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

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

अधिकतम अंक: 250
Maximum Marks: 250

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. : 011 90247

अभ्यर्थी का नाम/Name of Student : Abhilash

माध्यम: हिंदी/अंग्रेजी
Medium: Hindi/English

English

तारीख
Date

25 Aug, 24

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

केंद्र
Centre

Bhai Joga Singh
School

निरीक्षक के हस्ताक्षर
Invigilator's Signature

Dwar

	<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
<p>परीक्षक के हस्ताक्षर Signature of Examiner(s)</p>	

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

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



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

(FPI)

Food Processing Industry in India is a Sunrise Sector with CAGR of >10% and massive forward and backward linkages.

Reasons for Rapid Growth of Food Processing Industries (FPI)

- ① India's huge population (130 Cr)
- ② Increasing PerCapita Income (2500 \$)
- ③ Rising Middle Class, will have 7Cr middle class families by 2030.
- ④ Changing cultural preference towards packaged foods.
- ⑤ Western culture diffusion to India.
- ⑥ Huge Diversity of Crops & ALR regions

in India.

⑦ Robust Govt. Support through schemes like PM-FME scheme, etc.

⑧ huge Investment recorded (FDI)

10. FPI → Food safety challenges

① poor Regulatory framework for quality inspection.

② Highly Unorganised sector (85%).

③ poor Quality Check protocols & standards

eg Recent MDH spice ban by Singapore

④ Lack of Credit availability as only 15% have access to Instit'l credit.

⑤ poor Awareness.

⑥ Dumping of Inferior goods by

MNCs eg Maggi ban (2015)

∴ Food Processing Industry must focus on
food safety for rapid exports growth.

2.

भारत की सार्वजनिक वितरण प्रणाली के अंतर्गत उचित मूल्य की दुकान (FPS) का प्रारंभ एक विकासशील प्रक्रिया है। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)
Under the Public Distribution System of India, the Fair Price Shop (FPS) transformation is an evolving process. Discuss. (Answer in 150 words) 10

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

Budget 2024 announced
₹ 2 lac Cr. food subsidy to support
India's PDS regime.

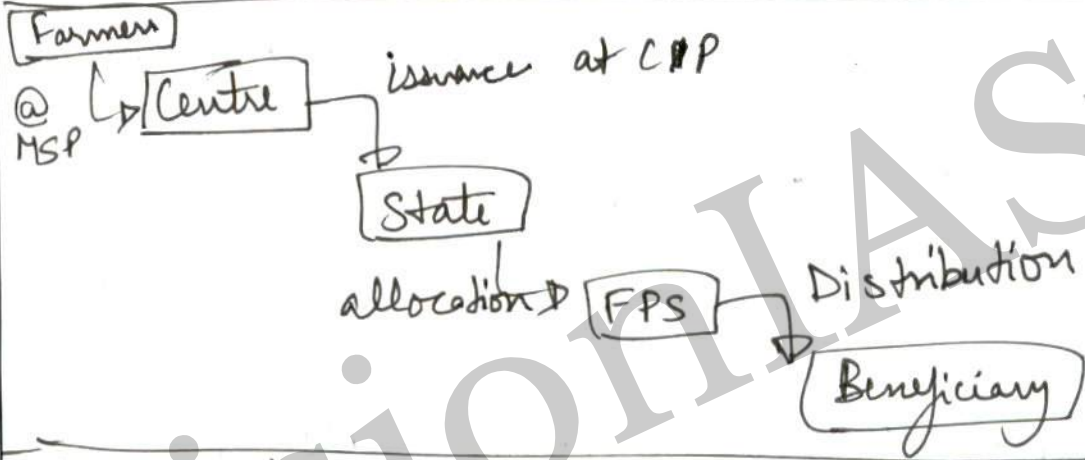


fig: India's PDS system

1. FPS Transformation in PDS regime

① Use of Technology like e-PoS

machines for Aadhaar authentication.

② Smart-PDS scheme launched to reform FPS.

③ GPS tracking of Trucks towards

FPS by satellites.

- ④ Automating the FPS by robots, machines. eg Grain ATM in Gureugram.
- ⑤ Use of SMS updates to beneficiaries for updates about stock.
- ⑥ One Nation One Ration card scheme for A Integrating Aadhaar database with BPL card database.
- ⑦ Use of AI to remove ghost beneficiaries
- ⑧ Digital Portals to \uparrow Transparency at FPS shops.

□ Way forward \rightarrow Shanta Kumar Comm.

① Use of DBT to replace with subsidy to Save ₹30,000 Cr/year

\rightarrow Hadhwa Comm.

② Using PFI, Cooperatives to operate FPS

\therefore PDS system in India has given 'Right to food' to 82 Cr people & help ensure (SDG 2: Zero Hunger)

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

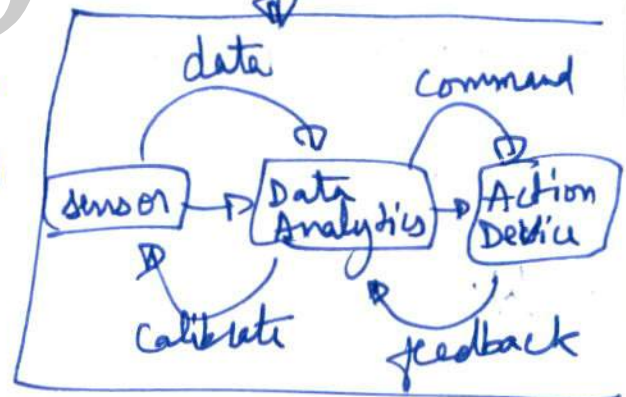
Budget 2024 has announced launching of Agri Stack for boosting agri startups in India.

