



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 उपरान्त 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. : 0134 3696.

अभ्यर्थी का नाम/Name of Student : BIPUL WPTA

माध्यम: हिंदी/अंग्रेजी
Medium: Hindi/English

English

तारीख
Date

25/08/24

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

केंद्र
Centre

Vishakhapatnam

निरीक्षक के हस्ताक्षर
Invigilator's Signature

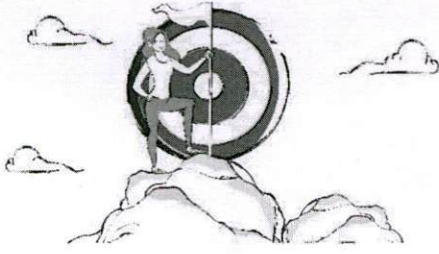
B. AL

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

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परीक्षक के हस्ताक्षर Signature of Examiner(s)	

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

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



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

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

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

प्रश्न-पत्र संबंधी विशेष अनुदेश

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

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

सभी प्रश्न अनिवार्य हैं।

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

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

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

प्रश्नों में इंगित शब्द सीमा को ध्यान में रखिए।

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

QUESTION PAPER SPECIFIC INSTRUCTIONS

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

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

All questions are compulsory.

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

Answers must be written in the medium authorized in the Admission Certificate which must be stated clearly on the cover of this Question-cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in a medium other than the authorized one.

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

Keep the word limit indicated in the questions in mind.

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

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

1.

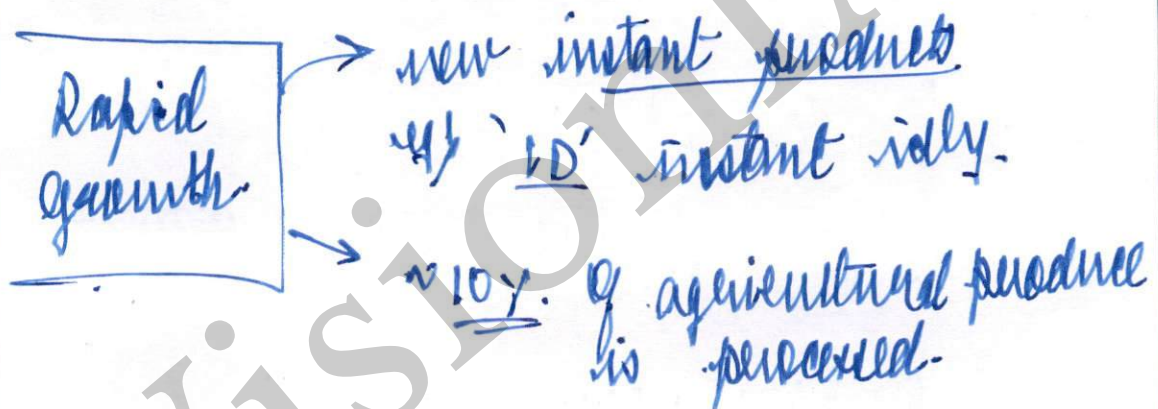
खाद्य प्रसंस्करण उद्योग का तीव्र विकास किस प्रकार भारत में खाद्य सुरक्षा संबंधी चुनौतियां उत्पन्न कर रहा है? (उत्तर 150 शब्दों में दीजिए)

How is the rapid growth of the food processing industry leading to food safety challenges in India? (Answer in 150 words)

10

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

The growing urban population, rise of processed food and expanding export market has led to the rapid growth of food processing industry.



However, the rapid growth has led to many food safety challenges:-

① difficulty in food safety checks

eg. Everest, M&M ban from Singapore.

(ethylene contamination)

- ② multiplicity of FPI $\Rightarrow$ food safety issue.
- ③ limited study and understanding of products
eg/ Lead contamination of Maggi issue
- ④ issue of unethical advertisements $\Rightarrow$ compromise of safety.
eg/ Patangali fake advertisement claims
- ⑤ weak enforcement of FSSAI guidelines.
eg/ 2% transport cap.
- ⑥ limited laboratory capacity to carry out checks.
eg/ 2021 $\rightarrow$ curtail product export issue
creating an umbrella self regulatory body
using NCTE as a forum to check on exports and active engagement with industry - are needed.

2.

