



**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. : 01248985

अभ्यर्थी का नाम/Name of Student : Arvi Sharma

माध्यम: हिंदी/अंग्रेजी  
Medium: Hindi/English

English

तारीख  
Date

25.08.24

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

केंद्र  
Centre Ghajjabad  
012

निरीक्षक के हस्ताक्षर  
Invigilator's Signature

Arvi Sharma

	<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)		
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

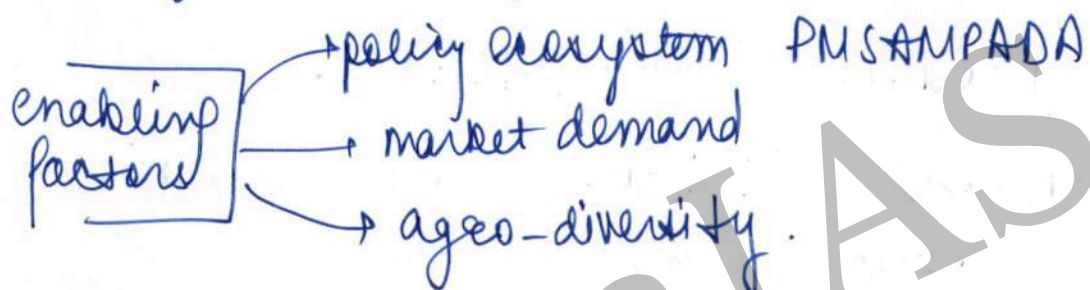
1.

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)

10

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

Food processing industry is a sun rise sector which contributes nearly 6% to the GDP and has shown compounded annual growth rate of 11% in recent years.



### Food safety Challenges

Recent case of high sugar in baby food & popular chocolate drink along with adulteration in spices has raised concerns.

This is because of —

- ① FPI are mostly unregulated & informal.
- ② lack of compliance with FSSAI norms
- ③ lack of awareness in consumers regarding properly reading nutrition labels.

④ Strategic marketing techniques used by FPI to fool customers

⑤ Issues with FSSAI

a) lack of adequate infrastructure

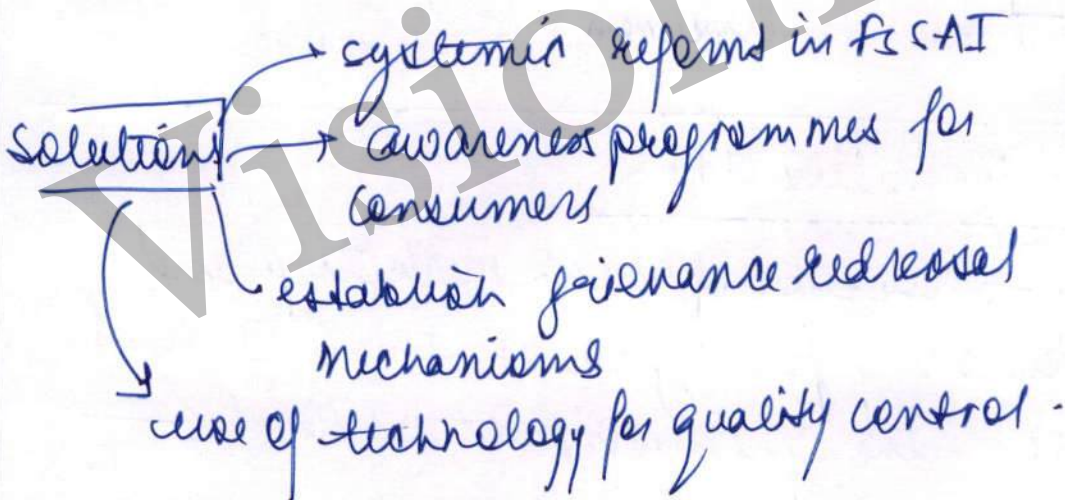
b) shortfall in ~~personnel~~ personnel

c) limited food testing labs

d) irregular food quality inspections

⑥ prioritization of profits over safety by FPI

⑦ absence of institutionalised product recall mechanisms.



FPI are important to boost manufacturing and relieve agricultural distress but their growth should not be at the cost of food safety.

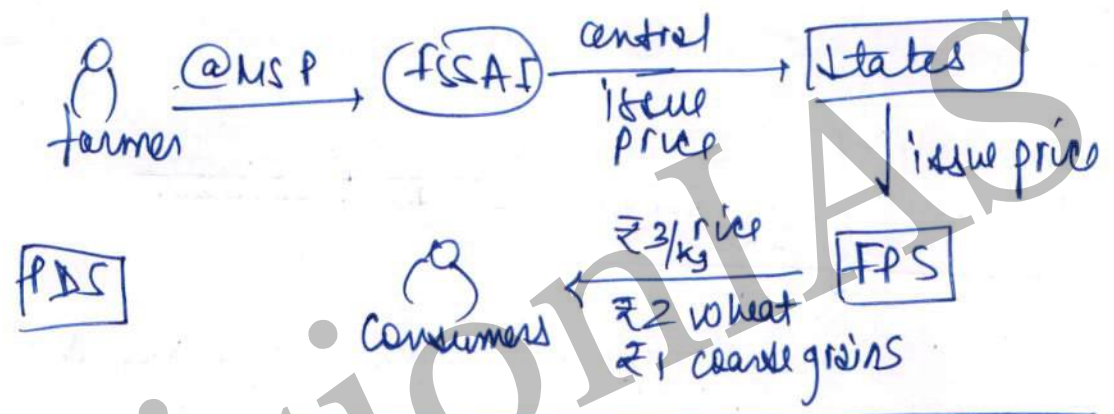
2.