□ Role of Agri Tech Startups in :-

↳ ① Enhancing Farm Productivity

① allowing Precision Farming eg Sensors

② using Drones to improve fertiliser application.
eg Drone didi scheme



③ Using micro irrigation to ↑ water use efficiency eg Drip

④ Providing extension services eg ↑ R & D

⑤ Providing soil testing lab infra.

↳ II Market Access

⑥ connecting farmers with buyers
Buyers online eg Niyacart.

⑦ Providing Transportation facility

⑧ Providing FinTech solutions for
credit. eg Paytm Bank.

⑨ Financing awareness

□ Issues faced

① Low digital literacy

② Rural - Urban digital divide

↳ only 30% people in Rural areas
have internet access.

③ Highly capital intensive

④ Poor Awareness among farmers.

⑤ 86% farmers are S&M.

∴ Agri Tech startups have the

potential to double farmers income

(A. Dalwai Comm.)

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)

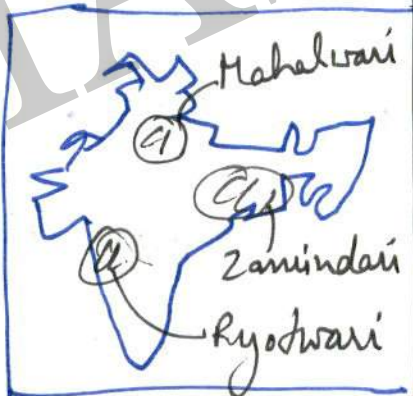
10

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

Acc. to Eco Survey 2024, govt. has launched DILRMP scheme, SVAMITVA scheme for digitisation of land records.

Land Reforms in India

- ① Abolition of land intermediaries
eg Zamindars
- ② Tenancy reforms
eg Operation Bargaon
- ③ Land ceiling and Distribution of Surplus Land.
- ④ Promotion of Land Consolidation
eg Chakbandi system
- ⑤ Promotion of Cooperative farming



Role of Digitisation of land records for effective land reforms

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

- ① land digitisation is the latest 10th stage of land reforms.
- ② Reduce land disputes.
- ③ Reduce burden on court for resolving land disputes.
- ④ ↑ Investments in agri. (15%)
- ⑤ Increase Agri. GDP growth rate to 4%.
- ⑥ Improve India's food security
- ⑦ allow crop diversification
- ⑧ Proper land records in digital form will reduce the efforts of tampering
- ⑨ ↓ corruption for lands.

∴ land reforms in India are essential for social justice and economic efficiency. eg operation Bhudan.

5.

भारत को अपने जनसांख्यिकीय लाभांश का पूर्ण उपयोग करने और आर्थिक विकास में तेजी लाने के लिए एक विनिर्माण-केंद्रित विकास मॉडल को अपनाने की आवश्यकता है। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

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

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

Acc. to UNFPA India's demographic dividend will last till 2055. Thus manufacturing led growth is necessary for reaping its benefits.

□ Need for Mfg. led growth Model

① To create jobs for youth.

② Census 2011: 62% of India's popⁿ is in 15-60 year age group (workforce)

③ To increase per capita income from current [2500 \$]

④ Reduce poverty levels [MPI → 11% 2023]

⑤ Improve economic growth rate of India (FY 23 → 8%)

⑥ Increase exports from India

↳ FY23: 770 Bn \$ exports

⑦ for emulating China's model of success,

⑧ Increasing savings rate in economy.

⑨ will help boost FDI and FPI in India. FY22 → 84 Bn \$ FDI

⑩ will improve fiscal capacity of state

⑪ Macro-Economic stability for India.

□ Govt. Steps Taken

- ① Foreign Trade Policy, 2023
- ② Make in India
- ③ Atma Nirbhar Bharat
- ④ PLI schemes
- ⑤ PM-MITRA scheme
- ⑥ ODDP scheme

∴ Acc. to PM Modi India has 3D
Democracy, demography, dividend to create
Manufacturing led growth,

6.

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

How can the resilience of Indian coastal communities be strengthened to tackle the growing natural hazards resulting from climate change? (Answer in 150 words)

10

Acc. to IPCC 6th A.R. at 1.5°C global warming, the sea level rise will be 1m by 2100. This will increase coastal hazards

□ Growing Natural & Coastal Hazards

① Coastal submergence of cities and islands of India. Eg Mumbai.

② ↑ Tropical cyclones intensity and frequency. Eg Cyclone Nisha.

③ Sea level rise led coastal erosion.

④ ↑ Tides

⑤ ↑ Marine heatwaves leading to Fish Mortality

⑥ Tsunamis on coasts

Eg 2004 Tsunami

10. Ways to Strengthen Coastal Resilience

- ① Shailesh Nayak Comm. recommended strict implementⁿ of Coastal Regulation Zone.
- ② Disaster Resilient Infra at coasts
- ③ ↑ Afforestation along coasts.
eg Mangroves.
- ④ Geostructures eg Tetrapods, Dykes.
- ⑤ ↑ ing finance
- ⑥ Installing early Warning systems (EWS)
eg Tropical cyclone EWS
- ⑦ create Multipurpose shelters for marginalised section

∴ Implementing Bendai Framework & NDMA guidelines is necessary for tackling coastal hazards.