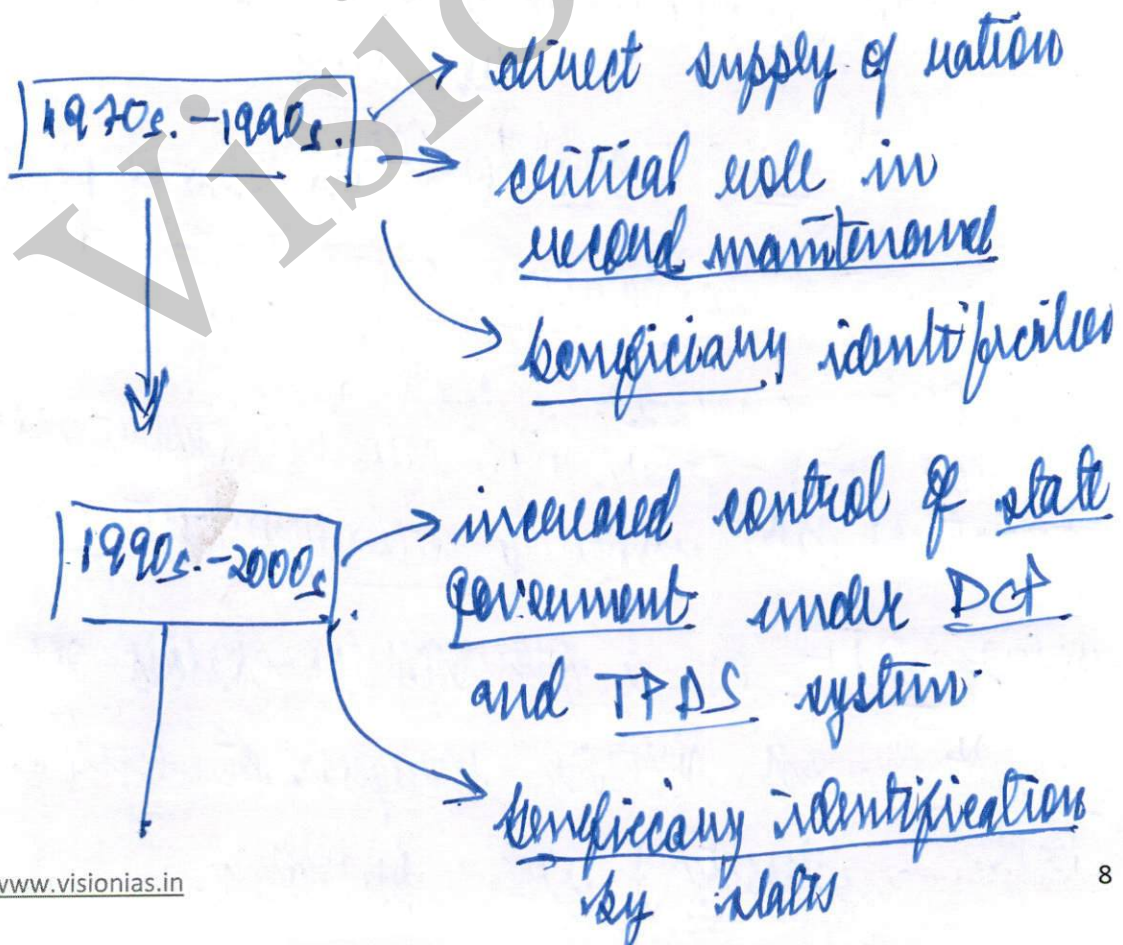
भारत की सार्वजनिक वितरण प्रणाली के अंतर्गत उचित मूल्य की दुकान (FPS) का प्रारंभ एक विकासशील प्रक्रिया है। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)
Under the Public Distribution System of India, the Fair Price Shop (FPS) transformation is an evolving process. Discuss. (Answer in 150 words)

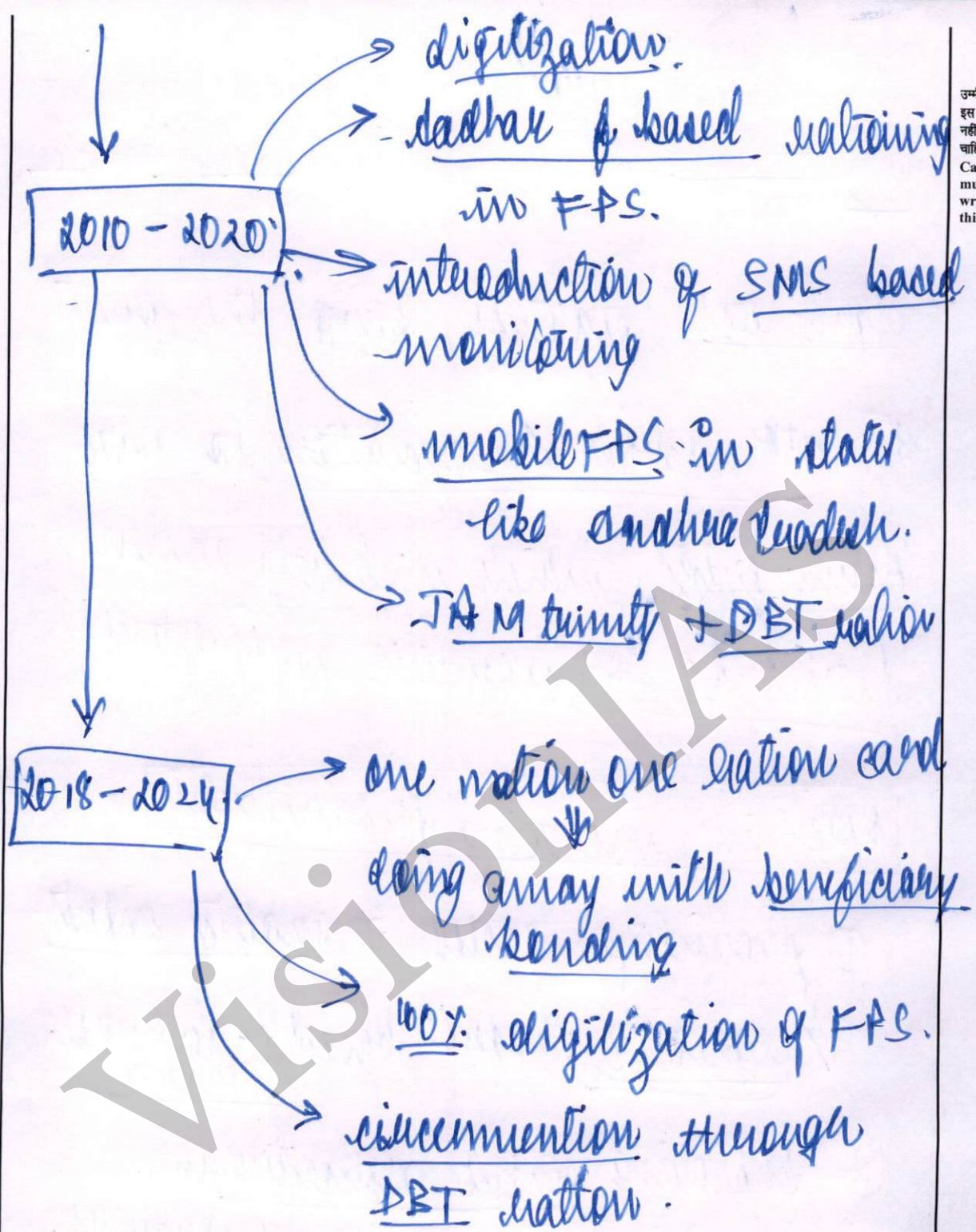
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उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
Candidates must not write on this margin

67% of Indian population are covered under PDS (NFSA). Fair price shops play the last leg role in PDS system.

Evolution of FPS.





Shanta Kumar committee highlighted 47% leakages in PDS. More reforms such as geospatial monitoring, IoT based PDS and e-RUPI based PDS can further strengthen service delivery.