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)

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

10

As per the NFSA 2013, nearly 67% of the population (75% rural, 50% urban) is entitled to subsidised food grains through the PDS.



### Transformation of FPS

Due to issues of black marketing and diversion of food grains the GOI has taken the following steps in FPS—

- ① Biometric authentication through AADHAR at FPS to ensure only bonafide beneficiaries receive subsidised food grains
- ② Through the one nation one ration card

initially the Govt has ensured access to food grains for migrants without hassle

③ the Govt has undertaken efforts to fertify rice in PDS to address nutrition security.  
India's rank in Global Hunger Index is 111.

④ Use of GPS tracking technology to ensure there is no leakage of grain to and fro PDS shops

⑤ Infrastructural support to improve storage facilities.

Issues

- error of inclusion/exclusion of beneficiaries
- glitches in aadhar authentication due to electricity cuts
- PDS shop owners exploit weak & marginal by misguiding them.

To ensure we secure our nutritional & food security we must continue to address challenges in PDS system to achieve SDG-2.

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

India has the second largest arable land globally yet its agro trade internationally is only 2% of the global trade highlighting issues of farm productivity in India.

Agri tech Startups

are startups that use technological solutions to enhance agro productivity.

Helping farmers

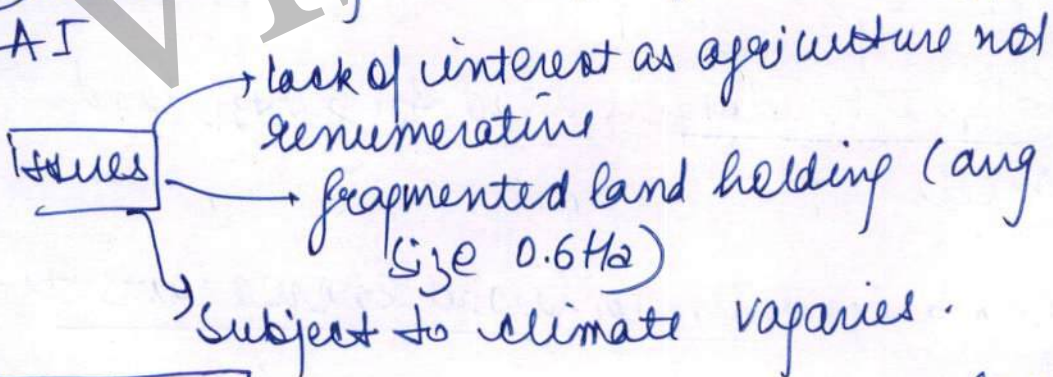
(A) Farm productivity

- ① technology transfer of HYV seeds, precision farming, drip irrigation, drones etc have been made possible via ~~from~~ contract farming with agro startups
- ② they share best practices.
- ③ scientific agricultural practices to reduce wastages.

- ④ contribute to agro R&D to boost innovation
- ⑤ provide access to machines like tractors, happy seeders etc
- ⑥ ensure access to working capital to farmers.

### B. Market Access

- ① farm to customer startups facilitate direct linking, cutting out middle men.
- ② farm to business startups ensure connection between farmers and businesses like blinkit, etc to increase their income
- ③ help build forward linkages like storage, warehouses etc
- ④ make use of cutting edge technology like AI



Ninjakart an agrotech startup which has helped raise farmer income by 20%. is an excellent example of potential of this sector.

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)

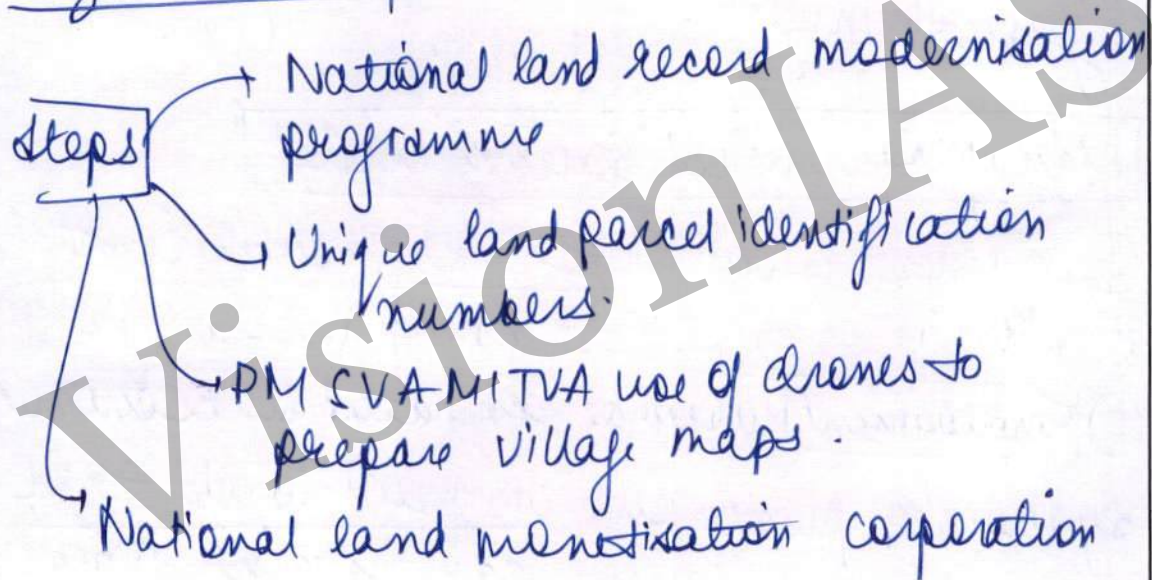
10

Land reforms has been part of our policy agenda since independence (abolition of zamindari, land ceiling etc) now it is being accelerated through technology

### Role of digitalization

- ① helps reduce duplication of land records and ascertain authenticity of claims.
- ② can help in translation of records from vernacular language to english/hindi
- ③ GIS technology is used to geotag land parcels.
- ④ can help deter unlawful encroachments.
- ⑤ creates a scientific database.
- ⑥ facilitates sale/purchase/mortgage/acquisition of land.