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

Green Credit Programme ^(CGCP) has been launched under EPA, 1986 to incentivise +ve env'l action by different stakeholders.

□ CGCP for sustainable env. in India

- ① covers various activities like water pollution, afforestation.
- ② covers various stakeholders like companies, communities, individuals.
- ③ Part of India's "Miss" Life
- ④ Market based voluntary mechanism
- ⑤ Companies can use it for CSR compliance

① improve investments in Green Tech.

□ Issues & Concerns

- ① Difficulty in generating green credits
- ② Difficult integration with India's Carbon Credit Scheme
- ③ Ignores ecosystem services provided by forests.

∴ Green Credit programme can help achieve NDG and SDG 13 : Climate Action.

8.

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

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

10

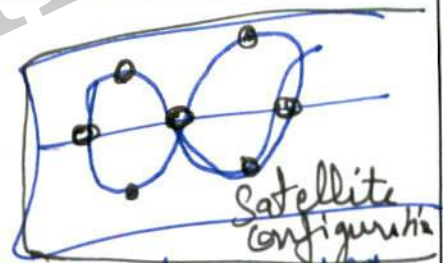
उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए। Candidates must not write on this margin

Navic is the Indian regional navigation system, formed out of a constellation of 7 satellites

i) 3 in Geostationary orbit

ii) 4 in Geosynchronous

□ Need for Navic



① Strategic independence from USA's

GPS

② USA declined GPS services in Kargil war, 1999

③ civil Terrestrial navigation system to replace google maps

④ can be used for surveillance
in Indian ocean region.

⑤ Civil Aviation: GAGAN
system

⑥ for urban planning and
management,

⑦ 1500 km away from borders

⑧ ↑ Internal Security

⑩ Navic has been a revolutionary
step in India's Indigenous
navigation.

9.

साइबर-सक्षम वित्तीय अपराध वैश्विक धन शोधन (मनी लॉन्ड्रिंग) के नए क्षेत्र के रूप में उभरा है। चर्चा कीजिए। सरकार इस मुद्दे का समाधान किस प्रकार कर सकती है? (उत्तर 150 शब्दों में दीजिए)

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

10

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

India ranks 10th on Global Cybercrime Index (2023), highlighting the risk to cyber enabled financial crime.

□ Cyber-crime as a new frontier to Global Money Laundering

① Emergence of dedicated cyber attack terrorist groups. eg Red Lizard

② Use of sophisticated and rapidly evolving Tech. eg NFT.

③ India's vulnerability to cyberattacks as 88 Cr Internet Users (Acc. to TRAI)

④ Rising CFI frauds eg >1 lac frauds in 2023

⑤ Using Malware as Ransomware eg Wannacry.

⑥ Highly oblivious structure of such organised crime network.

⑦ Linkage of organised crime and MNCs for Base Erosion & Profit shifting (BEPS) for money laundering.

□ How can govt. address this issue?

① Use of AI for cybersecurity

② Increasing funding for CERT-IN.

③ Capacity building of officials.

④ Strengthen existing legal instruments → PMLA, 2002
Binani Transaction Act
Fugitive economic offenders

⑤ Better coordination b/w Agencies → CBI, ED, NIA.

□ Global Best Model → Singapore Model
↓
1) using PPP model for cybersecurity
2) ↑ Cyber-Bases

∴ Increasing Int'l Collaboration and strengthening FATF is needed to break link b/w cyber crime & money laundering.

10.

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

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

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

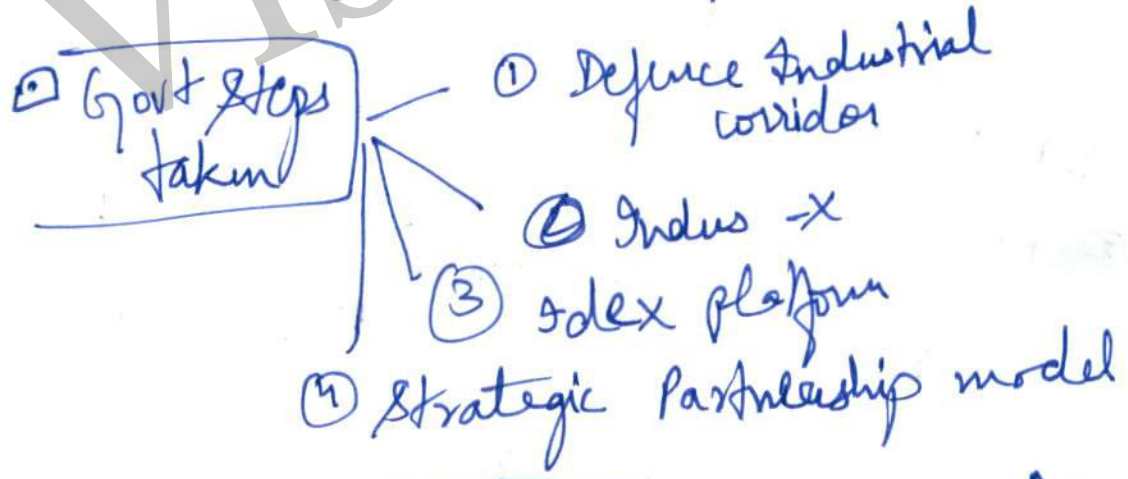
Recent induction of Rafael, S-400, LCA Tejas, Akash SAM, Pinaka, are initiatives by Army to fulfil the goal of Technology Absorption.