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

Agri-tech startups bring the fruits of 4th industrial revolution to the farm fields, which will help achieve digital AG → (scientific agriculture)

Role in increasing productivity

- ① providing access to quality inputs
eg/ Agrostar : agri. based e-commerce
- ② Improving input application
eg/ PUSA decomposer based sprayers.
- ③ Quality access to extension services.
- ④ AI based precision farming.
eg/ Fylo : uses AI in agriculture.

⑤ Deer based farming.

eg) private nurseries in Kakapoti Nam
Deer Didi.

Role in improving market access

① provide storage capacity augmentation.

eg) Saga-ag: AI based storage optimization.

② Work on efficient marketing through
e-NAM

③ Increased trade through agri-comm
unity exchanges.

④ market access to organic products
eg) California organic almonds.

The government has launched agricultural
accelerator fund realizing the need to

increase private engagement in agriculture.

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

Land reforms in 1950s only affected 6% of land. The 95% digitization under DILRMP provides a new opportunity for land reforms 2.0.

Element of land reforms	Role digitization can play.
① Reduction of <u>land litigation</u> (<u>66-1</u> civil court cases are land related)	→ can help in <u>conclusive land titling</u> → drone mapping through <u>PM-SVANITVA</u>
② <u>Intervenor land leasing</u> ↳ <u>4%</u> land leased (Agri census 2016)	→ <u>smart contracts</u> → <u>easier dispute settlement</u>

③ Reformed land ownership.
 ↳ ^{top} 13% farmers own
 ① 53% land (Agriculture 16)

→ targeted subsidy to marginal farmers.

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

④ Need for increased reparation of land.

→ linkage between online registration and land records.

⑤ Moving to conclusive land titling

→ robust records for state backed guarantees

⑥ Land acquisition reforms
 ex) for road PPP projects
 - delayed due to this

→ reduced litigation
 → faster DBT based compensation

Recently, AP experimented with blockchain based land records and the same can be replicated at national level.

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)

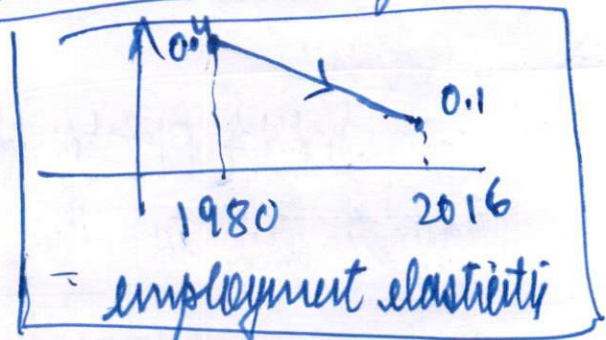
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उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
Candidates must not write on this margin

India needs to step up its economic growth and utilise its 65% working age population to achieve the target of developed nation status by 2047.

With only 15% share in overall GDP, the manufacturing sector needs to be strengthened because of :-

① high employment elasticity of manufacturing



② self reliance in critical sectors like semiconductors

- ③ Tackle the unemployment crisis highlighted by ILO in India employment report 2024.
- ④ Bridge inequalities in nation
↳ top 1% own 22.6% wealth (AIK-24)
- ⑤ Growth of human capital.
employment → social sector spending → human capital.
(~51% graduates are employable (ES 2023))
- ⑥ Better investment led growth.
eg. Janshakti development due to Yato
- ⑦ Demand and backward linkages with agriculture and service.

The draft industrial policy 2022 must be revised to incorporate new realities such as (China +1) to revive manufacturing

6.

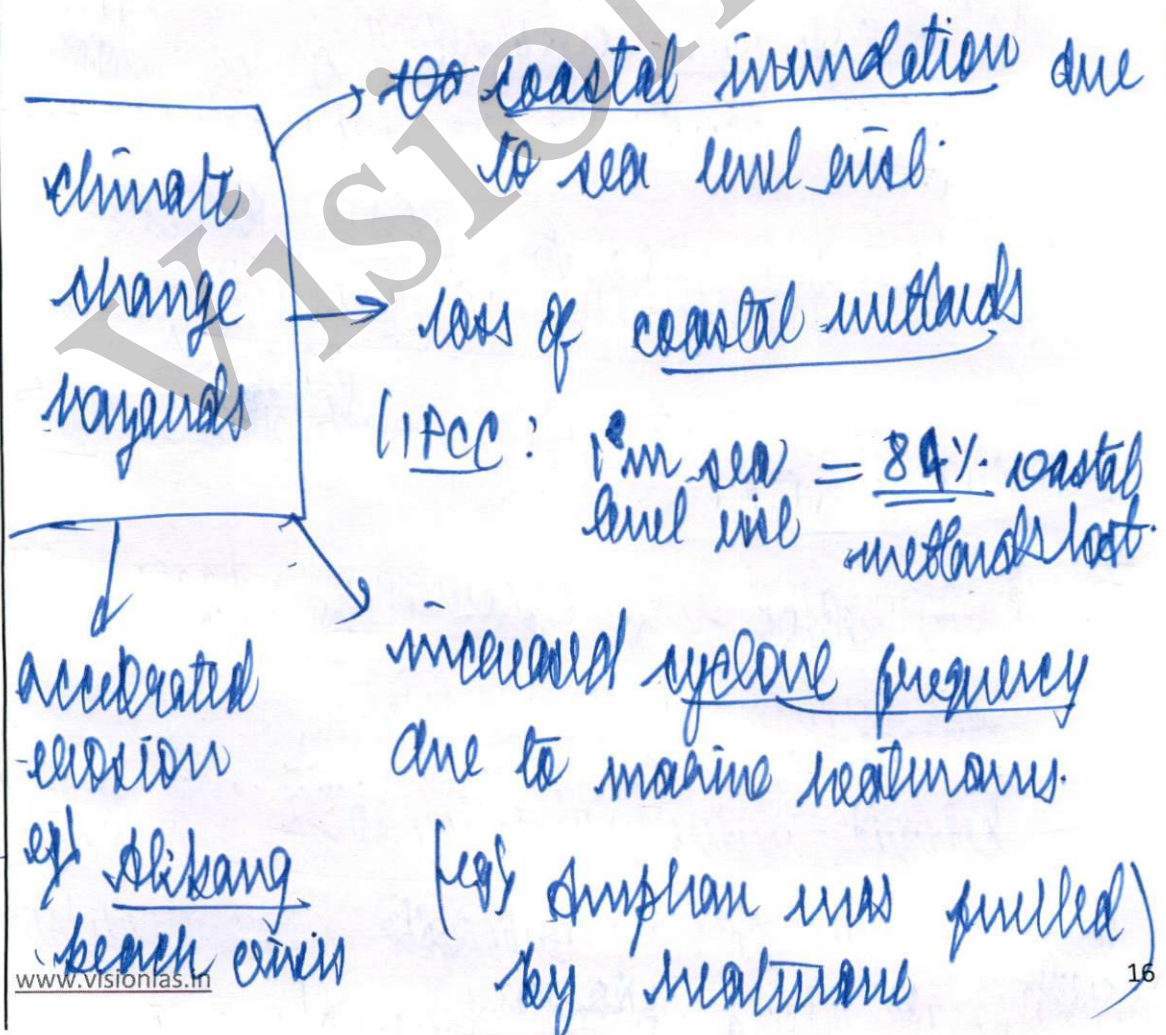
जलवायु परिवर्तन के परिणामस्वरूप बढ़ते प्राकृतिक खतरों से निपटने के लिए भारतीय तटीय समुदायों की प्रत्यास्थता को किस प्रकार मजबूत किया जा सकता है? (उत्तर 150 शब्दों में दीजिए)

