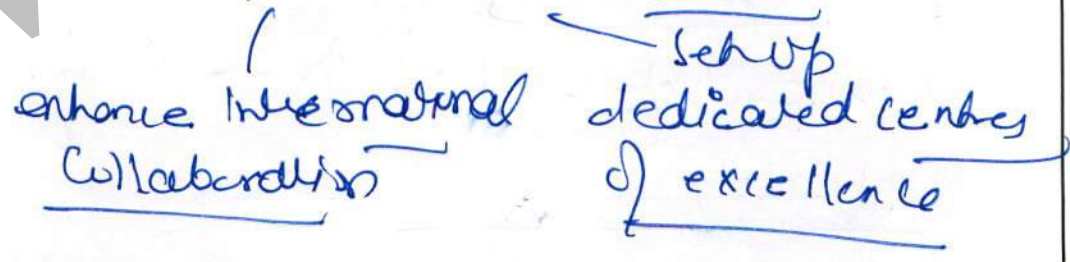
① Ecosystem of innovation & R&D is necessary



② Boost private sector investment



③ autonomy to institutions like IISc



Research in superconductor can enhance India's GDP by accelerating innovation

18.

यद्यपि भारत में लगभग सभी प्रकार के बौद्धिक संपदा अधिकारों को कवर करने वाले कानून मौजूद हैं, फिर भी अनेक प्रवर्तन संबंधी, विनियामक और प्रशासनिक चुनौतियां भारत में बौद्धिक संपदा अधिकारों के व्यावसायीकरण में बाधा उत्पन्न करती हैं। सविस्तर वर्णन कीजिए। (उत्तर 250 शब्दों में दीजिए)

While India has laws covering almost all types of intellectual property rights, numerous enforcement, regulatory and administrative challenges hamper the commercialisation of IPRs in India. Elaborate. (Answer in 250 words)

उम्मीदवारों को इस कक्ष में नहीं लिखना चाहिए
Candidates must not write on this margin

15

India has been expanding IPR patent granting ^{per 1000} reducing time from earlier 14 months to 2 months and more focus on patent innovation. Yet, we have lagged behind many advanced countries like China & USA where annually ~25000 patents are granted.

Laws of Intellectual Property Rights

→ Copyright law → for invention & new development

→ Patent law

→ participant in TRIPS

→ Geographical Indications Tag 2016

Yet there are challenges →

① Enforcement challenges

enhanced cost of applying for a patent

limited time period for renewal

compliance becomes difficult due to pirated products

② Regulatory Challenges

Bureaucratic Red tapism in granting patents
= Corruption

Overlapping Jurisdiction between different laws

③ Administrative challenges

ensuring no conflict with international laws becomes difficult

lack of manpower & skilled workforce in patent offices to evaluate the efficacy of patents

Way forward to deal with challenges

उम्मीदवारों को इस हॉगिप में नहीं लिखना चाहिए
Candidates must not write on this margin

(1) Streamline institutional setup

↓
Director-General of Patents to have authority over grants

↓
Regulatory streamlining, reducing jurisdictional complexity, clear guidelines

(2) use of Artificial Intelligence/machine learning to track IPR

→ expert systems → can guide on the innovative aspect

→ deep learning → to check plagiarism & piracy

(3) International collaboration

↓
WIPO treaty of Traditional Knowledge & patents

→ expertise

→ Training & exchange programs

→ Learning from best global practices

→ Bern's law of Europe

IPR laws are to be made robust & innovative to emerge as innovation capital of world.

India's ranking in Global Innovation Index at 38th (2023) shows the gradual upward

trajectory towards Jai Jawan, Jai Kisan, Jai Vigyan, Jai Anusandhan

19.

एकीकृत थियेटर कमान का निर्माण करने में सामना की जाने वाली चुनौतियों को ध्यान में रखते हुए, परीक्षण कीजिए कि कमानों का थिएटराइजेशन किस प्रकार तीनों सेनाओं के बीच जनशक्ति और संसाधनों के बेहतर एकीकरण और युक्तिकरण को बढ़ावा दे सकता है। (उत्तर 250 शब्दों में दीजिए)

