



**VISIONIAS**  
INSPIRING INNOVATION  
**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. : 01330430

अभ्यर्थी का नाम/Name of Student : PAVITHRA.P

माध्यम: हिंदी/अंग्रेजी  
Medium: Hindi/English

ENGLISH

तारीख  
Date

25-AUG-24

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

केंद्र  
Centre

chennai

निरीक्षक के हस्ताक्षर  
Invigilator's Signature

	<p style="text-align: center;"><b>महत्वपूर्ण अनुदेश</b></p> <p>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।</p>	<p style="text-align: center;"><b>Important Instructions</b></p> <p>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.</p>
1	<p>(क) अपना पंजीकरण सं. एवं अन्य विवरण केवल प्रश्न-सह-उत्तर पुस्तिका (क्यू.सी.ए.) में उम्मीदवार के लिए निर्धारित स्थान पर ही लिखें।</p> <p>(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।</p>	<p>(a) Write your Registration Number and other details only in the space provided in the Question-Cum-Answer (QCA) Booklet for candidates.</p> <p>(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</p>
2	<p>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।</p>	<p>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.</p>
3	<p>परीक्षक को प्रत्यक्ष/अप्रत्यक्ष रूप से कोई भी प्रार्थना/धमकी भरी बातें न लिखें।</p>	<p>Do not make any direct/indirect appeal/threat to the examiner.</p>
4	<p>उत्तर अस्पष्ट अथवा गंदी लिखावट में न लिखें। इस प्रकार के उत्तर का मूल्यांकन नहीं भी किया जा सकता है।</p>	<p>Do not write answers in bad/illegible handwriting. Such answers may not be evaluated.</p>
5	<p>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।</p>	<p>Write answers in ink only. Do not use pencil for writing the answers. However, pencil may be used for drawing diagrams, sketches, etc.</p>
6	<p>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।</p>	<p>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.</p>
7	<p>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।</p>	<p>Write answer at the specific space (right below the question) only. Answers written elsewhere at unspecified places in the booklet shall not be evaluated.</p>
8	<p>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।</p>	<p>If you wish to cancel any work, draw your pen through it and write "Cancelled" across it, otherwise it may be valued.</p>

कार्यालय के प्रयोग हेतु For Official Use	कार्यालय के प्रयोग हेतु For Official Use
<p>परीक्षक के हस्ताक्षर Signature of Examiner(s)</p>	

**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)					



**VISIONIAS**  
INSPIRING INNOVATION  
**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

**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)

10

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

Food processing industry act as butware in food security and income, yet the conditions have certain lacuna with regard to food safety

### Rapid growth of Food processing industry

1.) Incentives by the Government  
ex) Mega Food Parks.

2.) Co-operatives emergence and value addition ex) Amul

3.) Rising population & hyperurbanisation  
ex) Vendor like zepto, Blinkit

4.) Innovation ecosystem and entrepreneurship

### Food safety challenges

1.) Standards measurement provided by FSSAI have 377 items only registered.

2.) Lab and testing facilities are less and outdated  
ex) Only city based centers

3.) Expertise model and references  
and not devised (ex) cold storage  
facility

4.) Research and analysis for  
future progress is fewer

(ex) led present in Maggie.

5.) Pre-processing level scrutiny  
needs to be ushered

(ex) Paper needed for wrapping

6.) Sanitation condition and  
shelf life explanation is not holistic

(ex) working condition is MSME  
Food processing.

7.) Consumer awareness about  
scientific terminology also causes  
food safety (ex) sugar as sucrose  
fructose labeled.

FSSAI standards must be  
fostered with safety standards  
based food processing is the need  
of the hour.

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 हाशिये में नहीं लिखना चाहिए  
Candidates must not write on this margin

Public Distribution system emphasizes on the food security of the nation aligning with the pro-poor approach

### Public Distribution System

- 1.) Ensures the food security of the country in welfarist approach
- 2.) Provides the scope of divergence from hunger
- 3.) Poverty alleviation and capability ↑ UNDP India lifted 415 million people from poverty (2005-2021)

Transformation is evolving process

1.) Physical access : Setting up of buffer stock and market availability of grains

↳ Green revolution

318 MT Grains

2.) Economical access and transformation

It ensured the available food and its components are given to people (ex) subsidy - centered State

3.) Technological : The more robust evolution through digital India providing smart ration card  
(ex) Smart PDS shops

4.) Ecological transformation : The PDS transformation also points the need of sustainability  
(ex) Distribution of millet

5.) Service Stewardship : The PDS system also fosters for last mile connectivity & services  
(ex) DPT system

The Shanta Kumar committee recommended more market participation with PDS so it could be holistic in nature.