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

Nearly 17% of Indian population lives within 50km of coasts, which makes them vulnerable to climate change hazards.



strengthening evidence of coastal communities

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

I. lessons from Odisha

[99.9% decline in cyclone mortality]
b/w 1999 - ~~200~~ 2012

- ① robust infrastructure like cyclone shelters
- ② better forecasting mechanism using doppler radars.
- ③ better outreach. → SMS based.
→ coastal fishermen groups

II. Other steps

- ① non econ. approach to disasters.
- ② structural safeguards like retrofits of Kerala.
- ③ utilise local SAs, CBO.

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)

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

The green credit programme is a voluntary carbon credit trading scheme to facilitate carbon sinks creation under ICFRE.

This is a critical step to fulfil the creation goal to reduce emission intensity by 45% by 2030 through carbon sinks.

However, its role transcends carbon management. This is because :-

① creation of sustainable blue green infrastructure

- ① Tap into private capital in climate change mitigation
- ③ coherence with compensatory afforestation under FCA 1980.
- ④ Empower local communities
eg/ Nagaland: selling of bamboo based credits in global markets.

concerns

- ① Lack of proper carbon metric
 - ② May become a tool for greenwashing
 - ③ Voluntary in nature → may lead to price crash
eg/ price crash of ES credits in FAT.
 - ④ Non-parity with CETS
- Active engagement with local NGOs and global groupings are needed.

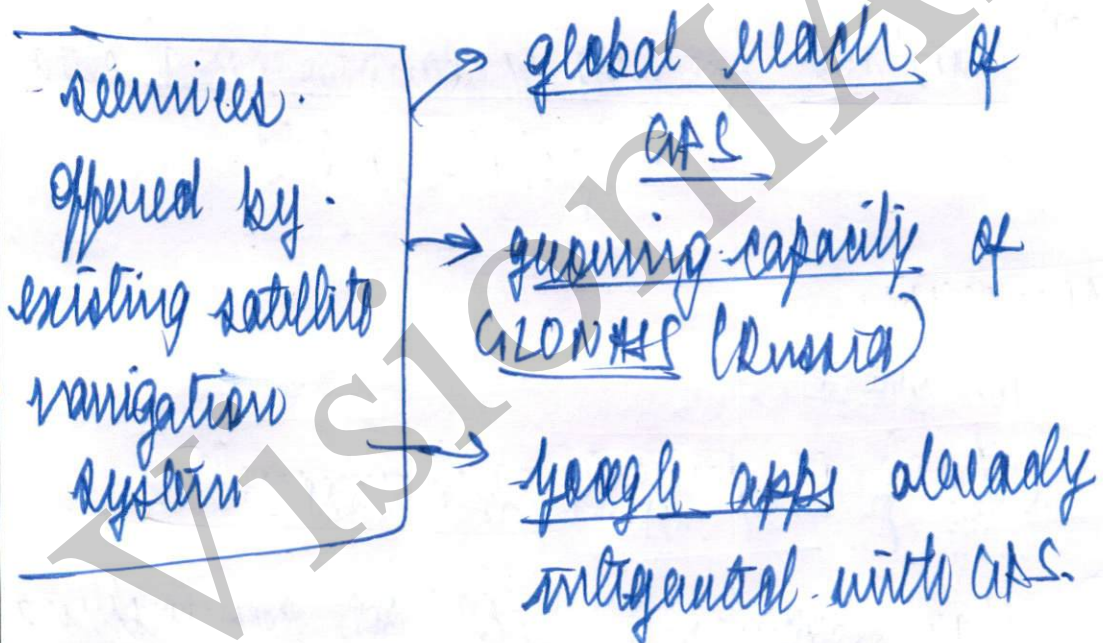
8.

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)

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

NavIC is an indigenous regional satellite navigation system containing of 7 satellites :



This has brought into question the heavy capital investment in NavIC which basically replicates the above navigation system.

Hence, many critical benefits of NAVIC are:-

- ① Military application through extended service of NAVIC.
 - increased capability eg) Balakot air strikes
 - national security argument.
- ② Better range and resolution compared to GPS.
- ③ Soft power approach by sharing NAVIC with other SARF partners.
- ④ Self reliance to prevent future weaponisation of satellite.
- ⑤ Not fall behind in space race.

Hence, NAVIC must be further strengthened by integration with other.