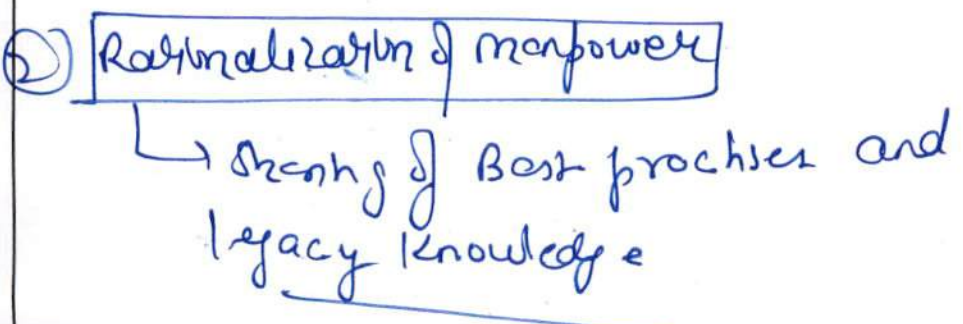
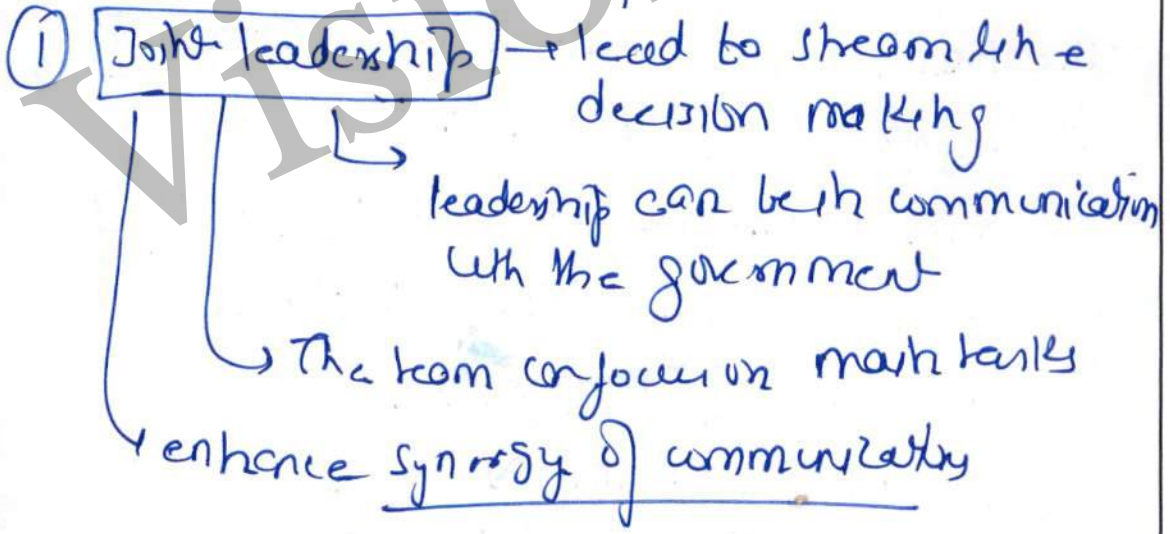
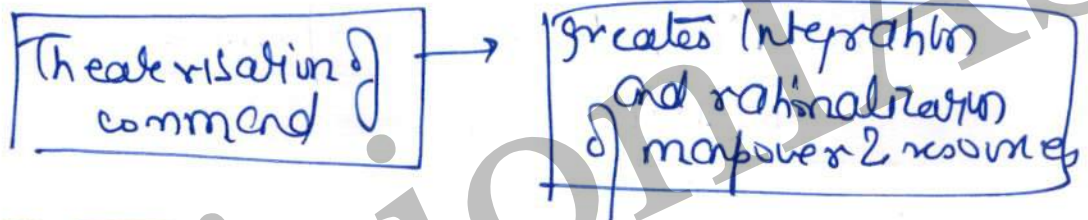
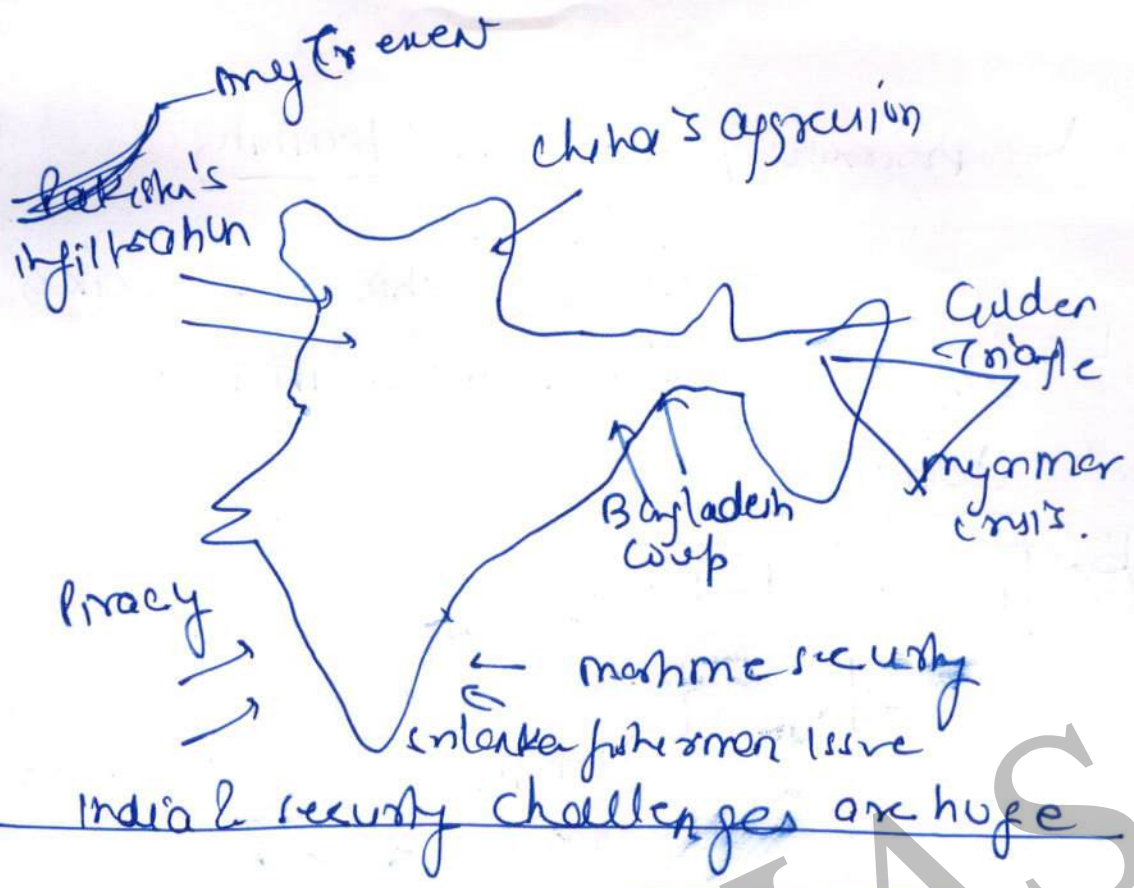
Keeping in view the challenges in creating integrated theatre commands, examine how the theaterisation of commands can lead to greater integration and rationalisation of manpower and resources among the three services. (Answer in 250 words) 15

