



MGP 2025

TEST CODE

8 1 3 4 1 1

Time Allowed : Three Hours

समय : तीन घंटे

Forum IAS

Maximum Marks : 250

अधिकतम अंक : 250

GENERAL STUDIES / सामान्य अध्ययन

Name Of Candidate

LIZA GARGA

परीक्षार्थी का नाम

Roll No./अनुक्रमांक

1910071069

Medium/माध्यम

English हिंदी

Center Code/परीक्षा केंद्र

1901

Date/दिनांक

03/08/2025

*Center Code: For Online - 1900 / Delhi : Karol bagh - 1901, ORN - 1902, Mukharji Nagar - 1903 / Patna : Boring Rd. - 2001 / Hyderabad : Jawahar Nagar - 2101

INDEX TABLE / अनुक्रमणिका

INSTRUCTION / अनुदेश

Q. No. प्र.सं.	Max. Marks अधिकतम अंक	Marks Obtained प्राप्तांक
1		
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- Please do furnish Name, Email, Roll No and Mobile in the answer sheet.
कृपया उत्तर-पुस्तिका में नाम, ईमेल, रोल नंबर और मोबाइल नंबर भरें।
- There are **TWENTY** questions printed in ENGLISH & HINDI, all questions are compulsory.
उत्तर पुस्तिका में अंग्रेजी/हिंदी में बीस प्रश्न दिए गए हैं, सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के लिए निर्धारित अंक उसके सामने अंकित किए गए हैं।
- 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.
उत्तर प्रवेश पत्र में अधिकृत माध्यम में लिखे जाने चाहिए, जो कि दिए गए स्थान में इस प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के कवर पर स्पष्ट रूप से लिखा जाना चाहिए।
- Word limit in questions, if specified, should be adhered to. Any page or portion of the page left blank in the Question-Cum Answer Booklet must be clearly Struck off.
प्रश्नों में शब्द सीमा, यदि निर्दिष्ट हो, का पालन किया जाए। प्रश्न-सह-उत्तर पुस्तिका में खाली छोड़े गये किसी भी पृष्ठ या पृष्ठ के भाग को स्पष्ट रूप से काट दें।

Total/कुल अंक

250

For Student Only / केवल परीक्षार्थी प्रयोग हेतु

Examiner's Discretion/मूल्यांकन कर्ता का विवेक :

Start Time/प्रारंभ करने का समय :

11:30pm

End Time/समाप्त करने का समय :

2:35 AM

Total Marks/कुल अंक :

Mode Of Examination/
परीक्षा की विधि :Online/ऑनलाइन Offline/ऑफलाइन

For Office Use Only / केवल कार्यालय प्रयोग हेतु

*Examiner's Discretion is the marks awarded at the discretion of the examiner based on your overall impression, on the basis of (but not limited to) your handwriting, presentation, use of diagrams, flowcharts, facts and figures or absolutely anything that he/she liked in your copy.

मूल्यांकन कर्ता का विवेक अंक आपकी लिखावट, प्रस्तुति, आरेखों के उपयोग, फ्लोचार्ट, तथ्यों और आंकड़ों या समग्र रूप किसी अन्य विषय वस्तु, जो मूल्यांकन कर्ता को आपकी कॉपी में पसंद आयी के आधार पर (लेकिन इन्हीं तक सीमित नहीं) पर दिए गए अंक हैं।

ECN CODE/
ईसीएन कोड :

EG/ईजी :

① ② ③ ④ ⑤

Evaluation Date/
मूल्यांकन तिथि :



Note: Students are expected to incorporate suggestions from the feedback provided in the answers. Discussion the tests are also available online in your portal to aid in your preparation. Further, students are requested to copies of the tests and learn from them. You can also discuss your copy with a Mentor and discover ways to improve your answers, or if you have any issues with this test / copy. Ask specific questions, to get specific answers

