



**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. : 00780881

अभ्यर्थी का नाम/Name of Student : BANNA VGNILATESH

माध्यम: हिंदी/अंग्रेजी  
Medium: Hindi/English

English

तारीख  
Date

25/08/2024

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

केंद्र  
Centre

HYPORATAD

  
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
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)		
<b>सकल योग (A+B) / GRAND TOTAL (A+B)</b>					



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### 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

Food processing industry<sup>(FPI)</sup> is valued at 2.37 lakh crore, contributing to 10% of agriculture GVA offering huge opportunities and challenges.

Rapid growth of FPI is achieved by:

① Policy support:

- ↳ PM Kisan Sampada Yojana y: mega food parks
- ↳ PM FME scheme: promotion of farmer producer organisations (FPO)
- ↳ One district one product (ODOP) scheme

② Promotion of entrepreneurship

- ↳ startups in agriculture
- y: Agriculture accelerator fund.

③ Market access:

- ↳ promotion of exports through APEDA, MTEOA
- ↳ Matsya Sampada Yojana
- ↳ livelihoods, hubs, exports

## Food safety challenges:

① Adulteration of food items is rampant

↳ Food task force officials raids revealing unhygienic and adulteration at various outlets

② Unhygienic and sanitary issues

↳ exports are affected sanitary and phytosanitary measures

③ Informal, MSME led enterprises:

↳ Difficulties in ensuring quality, safety of products

④ Infrastructure challenges

↳ power cuts, lack of cold storages, leading to wastages and spoiled foods.

Building infrastructure like cold storages, supply chains and adhering to regulations and safety norms will help FPI to thrive and double farmers income as envisaged

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

Budgetary announcement of transformation of FPS into Jan poshan kendras is indicative of transforming nature of FPS in country

FPS transformation : evolving process

- ① Reaching through the last mile through establishments all over the country
- ② Provision of quality food materials at reasonable and affordable prices  
e.g.: fertilized rice
- ③ Inclusion of more items, ensuring nutritional security  
e.g.: oil, pulses, millets etc.
- ④ Technological adoption:  
↳ e.g.: Biometric for distribution  
GIS mapping to prevent leakage

### ⑤ Interoperability mechanisms

eg. One nation one ration card, including migrants

### ⑥ livelihoods promotion for FPS owners through financial viability of FPS

### ⑦ Policy support:

↳ PM Narib kalyan Anna yojana, free food grains to 80 crore people for 5 years

#### Challenges in FPS

↳ Beneficiaries identification & leakages

eg. Censuses is delayed

↳ leakages and diversion of food

↳ limited focus on nutritional security, hidden hunger

Transforming FPS to address nutritional security is crucial to achieving Kuposhan mukt Bharat and realising socio-economic growth.

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)

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

10

There are more than 1.1 lakh startups recognised by DPIT in India, with significant presence in agriculture sector paying rich dividends in productivity and market access

Agri tech startups : enhancing farm productivity

① Improving yields :

↳ Drones for monitoring crop growth, yields, pests & disease identification

② Reducing input costs :

↳ Startups developing IoT systems to ensure precision agriculture (smart irrigation, fertiliser & pesticide application)

③ Extension services for farmers

↳ Apps developed to inform weather, crops, markets and challenges.

## Agri startups: enhancing market access.

① Startups working in logistics and supply chain management

② Value addition and reducing wastages

eg: Solar silk reeling units  
Mitticool refrigerator } increased shelf life for perishables

③ Extension services:

↳ Real time price discovery, market conditions.

④ Aiding food processing and branding

eg: Biogas based cooking systems for preserving fruits in Maharashtra

Solar dryers in A.P for drying of food products -

Agriculture accelerator fund is a step in right direction in supporting agri-startups to contribute to enhanced farmers income and generating sustainable livelihoods.

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

PM SWAMITVA scheme, launched by center is transforming the way how ownership rights are created, promoting farmers in rural areas aiding sustainable land reform.