□ Need for Technology Absorption in Defence

- ① Rapidly changing Warfare landscape
eg CBS flagged Grey Zone Warfare.
- ② Age of Drones has truly arrived.
eg Bayraktar drones
- ③ To tackle the Threat of 2 front War
- ④ To effectively deal with Internal security threats eg Terrorism.
- ⑤ To secure Indian ocean region (SAGAR doctrine)
- ⑥ To emerge as Net Security Provider in the region.

Challenges faced for Tech Absorption

- ① Vijay Raghavan Committee highlighted poor performance of DRDO (2024)
- ② Lack of private sector participation in defence manufacturing.
- ③ Inadequate Budget of Defence → 75 Bn \$ (Budget 2024)
- ④ Huge import dependence for defence by SIPRI report India, world's largest arms importer.
- ⑤ Poor R&D expenditure (0.7% of GDP)
- ⑥ Industry - Academia poor linkage.



∴ Shekhar Comm. recommends ↑ing defence budget to 2.5% of GDP for

Tech. absorption.

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

Acc. to 2nd ARC, 'India's North east region represents a state of stable anarchy.' This has created issues for Trade & Industries development.

Issues faced in development of Trade & Industries in NER

① Presence of Insurgent groups (fig 1)

↳ ULFA, Assam

② Narco Terrorism, due

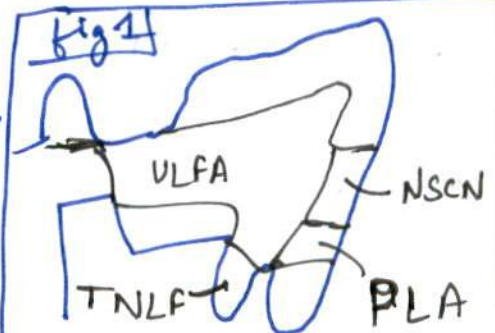
to proximity to

Golden Triangle (fig 2)

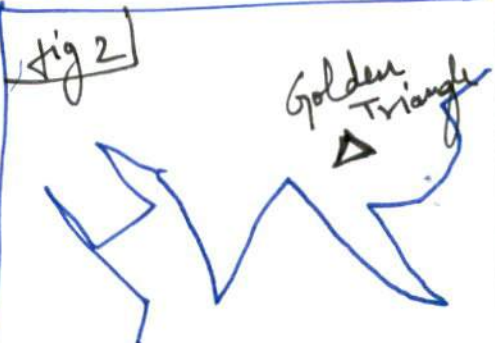
↳ Myanmar, Laos, Thailand

③ Poor Transportation

Connectivity



India's NER



- ④ Frequent Border Incursions by China eg Doklam Standoff (2017)
- ⑤ India's Chicken Neck Corridor issue.
- ⑥ Hotspot of organised crimes
 - ↳ Human Trafficking
 - ↳ Exotic animal Trade.
 - ↳ Gun Running.
- ⑦ Difficult Geographical Terrain eg Himalayas
- ⑧ Ethno-Nationalism among different N-E tribes.
- ⑨ Ethnic conflicts driving away foreign investments. eg Manipur violence.
- ⑩ Bureaucratic hurdles → Red Tapism
↳ Corruption.
- ⑪ Protest by public against development projects. eg Upper Siang HEP, Anunachel Br.::
- ⑫ Political Apathy
- ⑬ Historical Neglect

① Measures Taken to Tackle this issue :-

- ① Creation of MoDONER and N-E Zonal Council.
- ② Recently launched UNNATI scheme for Industrialisation of NER (2024)
- ③ PM-DEVINE scheme :
- ④ Infra. development like Bogibeel bridge, Bela Tunnel, etc.
- ⑤ SARDP-NE scheme for road development.
- ⑥ Silk Samagra scheme
- ⑦ NERTP scheme for Textile Industry.
- ⑧ Aspirational distt. programme (ADP)
- ⑨ Peace accords with Insurgents.
eg Bodo Peace Accord.

∴ Acc. to Bhayan Saran, North east development is crucial as it is India's bridge to S-E Asia & Pillar of Act East Policy.

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

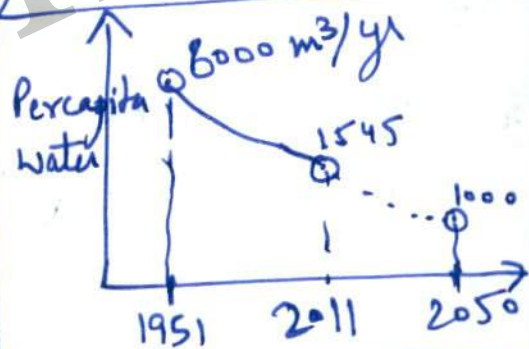
उम्मीदवारों को इस हदिए में नहीं लिखना चाहिए
Candidates must not write on this margin

Recently due to climate change induced rainfall deficit and El Niño Bangalore experienced its worst water scarcity. (2024)

In this regard, micro irrigation is one of the solutions.