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 इच्छित में नहीं लिखना चाहिए  
Candidates must not write on this margin

Agriculture forms the anchor in India's demographic potential. Which needs to be combined with technology to sail through globalisation.

### Agri-tech startups

#### 1) Farmers - farm productivity

1.1) Provide for technological ideas for farm management

⇒ IoT-sensors like sensorGiri

1.2) Enable Integrated farming ecosystem through stakeholders

⇒ Sustainable-agri-startups for Natural farming

1.3) Research and data prediction for cropping pattern ⇒ AgriStack APIs.

1.4) Water management and efficiency usage ⇒ AgriStar Startup

1.5) Act as agri-preneurs in linking supply chain ex Food processing through FPOs

2.) Help in market access

2.1.) Enable online presence of farmer and modules ex Portal engagement

2.2.) Act as consultant in identifying committed market.

ex Target analysis

2.3.) Marketing strategies through connections and mutuals

ex Presentation in Mela's.

2.4.) Community service through educating and skill training

ex startup training to use mobile phones.

2.5.) Packaging, gimmicks and aspects of aesthetics are advised

Agri-tech startup act as a link between plough to plate transcribing vision of Indian dish in every dinner table.

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

Digitization of land records show the leverage of technology for quick and responsive governance in case of doing business.

---

Digitization of land records

- Implementation of land reforms

---

1.) Helps in computerization of records preventing from Tampering  
(ex) Red tap prevention.

2.) Promotes title based land use and utility

3.) Gives empowerment to farmer to access credit in institutions

4.) Helps in Gram panchayat planning and delivery

(ex) Cadastral mapping = 95%  
in PM SVAMITVA.

5.) Ease of access and production use of land.

6.) Promotes easy Survey &  
Resurvey

7.) Urges inter-departmental  
co-ordination ex) inter-operability  
of schemes.

8.) Track illegal transaction  
Area to integrate ex) Benami  
holding

1.) Digital divide and digital  
literacy should be enabled  
ex) Rural low level digital literacy.

2.) Robust digital infrastructure  
for seamless land reforms.

3.) State level de-centralisation  
for more pragmatic land reforms  
ex) enables land ceiling efforts

4.) Awareness about land and  
its attribute ex) Pre-sumptive title  
in India

Digitalization of land records  
will more the shift to collusive  
land titles in the future making  
land reforms of the millennium

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)

10

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

Demographic dividend is the change in population age structure which enables economic growth potential due to working age population being higher.

Demographic dividend - accelerate economic growth - manufacturing

Manufacturing led growth model → Secondary sector with industries and employment



Demographic dividend

1.) Manufacturing sectors reduce the structural unemployment & disguised unemployment  
ex) Urban-structural, Agri-disguise

2.) Induces fluid entrepreneurship developing innovation ecosystem  
ex) More IPR led models and growth.

3.) Prevents from the middle income trap of population (or) 30% of India middle income (NITI)

4.) Enables participation of heterogeneous segments → women  
→ Blue collar jobs

5.) Creates domestic demand and increased disposable income.

Accelerate economic growth

1.) Manufacturing sector promotes low LWR in MSME

2.) Income elasticity increases due to manufacturing through small scale industries

3.) Merge in the global supply chain gaining "export"

4.) Usage of decoupling in globe to enable → Make In India  
→ Assemble In India  
→ Startup India  
Taxon

Manufacturing sector with more plans in investment, land bank can be priority to reap the Anurit Kaal.

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  
Candidates must not write on this margin

India has about 7516 km of coastline. Making it more usable for economic growth and prone to ecological hazard

### Resilience of Indian coastal communities

1.) Enable the Coastal Guard with delegations to promote awareness and crowd morale

2.) NIOT institution to come up with solutions to form resilient coastal system.