EXAMINER'S REMARKS

CRITERIA FOR THE FEEDBACK SECTION AT THE END OF EACH QUESTION

1. **AWIS = Answered What is Asked.** This means whether you have addressed the core demand of the question or not. Addressing the core demand of the question gets you an objectively fair score. It is examiner's perception if you have understood the question and if you know the answer in the first place. Creative answer writing, sometimes missing the core demand, may fetch very high or very low scores, and exposes your answer to the subjective assessment of the examiner.
2. **CD & VA = Content Density & Value Addition.** Examiner will evaluate the quality and quantity of your content in the answer. In the same word limit space limit have you (a) written what is asked (b) gone beyond what is asked (c) enriched answers through combination of (but not all!) suggestions, quotes, flowcharts, diagrams, facts and figures, data etc. This affects objective components of assessment.
3. **S & F = Structure & Flow =** Whether you have structured your answer properly or not. Whether the answer has been broken into parts and sub-parts, each part has been addressed appropriately or not. Whether the flow of the answer is maintained. Affects both subjective and objective components of assessment.
4. **P & R =** How your answer performs on the criteria of presentation, ease of read, clarity and apparent effort in writing the answer. This affects subjective components of assessment.

Q.1) The Union Budget 2025-26 outlines a shift towards the 'debt-to-GDP ratio' as the fiscal anchor starting from FY 2026-27. Discuss the rationale behind this shift. (10 marks, 150 words)

केंद्रीय बजट 2025-26 में वित्त वर्ष 2026-27 से राजकोषीय आधार के रूप में 'ऋण-से-जीडीपी अनुपात' की ओर बदलाव की रूपरेखा तैयार की गई है। इस बदलाव के पीछे के तर्क पर चर्चा करें। (10 अंक, 150 शब्द)

India's Debt-to-GDP ratio is at 83%. Out of this Centre's share is 57%. FRBM target mandates a Debt-to-GDP ratio of 40%.

Rationale behind shift towards Debt-to-GDP

- ① More in line with global thinking.
(eg) Moody's, S&P uses debt-to-GDP indicator to mark economies.
- ② More reliable as it takes into account cumulative effects of past and present fiscal decisions.
- ③ has fiscal transparency → disclosure of off-budgetary borrowing.
- ④ leverage counter-cyclical measures to create buffer during downturns.
(Keynesian economics)

- (5) provide more operational flexibility to navigate Black swan events (eg: COVID)
- (6) Marks a shift from rigid fiscal targets of Fiscal deficit to flexible fiscal standards
- ↓ restricts govt spending
- ↓ allow capex

Drawbacks

- (1) May take several years to achieve Debt-to-GDP ratio of 50:1
- (2) Crowding out of private sector borrowing
- (3) Increased External Commercial borrowing
→ widening Current Account Deficit

Thus, though Debt-to-GDP ratio is a robust and growth oriented approach, appropriate fiscal credibility measures needs to be complemented to realize India's dream of \$30-35trn economy by 2047.

Q.2) Why does India need to transition from a 'build to print' to a 'build to design' model in manufacturing? What steps has been taken by the government in this regard? (10 marks, 150 words)

भारत को विनिर्माण में अनुसारी निर्माण (Build to Print) से डिजाइन आधारित निर्माण (Build to Design) मॉडल की ओर संक्रमण की आवश्यकता क्यों है? इस संदर्भ में सरकार द्वारा कौन-से कदम उठाए गए हैं? (10 अंक, 150 शब्द)

India's manufacturing sector contribute to 17% of GDP. Target is to raise it to 25% of GDP by 2030.

Reason for transition from Build to print to Build to design

- ① India's manufacturing is traditionally focused on assembly of parts (Build to print). It needs to enhance its capabilities in engineering, design & innovation and increase patents on CET (Build to design).
- ② Leverage disruption in global supply chains → impetus to China+1, SEI
- ③ Fulfill Atmanirbhar Bharat and Make in India Agenda.

- ④ With focus on SMRs and semiconductor chips, solar PVs → Need for Build to design.

Trade wars & tariffs
eg (USA-China)

Challenges

low productivity
(eg) ICOR = 4.5%
(global average = 3.5%)

low R&D expenditure
(only 0.69% GDP)

Unskilled/low-skilled labour
(only 2% have vocation
USA = 98%)