Digitisation of land records: effective implementation of land reforms

- ① Establishment of ownership rights
  - ↳ reducing land disputes and litigations
  - ↳ clear titles of ownership
- ② Improved access to credit, for taking up agriculture and allied activities
  - ↳ crop loans, MUDRA etc for development
- ③ Policy making and support
  - ↳ estimation of property → increased revenue collection
  - ↳ estimation of output of crops aiding

planning and insurance penetration

④ Sustainable development of land parcels

↳ contract farming

↳ cluster development for industries etc..

Challenges in digitisation of land records:

① Gaps in survey of villages owing to

accessibility and infrastructure gaps eg: hills

② Digital divide and illiteracy

↳ reduced adoption among rural areas

③ Technological barriers, hurting farmers

eg: Glitch in dharani portal of telangana  
causing hardships in registration

④ Increased litigation due to errors in recording rights

Above challenges should be addressed in mission mode to leverage potential of digitisation in further advancing land reforms and ensuring balanced regional development.

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

Disguised unemployment in agriculture, coupled with jobless growth phenomena in India causing several challenges to demographic dividend and economic growth.

Manufacturing-led growth: demographic dividend

- ① Employment opportunities in labour intensive sectors like textiles, jewellery, manufacturing
- ② Increased income levels, leading to quality of life
- ③ Support for MSME, employing more.  
↳ 45% of exports are led by MSME
- ④ Skilling & upskilling  
↳ social mobility of human resources,
- ⑤ Gender empowerment: (SDG 5)  
↳ Female labour force participation improved

## Manufacturing led growth - economic growth

- ① Exports promotion, reducing CAD.
- ② Import substitution, saving crucial forex
- ③ Jobs and domestic production  
↳ demand is met and economy thrives
- ④ Revenues to government through taxes, charges  
↳ spending on health, education, infra for sustainable development.

Challenges for manufacturing led growth

- ↳ Dominance of service sector, with entry barriers (skills)
- ↳ private investments are not uptomatic, dwindling FDI in times of recession
- ↳ Global disruptions eg: wars, pandemic
- ↳ policy challenges eg: tax uncertainties.

Manufacturing share should be increased to 25% of GDP for ensuring demographic dividend and achieving sustainable economic growth.

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

Various hazards like sea level rise, floods, tsunamis, coastal erosion fuelled by climate change poses several challenges to Coastal Communities, demanding resilience.

Strengthening resilience of coastal communities

① Coastal erosion:

↳ Mangrove establishments under MISHTI program  
↳ greenwalls, structural measures to combat erosion  
↳ coastal walls

② Tsunamis, floods:

↳ Early warning systems (EWS) for preventing losses  
↳ building on traditional knowledge  
↳ NOMA guidelines pre and post hazards for reduced losses and damage.

### ③ Sea level rise:

- ↳ Adaptation and mitigation  
eg: loss and damage fund.
- ↳ International collaboration and commitments  
eg: Paris deal, GHG emission reductions.

### ④ Resilience building:

- ↳ Coalition for disaster resilient infra (CDRI)
- ↳ ~~Refo~~ Retrofitting and construction measures
- ↳ Insurance coverage for communities

↳ livelihoods improvement

eg: Sargamata yojana, Matsya Sampada  
yojana

↳ Resettlement and rehabilitation by vulnerabi-  
—lity analysis

Livelihoods of Coastal communities should be strengthened by building resilience to face impacts of climate change in future through convergence of all stakeholders.

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

Green credit program launched by govern-  
(GCP)  
ment refers to credits earned by individuals/  
companies  
for environmental conservation activities which  
will have positive impact for planet.

GCP - extending beyond carbon management:

① Inclusion of diverse activities

↳ sustainable waste management

↳ Afforestation

↳ Water management

↳ Carbon capture and storage

↳ renewables promotion

↳ energy efficiency

② Green jobs, livelihoods for sustainable growth

③ Achieving net zero targets by 2070

④ Responsible business practices by individuals,

Corporations based on ESG framework

उम्मीदवारों को  
इस हार्शिए में  
नहीं लिखना  
चाहिए  
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⑤ In line with paris goals of UNFCCC

- ↳ GHG reductions (limiting temp rise to 1.5°C)
- ↳ Common but differentiated responsibility

Challenges in implementation of GCP:

④ Certification of green credits

- ↳ limitations in quantification and fixing of monetary value

② Informal nature of business, organisations  
thus formalising is difficult.