Tetrapod  => <sup>to prevent</sup> for sea wall intruder

3.) Integrated coastal zone management must be ushered with technologies and techniques of management

4.) CRZ regulations to be  
adhered to mitigate from adverse  
hazard situation

5.) Technological leverage for  
hazards mitigation  
ex) Web ARC for cyclone  
management

6.) Utilisation of traditional  
knowledge for understanding  
coastal erosion

### 2nd ARC guidelines

1.) local level drills to  
promote immediate action.

2.) coastal management  
for district disaster plan

3.) Structural changes like  
buffer area, Mangroves  
maintainance

4.) Non structural changes  
by means of social volunteers

Thus the aspect of coastal  
communities can be increased  
through multiple stakeholders  
based consensus

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)

10

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

Green Credit Programme in India aims to build ecological capital in economic growth.

Green Credit Programme beyond carbon management

1.) Promote sustainable environment

1.1.) scope for water shed management making water stress reduction

1.2.) Sustainable entrepreneurs to make the ecological balance EX Afforestation

1.3.) Helps in consumption to take on the green creditability  
EX Reduces over industrialisation & pollution.

1.4.) Used to reduce the existing status or pollution

ex) Delhi NCR region

1.5.) Can capitalise on well being of communities dependent on ecosystem  
ex) Water management  
||  
Fishing community

---

Various concerns in implementation

1.) Prospects of greenwashing and utilising green credits

2.) Regulatory bodies are more from implementation to issues causes delay in green credit.

3.) Returns of green credit and market potential will be long term gain only, not short term

4.) Attitudinal change and motivation

A pragmatic evaluation in green credit would enable competition in green credit buyers

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

NavIC is the Indian Navigation system which is relayed by 7 satellites in the earth's orbit

NAVIC {  
→ half of Africa and Australia is coverage  
→ 20 m specification

### Need for NavIC

- 1.) Indianisation of surveillance system
- 2.) Act as support system during adversity  
Ex) USA GPS over dependence
- 3.) Helps for Indian planning and focus Ex) Error in GPS
- 4.) Creates more empowerment and less dependence
- 5.) Reduces the scope of Information breach and data surveillance

## Social factors

1.) Right to have own system prevents from foreign susceptibility

⊕ Data breach

2.) Can be used by Gram panchayat

⊕ Bhuvan portal + NALIC  
↓  
decentral planning

## Economic factors

1.) Promotion of Indiam navigation use

2.) special purpose system dedicated to defence

## Political factors

1.) Monitoring of borders

2.) Gather intelligence

Thus NALIC act as the agent for geospatial potential, that can be leveraged for India's cause

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

2021 there were about 14,00,000+ crime in cyber space (CERT-IN) This needs addressal because it might aid organised crime through finans

Cyber enabled financial crime  
- Global money laundering

1.) Causes to use dark web for mortgages details through cyber space. [ex] The Onion Ring web

2.) Crypto decentralisation enabled spoofing through financial crime

3.) Cyber ransomware through anonymity increased the vulnerability.

4.) Fraudulent phishing, smishing and retrieval of data

[ex] RBI - claims suspected through more finance fraud

5) Acoustic mapping and  
Jacking LED sound of keyboards  
to track password

### Government measures

1.) Legislation

National cyber crime (2013)  
policy to  
regulate financial crime

2.) CERT-In

To alert any vulnerability  
and tracking of information

3.) Financial Intelligence unit

To co-ordinate between stakeholders  
in legal jurisdiction

4.) Ombudsman - Bank to  
ask queries about bank details

5.) Awareness through messages  
about critical breaches.

The scope of financial  
crime must be controlled in  
cyber space because it have  
negative repercussion  
in touch

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)

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

Indian Army is shifting towards the digital India modernisation catering the needs of Year of Technology Absorption

Need for technology absorption

- 1.) Easy response without indecisiveness | ex) Intrusion through infra-red camera
- 2.) Readiness through technological support | ex) UAV surveillance
- 3.) Cutting edge combat using technology | ex) Cruise missiles
- 4.) Stealth technology exploration | ex) Defense for AI combat

5.) Increasing capabilities  
and leveraging youth tech  
same nature (ex) white hawks

### Challenges India face

1.) Existing unused  
defense technologies must be  
upgraded

2.) Defense policy and  
scrutiny requires diversified  
players in defense area.