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

Recently, IMF highlighted that (2-5)% global GDP is laundered. Cyber enabled financial crime ranges from phishing to blockchain based layering, and has emerged as major forum for laundering.

g) Pay TM controversy
↳ used by criminals to launder money (RB observation)

Role of government in addressing issue

I. Institutional steps

① Increased institutional co-ordination through WATUB

② Using MAC under IB to track anomalous transaction.

③ cross-deputation and linkages the ED and NIC.

II. Legislative steps

① include cyber enabled financial crime under scheduled offences in PMMA.

III. Other steps

① increased engagement with ANESCOM

② active outreach to IBA.

③ leverage FATF partnership.

④

In addition, India can consider joining Outspert convention for better co-ordination.

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)

10

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

Technology absorption refers to translating technology from labs to fields and their inculcation in daily operations.

significance / need for absorption

① improved operational capabilities

eg - Searchand helicopter → highest flying.

② optimising expenditure in R&D

eg Electric propulsion used for submarine

③ Issue ~~must~~ based R&D

eg. Mission Kaveri (Yunkojet)
engine pattern.

④ Keep in touch with modern developments

eg. MAV in Sgnr-V.

Challenges faced:

① Lack of effective army - DRDO
- co-ordination.

② Difference in laboratory and on-
ground condition

③ Isn

- The Rajay Raghavan committee rec-
ommendation to introduce Defense technology
council can help with the same.

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

India's NER's industrialisation and development are critical pillars in its act east as well as make in India policies.

Issues faced in NER

I. geographical ^{and ecological} issues

① heavy tropical rainforest.

② Frequent flooding eg) 1024 Brahmaputra floods.

③ unsupportive climate eg) Monsoon monsoon.

④ presence of ^{eco-}climate sensitive areas.
 eg) Himalay Biosphere Reserves.

⑤ chicken neck of India hindering connectivity.

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

II. political - security factors

① Instability in neighbourhood:

spillover
violence

↓
induced
cross-border
trade

↓
smuggling

eg/ Bangladesh crisis 2024.

② Hindrance by insurgency groups
eg/ NCCN-IM hindering development of
Lengding, Mei & Shunachal districts.

III. socio-economic issues

① Lack of trained manpower.

② Lagging infrastructure

③ social conflicts eg/ Namper Kuki -
Misti conflict.

measures taken by government.

- ① PM-DEVINE : ~~con~~ availability of loan, capital for north east region.
- ② cross-border development projects.
eg) Bhutan-telephm city - dream special commerce zone.
- ③ smart diplomacy : eg) japan showed interest to develop in NEA.
- ④ Infrastructure investment :
eg) Maitree Yoni bridge.
- ⑤ cross to ports through chittagong
- ⑥ IMT highway, Kaladan multinational project.

the government must complement alone through bottom-up industrialisation model.
by strengthening cooperation in NEA.

12.

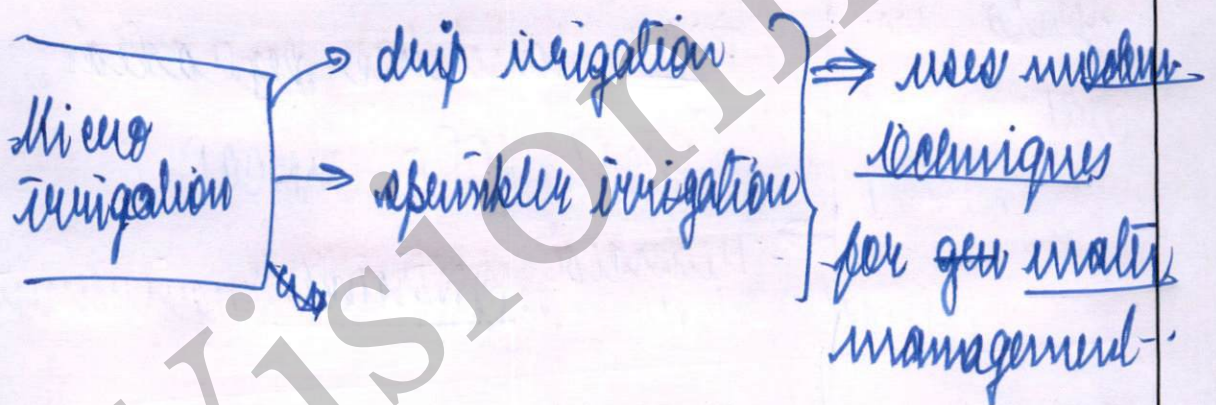
जलवायु परिवर्तन और बढ़ते जल संकट के युग में, सूक्ष्म सिंचाई प्रणालियां भारत में संधारणीय कृषि पद्धतियों में किस प्रकार योगदान दे सकती हैं? (उत्तर 250 शब्दों में दीजिए)

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
Candidates must not write on this margin

Agriculture consumes 89% of groundwater in India which has 18% of population but less than 4% of water resources.



Microirrigation benefits

contribution in sustainable agriculture

① ~230% water savings in drip irrigation

→ reduced groundwater depletion

Punjab | 172% | (extra water)
total | 70%

→ reduced agricultural runoff
pollution

BOD at
Kampha
WHO → 4-5 mg/L.
→ 1 mg/L.

→ reduced need for chemical
fertilizers

② 70% higher
yield in
drip

→ Reduced land overexploitation

↳ 29% land has degraded
since 2000 (VNCA)

→ reduced pesticide requirement

③ Modern
Techniques

→ fertilization

→ integrated
pest manage-
ment

→ Reduced nitrate pollution

eg) blue baby syndrome caused
by this.

→ reduced methane emission
due to no waterlogging.
(methane is 21x more
potent than CO₂)

Other probable benefits

- ① Faster adoption of organic practices of sikkim → 100% organic.
- ② use of more sustainable seed varieties
g/ PUSA 2050 over PUSA 44
- ③ Better soil treatment tech.
to 'jeenamant' under ZBNF.

The government has implemented AM-KY
and instituted micro-irrigation fund.

Moreover, more efforts such as capital subsidy, using sub-letting mechanism, involving agri-startups for innovative solutions can make agriculture 'evengreen'

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

(IR)
Indian railways has only 27% modal share in transportation. Freight accounts for 2/3rd of revenue for IR and hence plays a critical role.