Steps taken by India

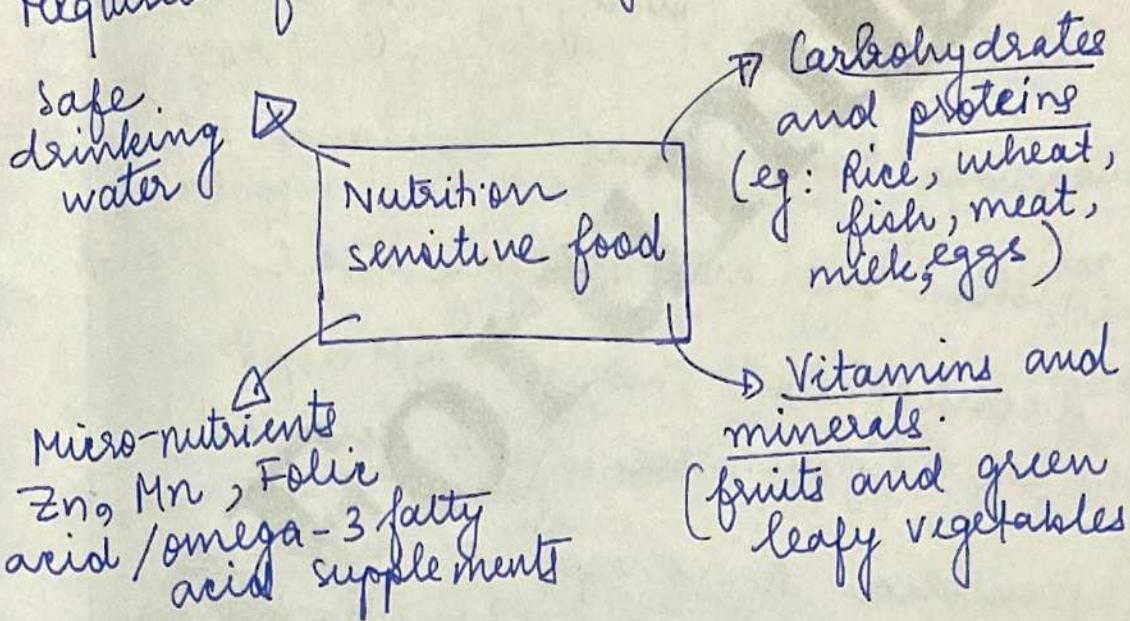
- ① Design linked incentive.
- ② Start up India → Start Linking Lab
- ③ PM R&D Fund
- ④ Deep Tech Fund of Funds
- ⑤ India's AI Mission

Thus, by incorporating the spirit of Jai Vigyan Jai Anusandhan, India should transition to Build to Design model to become Viksit economy by 2047.

Q.3) Explain the concept of a nutrition-sensitive food system and suggest strategies to achieve it in the country. (10 marks, 150 words)

पोषण-संवेदनशील खाद्य प्रणाली की अवधारणा को समझाइए तथा देश में इसे प्राप्त करने के लिए रणनीति सुझाइए। (10 अंक, 150 शब्द)

Nutrition sensitive food system refer to the ecosystem of providing a healthy-balanced diet to the consumer comprising all essential macro and micro nutrients required for overall growth.



Need for nutrition - sensitive food

child wasting	36%
child stunting	19%
under weight	28%
Anaemia	57%

- Multi-Dimensional poverty @ 11.6%
- FAO says 69% of deaths in India due to malnutrition
- Hidden Hunger —