3.) Technology biases  
and sabotage can cause security  
issue. (ex) AI biases

4.) Capacity building  
and incidents of negative  
privatization (ex) Wagner  
Group.

5.) Cyber security breaches  
Technological leverage can  
provide ethical warfare capabilities  
making high cost to benefit  
ratio in defense

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)

15

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

North Eastern Region have rich resources yet they are faced with issues of underdevelopment as pointed by Bezbarauk committee

Issues faced in development of trade and industries N.E.R

1.) Historical Issues : The centralised planning focussed less on N.E.R causing skewed development initiative  
ex) Assam more growth.

2.) Geographical issue : The terrain and the porous nature of N.E.R has made logistics development costlier and was less conducive

3.) Human economic issue : The Tribal hamlet follow subsistence agriculture and their values are imbedded in it (ex) Jhum cultivation

4.) Capital and investment : There were less entrepreneurial ecosystem as compared to other states with 5th and 6th schedule maintaining land with tribals

5.) Skilled labour force was less to initiate industries and more unskilled labour.

6.) Insurgency and Naxalism also caused trust issues in setting up large scale industries.

7.) Hostile neighbourhood Most N.E.R have international border so investors fear loss of investment.

8.) Investor summit and meeting are less in N.E.R because of which Cafeteria or approach is not present.

(ex) Gujuarat Global investor meet.

9.) Administration and decentralisation and delegation of finances are not put in greater use.

## Measures taken to tackle the issue

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

1.) Forces like Indo-Tibetian Border Force, Assam rifle to maintain

Peace and tranquility

2.) Expenditure → special Assisstarke scheme for North East  
↓  
Grants-in-aid for development (e.g.) central sponsored scheme 90:10 ratio

3.) Infrastructure → North East Road Development sch  
→ PM Derrnie scheme to foster North East logistics.  
↓  
TRIPED for tribal development and market access.

4.) Capability approach → Education through Ashram schools  
→ Health care initiative by the state Government

5.) special tribal schemes like PM JANMAN ← are been provided for development.

Thus North East region act as the sunlight for Indian future growth led by it through Industries and development

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

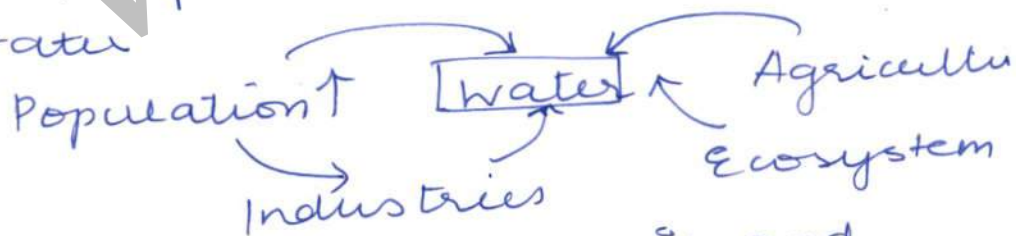
NITI Aayog points about 600 million people in India are under severe water stress. This shows the need to leverage micro-irrigation to reduce water scarcity.

Era of climate change and growing water scarcity

1.) Increase heat waves causing water evaporation

2.) Erratic rainfall with extreme natural events.

3.) Population stress towards water



4.) Degradation of soil and glacial retreating

Micro-irrigation system to sustain the agricultural practices

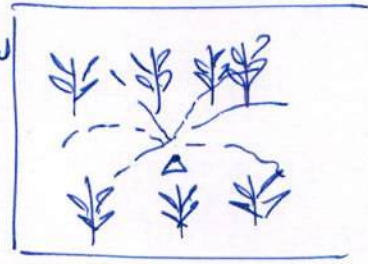
About 83.00 hectares of land in India are under micro irrigation

Micro-irrigation contribute to

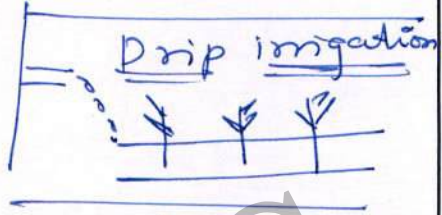
Sustainable agricultural practice

Agricultural sustainability

Sprinkler Irrigation



1.) Promotes targeted approach towards cropping pattern



(ex) Root based growth in Drip irrigation

2.) Interlinking of crop needs with water (ex) fertigation

3.) Reduces soil erosion caused by flooding (ex) Rice flooding irrigation

4.) Can be integrated with technology (ex) Time stamped based irrigation

5.) Reduces the scope of virtual water (ex) India virtual water > China virtual water

Water sustainability in agriculture

1.) Dublin principle of water monitoring and as a service (ex) water meter

2.) Customization based on  
water availability (e.g.) stress of  
water like pH etc

3.) can be integrated with  
water shed management

(e.g.) Rain water harvesting → Micro irrigation

4.) Models can be used for  
aquifer recharge and storage.