- ⑦ helps decrease pendency in courts regarding land title disputes
- ⑧ ensure ownership titles to land owners
- ⑨ facilitates scientific land use management to prepare master plans for urban development -
- ⑩ helps promote ease of doing business & Citizen centricity



To ensure success of land reforms via technology we must provide requisite digital infrastructure support and address digital gap.

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)

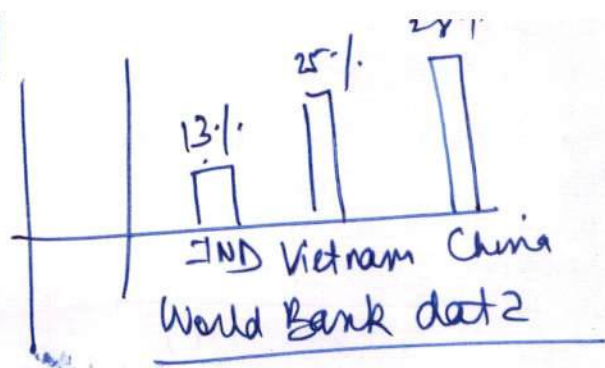
To fully exploit its demographic dividend and accelerate economic growth, India needs to adopt a manufacturing-led growth model. Discuss. (Answer in 150 words) 10

Nearly 56% of the population is in the working age, in the FY24 India registered 8.2% growth in GDP. But there is more scope for economic advancement if we adopt a manufacturing led growth model.

### Manufacturing led Growth Model

- ① address issue of jobless growth since 1991
- ② Employment will be generated as economic survey-24 points out we need to add 78.5 L non farm jobs every year for next 15 years.
- ③ Poverty: will be reduced. Currently 16% of population is multidimensionally poor (NITI Aayog)
- ④ Unemployment: rate as per PLFS data is 3.2%. this will be reduced.

⑤ Increase our GDP!  
Currently contribution of manufacturing sector to GDP is low.



⑥ Export potential will increase. Currently 65% of all Indian exports by manufacturing sector.

⑦ Skilling: opportunities will increase and increase employability of workforce. Currently only 5% of workforce formally skilled.

⑧ Agricultural Distress: due to disguised unemployment will ease as excess workforce will be absorbed in manufacturing sector.

Solutions

- ease of doing business, Make in India
- attract FDI
- policy support via PLI scheme.

To achieve the goal of Viksit Bharat and create \$30+ economy by 2047 we need to develop a manufacturing led growth model.

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

As per WHO the Indian continent's temperature since industrial revolution has increased by  $0.7^{\circ}\text{C}$  given that 14% of our population lives in coastal areas. It is important we protect them from climate change.

### Growing Natural hazards

- ① India has a 7516 km coastline
- ② 2/3 of coastline is vulnerable to cyclones
- ③ India is close to plate boundaries increasing risk of ~~off~~ against tsunami
- ④ 2004, Tsunami
- ④ As per WHO 1°C rise in temperature increases cyclone speed by 12% and destruct the force by 40%.
- ⑤ rising numbers of marine heat waves

### Increasing Resilience

#### Structural measures

- ① making sea walls
- ② use of tetrapods along shorelines

② Puhu beach Mumbai to prevent coastal erosion

③ afforestation of mangroves to act as bioshields

④ disaster resilient infrastructure in coasts

### Non Structural

① Hazard risk zonation of entire coastline to do vulnerability assessment

② Develop early warning systems for cyclones, tsunamis, sea surges etc.

③ Capacity building of local communities to act as first responders @ AAPDA Mitra

④ ensure access to accident insurance to cover damage costs

⑤ ensure interstate coordination. Southern and eastern zonal councils should take a lead.

Climate change will increase threats in the future we must ensure resilience to protect vulnerable coastal communities

7.

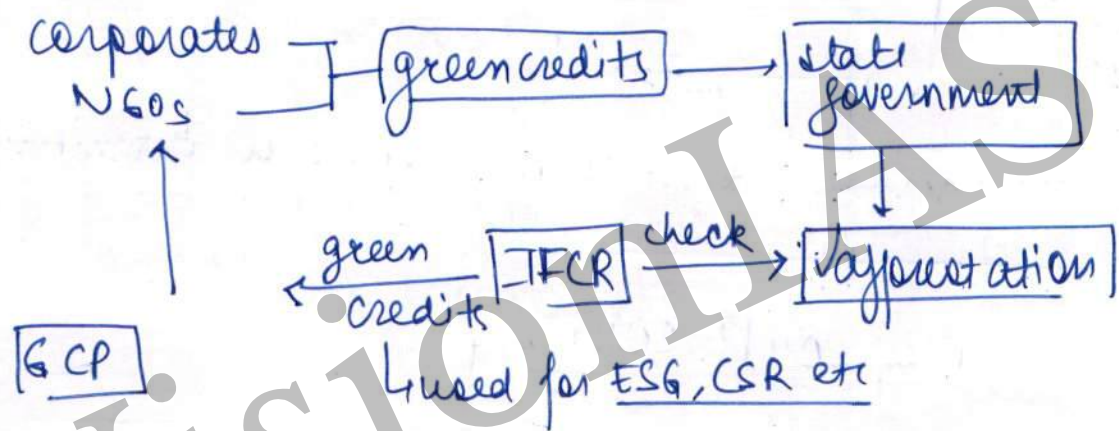
भारत में अधिक संधारणीय पर्यावरण को बढ़ावा देने के लिए ग्रीन क्रेडिट प्रोग्राम किस प्रकार कार्बन प्रबंधन से कहीं अधिक विस्तृत है? इसके कार्यान्वयन के संबंध में विभिन्न चिंताएं क्या हैं? (उत्तर 150 शब्दों में दीजिए)

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

10

The green credit programme is an initiative of MoEFCC to incentive sustainable development and voluntary green action by corporates.