Issues around freight transport

① heavy cross-subsidisation with passenger transport.

↳ freight → revenue | 2/3rd
services | 1/3rd

② Lack of feeder routes and connectivity to other modes.

③

slow speeds and lower preference to freight

~ (30-70) kmph speed of freight train.

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

④ Lack of technological innovation in transport.

⑤ heavy transportation losses due to 'rap and plinth' loaded wagons.

⑥ other issues } wagon tipping issue.
 } stealing and diversion.

This increases the cost of logistics of India to 14% GDP (USA → 9.1% GDP), which calls for urgent strategies! -

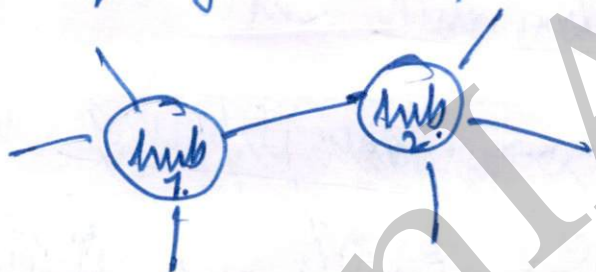
① increasing and fasttracking dedicated freight corridors



② Reduced cross-subsidisation by increasing operation ratios.

(98% at present)

③ develop hub and spoke model for freight transport



④ Develop interlinkages with other modes of transport

eg. Germany: Shine multimodal-rail linkage.

⑤ Introduce private sector in freight transport

→ [Bikeb Debaroy.com]

⑥ deal with regulatory conflict of interest through RRAT

This is critical to increase India's target of 45% modal share by 2030.

14.

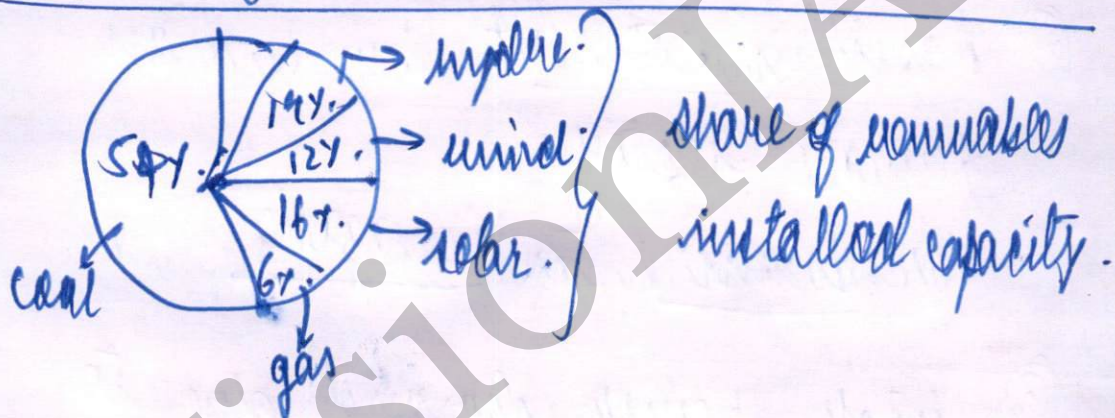
उन कारकों पर चर्चा कीजिए जिन्होंने नवीकरणीय ऊर्जा क्षेत्र में प्रभावशाली प्रगति करने और वैश्विक नवीकरणीय ऊर्जा परिवर्तन में अग्रणी के रूप में स्थापित होने में भारत की सहायता की है। (उत्तर 250 शब्दों में दीजिए)

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

India was among the only G20 nation 'on track' to achieve its INDCs by 2030:



Impressive strides

- ① The largest solar plant in the world is in Ghazla (Rajasthan)
- ② Strides in wind energy through plants in Muppandal.

Factors behind massive trials

I. Economic factors

- ① More than 100% decrease in costs of solar PV in last decade.
- ② Rapid investment by Indian private sector.
eg) Adani in Paragade
- ③ High power demand due to growing population.

II. Policy factors

- ① Forward looking policies.
eg) carbon credit trading scheme.
- ② decentralised renewables.
eg) PM-KUSUM for solar pumps.

③ Nudge economies

eg) tax breaks in FAME-II for
electric vehicles.

④ Promote economies of scale.

eg) PLI scheme for solar PV.

III. International factors:

① concessional loans $\rightarrow$ CCF by CCF
 $\rightarrow$ World Bank.
JI-mechanism
under Kyoto protocol given loans.

② Bilateral partnership eg) India - Denmark
 given energy partnership.

③ cross border renewables eg) Sum-III
 project in Nepal.

④ International organisation like ISA.

The additional declaration to triple renewables
 by 2030 in New Delhi declaration marks
 India's process.

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

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

Agriculture uses 89% of groundwater, and such large scale irrigation coupled with fertilizers and pesticides create the run-off crisis.

Impacts of agricultural runoff

① Ecological impacts

① Increase BOD of water bodies.

~~Actual~~	BOD at Kompher	4-5 mg/L.
	ideal (WHO)	1 mg/L.

② Impacts local biodiversity

eg gharial in CR due to chemical pollution

③ May lead to harmful algal bloom

↓
asphyxia

↓
impact
benthic
species

↓
faster ageing
of lake.

eg/ beal sea drying island.

④ heavy metal pollution eg/ chromium nickel cadmium

I. (socio-economic impacts)

① diseases like blue baby syndrome due to nitrate pollution.

② higher fertiliser imbudly burden

↳ 20-25% NPP in FV23.

③ May lead to soil degradation

↳ 29% land degraded since 2000 (UNCCD)

II. Measures to mitigate impact.

A. Agriculture side measures

① fertiliser balance through integrated nutrient management.

- ③ practices fertigation
- ③ utilize nano-Urea, nano-DAP.
- ④ CIM crops to reduce pesticide need
eg BB-s cotton's immunity to Bollworm.
- ⑤ Farmer education on proper usage.
- ⑥ Rationalise subsidies.
- ⑦ promote local fertilisers like
Smart Fari.
- ⑧. Environment side measures
 - ① creating riparian buffers
 - ② Nature based solutions
eg swamp wetland & based
purification of effluents
 - ③ Integrating approach → Satta
Yanga concept.

