

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. : 00149946

अभ्यर्थी का नाम/Name of Student : RITWIK MEHTA

माध्यम: हिंदी/अंग्रेजी
Medium: Hindi/English


English

तारीख
Date

25/08/2024

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

केंद्र
Centre RANCHI (036)

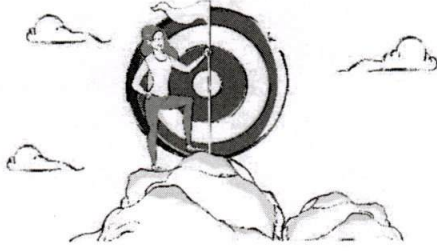

निरीक्षक के हस्ताक्षर
Invigilator's Signature

	<p style="text-align: center;">महत्वपूर्ण अनुदेश</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;">Important Instructions</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)		
सकल योग (A+B) / GRAND TOTAL (A+B)					



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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.

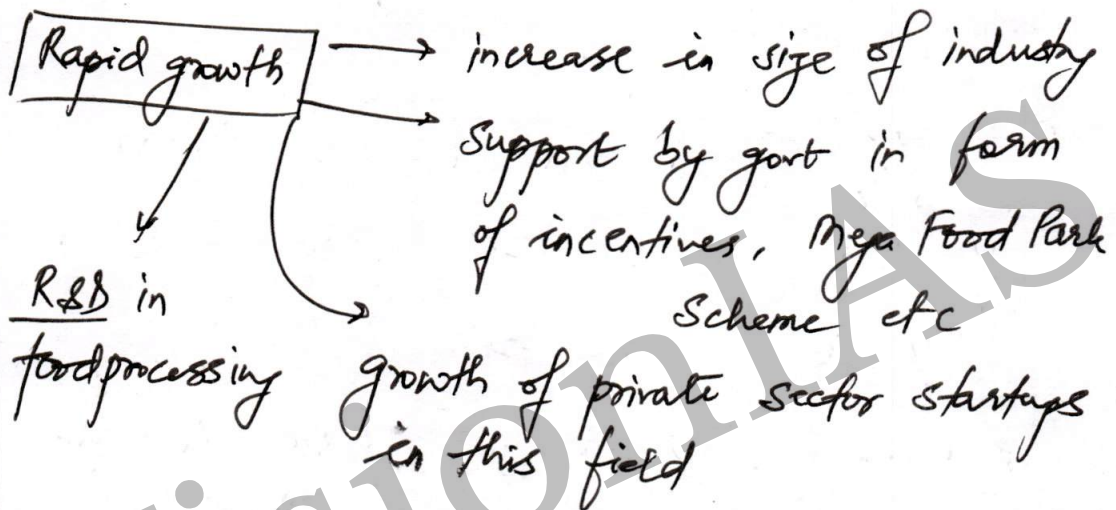
5.

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)

The Food Processing sector has emerged as a sunrise sector in Indian economy growing at high CAGR.



However, this growth challenges food safety

- ① Decline in sanitary, phytosanitary standards maintenance in exports.
- ② Cases of misuse of chemicals in food outputs eg Spices from India - ↑ ethylene content
- ③ Quality of raw material suspect to being rotten, low in nutrition - as demand rises.
- ④ Quality of output impacted by lack of

adequate monitoring & quality control measures

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

- ⑤ Poor logistics & warehousing → chances of contamination in supply chain itself
- ⑥ Impact on food security as higher demand for → horticulture, cash crops, food processing sector crops.
- ⑦ Food safety also impacted due to lower monitoring measures at customs checkpoints →

imports of raw material - can bring diseases, invasive species

measures needed

Case Study

USA has a dedicated bio-security unit at all airports, ports.

- ⑧ Improve legislation to tackle issue of quality
- ⑨ Set up independent food quality control authority or provide such powers to FSSAI.
- ⑩ Focus on nutritional value maintenance of such items.
- ⑪ Reduce overprocessed $\left\{ \begin{array}{l} \text{transfats} \\ \text{sugary} \end{array} \right.$ food stuffs.