Measures to achieve it : —

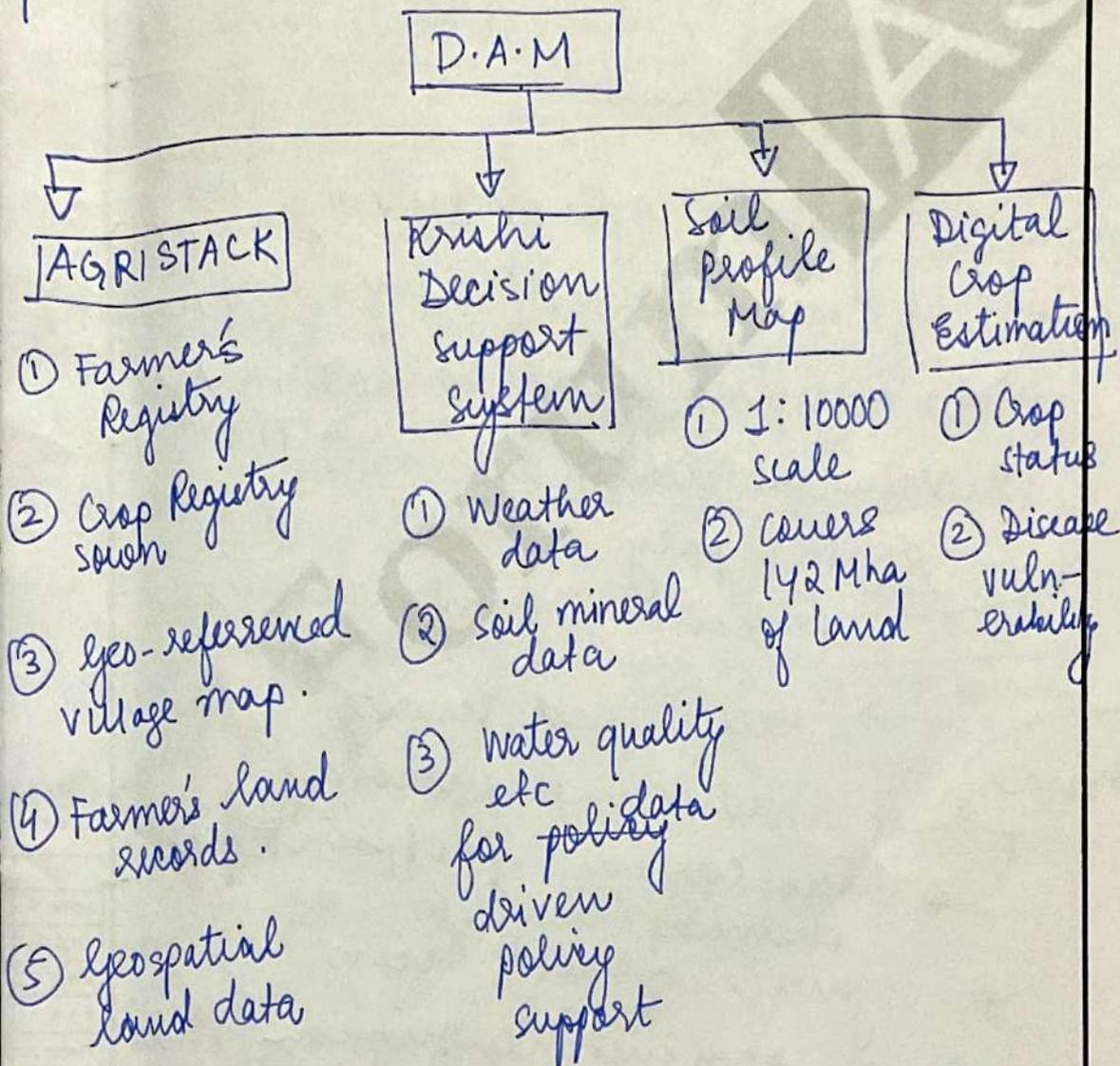
- ① National Food security Mission
5kg/person/month (priority) ; 35kg/family/month (AAY)
- ② Anaemia Muket Bharat (Iron and Folic acid supplement)
- ③ Poshan 3.0 and MidDay Meal
- ④ Biofortification through GM crops
(eg: Golden rice (VITA fortified))
- ⑤ Promotion to concept of Kitchen garden (cultivate fruits/vegetables)
- ⑥ National Horticulture Mission (TOP-TOTAL)
- ⑦ PM Matsya Sampada Yojana.

Thus nutritious diet to boost health outcomes of citizens would lead to human capital formation and augmentation of demographic dividend.

Q.4) Give a brief overview of the 'Digital Agriculture Mission' How can it benefit the agriculture sector? (10 marks, 150 words)

डिजिटल कृषि मिशन का संक्षिप्त विवरण दीजिए। इससे कृषि क्षेत्र को क्या लाभ हो सकता है? (10 अंक, 150 शब्द)

Digital Agriculture Mission (D.A.M) is a Rs 2800 cr mission to create a robust digital public infrastructure for Agriculture sector.



ways D.A.M can benefit agriculture sector

Farmer

- integration of land records with crop sown data
- information on soil health
- irrigation requirement
- data on cropping pattern
- potential risks / climate hazards information

Economy

- Improve Agri productivity (18% ^{current} GDP)
- Increased GCF in agri ₹500 cr 2018
- Multiplier effect → ROI in Agri in '11X
- value addition in agri supply chain
- promotion to Food processing sector.