③ Challenges of greenwashing, double counting

④ Exclusion of certain green practices  
of: nuclear energy

⑤ Awareness and reach is limited

Capacity building measures along with streamlined institutions will help in success of GCP for SDG 13 (climate action) and

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  
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## Navigation with Indian Constellation (NavIC)

is indigenous satellite based navigation system

built by ISRO for domestic applications.

stretching 1500 km across neighbourhood

### Limitations of other navigation systems:

→ Cannot help navigate across oceans

→ Restricted access

eg: GPS is limited to civilian applications

→ security challenges related to dependence on external navigation systems

→ At the mercy of host countries

### Advantages of NavIC :

① Precision and accuracy

↳ help in reconnaissance and monitoring across borders

→ precise navigation for those venturing into sea e.g: fishermen, merchants, security

② Dual purpose

↳ civil + military for enhanced security of countries

③ Helps in supporting border countries

e.g: 1500 km from India's borders; covers most of Indian ocean (in line with SAARC policy)

④ Development of GIS based applications

↳ Bhuvan portal (land records)

↳ Inventory management

↳ Monitoring of ecosystems,

↳ climate studies

Navic support across smartphones by collaborating with companies like QUALCOMM building chipset will further adoption of NAVIC and work towards safety and security of navigation.

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। Candidates must not write on this margin

CERT-in reports more than 15 lakh cases every year related to cyber frauds, most of which are financial in nature, highlights the gravity of the situation.

Cyber enabled financial crime - new frontier of global money laundering

- ① Stock market scams through cyber frauds using whatsapp emails, siphoning amounts for money laundering.
- ② Call market scams through impersonation of: Cambodia scam centers involving in cyber frauds
- ③ Delivery scams, impersonating like enforcement authorities as highlighted by TRAI, RBI in recent times
- ④ UPI related scams  
↳ siphoning funds

- ⑤ Cryptotrading and illegal mining of crypto  
↳ fiat money to private illegal ways  
for money laundering applications.

Governments can address this issue by:

- ① International collaborations :  
eg: No money for terror campaign (NFTC)  
Crypto asset reporting framework (CARF)  
under G20 & FATF
- ② Creating awareness among citizens through  
IEC channels
- ③ Prosecution of cybercrimes  
eg: India's cybercrime coordination center,  
1931 helpline
- ④ Promoting expertise and capacity building  
eg: ethical hackers
- ⑤ Policy support: Cybersecurity Strategy 2020  
Cyber financial crimes are to be addressed  
to combat money laundering and preserving  
macro economic stability.

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 क्षेत्र 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 हार्जिन में  
नहीं लिखना  
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SIPRI report stating India as the number one arms importer in 2023-24 highlights the need for modernisation of our defense sector for atmanirbharata.

Need for technology absorption in defence sector

① Import substitution through domestic manufacturing  
— using e.g. positive indigenisation list.