5.) Trend analysis on water and  
improvements (e.g.) data analysis  
done by Israel.

Area of Addressal

1.) Initial investment of  
micro irrigation

2.) Awareness about  
maintenance

3.) Small and Marginal  
farmers presence (86%)

PM Kisan Singhvi Yojana and  
Micro irrigation fund enable  
micro irrigation to macro results  
of sustainability (sustainability)

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

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

India has the 4<sup>th</sup> largest Railways yet there are more legacy issues in terms of its usage in freight transportation

Issues pertaining to freight transportation

1.) Less dedicated freight must be overcome through mapping and planning.

2.) India China model of bullet train for freight.

3.) Private Public Partnership in terms of Railway freight engagement.

4.) Ramp up the Dedicated freight corridors (ex) Western & Eastern Corridor.

5.) Find Algorithms for management of freight traffic

(ex) Germany freight traffic management

6.) Domestic passenger and freight passenger trains dead lock should be sorted

Ex) Preference given to passenger train than freight train

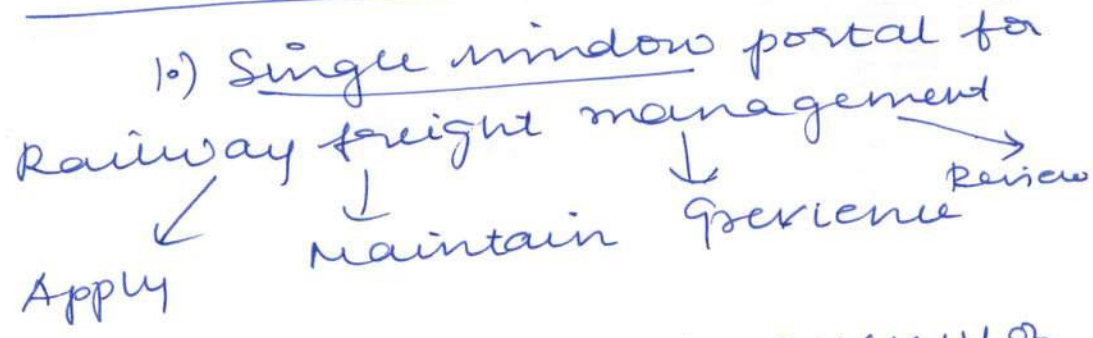
7.) Innovative finance models and instrument to invest in logistics

8.) Capacity building through international collaboration

Ex) Japan, World Bank

9.) Vulnerability mapping in the train hubs and upgrade the train speeds

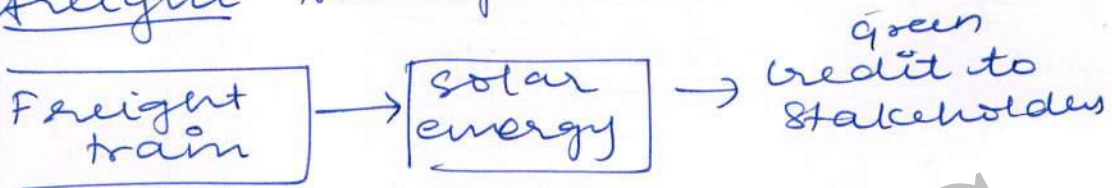
Increase its share in domestic freight



2.) Increase the frequency of train management and services  
Ex) Train services are delayed

3.) Federal inclination and inputs regarding train domestic management.

4.) Incentives like sustainable freight transportation and medium



5.) Recruitment through expertise in logistics management

ex) Chief coordinator in freight management

6.) Institutional research and study about business model.