The Eat Right campaign needs to be broadened to tackle challenges. 7

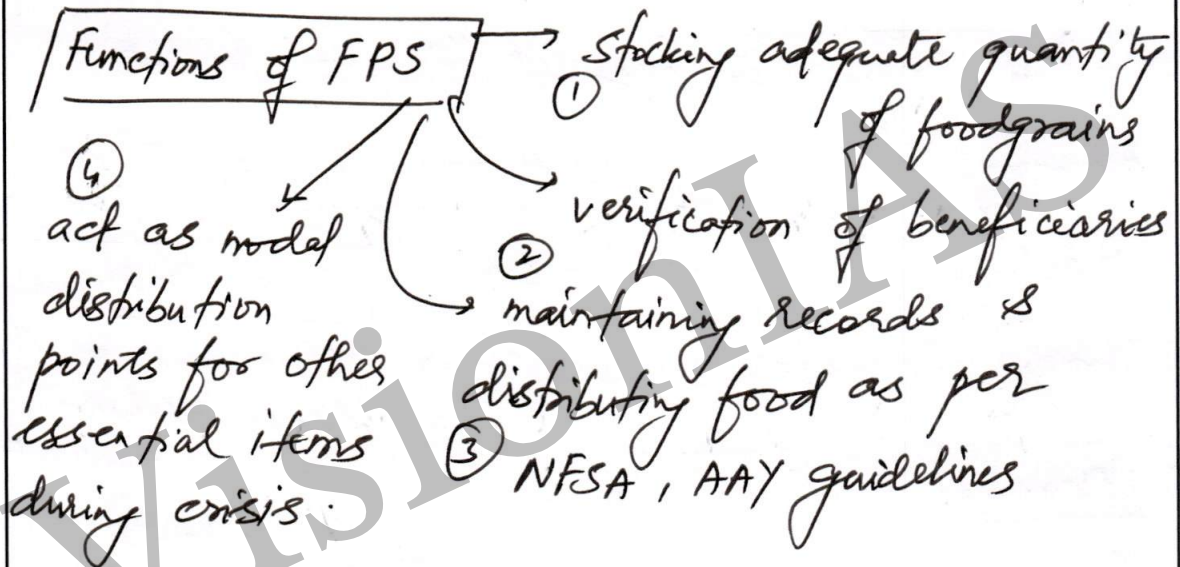
2.

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 हाशिए में नहीं लिखना चाहिए
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The Fair Price Shop (FPS) acts as the nodal interface between the Public Distribution System and the citizens/beneficiaries as all foodstuffs disbursed through them.



Evolution of FPS - an ~~ev~~ ongoing transformation

- ① Earlier, brick & mortar FPS with limited geographical coverage → problem of accessibility
- ② No. of FPS increased to granular levels → ↑ in spatial coverage.
- ③ Issue of inclusion - exclusion still remained

due to poor digitization.

④ Digitized FPS envisioned leading to reduced corruption, siphoning & exclusion.

⑤ Localized demand fulfilled but lack of service to migrants → hence one Nation, one Ration Card envisioned.

⑥ India Stack DPI integrated by linking ONORC with Aadhar/~~###~~ cards.

⑦ Payments system digitized through integration of UPI

⑧ Despite these progress, certain lacuna remain that can be tackled through further transformation →

⑧ fake beneficiaries → biometric integration.

⑨ Records not maintained → blockchain technology

⑩ Quality decline due to poor management - long storage → incorporate AI based warehouse management.

FPS transformation is necessary to ~~ful~~ fulfill

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 हिसाब में नहीं लिखना चाहिए
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Agri tech startups help to reduce cost of existing technological solutions & make available further innovations to farmers in India.

Role of agri tech startups in farm productivity

- ① Mechanization of farm equipments → handheld devices → ↓ drudgery & ↑ productivity.
- ② Innovative inputs → such as nano-urea & nano-fertilizers → ↓ cost & ↑ use-efficiency.
- ③ Development of ~~for~~ HYV crops & improved seed quality.
- ④ Irrigation innovation → to reduce cost of drainy & using water.
- ⑤ Improved agronomic techniques developed that can be provided through extension services
- ⑥ Threshers, harvesters & combines that reduces need for farm labor &

improves time taken for preparing field for next crop.

Role in improving market access

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
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- ⑦ Uber for farmers - provision of farm to market transport services.
- ⑧ Digitization of farmer/producer organizations to use e-commerce for sales.
- ⑨ Improved refrigeration facilities (e.g. refrigerated trucks) to enhance spatial coverage of farm produce.
- ⑩ Creation of platforms to link buyers & producers.
- ⑪ Farm Gate processing technologies to promote processing & boost exports to foreign markets.
- ⑫ Digital technologies & solutions to APMC mandis to improve marketing.

Agri-tech startups need to be supported through tax incentives, VGF measures etc to realize full potential.

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

Digitisation of land records is one of the core aims of Land Reforms in India. It refers to conversion of cadestral maps from physical to digital formats. It is conducted through National Land Records Modernisation Programme.

Role in effective land reforms

- ① Improves land leasing & owner-tenant relations as ownership can be clearly established.
- ② Mapping of land holdings → provides data about land ownership beyond ceiling.
- ③ Promotion of contract farming as land parcels can be identified by parties without ambiguity.
- ④ Improved farm output as it will allow farmers to place land as collateral for loans.

⑤ Reduced conflict over land → ↓ litigation
↳ Success of ULIP ; Bhoomi etc.

⑥ Will allow mapping of Land records @ & with
Soil health data → agronomic measures can
be made scientific.

⑦ Promote cooperative farming as land parcels
can be fitted together - overcome fragmentation
issue.

⑧ Wishes in era of conclusive land titling
from presumptive titling.

⑨ Improve digitization & farm mechanization
↳ use of GIS technology possible for
monitoring land quality, determine inputs etc

⑩ Will help complete the aim of land to the
tiller if land records comprehensively mapped.

How to achieve → assigning unique numbers to
land parcels
→ creating blockchain database
for land records.
use of AI,
robotics in
land records
digitization.