② Export promotion creating jobs, livelihoods

e.g. 2023-24 defence exports are 21,000 crore from India

③ Reviving domestic industry

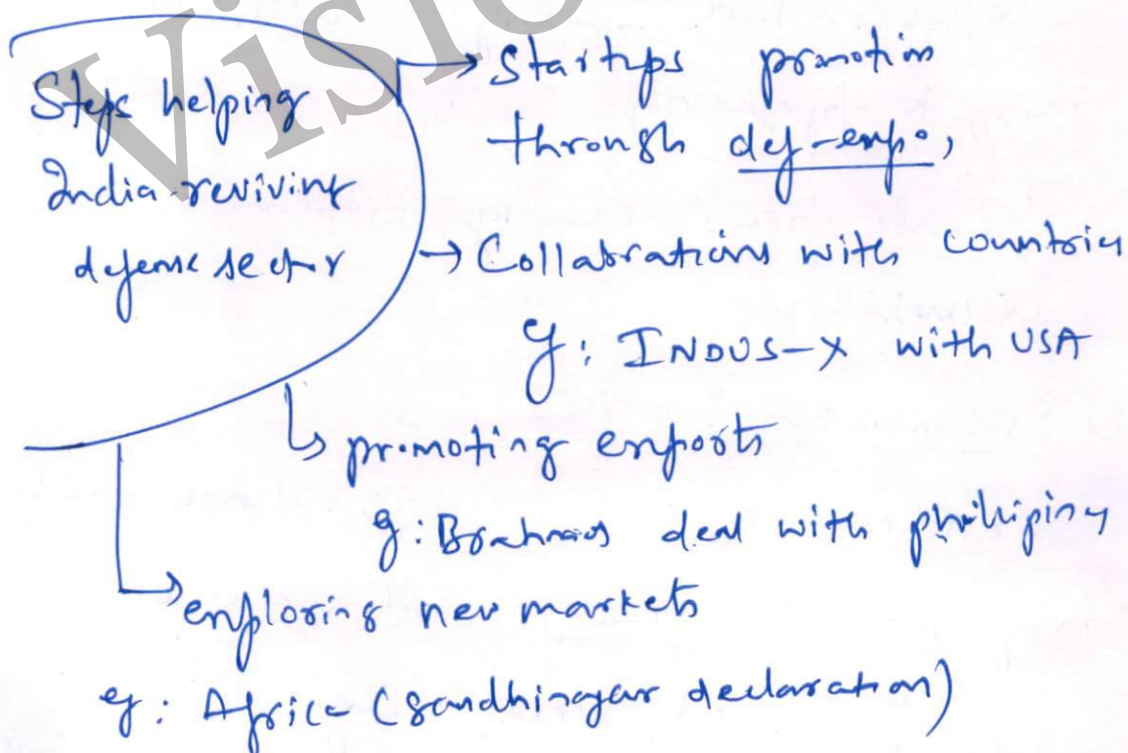
↳ upgrading MSME by technology infusion

④ Fuelling innovation and entrepreneurship

aiding domestic defense sectors.

## Challenges faced by India in this initiative

- ① Limited private sector presence in R&D  
eg: 65% of R&D is borne by government.
- ② Challenges in cross border technology deals,  
owing to security concerns.
- ③ Domestic industries are scattered and  
starved of technology upgradation  
eg: scattered MSME's
- ④ Sovereign security interests, owing to private  
sector participation in defense



Atmanirbhar in defense should

be our mantra for vishitbharat by 2047

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  
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Physical geographical barriers coupled with micro-economic issues put several obstacles in the development of trade and industries in N-E region

Issues faced in development of trade and industries in N-E

① Geographical barriers

- ↳ Difficult terrain (hills, valleys, steep slopes)
- ↳ Infrastructure building is difficult owing to topography
- ↳ Dense forests causing difficulties in accessibility

② Environmental barriers

- ↳ Resources required are within dense forests
- ↳ exploitation is fraught with challenges  
of: minerals, wood, oil & gas etc -
- ↳ landslides, avalanches, soil slips
- ↳ concern for infrastructure

### ③ Anthropological barriers:

→ Security issues : Growing Emergency and cross border terrorism

eg: ULFA, NSCN(IM), PLA of Manipal etc.

→ low levels of economic & social growth

→ health & education issues ⇒ skills are low

→ Connectivity is a challenge

↳ limited road, rail, air.

→ Market access is fragmented and limited

### Measures taken to develop trade and industries

#### ① Pravanchal initiative

↳ comprehensive development of north-east

eg: Iron and steel

#### ② Infrastructure building:

eg: PM-DEVINE in collaboration of ministry for N-E development region

#### ③ Telecom connectivity under Digital Bharat Nidhi

#### ④ Incentives for manufacturing

eg: Semiconductor ATMP plant in Assam

Under national semiconductor mission

### 5) Market access:

eg: PM Van dhan vikas yojana, van dhan vikas kendras

→ leadership support: GIAC program

→ promotion of tribal products under TRIFED, brand promotion for exports and income.

### 6) Technological advancements:

→ Startups for N-E: { agriculture, handlooms, food processing, tourism etc. }

### 7) Incentives for industries:

→ Production linked incentives related to food processing, manufacturing

→ National infrastructure pipeline (NIP)  
↳ faster execution of projects

N-E is crucial for prosperity and making sustained investments for trade and industries will go long way in achieving self-reliant Bharat.