7.) Increase manufactures trust through consensus and collaboration

The Train freight management needs more tantum approach so that it fosters ecosystem that enables less logistics cost

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)

15

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

Indian commitment to the nationally determined contribution has made it visua qum in Global Renewable energy transition

Factors Aided India → renewable Energy sector

1.) Domestic Policy : Policy and its sustainable implementation aided the Renewable target

ex) National solar Mission  
New solar = 86 GW, Wind = 48 GW  
Total Energy = 444 GW

2.) Marketing and Image : Global multinational forums were used by India to form ground for renewable target

ex) Circular economy, Pro Planet People,

3.) Development & Integration : Many

incentives and framework make ease of renewable energy implement<sup>etc</sup>

ex) PM Kusum, Green hydrogen Initiative

4) People support The renewable targets were also ushered by the civil society to mitigate from climate change

(ex) groups like Indians Council for Environ legal action

5.) States enthusiasm make more decentralised approach in meeting the renewable goals.

←  
Telangana  
floating  
solar park

↓  
Rajasthan  
Solar  
power

→  
Tamil Nadu  
Wind  
energy  
promin

6.) Instruments & certification

The sovereign green bonds, carbon credits and green credits act as triggers to shift to renewable energy

7.) Local led issues local issues like health, pollution has enabled attitudinal shift

## Fore-runner in Global energy transition

- 1.) Increasing the targets in the NDC  
from 40% of Renewable energy to the  
of 50% of Renewable energy
- 2.) Global biogas Alliance to usher  
global south into clean energy  
transition.
- 3.) International Solar Alliance  
idea of 'Surya Putra' to make  
nations come under solar grid.
- 4.) Pro-people Planet in Economic  
forum to start the aspect of  
Renewable at Individual level.
- 5.) Global Green Credits Initiative  
in the COP 28 to maintain the  
contribution towards clean industries
- 6.) Commitment to the Paris  
Agreement and Global Stocktake  
Thus India commitment  
of net zero by 2070 by a population  
dominating the world shows its  
inclination to deep ecology

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)

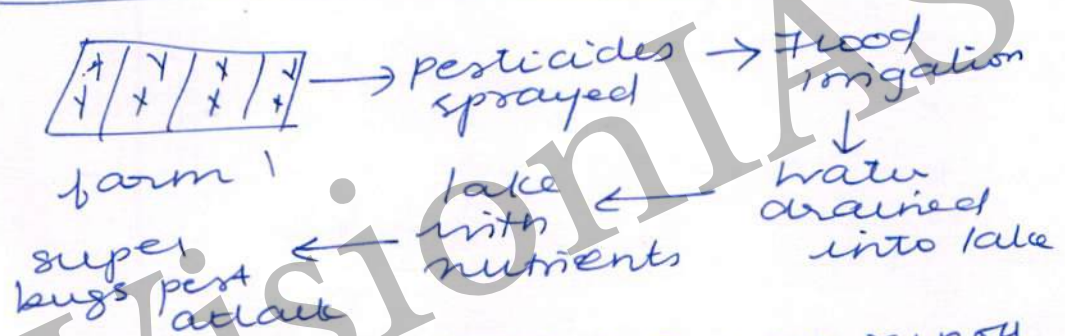
How does agricultural runoff containing fertilizers and pesticides contribute to environmental pollution? What measures can be taken to mitigate the impact of agricultural runoff? (Answer in 250 words)

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

15

The issue of agriculture pollution has resulted in bioaccumulation and magnification, calling to ensure preventive measures.

Agricultural runoff - fertilizer & pesticides



1.) Eutrophication : Excess runoff of nutrients from farm increases the speed of ageing of lake causing

More Biological oxygen demand → Less Dissolved oxygen.

2.) Ecosystem collapse : Affects the near by toxins by means of chemicals

Fish → Exposed to toxins → Mass fish kill.

3.) Human health issue : causes contamination in water and carcinogenic mutation  
ex) silent springs about DPT usage.

4.) Aquifer situation : can change the properties of water underground  
ex) Urea presence in drinking water -

5.) Soil degradation : Reduces the soil texture and leads to loss of porosity & permeability,  
ex) Punjab Vidhan Sabha Punjab desert within 25 years.

6.) Acid rain trigger goes through cycle of rain drops mixing with fertiliser and pesticide.