Carbon management concerns measures taken to decrease carbon intensity of business operations.

Green Credit Programme GCP.

① nudges private sector to invest in green initiatives like afforestation, waste management, renewable energy etc.

② enables participation of non state actors in achieving India's panchamait goals and sustainable development

③ provides a novel method to raise finances for green initiatives

④ promotes ethical capitalism

### Challenges

① issue of greenwashing

② unscientific plantation by states threatening biodiversity

③ issue of double counting

④ scope for misuse.

⑤ critics argue that it absolves government from taking leadership in green initiative

⑥ lack of private interest.

The beauty of any policy lies in its implementation, GCF has a lot of potential we must ensure it is implemented in letter & spirit

8.

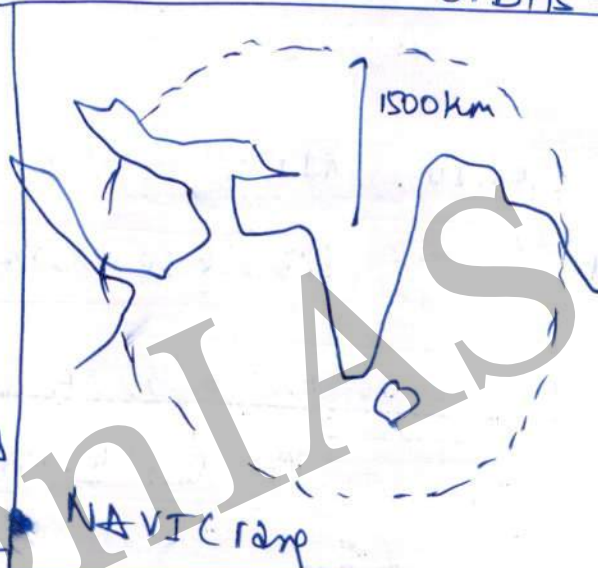
जब पहले से ही अन्य उपग्रह नेविगेशन सिस्टम उपलब्ध हैं, तो NavIC की आवश्यकता क्यों है? (उत्तर 150 शब्दों में दीजिए)

What is the need for NavIC when existing satellite navigation systems are already available? (Answer in 150 words) 10

NAVIC is an indigenously developed regional navigation system. It is a system of 7 satellites in GSO and GEO orbits.

Existing systems

Like USA's GPS, European Union's Galileo, China's Beidou are all navigation systems



Need for NAVIC

① Strategic autonomy: especially in defence operations to do reconnaissance and survey. Navic provides accurate data for military purpose.

② Soft power: India has voluntarily shared Navic data with neighbours as per neighbourhood first policy

③ Transportation: systems are using Navic

for navigation purposes. ④ Gemini for boats/ships, GAGAN for vehicles /air

④ Land Assessment | can be done using Navic for agricultural survey, preparation of land management plans or project monitoring

⑤ Disaster Management | Navic helps in developing early warning system.

⑥ Communication : systems like ~~radar~~ are also using Navic for better clarity low attenuation

Therefore despite existing systems, to ensure our sovereignty, strategic autonomy and economic interests NAVIC has been developed by ISRO.