□ Era of Climate change and Water scarcity

① India is a water stressed nation with 1545 m³/yr/person water availability. →



Source: 2011 census

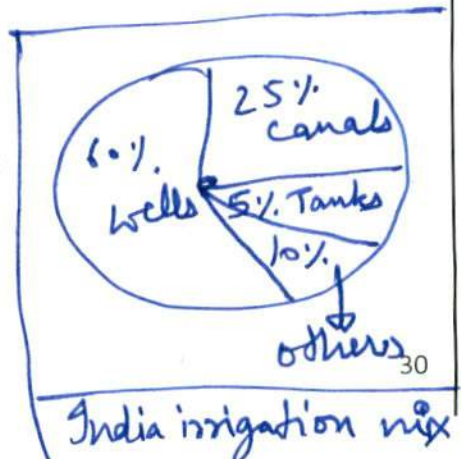
② IPCC reported 1.2°C warming since pre-Ind'l times (1750s)

③ There are growing instances of floods & droughts

④ ↑ing Heatwaves.

Micro Irrigation contribute to sustainable Agri. Practices

- ① Acc. to Ashok Dalwai Comm., Micro irrigation will increase water use efficiency by 40%.
- ② Reduced fertiliser demand by at least 20% due to fertiligation.
- ③ Reduce India's fiscal burden on fertiliser subsidy → ₹1.64 lac Cr. (Budget 2024)
- ④ will reduce issue of salinisation and alkalinisation due to over irrigation.
- ⑤ Conserve soil
- ⑥ Reduce soil erosion due to water erosion.
- ⑦ Micro Irrigation will diversify India's Irrigation Mix
- ⑧ Reduce need for canal construction



① ↑ Crop Production & Productivity
by 90%.

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

Case Study : Israel, Miracle in Negev desert

- High usage of Micro Irrigation
- High crop production.



Challenges faced by Micro Irrigation in India

- ① Highly capital Intensive
- ② Requires Awareness to use Tech.
- ③ 86% farmers are Small & Marginal
- ④ Avg. landholding size is 1.08 Ha
- ⑤ Low Awareness
- ⑥ High corruption and leakage
- ⑦ overdependence on Tube Wells (60%) and canals (25%)

∴ Govt. has launched Per Drop more Crop under PM - Krishi Sinchai Yojna to promote micro Irrigation.

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 शीट में नदी लिखना चाहिए
Candidates must not write on this margin

India has the 4th largest rail network in the world with 67,000 km track length (Mo Railways)

□ Strategies needed for ↑ing freight in Railways

① Bibek Debroy committee recommended setting up National Railway Regulator for efficient regulation.

② scaling up Dedicated Freight Corridors in India by Eastern DFC.

③ focus on PPP model in railways

④ Doing away with the practice of Cross-subsidisation.

- ⑤ Augmenting Track length in India
- ⑥ Achieving 100% electrification of railway tracks
- ⑦ Replacing metre gauge, narrow gauge with Broad Gauge Tracks
- ⑧ Installing Kavach train collision avoidance system.
- ⑨ Separating Passenger and freight tracks.
- ⑩ Implementing Kakodkar Comm. recommendation on railway safety.

❑ Issues faced by Freight Transportⁿ in Railways

- ① stiff competition from other modes of transportation.
- ② Roadways carry 60% of India's freight traffic.
- ③ Low Investments in Railways.

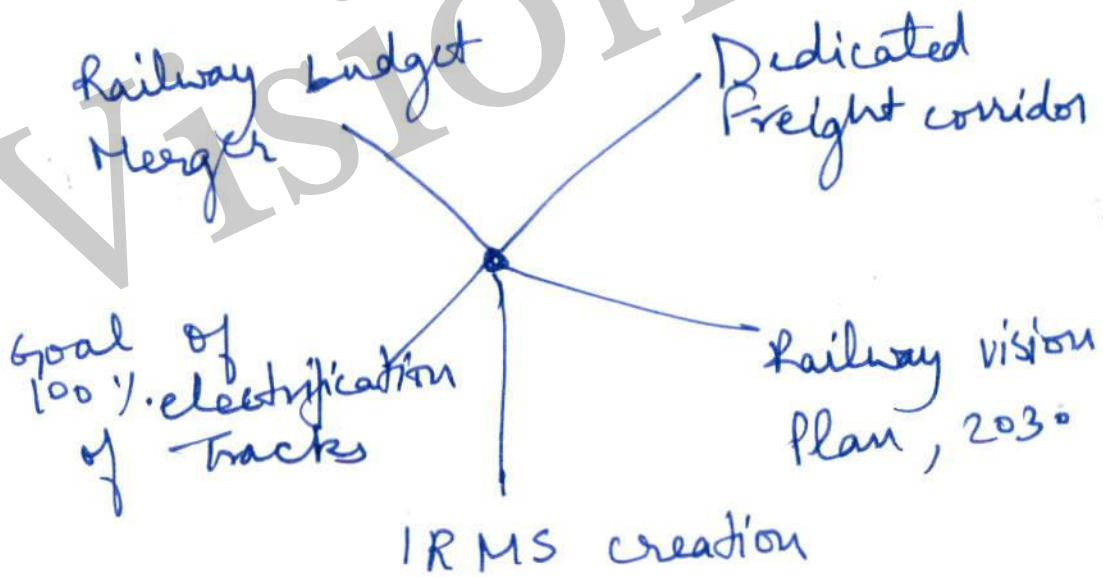
④ CAG highlighted low operating ratio of just 98%.