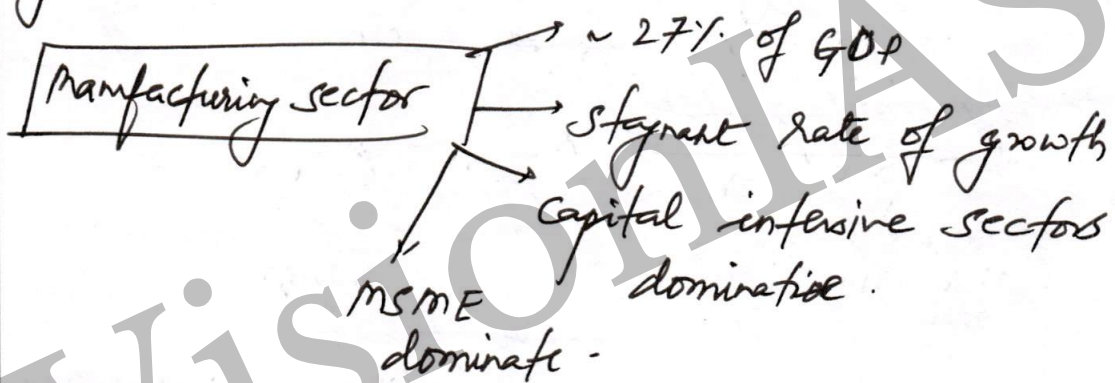
5.

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 हिसाब में नहीं लिखना चाहिए
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India's manufacturing growth is stagnant leading to huge underemployment in agricultural sector & ~~is~~ unemployment in economy. This acts as a barrier to achieving \$7 trillion economy by 2030.



Manufacturing led growth model can resolve various issues as -

① Exploit demographic dividend

① currently 49% of ~~demog~~ employment in agri sector (despite ~18% GDP)

② improve incomes especially of youth in the ~~to~~ collar professions ~~to~~ food processing.

(1.3) Labor intensive manufacturing sectors can reduce unemployment crisis - provide "good jobs"

(1.4) Skilled demography can be absorbed in high end manufacturing

Case Study
Bangladesh - ↑ growth due to textile sector labor intensive

③ Semiconductors ∴ Reduce brain drain.

(II) Accelerate economic growth

(2.1) manufacturing growth → ↑ merchandise exports
∴ export led growth model.

(2.2) ↑ manufacturing → ↓ cost of goods → \$
↑ disposable incomes → ↑ investments.

(2.3) Sunrise sectors such as textiles, food processing etc can provide market for agri & primary sector outputs - ↑ linkages in economy.

(2.4) It will improve R&D investments (currently stagnant at 0.64% of GDP)

Manufacturing growth needs to balance interests of productivity (capital intensiveness) & employment (labor intensiveness).

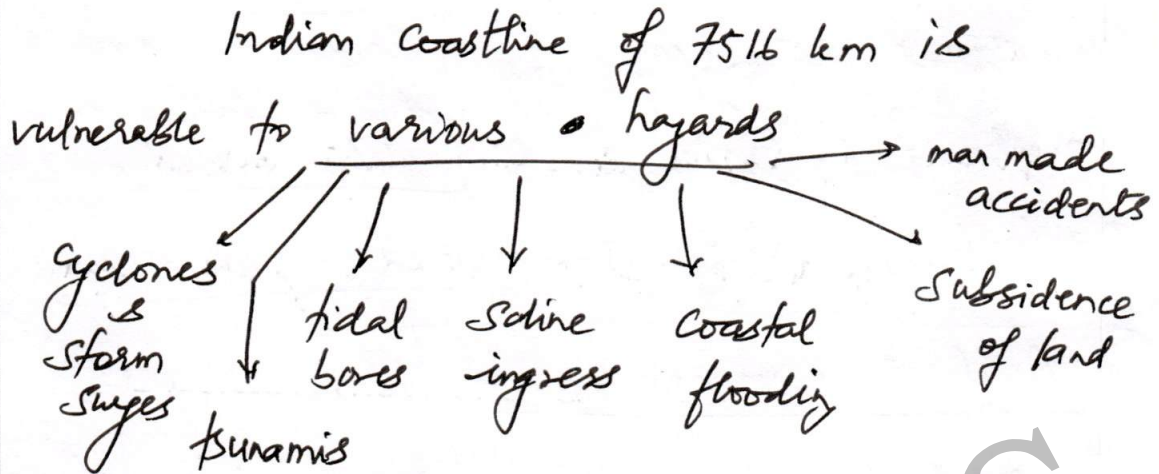
6.