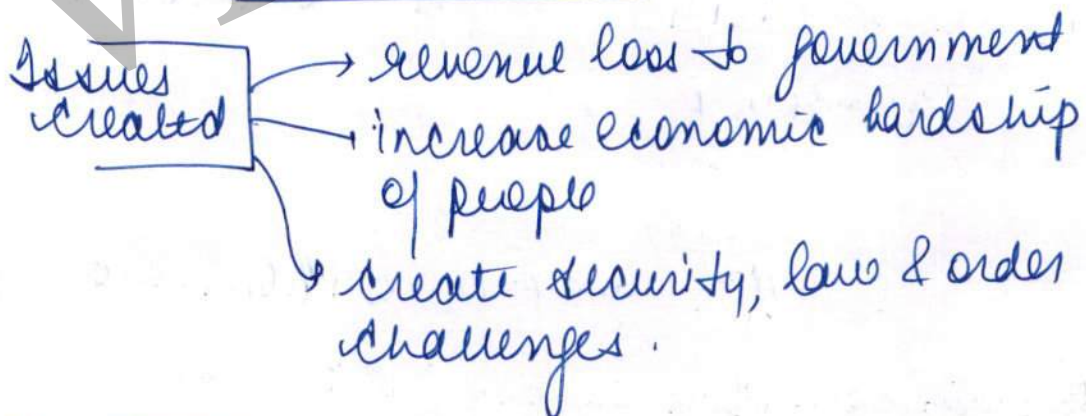
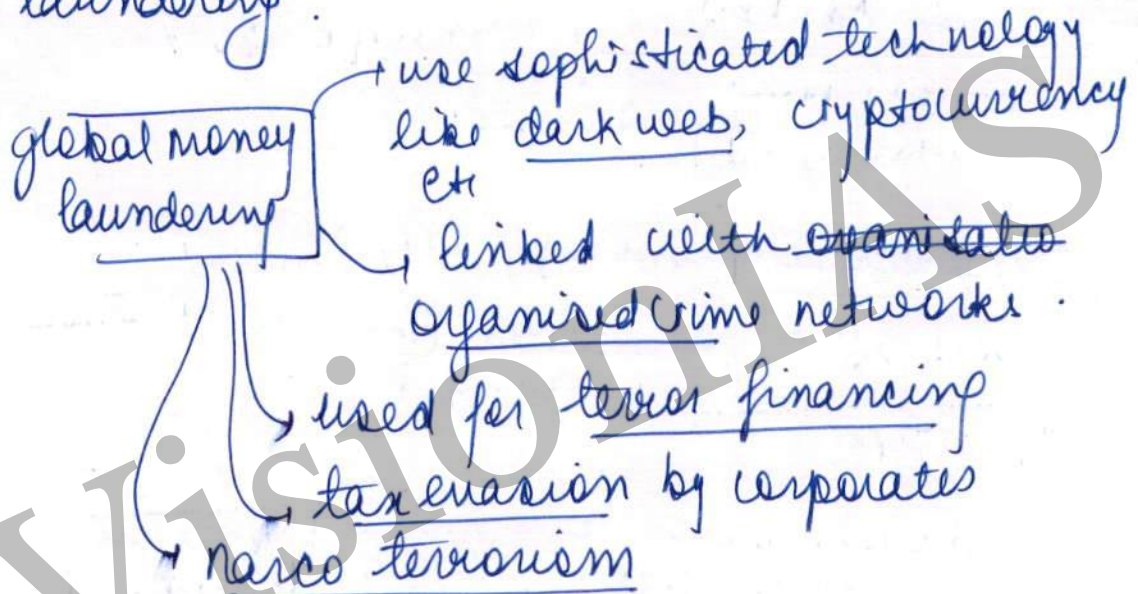
9.

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 हार्जिए में नही लिखना चाहिए  
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As per the NCRB 2023 report there were over 65000 cyber related crimes in India in 2023, this highlights concerns of linkages with money laundering.



### Addressing the Issue

① create institutions specialised to deal with cyber crimes & safety eg: CERT In

- ① create dedicated cyber police
- ② create robust digital infrastructure  
to prevent cyber financial crimes.
- ③ amend existing laws to deal with  
emerging situation. for example the govt  
has amended PMLA to
  - ⇒ ensure KYC of users on blockchain  
exchanges
  - ⇒ extended ambit of PMLA over  
virtual digital assets.
- ④ create transparent digital financial  
systems as alternatives of ~~NABE~~ e-Super  
of RBI powered by blockchain
- ⑤ Collaborate with like minded countries  
to create a global framework to deal with  
money laundering.

The IMF's crypto action plan is a  
step in the right direction to control  
global money laundering. GoI should  
study this proposal.

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

The cyber domain has emerged as the 5<sup>th</sup> domain of warfare, recent use of technology in Israel-Hamas and Russia-Ukraine conflict all highlight the need for technology absorption in defence sector.

### NEED

- ① to prevent against state sponsored cyber attacks (e.g. Stuxnet attack on Iran).
- ② to create a future ready force.
- ③ to build state of the art advanced weaponry with thermal imaging, high resolution cameras etc.
- ④ to tap into opportunities presented by 4<sup>th</sup> Industrial Revolution and use facial recognition technology, drones, AI enabled autonomous weapon systems etc.

⑤ to create deterrence and prevent against grey zone warfare.

~~⑥ do~~

### Challenges

- ① capital intensive development
- ② import dependency on countries like Israel and USA for advanced weapon
- ③ Need for skilling to develop indigenous.

### Solutions

- ④ concerns regarding ethicality of autonomous weapon systems
- ⑤ concerns of bias & racism in AI algorithm
- ⑥ Threat of overdependence on technology. may create Israel like situation.

Nevertheless the future of military in India is techsavy we must develop SMART forces to ensure we are prepared for a cyber pearl harbour like situation.

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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India's northeastern region (NER) is naturally & culturally rich but it faces issues of economic backwardness due to multidimensional challenges.

### Issues faced

- ① Political: instability and interstate rivalry due to border disputes. (eg) Assam has border disputes with all its neighbours.
- ② Geography: the NER has complex terrain which is prone to flooding & earthquakes making it difficult for setting up infrastructure & industries.
- ③ Location: isolation from mainland and dependence on chicken neck corridor.
- ④ Social: unrest due to insurgency and ethnic violence. (eg) Manipur violence, presence of violent organisations like ULFA.

③ Legal: presence of 6<sup>th</sup> schedule areas increase complication in land acquisitions.  
imposition of AFSPA in parts of Assam, Manipur etc increases instability

④ Social Capital: low levels of skill level in local workforce.

⑤ International: hostile neighbours like China and instability in Bangladesh & Myanmar add to challenges.

### Measures Taken

① PM-DEVINE: to develop infrastructure in north east

② Vibrant Village Programme: to develop border villages in NER

③ MoNER: set up to focus on development & concerns of NER

④ Act East Policy: to facilitate development and regional integration with NER and neighbouring countries

(F) International projects like Agartala Akhaura rail link, Kaladan multimodal project

### Issues

- ① delays in implementation
- ② instability in neighbourhood
- ③ Issues in land acquisition
- ④ resistance by local groups.
- ⑤ balancing ecological conservation, cultural preservation and economic growth
- ⑥ violence in Manipur.