⑤ Delays and cost overruns in Railway project.

⑥ Issue of cross-subsidisation

⑦ Sub-optimal modal mix of railways @ just 30%.

□ Govt. Steps to solve this



∴ Railways need to implement

Bibek Debroy Comm. & Kakodkar Comm.

Recommendation to rapidly increase freight share.

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 हार्गिण में नही लिखना चाहिए
Candidates must not write on this margin

15

P.M Modi at G20 summit

and COP-28, UAE highlighted that India is the only G20 country on track to achieve its NDC target under Paris deal.

□ Factors for Increase in India's Renewable sector

① Acc. to Mo NRE, India has very Renewable energy potential.

② Solar energy potential of around 1750 GW

③ Wind energy potential of 700 GW at 120 mts height.

④ Tidal energy potential of 10 GW

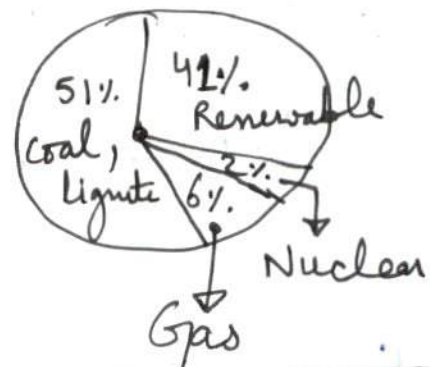


fig. India's energy mix

⑤ Wave energy potential at 40 GW

⑥ OTEC potential at 180 GW

eg Kavaratti OTEC Project, Lakshadweep

⑦ Geothermal potential at 10 GW

⑧ BioEnergy potential at 30 GW

eg Indore's BioCNG plant

⑨ on top of that conducive govt. policy.

⑩ India's civilisational environmentalism
ethos. eg Bishnoi Tribes.

□ Issues faced by Renewable energy in India

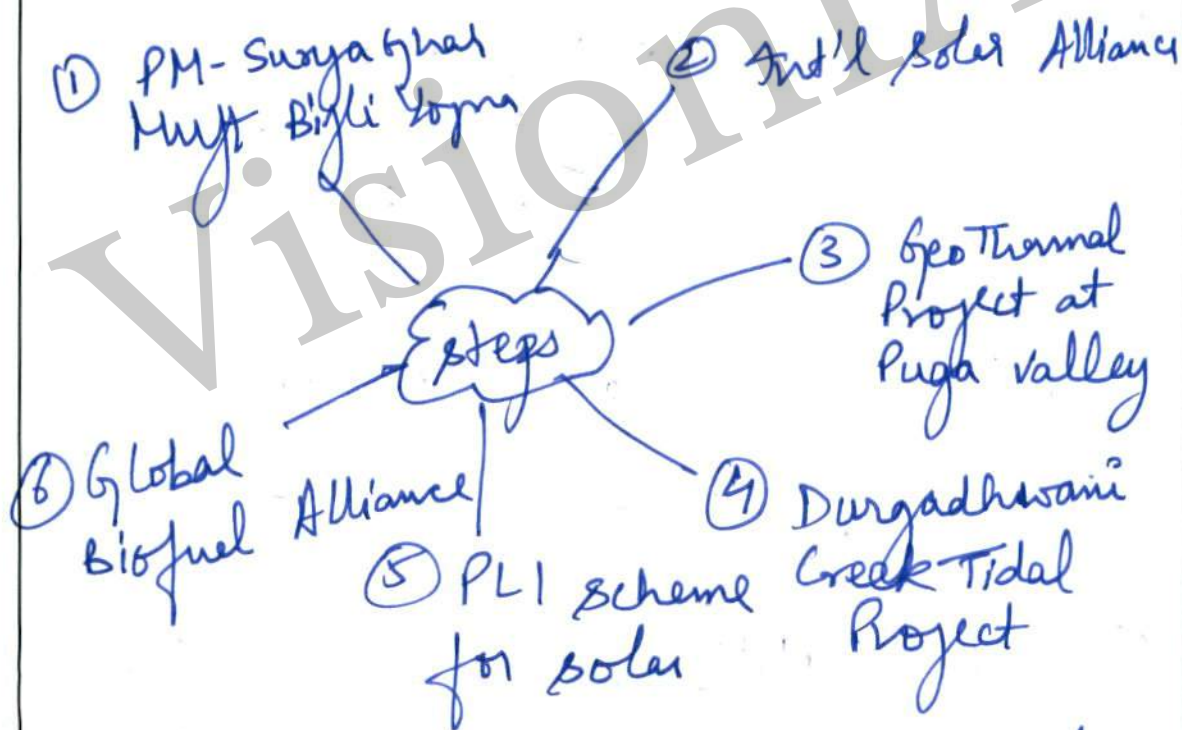
① Poor grid connectivity of renewable energy

② Lack of energy storage solutions

③ Highly capital intensive

- ④ Huge land diversion for solar projects.
- ⑤ Biodiversity loss by Power transmission infra. eg Great Indian Bustard.
- ⑥ High per unit production costs
- ⑦ stiff competition from Nuclear energy
eg Kalpakkam FBR reactor.

① Key Steps taken for India's Renewable sector



∴ India's Renewable energy push

is crucial for achieving

SDG 13: Climate Action

SDG 7: Affordable energy, and NDC under Paris deal. 37

15.