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

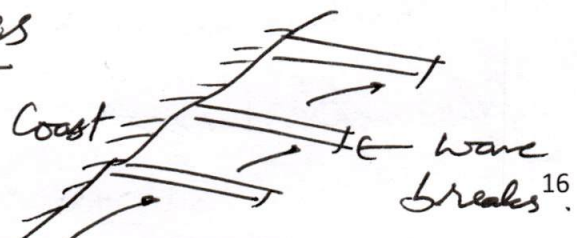


These hazards have amplified due to climate change

- ① ↑ Sea surface temperatures = ↑ cyclones
- ② ↑ humidity = ↑ coastal rain & flooding

Strengthening coastal resilience

- ① Infrastructure strengthening → to reduce vulnerability
(use of strong, durable materials)
- ② Shelter belts in the form of mangroves & sea grasses.
- ③ Hard engineering solutions → creation of sea walls & storm/wave breakers



- ④ Creation of hazard based shelter ~~to~~ infra such as those in Odisha for cyclones.
 - ⑤ Insurance facility to all in order to increase economic resilience.
 - ⑥ Regular updation of community based disaster response plans to enhance public capacity.
 - ⑦ Sustainable principles to be incorporated in lifestyle (as said by Sendai & Framework)
 - ⑧ Early warning systems to report & disseminate risks (e.g. Indian Ocean Tsunami Early warning systems)
 - ⑨ Improving livelihoods through Coastal development programmes to increase capability (eg boost tourism, fishing).
 - ⑩ Coastal Regulation Zones (CRZ) to be adhered to in order to reduce vulnerability of populations.
 - ⑪ Boost social capital among coastal communities to strengthen community based response.
- Building resilience thus requires emphasis on various aspects of disaster cycle.

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

Green Credit Programme announced by Union Budget 2023 aims to incorporate polluters pay principle in environmental management.

Green Credit Programme (GCP)

- * industries can undertake measures to improve environment - cutting emissions, afforestation etc - in return for which they will be given green credits to use for various environmental requirements (RPOs, tax etc).
- * It aims to deepen carbon market in India.

Goes beyond carbon management

- ① Holistic view of environmentally beneficial efforts → not just emissions centric
- ② proactive incentivization of private sector
- ③ influences private sector to mainstream "greening" measures.

④ Aims to promote biodiversity, green-blue infrastructures etc.

However, concerns

- ① can be used as a way to shrink emission control responsibility
- ② greenwashing by private sector.
- ③ unlike emissions control, no quantitative measure possible - chances of fraud.
- ④ Can become a perverse incentive to 'pay & pollute'
- ⑤ concerns regarding whether such efforts can be double accounted (as part of CSR too)

Despite its flaws, GCP is an innovative approach to sustainable & participatory environmental management. The recent India-Japan partnership on the same bodies well.

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 दृष्टि में नहीं लिखना चाहिए
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NavIC is a constellation of geosynchronous & geostationary satellites that is used to provide regional navigation through positioning system launched by ISRO.

Need for NAVIC

- ① Reliance on foreign navigation systems - Security risk (e.g. USA's reluctance during Kargil).
- ② Higher granularity possible - more detailed & high frequency of data for ~~set~~ research.
- ③ Reduces operation costs for Indian private sector → no need to buy geospatial data.
- ④ In line with India's geospatial liberalization policy - improves coverage.

⑤ Soft power → can be used to provide navigational systems to neighbouring countries or SAARC.

⑥ Improved ISRO's capacities - can be used to expand NavIC into global system in future.

⑦ Improved access to 2x2 cm grid data to military which was not possible earlier.

⑧ Provides lesser chances of failure as geospatial navigation data becomes critical for various functions.

NavIC's significance lies in the fact that India has joined an elite list of nations with their own navigational system.

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)

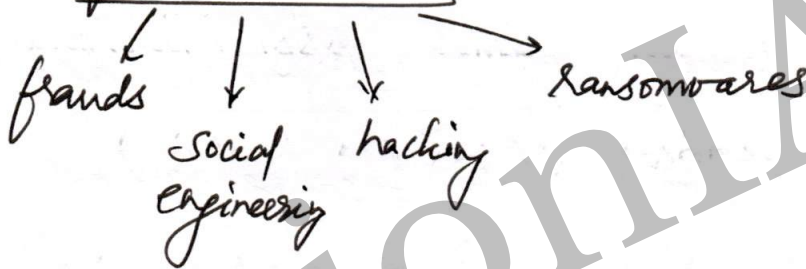
Cyber-enabled financial crime has emerged as the new frontier of global money laundering. Discuss. How can the government address this issue? (Answer in 150 words) 10

उम्मीदवारों को इस दृष्टि में नहीं लिखना चाहिए
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Money laundering refers to the conversion of illegal proceeds of crimes into legitimate money through a process of:

Placement → layering → integration

Cyber financial crimes have exacerbated this.



New frontiers of global ML

- ① allows for cross border transfer - ∴ ease in placement of such money in tax havens
① Cyprus.
- ② use of blockchain technology increases anonymity of criminals - difficult to track & prove crimes.
- ③ use of NFTs & crypto assets to store value (similar to artworks)

Measures to address

- ① Special Financial Crimes unit specializing in cyber crimes.
- ② Strict regulation of virtual assets
- ③ NLC & CERT-In to develop defenses against cyber crimes.
- ④ Global Collaboration to improve coordination.
- ⑤ creating firewalls against cyber intrusions in sensitive, critical sectors (e.g. banking).
- ⑥ Amendments of PMLA to address cyber crimes issue.