Consumers

- Better food security
- Nutritional outcomes.
- lesser carbon footprint & chemical usage.
- organic food areas

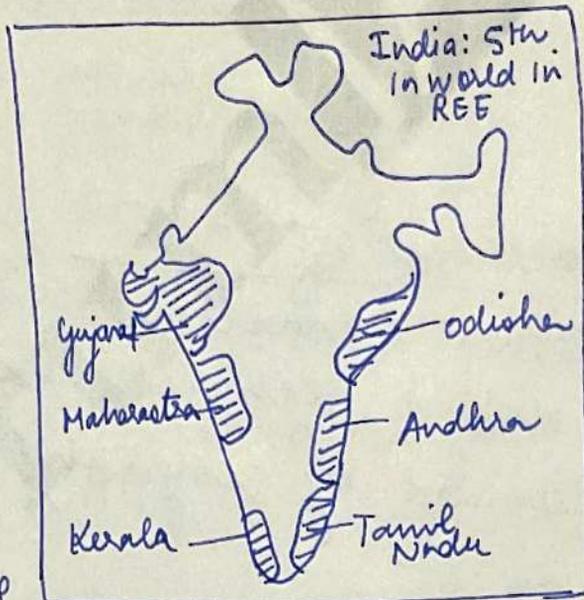
thus Digital Agriculture Mission seeks to revolutionize the agri sector to boost rural economy and make India Atmanirbhar in food supply.

Q.5) Rare earths are not just elements; they are foundational inputs that act like 'seeds of technology'. Elaborate. (10 marks, 150 words)

दुर्लभ मृदा तत्व (Rare Earths) केवल रासायनिक तत्व नहीं हैं, ये प्रौद्योगिकी के 'बीज-तुल्य' मूलभूत निवेश हैं। सविस्तर वर्णन कीजिए। (10 अंक, 150 शब्द)

Rare earth elements are those 17 metallic elements (15 Lanthanides + Scandium + Yttrium) that are found abundantly but not in concentrated form. Hence extraction is difficult and a costly affair.

Reasons why REE are not just elements but seeds of technology



Distribution of REE in India

① Used in manufacturing of Solar PV
(eg) Gallium, Indium

② Used as permanent magnets for wind turbines
(eg) Neodymium

- (3) Used in Electric vehicles.
(eg) Lithium battery
- (4) Used in electrical wires → (eg) Copper
- (5) Used for energy storage (eg) Li, Co, Nickel
- (6) Used for semiconductor chip / SMRs
(eg) Silicon wafers.

Challenges of REE

- costly extraction
- skilled technical expertise
- limited by geography (eg. China has 63% of REE reserves)

India's efforts

- National Critical Energy Mission
- MOUs with African Nations (DRC etc)

Thus, as India aspires to become Vixit by 2047, REE as essential to spur technological growth to propel India's material power.

Q.6) Why retrofitting Electrostatic Precipitators (ESPs) in Indian thermal power plants is a more viable and effective option compared to the installation of flue gas desulfurization (FGD) systems?

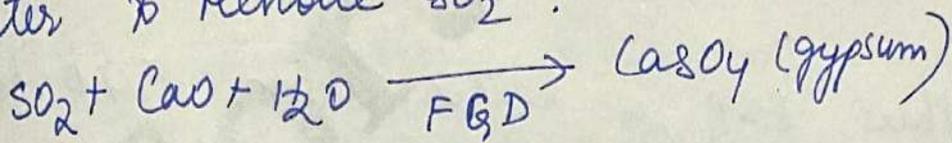
(10 marks, 150 words)

भारतीय तापीय विद्युत संयंत्रों में फ्लू गैस डिसल्फ्युराइजेशन (FGD) प्रणालियाँ लगाने के बजाय विद्युत-अवक्षेपकों (ESPs) का पुनर्संयोजन क्यों अधिक व्यवहार्य और कारगर विकल्प है?

(10 अंक, 150 शब्द)

Electrostatic Precipitators (ESP) uses static electricity to ionize particulate matter (PM) and attract it oppositely charged plate. → later removed from there.

Flue gas De-sulphurization (FGD) allows the Flue gas (SO_2) to pass through a slurry of limestone and water to remove SO_2 .