उर्वरकों और कीटनाशकों से युक्त कृषि अपवाह पर्यावरण प्रदूषण में किस प्रकार योगदान देता है? कृषि अपवाह के प्रभाव को कम करने के लिए क्या उपाय अपनाए जा सकते हैं? (उत्तर 250 शब्दों में दीजिए)

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

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

15

Recently Budget 2024 announced ₹1.64 lac fertilizer subsidy. This has created many environmental concerns.

□ Agri'l Runoff contribution to Pollution

① Acc. to Hanumantha Rao Committee

	↓ N : P : K
ideal use	4 : 2 : 1
Green Revolution area	25 : 5 : 1

② This overuse of fertiliser has created pollution and disorders such as following.

③ High Nitrogen, Phosphorus in fertiliser lead to eutrophication of water bodies.

④ also reduces increases Biological

Oxygen demand of rivers, ponds.

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

⑤ High fertiliser use also lead to ↑ NOx air pollution.

⑥ lead to land degradation and desertification

eg ISRO → India's area $\left\{ \begin{array}{l} 30\% \text{ degraded} \\ 25\% \text{ Desertified} \end{array} \right.$

⑦ leads to soil contamination.

⑧ also Groundwater pollution.

eg ~~A~~ Anthropogenic contamination of aquifers.

⑨ leads to biodiversity loss eg earthworms, Termites.

⑩ adversely affects biogeochemical cycles. eg N₂ cycle.

□ Measures needed to Tackle this

① Rationalise fertiliser subsidy (₹1.64 lac Cr)

② Use of micro irrigation Technology

③ Crop diversification to pulses, oilseeds

- ④ Use of Biofertilisers in soil
eg Rhizobacter.
- ⑤ Use Fertigation Technique
- ⑥ adoption of Nano Tech eg Nano Urea.
- ⑦ Use of Drones for fertiliser application.
- ⑧ strengthening / Reforming PDS
and MSP policy

□ Govt. Steps Taken

- ① PM- Pranam scheme
- ② Paramparagat Krishi Vikas Yojna
- ③ Nat'l Missⁿ on Natural farming
- ④ organic farming certification ← NPOP
← PGS
- ⑤ PM Krishi Suktai yojna.

∴ Rationalising fertiliser use on field is key to reduce runoff induced pollution for SDG 15: life on land

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

Experts argue that recent disasters in Himalayas like Sikkim GLOF (2023), Himachal cloudburst (2024), landslides are the result of anthropogenic unsustainable Tourism.

□ Tourism → Disasters in Himalayas

- ① There has been a tremendous growth of Tourists in Himalayas.
- ② Such growth has led to many disasters. Reasons are :-
- ③ Increasing Urbanisation rates in hilly regions destabilise the slopes.
- ④ Widescale Deforestation has reduced slope stability.

⑤ Rapid Tourism boom has increased water needs leading to water crisis.

eg. Bhimla water crisis (2029)

⑥ HEP projects have also led to reservoir induced disasters.

eg. Sikkim GLOF (2023)

⑦ Roadways development has led to increased vulnerability to disasters.

eg. Char Dham Project.

⑧ Unsound Tunnelling methods

eg. Silkyara Tunnel landslide (2023)

⑨ Urban heat island effect on hills cities has led to cloudburst

eg. Himachal cloudburst

⑩ Adventure Tourism in snowy areas has led to Avalanche threats

⑪ Global Warming has further led to disasters.

⑫ ↑ed Forest fires due to eco tourism
eg Uttarakhand Nainital forest fire.

□ Measures needed for Sustainable Tourism in Himalayas

① NITI Aayog recommends creating an independent Himalayan Tourism Development Authority,

② Promoting EIA mandatorily for all hill projects.

③ Use of Tech for ↑ing slope stability
eg wire netting.

④ Afforestation drives on Himalayan slopes

⑤ creating tourism hotspots with disaster resilient infra.

□ Govt. Steps → Swadesh Darshan Scheme
HRIDAY Scheme
Adopt a Heritage Scheme

∴ Sustainable Tourism in Himalayas is key to achieving PM Modi's goal of

1 Tr\$ Tourism economy by 2047. 43

17.

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

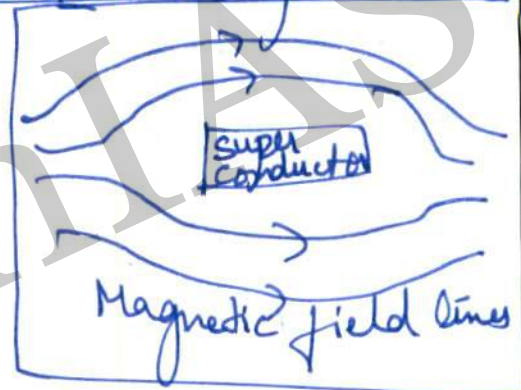
How do superconductors fuel innovation in diverse fields of science and technology? Illustrate with examples. (Answer in 250 words)

15

Superconductors are metals in special state which pose NO electrical resistance to current.

↳ due to Meissner effect
↳ based on electron cooper pair

Application in S&T fields



① Maglev Trains Technology use superconductors to create world's fastest trains.

eg Japan's Maglev.

② Hyperloop Transportation uses superconductor technology for achieving $> 1000 \text{ km/hr}$ speed

③ MRI Tech. in healthcare
is based upon superconductor
technology. It is used to
accurately diagnose & create
3D maps of body.