---

Measures to mitigate the impact

---

1.) Fertiliser flying squad to enable fertiliser moderation  
ex) N:P:K 4:2:1 in India 8:4:1

2.) Ensure proper cleaning mechanism to filter the water  
ex) Grey water management

3.) Treatment of water through osmosis pressure

4.) Using Nano Fertiliser and Pesticides to reduce run off  
ex) Nano Urea.

5.) Catchment area for the agriculture water to drain and reuse

agriculture water with pesticide → Pesticide company can recycle.

6.) Use of Geomapping and fencing to under point source of pollution

7.) Use Kisan Vigyan centres for education and promote learning curve in fertiliser and pesticide management

Yavatamal (Maharashtra)  
many farmers died due to pesticide poisoning, Many of the ecosystem agents are also facing the similar issue which needs robust addressal.

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

15

The Joshimeth landslide has shown the vulnerability in the carrying capacity of Himalayas. Sustainable Himalayan management is a synopsis.

Influx of tourist - breached ecological carrying capacity

1.) Mishra Committee pointed the low carrying capacity of Himalayas which needs to be monitored.

2.) Tectonically active zone can be easily triggered and breached.

3.) Unsustainable practices and fragility of area also causes less carrying capacity

4.) Landslide prone area with glacial floor shows more trajecting carrying capacity downwards.

leading to significant man-made  
disaster

1.) land subsidence due to  
superimposition of multitude of  
infrastructure (ex) Joshimath.

2.) Glacial outburst due to  
stress and stimulation of tension  
(ex) Lonak lake outburst.

3.) Commercialisation has caused  
change in topography and local  
patterns (ex) Alaknanda flash  
floods.

4.) Avalanche and landslide  
are due to anthropogenic tourism  
and landscapes

Measures to prevent such  
disaster and sustainable  
tourism

1.) Pro-active measures must  
be at the grass root level

Early warning  
ex) sensor &  
technology

Relief  
& rescue  
↓  
Apada  
mitra ~  
crowd  
sourcing

Rehabilitate  
↓  
Area of  
less  
distress

2) Vulnerability mapping with protection to Red areas  $\text{\textcircled{ex}}$  Tectonic faults in Himalayas.

3) Service payments for sustainable tourism  $\text{\textcircled{ex}}$  Payment for ecosystem services

4) Ground Management protocols and evacuating illegal lounges, hotels not accorded

5) Promote mindset among tourist for sustainable.

$\text{\textcircled{ex}}$  Avoid black tourism (tourism after disaster)

6) Peer checking in the sustainable manufacturing and local marketing  $\text{\textcircled{ex}}$  No plastic usage.

7) Tourist Guides to maintain system to provide limited tourist and not overpush for profit

Research and Analysis should be reported & incentivising sustainable practices and tourist is the way to go

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

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

superconductors are material that conduct <sup>electricity</sup> between that of insulators and conductors.

superconductors are the new era oil refineries

Superconductor fuel innovation

1.) Education : Understand the bases of physics and material form enable new material research for conductivity

ex) Korea Research for Room temp superconductivity

2.) Healthcare : Can be used in assistive devices and instrument for precision conducting

ex) Smart watches has super conductor to analyse heart rate

3.) Space : Superconductors are used in space modules to set up engines and command prompts  
ex) Superconducting coils in space crafts

4.) Defense : In defense superconducting are used to manage automatic defense capability through precision ex) Iron Dome of Israel.

5.) Transportation : Superconductor act as cutting edge technology in transportation and commands in automation

6. Artificial Intelligence It can be used to create small scale robotics with artificial intelligence  
ex) Superconductors in Robots like Ross - perform surgery

7. Computer software & Hardware  
superconductor act as interface

in complex computation of supercomputers through IC chips

### 8. Communication devices

Superconductors act as triggers in devices like mobile increases their speed and utility

(ex) A16 Bionic chip of Apple

### 9. Robotics & IOT

They can be used as embedded system in IOT sensors (ex) Raspberry Pi module for programme

### 10. Research & Innovation

Neuralink chip-transmitting brain signals also use super conductor ~~computer~~

Superconductor Act as the xubi agent and catalyst do foster the new generation of Industrial revolution

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। सविस्तार 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 हार्जिन में नहीं लिखना चाहिए  
Candidates must not write on this margin

15

India is 40<sup>th</sup> position in WIPO.  
Yet there is a long way to build the demographics towards the IPR regimes

India laws covering all types

- 1.) Patent
- 2.) Copyright
- 3.) Trademark
- 4.) Industrial Design
- 5.) Geographical Indication

Hampering the commercialisation of IPR

1.) Numerous enforcement

1.) Several Acts for several IPR types causes ambiguity

2.) Need revamped aspect

in patent regulation

ex) India Patent Act

3.) Different body working in  
'silos' for IPR management.