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 4% of world's water resources but has to support 17% of population, which gets exacerbated by growing climate change and rising water scarcity.

Water scarcity issue:

- ↳ Variance of climate change  
e.g. seasonal monsoon changes.
- ↳ Encroachment of water bodies and pollution
- ↳ Loss of glaciers in northern Himalayas
- ↳ Plains are impacted
- ↳ Exploitation of groundwater owing to power subsidies, unscientific cropping practices

Micro-irrigation systems: sustainable agricultural practices

- ① Rational use of water for food production, based on crop-demand

e.g. Drip irrigation.

- ② Avoiding unscientific agricultural practices  
eg: flood irrigation in rain deficit areas.
- ③ Optimal growth and yields owing to  
judicious application of water as and when  
required
- ④ Sustainable livelihoods for farmers, through
  - ↳ reduced power costs, input costs
  - ↳ reduced labour
  - ↳ free from rainfed agriculture
- ⑤ Technology aiding farmers
  - ↳ sensors to detect moisture levels, limiting  
water usage
  - ↳ precision agriculture based on advanced  
inputs from sensors used.
- ⑥ Environmental sustainability
  - ↳ reduce agricultural runoff, thus avoiding  
eutrophication and contamination of water bodies
  - ↳ avoiding salinity and soil erosioneg: Indira Gandhi canal region

## Measures needed to promote micro-irrigation practices aiding sustainable agriculture:

- ① Subsidy for farmers for adoption of systems
- ② Credit support for infrastructure  
eg: kisan credit card
- ③ Extension services, persuading farmers  
eg: Krishi Vigyan Kendras connect with farmers
- ④ Capacity building programs.  
eg: YSR Rythu Bazar Kendras — A.p  
Agri mitras for extension support
- ⑤ Technology & innovation, promoting startups in agriculture sector
- ⑥ Improved spending by govt.  
eg: Agriculture infrastructure fund by NABARD

Micro-irrigation is crucial for ensuring environmental sustainability while promoting food security achieving SDG12, SDG13.



① Aging infrastructure, requiring repairs and maintenance, causing slow speeds.

उम्मीदवारों को इस हाथिए में नहीं लिखना चाहिए  
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Strategies that are needed to be adopted to increase railway freight share:

① National Logistics Policy (NLP)

↳ multi-modal transport hubs, increasing freight share of railways

② Dedicated freight corridors for railways

↳ faster movement of goods, reducing logistic costs.

③ Expansion of tracks and infrastructure

eg: Budget (2024-25):

2.5 lakh crore for railways



④ Addressing cross-subsidisation issues, improving competitive tariffs compared to roads.

⑤ Private sector participation in freight transport

eg: private rails using govt tracks.

④ Improving safety of railway as per Kakodkar committee recommendations

↳ kavach systems

⑤ Hinterland connectivity through Bharatmala,  
Sagarmala pariyajana

⑥ Industrial corridors aligning with DFC-

↳ Increased logistics through railways.

National rail policy 2023 envisages 40%

of freight share through railway by 2030

and above steps should be adopted for

ensuring economic and environmental  
sustainability

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 हाशिए में नहीं लिखना चाहिए  
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India's panchavrit goals envisages 50% of renewable energy by 2030 and achieving net zero by 2070, highlighting the progress in the space of renewable energy transition.

Factors aiding India in renewable energy transition

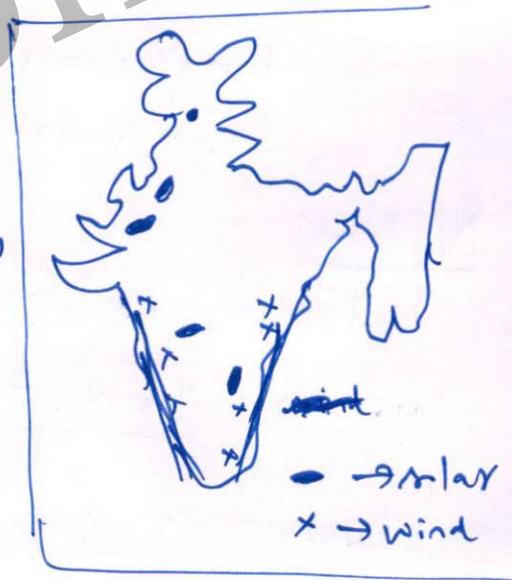
① Geographical factors:

① favourable topography for wind, solar power

→ long coastline (7500 km)

→ vast tracts of land

eg: Desert of Rajasthan, Gujarat



② Mineral resources:

Key: lithium deposits (J&K, Rajasthan; Mandya in Karnataka)  
↳ renewable transition

### ③ Government policy support:

Solar: i) PM-KUSUM scheme for agriculture

ii) PM-surya shakti must bijkli yojana for rooftop solar

iii) PLI schemes for solar pv cells etc  
(10,000 crore)

Wind: i) National offshore wind energy policy

ii) Battery energy storage systems (BESS) through viability gap funding (VGF)

Hydro: Reverse pumped hydro projects  
Run off dams  
Small hydro projects

Nuclear:

↳ Tripling nuclear energy by 2032 from current 76W to 216W

↳ Research on small modular reactors under Anuradha national research foundation

Green hydrogen:

↳ National green hydrogen mission, 2020:

↳ 5 MMT by 2030

↳ 125 GW addition

→ emphasis of green ammonia, green steel  
through special subsidies

उम्मीदवारों को  
इस हाशिये में  
नहीं लिखना  
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### International collaborations:

↳ International solar alliance (ISA)  
Global Li: fuels alliance (GLFA)

### Electric mobility promotion

↳ FMPs scheme (700 cr outlay)

↳ FAME - I, FAME - II

↳ for transition of transport sector

Challenges to  
renewable  
transition

→ Capital intensive, requiring  
huge upfront costs

→ Accessibility and affordability  
issues

↳ need for economic growth, making  
Coal inevitable in short run

↳ technological limitations in deployment

Renewable energy transition is crucial  
for SDG 13 (climate action), SDG 8 (economic growth)  
and ecoscentric growth.

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

Traditional agricultural practices like flood irrigation, exploitation of power subsidies for irrigation contributes to agricultural runoff which is exacerbated by erratic rains, floods.

Agricultural runoff: environmental pollution

① Nutrient enrichment of waters, leading to eutrophication by: nitrate, potassium

↳ decreased dissolved oxygen

↳ ~~phytoplankton~~ growth of weeds and plants

making limited availability of sunlight, air

↳ reduction in biodiversity of aquatic system

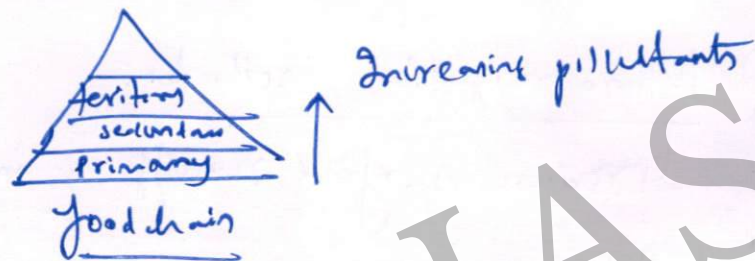


② Groundwater contamination due to leaching of fertilizers and pesticides

eg: Nitrate excess → Blue baby syndrome

③ Decreasing soil fertility and sterility of soils  
↳ affecting yields and food security

④ Issues of bioaccumulation and biomagnification  
through food chains and food webs



⑤ Declining biological organisms, their activities  
in soil leading to numerous issues  
eg: nitrogen deficiency due to lack of rhizobium

Measures can be taken to mitigate impact of  
agri runoff:

① Rational applications of fertilizers

eg: PM-PRANAM scheme

precision agriculture

↳ eg: Urea deep displacement method  
leaf colour charts

↳ reduce fertilizer usage

② Soil health cards:

↳ reduce usage and rationalise application

③ Promotion of organic farming practices

↳: Bharatiya prakritik krishi paddathi

Budget 2024-25: 100 farmers into organic farming

④ Microirrigation methods:

↳ reduce surface runoff, increase absorption of fertilisers

⑤ Agro-climatic planning and rationalisation of power subsidy, promoting scientific agricultural practices

↳: millet in rain deficit areas

Sustainable agriculture is crucial for ensuring food security of billions (SOG2, SOG2) and achieving environmental conservation and climate action (SOG13).