Theaterisation of commands is the process of integration of three services of Army, Navy & Airforce in strategic areas to enhance joint cooperation and synchronization

⇒ India has only one theatre command
i.e. Andaman & Nicobar theatre command

Challenges in creating integrated Theatre Command

- ① Bridging differences among the three services → different culture
→ different way of working
- ② Legislative acts and norms of services often in clash
- ③ Resource distribution complexity as Army gets the most fund
- ④ Regulatory challenges → hierarchy
→ delay in decision making

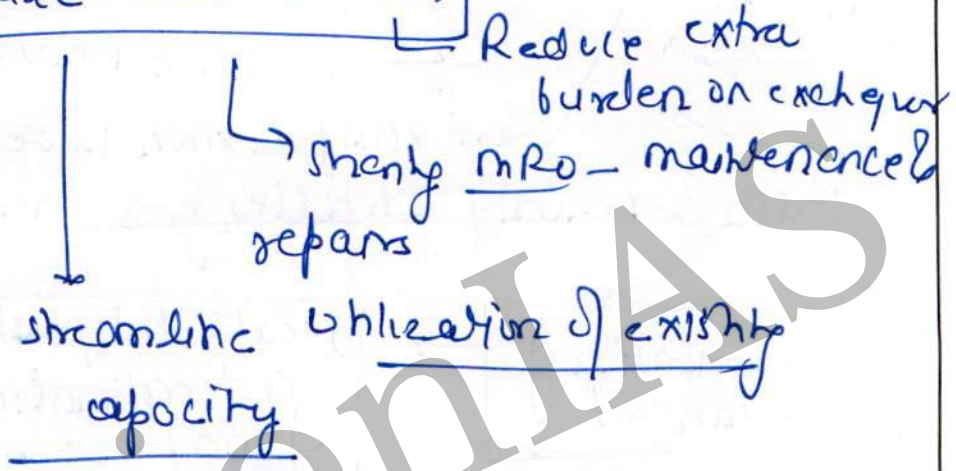


↳ Promote Joint tactical training

↓
enhanced expertise & awareness

↳ Improve surveillance mechanism & deterrence

③ Resource Rationalization



The rationalization of commands is a vital cog in the overall defense makeover. It becomes essential to be swift & agile in the modern geopolitical parlance.