These will help preserve the diversity
environment and curb artificial disruption

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

उम्मीदवारों को इस इच्छा में नहीं लिखना चाहिए
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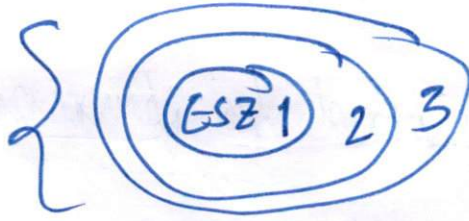
Himalaya has emerged as a tourist hotspot due to serene views, adventure tourism, pi pilgrimages (eg) kedarnath and growing eco tourism.

significance of tourism → 54. Q GDP to nation
→ local employment
→ generate profit
→ sensitization to ecology

Hence, a sustainable tourism mechanism has to be developed to prevent disasters such sikkim tunnel collapse and Ashimath sinking

Measures to implement sustainable tourism

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

- ① Restrictions on tourist footfall
Through Arota system
eg. mandatory online registration per Chandhan gates.
- ② Seasonal restrictions to streamline restoration processes.
- ③ Implement summer line permit like restrictions in ESZ areas.
- ④ Lessons from Yashil committee report can be applied here.
 } → 3 level ESZ.

⑤ cross-border cooperation ~~and~~
eg) India - Bhutan regular exchange

⑥ Robust EIA reforms for Himalayan
surgery

- move away from construction
company funding model
- create robust baseline data.
- plug loopholes eg) Chandham project
fragmentation to escape EIA.

⑦ home-based stay & tourism model
of Kangri

⑧ define hazard mapping to prevent
disasters.

define engagement with local CSD and
NCD is critical for having 'sustainable
Himalayas'

17.

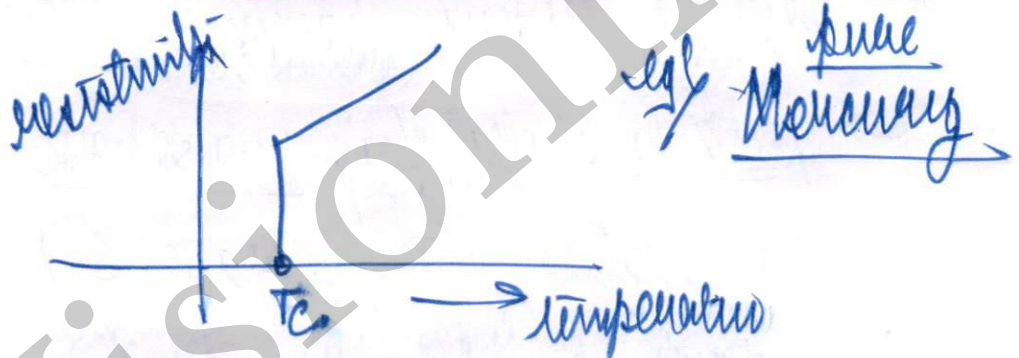
सुपरकंडक्टर्स विज्ञान एवं प्रौद्योगिकी के विभिन्न क्षेत्रों में नवाचार को किस प्रकार बढ़ावा देते हैं? उदाहरण सहित स्पष्ट कीजिए। (उत्तर 250 शब्दों में दीजिए)

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

15

उम्मीदवारों को इस हशिग में नही लिखना चाहिए
Candidates must not write on this margin

superconductors ^(SC) demonstrate zero resistance property below critical temperature, which is explained through BCS theory.



Applications of SC.

- ① creating zero ohmic loss materials
- ② using Meissner effect to create Maglev trains.

③ application in adiabatic demagnetisation
based cooling.

④. creation of SQUIDS devices in
the field of electronics.

↳ constant flux devices.

↳ accurate measurement of
planck's constant.

⑤ Formation of Josephson junctions.

↳ Josephson characteristics find uses
in low temperature semi-conductor
devices.

⑥ Reduce transmission losses using
high temperature superconductors

eg Y Ba Cu₃O₇ used as superconductor

⑦ study the baronic properties of copper pairs.

⑧ applications in cryogenic engines of rockets.

⑨ using magnetic repulsion property in hyperloop. (magnetic levitation).

The recent LK-99 controversy highlights the race for high temperature superconductors. The government must fund dedicated lab science departments to obtain high temperature SC.

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

15

Despite a comprehensive IPR coverage, India still ranks 42/57 in international IPR index (USPTO).

IPR landscape of India

→ Patents act 1970

~~copyrights act~~

→ CGPATM (Min MoCI)

→ Trade marks act

→ copyrights act

→ PAVFR act → Ministry of agriculture

→ Geographical

Indication act 1999

→ MoCI

www.visionias.in

→ Biodiversity act → NBA (MoEFCE)

SCIR act. $\longrightarrow$ MCTY.
(semiconductors)

Despite 74 year-on-year rise in
patent filing, many hindrances
remain: —

① Enforcement

① cases of biopiracy attempts
eg India snake venom case.

② delays in enforcement due to
litigation.

eg FL 2027 case controversy.

③ Lack of staff $\rightarrow$ eg India has 10%
strength of China.

Regulatory

① overregulating attempts

eg Beijing attempt by ISIT 48

② confusion over outsourcing patenting
to ICI.

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

Administrative

- ① Emergence of AI based IPR.
eg/ summary copyright (AI) copyright
- ② Fair dealing jurisprudence weaker than
fair use jurisprudence in patents act.
- ③ Lack of industry engagement.

Way forward

- ① Introduce patent regions.
(5 years instead of 10 years).
- ② include fair use jurisprudence in patents
act.
- ③ Time based joining patents prosecution
highway.

India must strike a balance between
innovation and social captain through IPR.

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

The introduction and passing of inter-services organisations act 2023 has

set the stage for theaterisation.

This is a significant step which ~~challenges~~ can lead to greater integration & rationalisation through:-

① operational coherence.

↳ positive results from US's experience.

② better planning and procurement

↳ ~8% of budget goes to defence.

③ create inter-services parity and co-ordination

④ Better manpower management.

eg) disciplinary action co-ordination in
ISO act 2023.