Development of NER is crucial to ensure balanced growth & regional development, we must explore a bottom up approach to achieve success ;

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 कक्ष में नहीं लिखना चाहिए  
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India houses 18% of population and has only 4% of water resources. Further in the wake of climate change WIIA estimates that 40% of the population will face water stress by 2030.

### Growing water crisis & climate change

① climate change (CC) leads to increased monsoon variability. as per CEEW there was 30% more rainfall in deficit areas and 30% less rainfall in surplus areas.

② population pressure.

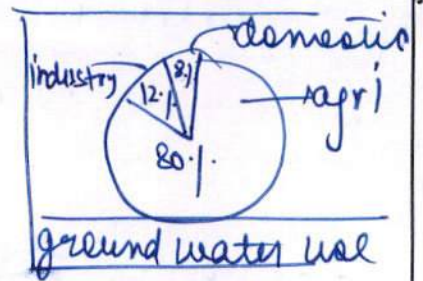
③ increasing heat waves.

④ major cities like Delhi, Bangalore etc facing water crisis.

### Need for sustainable agricultural practices

① agriculture uses nearly 80% of all <sup>ground</sup> ~~new~~ <sup>or</sup> ~~fresh~~ water resources.

② nearly  $\frac{1}{5}^{\text{th}}$  of the ground water is over exploited  
as per GWA.



उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए  
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## Role of Micro Irrigation

Micro Irrigation through drip Irrigation, sprinkler systems etc can ensure

① water use efficiency: ~~are~~ to decrease wastages by traditional flood irrigation techniques.

② Ground water: exploitation will decrease and water table depletion will stop.

③ increase yield: by raising productivity ensuring per drop more crop

④ Weeds: will decrease decreasing cost of removal and enhance nutrient availability

⑤ Soil quality: will improve and land degradation to the field run off will decrease. As per ISRO land degradation atlas nearly 35% landmass = degraded

③ Water pollution in surface water bodies and eutrophication will decrease.

④ Fertilizer overuse will decrease as fertilization solutions help optimise application of nutrients.

⑤ Soil erosion will be controlled.

### Challenges

① Cost intensive

② Irregular electricity supply in villages.

③ Lack of awareness and technical knowhow regarding operations.

④ Fragmented land holding (0.6 Ha) decrease financial viability and economies of scale.

We must address this issue to make Indian agriculture sustainable and climate resilient. PM Kishi Sanchayee Yojana is a step in the right direction.

13.

भारतीय रेलवे में माल परिवहन से संबंधित समस्याओं का समाधान करने तथा घरेलू माल दुलाई 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 हार्शिए में नहीं लिखना चाहिए  
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The Indian Railways is the backbone of freight transportation in the country and in boosting economic growth.

### Issues

- ① lack of capital investment in increasing rail density & rates.
- ② Cross subsidization of freight profits into passenger segment decreases economic sustainability of freight segment.
- ③ limited no. of special wagons (e.g. refrigerated wagons for moving horticultural produce).
- ④ lack of end-to-end connectivity increasing cost of doing business.
- ⑤ Delays and unpredictability in schedule of freight-train.

- ⑤ issue of rail safety & derailment
- ⑥ Balasore triple train collision
- ⑦ low share in domestic freight as  
air's share of goods movement happens  
via roadways.

### Strategies to be adopted

- ① Infuse capital to raise rail density  
and achieve end to end connectivity
- ② stop cross subsidisation
- ③ establish special wagons to ensure  
transportation of all goods segments  
like vehicles, coal, horticulture etc.
- ④ increase speed to reduce delays
- ⑤ Use of technology to monitor real time  
location and create portal for users to  
track their shipments
- ⑥ address rail safety by installing KAVACH  
(currently only 2-14% of tracks have been  
installed with kavach technology)

④ earnest in improving backend processes to ease freight transportation

⑤ capacity building of all staff & personnel.

In India logistics cost is high and costs around 15% of the GDP, improving freight operations in Railways will help bring down this cost considerably

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उम्मीदवारों को  
इस हार्शिए में  
नहीं लिखना  
चाहिए  
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14.

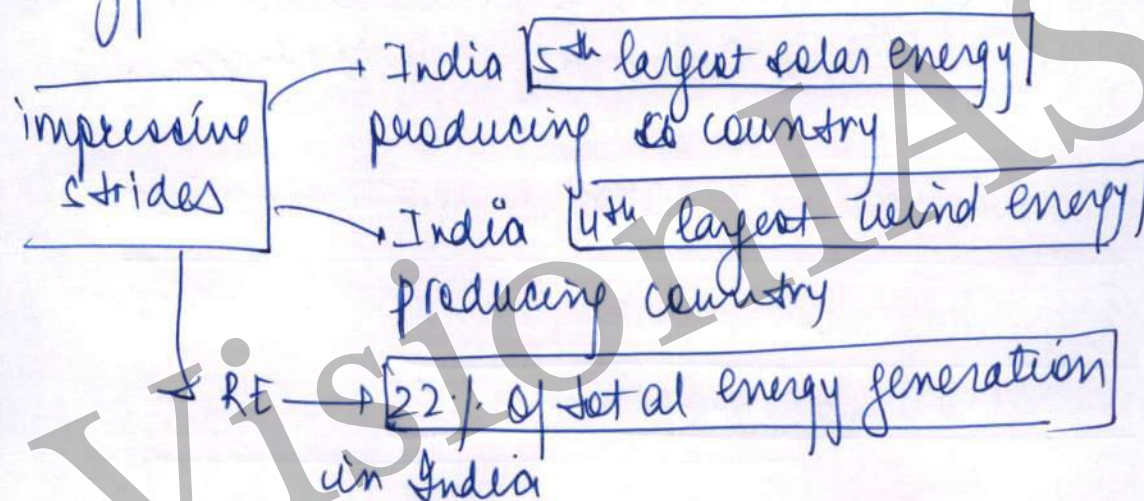
उन कारकों पर चर्चा कीजिए जिन्होंने नवीकरणीय ऊर्जा क्षेत्र में प्रभावशाली प्रगति करने और वैश्विक नवीकरणीय ऊर्जा परिवर्तन में अग्रणी के रूप में स्थापित होने में भारत की सहायता की है। (उत्तर 250 शब्दों में दीजिए)