↳ USA renamed its Pacific command as Indo-Pacific command due to rising importance of Indian Ocean.

India has taken note of it and feels needs to be an enhanced agility in defense & civil-military fusion

20.

सीमावर्ती गांवों को न केवल भौगोलिक दृष्टि से बल्कि सुविधाओं के मामले में भी प्रथम गांव मानना, सीमा सुरक्षा बढ़ाने की एक प्रमुख रणनीति हो सकती है। विवेचना कीजिए। साथ ही, इस संबंध में सरकार द्वारा किए जा रहे उपायों पर भी प्रकाश डालिए। (उत्तर 250 शब्दों में दीजिए)

Treating border villages as first villages not just geographically but also in terms of facilities can be a key strategy for enhancing border security. Discuss. Also, highlight the measures being taken by the government in this regard. (Answer in 250 words)

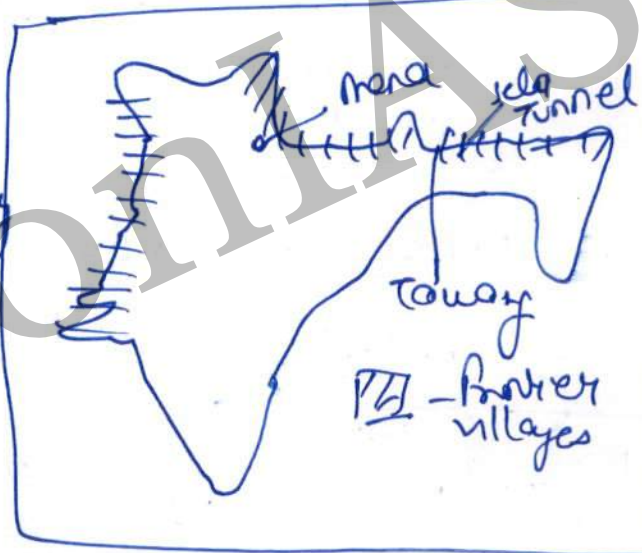
उम्मीदवारों को इस हार्शिए में नहीं लिखना चाहिए
Candidates must not write on this margin

15

Recently, PM renamed the last Indian village more as the first Indian village showing the importance of frontier villages in our security strategy.

Treating Border villages as first villages - geographically

① Since they are in close proximity to the neighboring country



Promotion of tourism

Better access to resources

more people to people connect

Reduced ghost towns of South villages - in ultra rapid

provides employment to locals

Bring them on the map of development

Better facilities to ensure security

- ① Max. Investment in capital expenditure & m-power in north east can be leveraged.
- ② Direct in contact with enemy in case of war
- ③ They are a strategic asset for recce and information
& Bhakkerwals (shepherds) are regular in contact with Army on enemy movement in D&K
- ④ Ensure supply chains & support to frontier forces of ITBP

Measures taken by Government

- ① Vibrant Villages Program in all States border with China to boost - investment
→ People connect
→ tourism
- ② Border Area Development Program has been expanded.

- ③ Infrastructure Boost
- Sela Tunnel in To Wang
 - Atal Tunnel near Recky
 - Sadiya Dhubi bridge
 - Umthla Pass
 - largest railway bridge (suspension) near Kashmir

④ Boost to Border Road Organization for investment in Road safety

⑤ Rejuvenation of ITBP, Army, UDAN initiative

More needs to be done

① Enhanced budget expenditure on defense

~~USA~~ → \$ 900 bn
China → \$ 280 bn
Russia → \$ 100 bn
India → \$ 84 bn

— SIPRI 2022

② enhanced surveillance against Xinjiang villages set up by China

③ Boosting innovation & startups for aiding security forces e.g. night vision goggles, 3D maps

Border security is crucial for maintaining national sovereignty & ensure economic growth

SPACE FOR ROUGH WORK

VisionIAS

AL