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)

15

Fragile nature of Himalayas, coupled with unsustainable tourism practices causing man-made disasters in the Himalayan belt.

Breaching of ecological carrying capacity: Himalayas

① Development of infrastructure to meet tourism

eg: Joshimath land subsidence

↳ breach of carrying capacity.

② Widening of roads for movement of people, goods  
causing slope changes, stability issues

③ Dams, bridges & tunnels

↳ seismic activity triggering landslides, flashfloods

eg: Sikkim flashfloods,

④ Climate change impacts:

↳ Rising Glacial lakes at altitudes.

→ potential GLOF (glacial lake outburst floods), due to breach of capacity.

⑤ Avalanches, landslips due to movement of people/tourists

⑥ Deforestation, encroachment, infrastructure in fragile zones exacerbating disasters of: flash floods (due to soil erosion).

### Measures to promote sustainable tourism

① Environmental & social impact assessments of tourism projects for viability

② Infrastructure development inline with the carrying capacity of Himalayas

③ Sustainable livelihoods

↳ sharing of accommodations instead of new hotels, restaurants

↳ WIFE (lifestyle for environment)

④ Vulnerability analysis and mapping using GIS:  
↳ early warning systems (EWS)  
↳ resettlement and rehabilitation.

⑤ Government support for conservation

eg: Discouraging & mono-plantations,  
removing encroachments

city specific development plans in fragile areas  
eg: Jharkhand, Uttarakhand

⑥ NOMA guidelines in response to disasters

↳ capacity building

↳ technology for resilience

↳ building back better (retrofitting of old buildings, incorporating safety systems,)

⑦ Geo-centric model of growth, environmental awareness among citizens

Sustainable tourism is crucial for

environmental, economic and social good of

fragile Himalayas and steps should be taken

to promote the same.

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 refers to those substances that exhibit near zero electrical resistance offering huge opportunities in various sectors of science and technology.

Superconductors — fuelling innovation

Transportation:

↳ Magnetic levitation: reducing operating costs, speed of travel greatly enhanced

eg: Bullet train,

Semiconductors and electronics:

↳ Increasing device efficiencies, reducing error due to friction

eg: GPUs, computing systems.

Energy sector:

Nuclear fusion: superconductors used in

f tokamaks used for fusion reactions  
→ energy security and renewable transition  
to achieve net zero goals.

### Healthcare:

- ↳ Medical equipment like MRI scans, X-ray units <sup>can</sup> use superconductors to improve their operations and efficiency
- ↳ achieve accessible, affordable health for all.

### Industry and automobiles:

- ↳ large scale plants use ~~some~~ superconductors for reduced energy needs, improved lifetimes of its equipments

### Challenges in adoption of superconductors

#### ① Technology at nascent stages

- ↳ requires huge investments on R&D
- ↳ collaborations between countries are needed.

② Increased cost of products due to advanced technology, takes time to achieve scale.

③ Accessibility divide between countries  
↳ limited to few advanced nations.

④ Applications in defense & cyber space:  
↳ ethical challenges

Realising potential of superconductors and putting its use to advance human interests

With regard to safety, ethics and other regulations will help propel innovations in science and technology to next level.

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)

15

Intellectual property (IP) refers to any innovation / product developed using human intellect having originality and can be put to commercial use.

Law covering intellectual property in India:

	Law	Validity
Patents	Patents act 1970	10 years, within territory
Copyrights	Copyright act	lifetime validity, 60 years post-death
Industrial Designs	Designs act	10 years validity
Geographical Indications	GI act 1999	10 years valid, can be renewed
Trade mark	Trademark act	10 years valid

## Plant varieties:

↳ protection of plant varieties and farmers rights act.

## Enforcement challenges in Ip:

- ↳ piracy and violations are rampant across sectors
- ↳ limited human resources to enforce it
- ↳ Awareness limitations and skills of police and other enforcement agencies are limited
- ↳ lack of dedicated courts to try Ip violations

## Regulatory challenges in Ip protection

- ↳ proliferation of utility patents
- ↳ International enforcement is challenging due to varied laws, rules
- ↳ Existing laws are limited to cover all forms of innovation and Ip.