4.) Less ease of management,  
application, scrutiny and data  
center

### Regulatory challenges

1.) Indian Patent act does  
not allow evergreening of patent

2.) Issue with the compulsory  
licensing and effect of reverse  
engineering.

3.) Several exemptions for  
IPR  $\Rightarrow$  computer programme cannot  
be patented

4.) India is in priority  
watching of the USA IPR regime

### Administrative challenges

1.) Need for expertise in  
IPR policy formulation, Regulation

2.) Independent Oversight Agency  
and Tribunals to contest IPR  
challenges

3.) Plagiarism, and tools to  
identify the veracity is outdated

4.) Delays in IPR certification  
causing innovation awarism.

### Way forward

- 1.) Streamline and Synchronise  
also  
or laws
- 2.) Skill training and Institute  
or excellence for IPR study.
- 3.) International co-ordination  
for IPR data centers

IPR is the tool that can  
making the young minds  
to explore the diversity of  
creation with validation

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

In India there are about 17 commands present, and only 1 integrated theatre command is present.

### Challenges in creating Integrated Theatre command

- 1.) Need more manpower to have dedicated ITC.
- 2.) Technology usage and manpower synchronisation is need (ex) Trilateral inter-operable devices
- 3.) Expenditure towards ITC maintenance and co-ordination
- 4.) Command and enforcement and the hierarchy needs proper study (ex) USA ITC

5.) Can cause miscommunication  
and less 'esprit de corps' mentality

6.) Area of concern must be  
mapped first to use the resource  
diligently. (ex) Sea, Air, land  
mapping

7.) Shift from legacy system  
needs more training and  
Institutional capabilities

Greater integration

1.) Kargil committee report  
points it serves as credible  
reference

2.) It can provide defensive  
advantage at three fronts

3.) Entertains ideas and  
views sharing for more precision

4.) Reduces friction in  
command and control and  
promotes cohesive decision

5.) Help in more pragmatic manures during resistance

(ex) team work during stand off

### Rationalisation of manpower

1.) Promotes readiness in soldier and transferability.

2.) can leverage youth potential to manage three arena views

3.) Promote solidarity within regiments and expertise

### Rationalisation of Resources

1.) Equipment maximization without double expenditure

(ex) Same gadgets within single ITC than separate Air, Navy.

2.) Land use efficiency for planning and implementation  
(ex) Single station Command Center

ITC will enable Indian defense to change in need of the millennium

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 क्षति में नहीं लिखना चाहिए  
Candidates must not write on this margin

15

The border villages show the blurring of the boundaries in India which needs to be nudged and pushed for National Interest

Treating border villages - As first villages

Geographical

1.) They form the entry to the country.

2.) They delineate the aspect of Indian sovereignty

3.) Protect the Indian resource and zeal within India

4.) They ascertain the extend of Indian command and rule of law.

In terms of Key strategy

1.) Increasing the developing

agents can reduce the aspect of poverty, underdevelopment

2.) Can bring public trust and erode sympathy towards radicals

3.) Can serve as potential intelligence provider in the boundary

4.) Patriotic zeal exhibits with Indian Identity and assertion.

5.) Development promote non rationalisation and education facility, promote liberty & dignity

---

Measures taken by the Government

---

1.) Vibrant Village Programme

To enable the livelihood programme for the villages and ensuring their holistic development.

2.) Civil defense force

To provide them with the identity of self defense

and involving them in security

3.) Operations by soldiers to build in trust provide aid and rehabilitation for these people who are affected

4.) Expenditure for bordering villages to provide them with water facility, border management and also help them in meeting their kinsmen.

5.) NGO and awareness provide humanitarian aid & skill training in the bordering areas

Thus the first villages of the nation act as the forerunners in establishing the Indian dream and civilization of "Sabka Sath Sabka Vikas".

SPACE FOR ROUGH WORK

 VisionIAS