10.

इंडियन आर्मी वर्ष 2024 को 'प्रौद्योगिकी समावेशन वर्ष (Year of Technology Absorption)' के रूप में मना रही है। इसके आलोक में, स्पष्ट कीजिए कि भारत के रक्षा क्षेत्रक में प्रौद्योगिकी के समावेशन की आवश्यकता क्यों है। इस पहल में भारत को किन चुनौतियों का सामना करना पड़ सकता है? (उत्तर 150 शब्दों में दीजिए)

The Indian Army is observing the year 2024 as the 'Year of Technology Absorption'. In light of this, explain why there is a need for technology absorption in the defence sector of India. What challenges can India face in this initiative? (Answer in 150 words) 10

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
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Lt. Gen Raj Shukla has called for greater civil-military deepening in order to boost technology absorption in Indian Army.

Need for technology absorption

- ① To overcome challenges of cyber warfare & 5th gen warfare
- ② Better monitoring of borders by drones, satellites
- ③ Improved border management by enforcing smart fencing.
- ④ New age weaponry such as 5th gen fighter jets etc needed to challenge China.
- ⑤ Improve & reform archaic communication systems, protocols by incorporation of satellite phones etc.

Challenges

- ⑥ reliance on foreign tech due to underdeveloped Indian sector.
- ⑦ interoperability issues of various technologies
- ⑧ high capital expenditure required.
- ⑨ lack of training & in house R&D.
- ⑩ greater exposure to cyber attacks if systems digitized.

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 हाशिए में नहीं लिखना चाहिए
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North East Region (NER) of India has suffered from relatively lower rate of development due to a host of geographical, political, social & historical factors.

~~Geographical factors impo~~

Issues faced in trade, ^{industrial} ~~ind~~ development

- ① Lack of connectivity with mainland India except through narrow Siliguri corridor
- ② Difficult terrain impacting creation of high density roads - hinders exchange & market.
- ③ Relative isolation in political circles - lack of regional development policies
- ④ lack of adequate raw materials for development of ~~trade~~ industries -

- ⑤ Human resource - lack of education to meet industry needs/skills + poor health outcomes due to drug menace.
- ⑥ Disaster prone region - floods (Assam); landslides; earthquakes
- ⑦ Lack of very large mineral reserves in NE - reduces incentives for industrial localization.
- ⑧ Security threats due to regionalism, tribal isolationism & insurgency (e.g. Manipur crisis).
- ⑨ Lack of regional integration due to / border disputes etc.
- ⑩ Poor export orientedness & international connectivity

Measures to overcome

- ① Dedicated Department for NER. to include it in policy matters (NITI Aayog also has dedicated cell).

- उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
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- ② Road density increased under Bharatmala + integration through various bridge infrastructure projects.
 - ③ Act East Policy + Transnational infra projects (Kaladam; Trilateral Highway; waterways) to improve international orientatedness.
 - ④ Development of agro-processing sunrise sector industries (e.g. in Assam).
 - ⑤ Security improvement to ensure conducive business atmosphere. All weather roads, tunnels.
 - ⑥ Improved human resource management - opening of various ITIs etc.

NER can emerge as an untapped potential for industrial & trade growth but further measures need to be incorporated such as incentives for private sector etc. to reap benefits of the efforts that have already been put.

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

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Microirrigation has the potential to cut water use by 45% while boosting productivity by 50%.

Microirrigation (MI) systems contributing to Sustainable agriculture -

- ① Reduced water wastage from farm flooding methods.
- ② Increased production as water use efficiency increases in roots.
- ③ Reduced cost of water drawing (from canals, wells) → ↑ profits left for reinvestment.
- ④ Can be used for ~~micro~~ fertigation i.e. use of limited fertilizers ∴ ↑ soil health.
- ⑤ Soil alkalization & salinity prevented
eg. reh soils in Indira Gandhi canal areas of Rajasthan

⑥ Shift to agro-climatically suited crops possible as success of drip irrigation in rice, sugarcane -

⑦ Promote rainwater harvesting on fields (e.g. farm ponds) as lesser water needed.

Case Study
Adilabad - Farm Ponds + micro irrigation led to ↑ tomato yields

⑧ MI systems promote use of other technology such as satellite based water input etc → ↑ scientific agronomic practices.

⑨ Reduces surface runoff & loss of topsoil ∴ ↑ sustainability.

⑩ MI systems require lesser long term investments ∴ divert resources to good fertilizers, seeds.

However MI is not a guarantor of sustainability

① requires electricity supply to function.

② high initial investment needed → promotes perjury in farm sector.

③ Needs to be coupled with other measures such as agro climatic mapping, revival of natural farming etc

MI is being promoted through MIFund of NABARD & along with PMFBY's more Crop Per Drop vertical.