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)

उम्मीदवारों को इस हार्शिए में नही लिखना चाहिए  
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15

India is the only G20 country to achieve its Nationally determined contributions and ranks the highest in climate performance index thanks to its strides in renewable energy (RE) sector.



### Factors Responsible

① Policy Ecosystem: The GoI has made—

a) National Solar Mission

b) PM-KUSUM      c) PM Surya Ghar Yojana

d) National Green Hydrogen Mission

e) National Wind Energy Mission

f) long term low emission development plan.

② Financial support through steps like

- a) priority sector lending
- b) viability gap funding
- c) PPP model
- d) green bonds by RBI
- e) PLI for PV cells.
- f) Make in India.

③ Technology based to do R&D in developing affordable green energy solutions.  
④ National Research foundation.

Front Runner in Global Energy Transition

① India along with France established International Solar Alliance.

② India → Global biofuels Alliance  
on the side lines of G20

③ India along with UK set up one world one grid initiative

④ India and Sweden have set up LEADS Platform.

⑤ India at G20 endorsed doubling of renewable energy capacity and energy

• use efficiency

⑥ India helps developing countries in Asia & Africa with technological transfers and capacity building to develop their renewable energy capacity.

⑦ India has called for affordable Climate finance for global south to undertake green transition.

India has set ambitious panchamrit goal of 500 GW of non fossil energy, 50% energy from RE and net zero by 2070 and is on the right path to achieve these targets.

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

Nearly 18% of all GHG emissions in India are related to agriculture sector this highlights how agriculture impacts our environment.

### Surface Runoff and Pollution

Traditional irrigation techniques like tubewells and flood irrigation inundate fields with water.

This water gets mixed with fertilizers and pesticides on the farm and leads to issues of →

① Ground water contamination: as this water seeps into the water table.

② Land degradation: due to soil erosion and contamination decreasing soil quality. In India 25% land is degraded (ISRO land atlas)

② Surface Water pollution leads to eutrophication and red tides in lakes, rivers etc. negatively affecting aquatic plants & animals.

④ Biodiversity loss due to issue of bioamplification and bioaccumulation in insects, plants, birds etc

⑤ Air pollution due to application of urea leads to nitrous oxide emissions. Nearly 17% of all agro-emissions due to fertilizer application

⑥ Human health gets affected e.g. blue baby syndrome.

Measures can be Taken

① scientific application of fertilizers.  
e.g. ideal N:P:K is 4:2:1  
actual N:P:K 13:5:1

② use of organic fertilizers and practicing of zero budget natural farming

③ integrated pest management

④ precision farming using drones, IoT, sensors etc.

⑤ drip irrigation and fertilisation

⑥ capacity building in farmers and awareness programmes to ensure adoption of sustainable practices.

Not only do we need to protect agriculture from climate change we also need to protect environment from harmful agro practices. Need of the hour is to invest in R & D.

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

Carrying capacity is defined as an ability of an ecosystem to sustainably manage a population of flora and fauna over a period of time.

### Himalayan States

① A lot of increased tourist footfall in Himalayan states has led to issues of traffic, waste management, deforestation, unscientific construction etc. all which has exceeded current carrying capacity.

② Disasters have happened as a result-

- a) Joshimath subsidence
- b) Silkayara tunnel collapse -
- c) floods in Himachal.
- d) landslides in J&K and Himachal.
- e) cloud bursts (Kedarnath 2013.)

## Measures Needed

- ① Scientific study of actual carrying capacity. Recently GOI has set up a committee for this purpose.
- ② Scientific land use management after proper contour study, deter any illegal construction. Prepare master plans with proper & clear land use.
- ③ Sustainable infrastructure development after proper environment & social impact assessment.
- ④ Use technology to track tourists influx during peak season. @ use of RFID tags. This will help in rescue operations also.
- ⑤ develop capacity to handle challenges of waste management, traffic management etc.
- ⑥ involve local community in planning and decision making to devise contextual solutions.

- ④ involve corporates, NGOs to collaborate with local authorities in waste management, capacity building etc.
- ⑤ Control tourist influx. Bhutan levies a sustainable development fee on all tourist. This will also act as a source of revenue.
- ⑥ inter-state coordination between states via NITI Aayog platforms.
- ⑦ build disaster resilient buildings and infrastructure.
- ⑧ Encourage home stays and eco tourism rather than ~~big~~ <sup>Himalayas</sup> big hotel chains to boost local economy.

There is an urgent need to protect the fragile ecosystem, the National Mission on sustainable Himalayan ecosystems is a step in the right direction.

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

A superconductor is a powerful system with great processing capacity in Petaflops.

### Fueling innovation

① AI & ML: require strong processing capacity to study big data, supercomputers can do such complex tasks.

② Quantum Computing: works on principles of quantum physics and requires high speed, large processing capabilities and sophisticated systems. Super computers provide hardware support in this regard.