⑤ prompt unified response to crisis.

eg) Joint defence force (JDF) model.

⑥ Increased coherence with the rest of
CAS.

However, many challenges still remain:-

① fear of demoralisation of Indian army.

② may fuel inter-service competition.

③ decelerate capital shortage ~~for~~ due
to reduced attendance.

↳ IAF has 3031/42 sanctioned
squadrons.

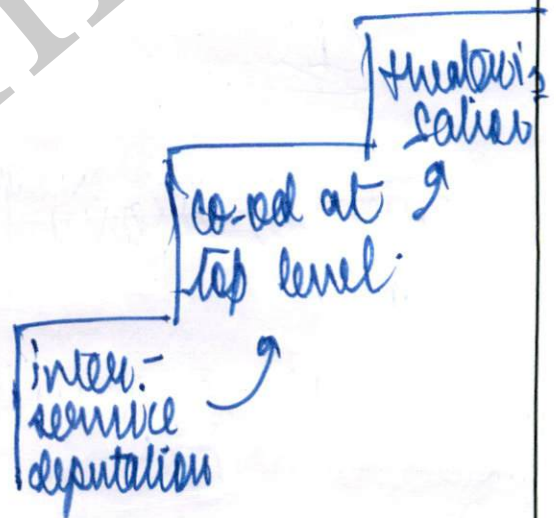
④ Reduced allocation to other services only 15% defence budget goes to navy.

⑤ co-ordination issues due to large command structures.

⑥ geographical silos of defence.

Way forward

① step by step approach:



② Engage with like-minded partners like USA.

③ Take lessons from Sweden & Vietnam about the command.

The conclusion is an important reform finding mention in reports like Kargil comm

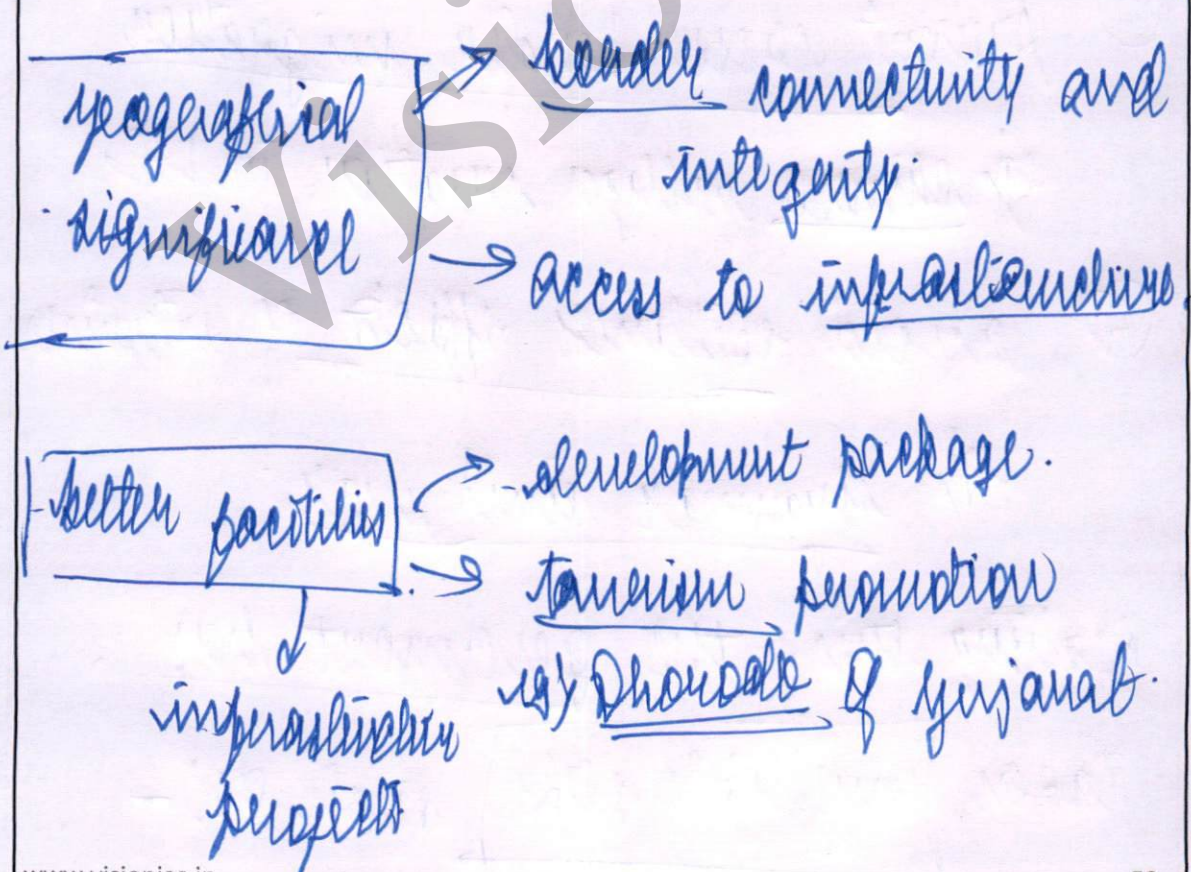
20.

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)

15

The word 'first villages' strikes the inherent motive of inclusivity and recognition of border villages which are the biggest vulnerabilities in India's volatile border.



This will help in proper border management through:-

① increasing trust of locals

↳ locals help during haazil work

② prevent infiltration tactics by Pakistan

③ prevent cross-border migration
↳ Chinese villages creation in NE

④ avoid spillover effects of terrorism
↳ Myanmar civil war

Addressing this, the government has
taken multiple steps such as:-

① Vikrant villages programme for
economic and social empowerment.

② Village defence guards for
bottom-up security management.

③ Border area development programme

④ Insulation from spill-over insurgency

↳ suspension of open borders of Myanmar.

↳ fencing Myanmar border.

⑤ Operation sandbhanana by army -
to win confidence.

⑥ ~~to~~ contribution by Assam Rifles in
Changal (Manipur) in development.

all border villages are front villages and
their inhabitants are front citizens.

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