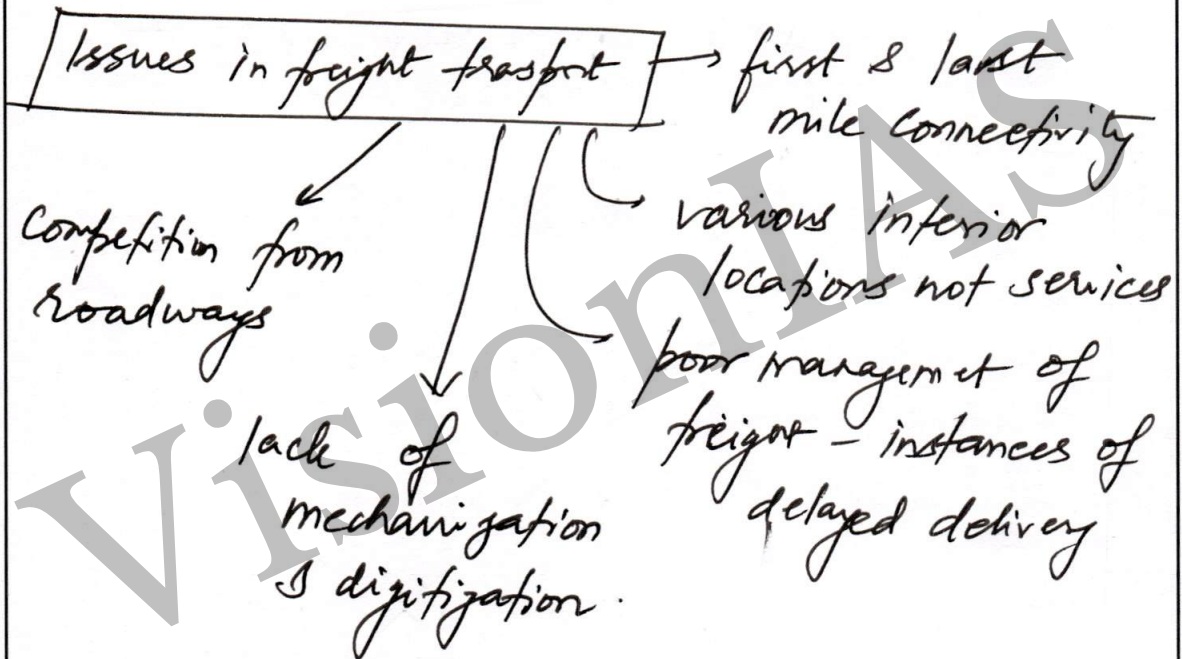
13.

भारतीय रेलवे में माल परिवहन से संबंधित समस्याओं का समाधान करने तथा घरेलू माल ढुलाई में इसकी हिस्सेदारी बढ़ाने के लिए कौन-सी रणनीतियां अपनाई जा सकती हैं? (उत्तर 250 शब्दों में दीजिए)

What strategies can be adopted to overcome the issues pertaining to freight transportation in the Indian Railways and increase its share in the domestic freight? (Answer in 250 words) 15

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Freight transportation in India has been dominated by railways due to its spread & reliability. However, there are certain issues.



Strategies to be adopted

- ① Improve management system through digitized loading, offloading.
- ② Improve railway penetration in forested, hilly areas

- ③ Reduce cost of freight handling through PPP to improve efficiency.
- ④ Improve reliability of railways - currently marred by delays.
- ⑤ Develop select stations as land ports in order to boost logistics
- ⑥ Integrate Railways with other modes of transport seamlessly.
- ⑦ Kisan Rail initiative can be used to improve share in agri freight.
- ⑧ ~~Can~~ Create refrigerated trains to transport perishable goods over long distances.
- ⑨ Intra city freight trains can be run to improve share in transport + alleviate pressure on roads.
- ⑩ Improve efficiency of freight trains by using AI to manage routes, interoperability etc.

Freight transport share in Indian Railways should be increased to improve operational costs of railways while reducing overall cost of logistics in India.

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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)

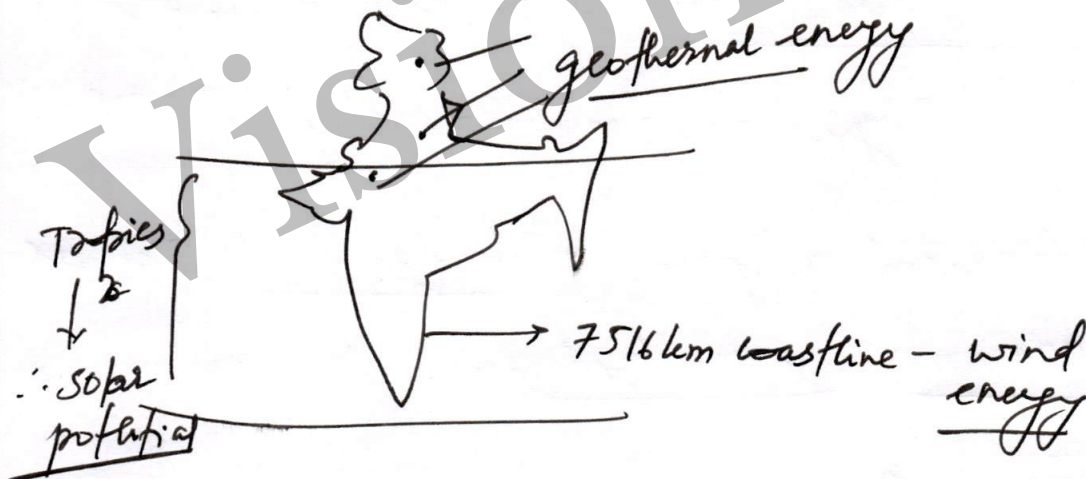
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उम्मीदवारों को इस हार्शिए में नहीं लिखना चाहिए
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India has emerged as a global leader in renewable energy sector evident by its meeting of NDC targets within the required time frame.