③ Biotechnology: supercomputers can help study large amount of data to help in drug discoveries, disease diagnosis and recommending vaccine formulations.

④ Space Technology: complex payloads and sophisticated systems like launch vehicles, orbiting modules, rovers etc use super computers

⑤ Nano Technology: development is facilitated by super computers

⑥ Chip Manufacturing: is a sophisticated process which is made possible via integration of robotics & supercomputers

⑦ Nuclear Energy: plants require supercomputers to monitor and analyse all vital processes of the energy cycle from sub criticality to super criticality

⑧ Particle Research: facilities like CERN use supercomputers to do R&D in physics.

⑨ R&D: in complex projects like LIGO, Square kilometer Array, Thirty meter Telescope etc is made ~~comp~~ possible by super computers.

Super computers are the backbone to supporting our 4<sup>th</sup> industrial revolution journey. The National Supercomputing Mission by C-DAC is spearheading this march.

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए  
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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)

India was recently ranked #40 in WPO's World Innovation Index thanks to its robust IPR legal ecosystem.

### Laws in place

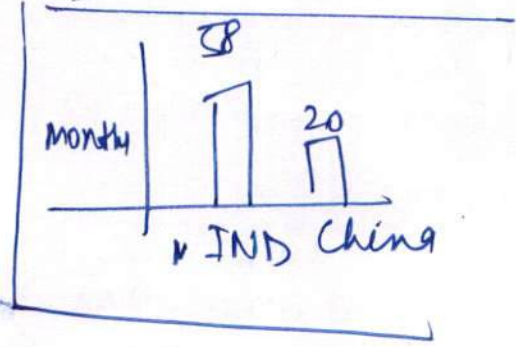
- ① Patent Act.
- ② ~~Plant~~ Protection of plant varieties and farmer rights act.
- ③ India is a signatory to TRIPS under WTO.
- ④ GI Act.
- ⑤ Copyright Act.

### Challenges

- ① copyright infringement issues
- ② plagiarism is rampant.
- ③ poor enforcement of laws.
- ④ compulsory licensing under patents act

criticised by industry

⑤ delays in awarding patents. Time taken by India to grant patents is high



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

⑥ Issues of corruption in personnel.

⑦ paucity of staff to inspect and highlight issues of infringement.

⑧ excessive red-tapism hampering ease of doing business.

⑨ poor industry-academia linkages

### Need for Commercialisation of IPR

① boost innovation

② promote knowledge based economy

③ ensure financial gains for intensive research, further incentivising R & D

④ help tap into opportunities of 4th Industrial Revolution.

⑤ helps attract FDI

Though recently as per GoI data there has been a 17x $\frac{1}{2}$  rise in patents filed in India we need to —

- ① increase institutional capacity
- ② enforce laws in letter & spirit
- ③ establish grievance redressal mechanisms
- ④ raise awareness regarding repercussions for violation of laws
- ⑤ use e-gov to streamline backend processes.

To emerge as a developed economy and raise expenditure on R & D (current 0.65% of GDP) we must address the gaps in our IPR enforcement

19.

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

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

15

In India the defence of our country is entrusted to army, navy and airforce collectively they have over 11 theatre commands.

### Integrated Theatre Command (ITC)

① As a holistic integration of the 3 wings of military to enhance co-ordinated action against enemy forces.

② The Shetkar Committee had first suggested establishing ITC in India

→ north - ~~west~~ Pak & <sup>China</sup>

→ south - marine

→ east. → China + mynmar borders.

currently only one at → Andaman & Nicobar

### Need

① ensure optimum resource utilisation

② increase ~~less~~ coordination between different wings

③ increase inter force comradeship.

④ help in procurement of defence ~~procurement~~ equipments at competitive prices by bulk ordering

⑤ help rationalise workforce by identifying ~~dup~~ duplication of work.

⑥ help in multi domain operations across land air & water.

### Challenges

- ① different work cultures in army navy and air force
- ② logistical challenges
- ③ ensuring special & unique requirements of different forces
- ④ ~~is~~ huge amount of capital commitment
- ⑤ resistance within military.
- ⑥ limited interest shown by political execution.

## Steps taken

- ① establishment of Chief of defence staff post
- ② Inter service Organisation Act

All major countries like USA, China have ITCs, time is ripe now for India to undertake major reforms.

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

India has 15,200 km <sup>land</sup> border with 7 countries highlighting the significance of border villages in ensuring our territorial integrity.

### Traditional Approach

Post independence was to maintain distance between borders and habitation to create a buffer area in case of an attack. But multiple wars in 1965, 71, 62, 99 have shown limitations of this strategy.

### Contemporary Approach

New border villages are being treated as first villages. This ensures.

① decreased outmigration from these strategic villages

② possibility of creating dual use infrastructure to support both defence and civilian population

③ assist the defence personnel in having access to basic facilities in remote border postings

④ ensure inclusive development and decrease regional disparities.

⑤ offer us strategic edge during a confrontation

### Measures

① Vibrant Village Programme: The GoI is investing in building basic amenities like roads, electricity, hospitals, schools etc in states of J&K, UK, HP, Sikkim, Arunachal, Nagaland, Manipur and Mizoram.

② Village Defence Committees: are being set up by mobilising ex service men and able bodied youth to act as first

• Lines of defence and in identifying insurgents to increase security

③ Infrastructure : is being built by BHO, NHAI etc to ensure connectivity to mainland cities

④ PM- Devine : In NER also seeks to enhance infrastructural development.

India finds itself in a hostile neighbourhood, we must ensure safety and development of our border villages to protect our sovereignty.

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