## Administrative challenges: Ip protection

① Human resources:

eg: Canceling of patents granted by

Contract staff by costs

- ② limited regional offices granting patents
- ③ limited expertise due to lack of experts in processing and granting of IPR rights.
- ④ Disputes related to origin of products, increasing litigation about GI products
- ⑤ Cases of royalties denial

### Commercialising IPR:

- ↳ Awareness creation among people  
eg: NIPAM mission
- ↳ Ease of process of registration and incentives to register IPR.  
eg: patent facilitation centers, fee waivers
- ↳ funds for research to convert IPR to commercial products.

IPR is critical to drive rapid socio-economic growth and some needs to

be promoted for leveraging its benefits.

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

Demands of new generation warfare  
and increasing geopolitical challenges necessitate  
the creation of integrated theatre commands  
for rational use of manpower and resources.

Challenges in creating integrated theatre commands

① Organisational challenges:

↳ operating procedures are different in  
army, navy, air force

↳ Institutional values differ

↳ cooperation and joint working is  
fought with challenges like leadership,  
hierarchy etc.

② Infrastructure challenges

↳ creation of joint bases require huge  
investments and budget.

→ Area of operations are different

↳ seas, air, forests, mountains etc. - thus  
require greater coordination and convergence

③ Discipline and hierarchy:

↳ Common authority to ensure working  
is absent

↳ grievance redressal, authority to enforce  
decisions/hear complaints is not clear.

Need of Integrated theatre commands:  
(ITC)

① Rationalisation of manpower:

↳ Effective deployment of existing personnel

↳ Reduced operational costs

↳ Training is already inbuilt, so less  
time to prepare a force to reckon with

② Rationalisation of resources:

↳ optimum utilisation of inventory,  
infrastructure.

→ Reduced budgetary demands

↳ achieving economies of scale

③ Better preparedness for future threats

eg: Space as the new frontier & war  
biological warfare

Steps to be taken

→ Role of Chief of defence staff

↳ ensuring successful creation and operation of ITC

↳ training and capacity building for new gen warfare

↳ tech-savvy youth for armed forces

eg: Atal Bihari Vajpayee scheme rationalisation

Security of country is incidental for rapid bio-economic growth and creation of ITC will further our security architecture and make India self-reliant

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) 15

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

Persisting border disputes with china and increasing instability in India's neighbourhood will put the importance of border villages in the limelight.

Border villages : enhancing border security by its development

- ① Eyes and ears : help in intelligence sharing and monitoring of cross border activities
- ② Winning people hearts to wear away from anti-social, terror activities ensuring security
- ③ Economic growth through infrastructure, jobs, livelihoods will help fight polarisation and instill solidarity and national spirit
- ④ Presence of people will strengthen our Union in the region

- ⑤ Deterrence by ~~not~~ limiting external state/ non-state actors role through comprehensive development of border villages.

Measures taken by government to develop border villages:

- ① Vibrant villages program, ministry of home affairs
- ↳ Infrastructure { roads, houses, telecom etc. }
  - ↳ entrepreneurship & livelihoods
    - ↳ Zwitter summit, industries promotion
    - ↳ promotion of tourism
- ② Border roads organisation (BRO)
- ↳ Developing roads, tunnels, bridges providing connectivity to border villages
  - ↳ Aiding deployment of army personnel, goods in times of emergency
- ③ Role of Army: operation sadbhavana
- ↳ social capital promotion through building schools, hospitals

#### ④ Promotion by government:

eg. G20 tourism working group meet in  
JPR

#### ⑤ Safety and security of people:

eg: Integrated check posts, armed units  
of paramilitary forces

Further steps  
needed → Cross border negotiations to  
deter tensions

eg: India-China CAAC talks

→ Cooperation with neighbouring  
countries

eg: India-Myanmar to address

Cross border insurgency.

→ Economic growth through jobs, industries,  
livelihoods

eg: purvodaya initiative,  
PM-DEUVE  
etc...

Border villages are not just geographical  
entities, they are critical strategic places  
, survival of which enhances our prospects of  
border security and they should be  
promoted.

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