Factors contributing to Indian success

① Geographical suitability



② Political leadership

↳ International Solar Alliance
↳ Global Biofuels Alliance (G20)

③ Development of requisite technologies
↳ PV cells for its RNE needs.

④ Agricultural prowess → assisting growth of renewable biofuel sector.

⑤ Conducive policies

↳ Renewable Purchase Obligations for DISCOMS
↳ PM-KUSUM scheme etc.

⑥ HEP (Hydroelectric power) growth due to joint projects with Nepal; Bhutan along with development of multipurpose irrigation projects.

⑦ International support - part of G8's Just Energy Transition Partnership (JETP)

⑧ Increased adoption of bridge fuels such as ammonia, green hydrogen.

However, there are some hindrances

⑨ reliance on China for various critical minerals such as silicon for PV cells, neodymium for wind mills etc.

- ⑩ Non operationalization of various RNE projects such as those for OTEC; tidal energy etc.
- ⑪ high costs of electricity produced using RNE technologies.
- ⑫ lack of RNE compatible appliances for domestic ~~cost~~ use \therefore \downarrow demand.
- ⑬ RNE technologies such as those used in wind ~~to~~ mill blades are controversial - require highly carbonized processes to manufacture.

Solutions to these issues

- improve R&D
- boost investment in local mineral exploration
- energy storage issue \rightarrow battery technology.

Apart from this the potential of nuclear energy needs to be utilized for improving clean energy production.

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

Agr runoff from fields in the form of fertilizers & biocides carry various chemicals & organophosphates contributing to ~~agri~~ pollution.

Runoff role in pollution

- ① land pollution \Rightarrow contamination of soils - loss of biodiversity & soil organic matter.
- ② water pollution \Rightarrow
 - 2.1 leads to eutrophication & algal blooms
 - 2.2 increased chemical oxygen demand (COD) harming aquatic ecology as water deoxygenated
 - 2.3 impacts pH levels of water.
 - 2.4 reduces biofiltration capacity of water bodies.

2.5) biomagnification & bioaccumulation of chemicals in species.

- ③ Air pollution → Contaminated soils are picked up by winds (e.g. loess region of China).
- ④ Marine pollution → In coastal area - harms coral reefs, causes algal blooms.

Measures to mitigate impact

- ① ~~the~~ maintenance of wetlands that have biofiltration capacity.
- ② use of organic fertilizers
- ③ improve fertigation to reduce runoff (use micro irrigation)
- ④ Innovative replacements (e.g. nano-urea spray).
- ⑤ treatment of catchment water bodies
- ⑥ shift to natural farming techniques - avoidance of all fertilizers.

⑦ Treatment of agri soils on the basis of Soil Health card . data .

Mitigation of agri runoff needs to start by building farmer awareness & promoting nature stewardship .

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 हार्शिए में नहीं लिखना चाहिए
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Himalayan tourism (e.g. at Kashmir; Shimla; Mussoorie or in North East) is a major cause for environmental degradation of its fragile ecosystems.

Tourism induced disasters

- ① ↑ water demand → ↓ water availability → drought conditions in Shimla.
- ② creation of various infrastructure → oversteepening of slope → landslides (e.g. NER)
- ③ over concentration, building of resorts etc - land subsidence. (e.g. Jashimath)
- ④ ecological collapse in fragile ecosystems due to plastic pollution etc. - declining biodiversity.

measures to prevent

- ① Staggered tourism → to reduce sudden influx (e.g. done during various Yatras in Kashmir, Uttarakhand).
- ② Early warning systems in highly popular ~~open~~ tourism locations → boost preparation.
↳ landslide risk in Kashmir.
- ③ Slope stabilization measures through afforestation, stone netting etc.
- ④ Promotion of eco-tourism i.e. nature based homestays instead of large & resorts.
- ⑤ Land use classification & management to be strictly enforced.
- ⑥ Water management through integrated measures - groundwaters & surface water - reduce contamination by preventing plastic pollution.

⑦ Implement polluter pays principle strictly in all states.

⑧ Creation of climate resilient infra to overcome avalanches, snowfall, cloudbursts etc.

उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
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VisionIAS

17.