④ Quantum Computing: Superconductors
are used in quantum computers
for ensuring no loss of power and
peak efficiency.

⑤ Space: Superconductor can
be used in launch vehicles
for ↑ing payload capacity.

⑥ BioTech. use: Superconductors
used in powerful electronic
microscope.

Challenges to Superconductors Tech in India

- ① Lack of dedicated missions
- ② Poor R&D expenditure (0.7% of GDP)
- ③ Inadequate funding -
- ④ Poor Industry - Academia linkage
- ⑤ low STEM workforce
- ⑥ deficit of skilled workforce
- ⑦ DRDO's poor performance

∴ Superconductors can be used to revolutionise Sci & Tech and improve human's quality of life

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। सविस्तर 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 हार्शिंग में नही लिखना चाहिए
Candidates must not write on this margin

15

Acc. to DPIIT, India became the 3rd Patents issuer in the world (2023) after USA and China.

☐ Indian laws on Types of IPR

↳ granted for 20 years

① Patents are governed by Indian Patent Act, 1970 and protect the idea and process of a product.

② Copyrights are governed by Indian Copyrights Act.

↳ copyrights are granted for 60 years

③ GI Tags are governed by

Geographical Indication of Goods Act

↳ granted for 10 years for a good from a specific area.

④ Industrial designs are protected by Ind'l designs Act.

⑤ Trademarks are also safeguarded by Trademark Act.

⑥ Trade secrets are NOT covered by any act in India.

❑ Challenges for Commercialisation of IPR in India.

↳ I Enforcement

① Poor IPR protection in India

② Bio Piracy by MNCs

③ Issue of Evergreening of Patents by Pharma companies.

↳ II Regulatory

④ Regulatory Cholesterol by DPIIT

- ⑤ Corruption and Red Tapisim
- ⑥ Lack of single window clearance
- ⑦ complex and Time consuming

⑧ Administrative

⑧ Multiplicity of laws

⑨ DPIIT → unsound administration

⑩ Lack of coordination b/w
agencies

⑪ funding crunch

⑫ Way forward → ① Need for a
Comprehensive Law

- ② ↑ priv. sector participation
- ③ ↑ ing awareness about IPR.

∴ IPR creation is essential for
India to become a Knowledge
economy.

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

Recently Parliament passed Inter Services Reorganisation Act (2023)

for creating Integrated Theatre Commands

↳ The idea is supported by Kargil Comm., Shekhar Comm.

Q. What is Integrated Theatre Commands

① It involves creation of single Territorial unit of armed forces.

② Under one commander

③ responsible for safeguarding a specific region.

④ eg A&N Triforce Theatre Command

❑ Challenges in Implementing Theatre Commands :-

- ① Infra. deficit with armed forces to achieve this.
- ② Poor / Inadequate defence budget
↳ Budget 2024 : 75 Bn \$
- ③ Ego Tussle b/w Chiefs of Army, Navy, and Airforce.
- ④ Falling squadron strength of Indian Airforce eg only 31 squadrons left against 42 sanctioned.
- ⑤ Lack of experience in creating such commands.
- ⑥ There is also issue of joint Training of forces.
- ⑦ Leadership challenge → who will lead the theatre.
- ⑧ CDS's ineffective role in facilitating its creation.

□ Theatrisation Benefits :-

↳ I Greater integration

① Kargil War (1999): such integrated attack was missing.

② will help tackle the threat of Front War.

③ tackle Rising China in Indian ocean region.

↳ II Rationalisation of Manpower & Resources

④ Joint Training programs will reduce redundancy. Eg Joint Apache Helicopter Training

⑤ ↑ Efficiency of armed forces.

⑥ Reduce the need for more personnel

⑦ Safeguard India's borders.

⑧ More output from defence budget.

⑨ Former CDS Bipin Rawat called

Theatrisation of Armed forces as a

revolutionary move in India's defence history.

- 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)

Budget 2023 launched.

Vibrant Villages Programme to create strategic border villages for economic benefits and border security.

① Border Villages as First villages

↳ ① Geographically -

① India has many border villages along its 15000 Km land border

② These are First line of defence against external aggression.

③ These are in geographically remote locations eg Himalayas.

④ also have difficult geographical terrain

↳ (II) also in facilities ✓

(5) such border villages lack basic connectivity.

(6) lack of basic amenities like 24x7 electricity.

(7) Poor housing infra.

(8) Inadequate financial support from govt.

□ Border Villages as key for enhancing Border Security:

(1) They can act as first line of defence.

(2) give Indian armed forces a strategic advantage eg Tawang, Arunachal

(3) act as force multiplier for armed forces equipments.

(4) High Tourism potential.

(5) increased population in border

• villages strengthen India's claim for Territorial sovereignty under Int'l law.

- ⑥ can be a source of revenue
- ⑦ Political imperative of social welfare of border citizens

□ Govt. Steps Taken for Border villages

- ① Vibrant Villages Programme along the entire Indo-China border.
- ② Border Area Development programme (BADP)
- ③ UDAN scheme
- ④ Infra. development Tej Sela Tunnel to Tawang region.
- ⑤ ↑ Border security
- ⑥ BOLD-QIT Project
- ⑦ CIBMS project

∴ Border villages will play a crucial role in safeguarding India's 15000 km land border.

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