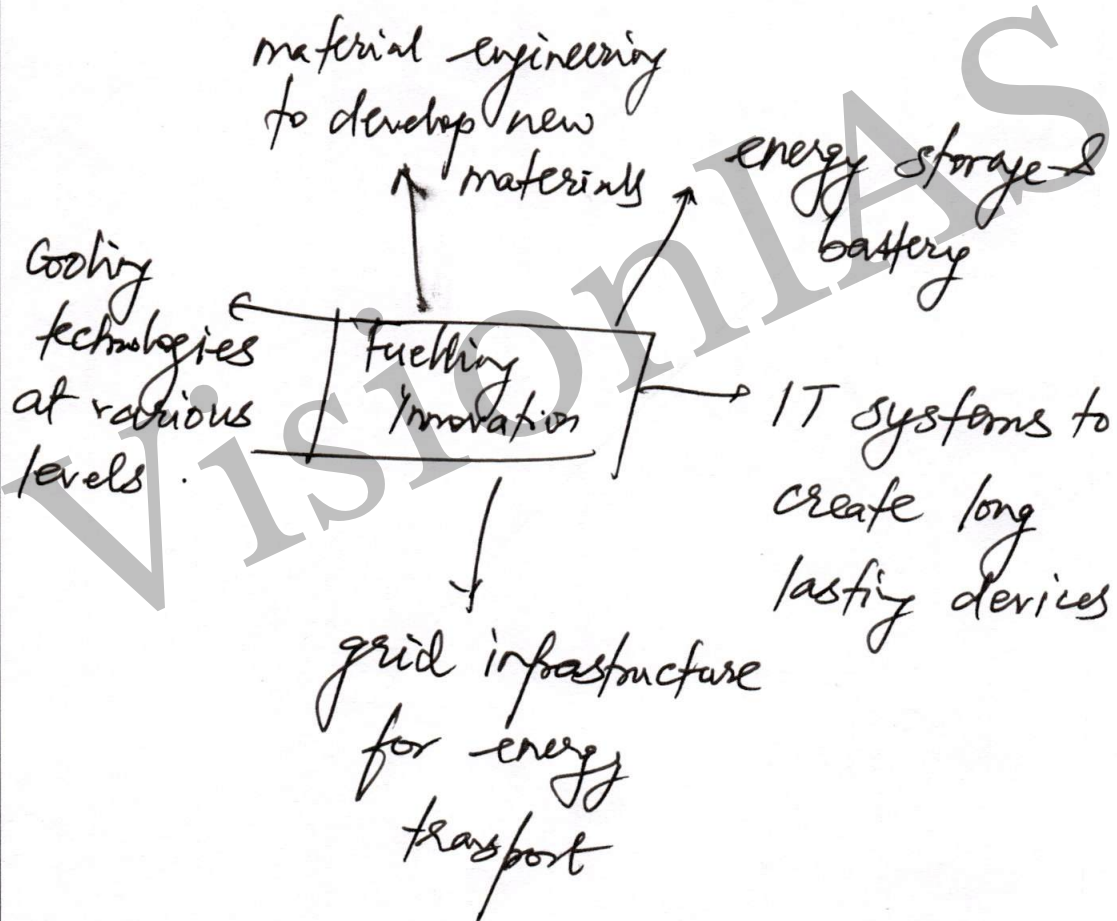
सुपरकंडक्टर्स विज्ञान एवं प्रौद्योगिकी के विभिन्न क्षेत्रों में नवाचार को किस प्रकार बढ़ावा देते हैं? उदाहरण सहित स्पष्ट कीजिए। (उत्तर 250 शब्दों में दीजिए)

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

15

उम्मीदवारों को इस हार्शिए में नहीं लिखना चाहिए
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Superconductors are materials that let electricity flow without resistance usually at very low temperatures.



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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)

Challenges to IPR Commercialization

- ① lack of adequate enforcement
- ② long lasting litigation
- ③ SC verdicts that uphold creation of generics / replacements -
- ④ lack of repositories
- ⑤ long processing durations for IPR claims
- ⑥ complex bureaucratic rules & ka
- ⑦ lack of specific regulatory body overseeing implementation.
- ⑧ absence of adequate punishments & deterrence for IPR violation.

This is impact of India's relationship
with USA.

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19.

एकीकृत थियेटर कमान का निर्माण करने में सामना की जाने वाली चुनौतियों को ध्यान में रखते हुए, परीक्षण कीजिए कि कमानों का थियेटराइजेशन 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 theaterization refers to creation of specific geographical commands within which all 3 services - army, navy, airforce works in tandem.

Benefits

- ① Increased interoperability - similar Command Structures, objectives, training.
- ② Reduced redundancy in various ancillary services
- ③ better training to respond to crisis holistically.
- ④ lower expenditure on revenue affairs
- ⑤ lower procurement costs

⑥ faster response times under unified command.

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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)

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The vibrant villages programmes aims to treat border villages as first villages

Key strategy

Security

- enhanced vigilance against infiltration

- village defence guards - 1st line of defence

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facilities

- greater social capital

- prevent alienation

- counter Chinese propoganda.

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