Reasons why ESP is better option

- ① PM is a major pollutant → more abundance
- ② PM causes more damage to cardio-vascular systems.
- ③ Fossil fuels like Indian coal

has more ash content (PM) than sulphur (SO_2)

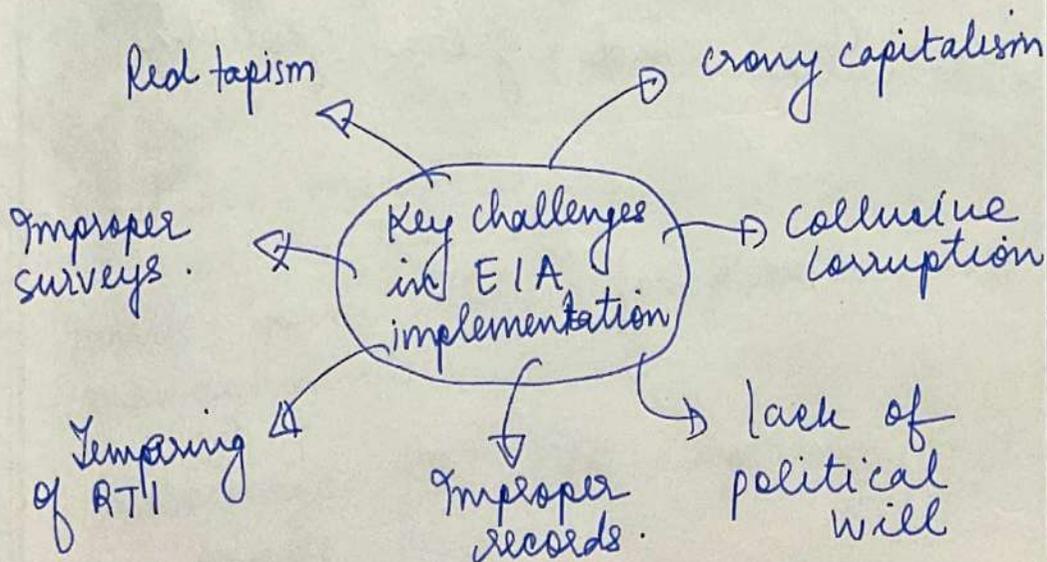
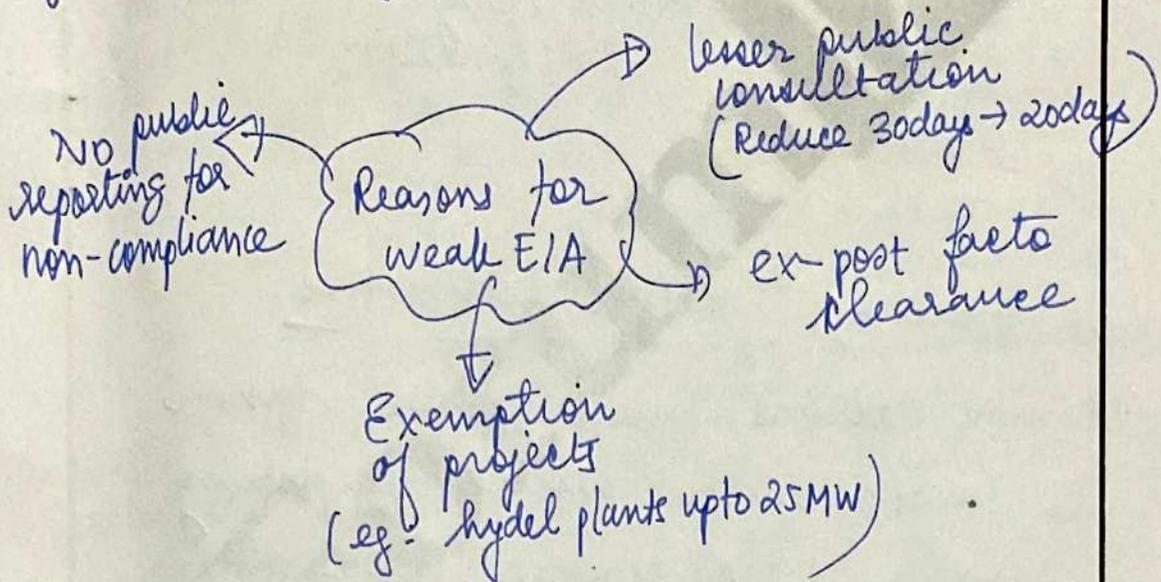
- (4) PM matter removal is necessary for effective FGD to take place.
- (5) low cost and faster (effective) to change capacitor plates. But FGD is a complex chemical process.
- (6) Efficiency of ESP is 99-99.9%. But FGD is around 89-90%.

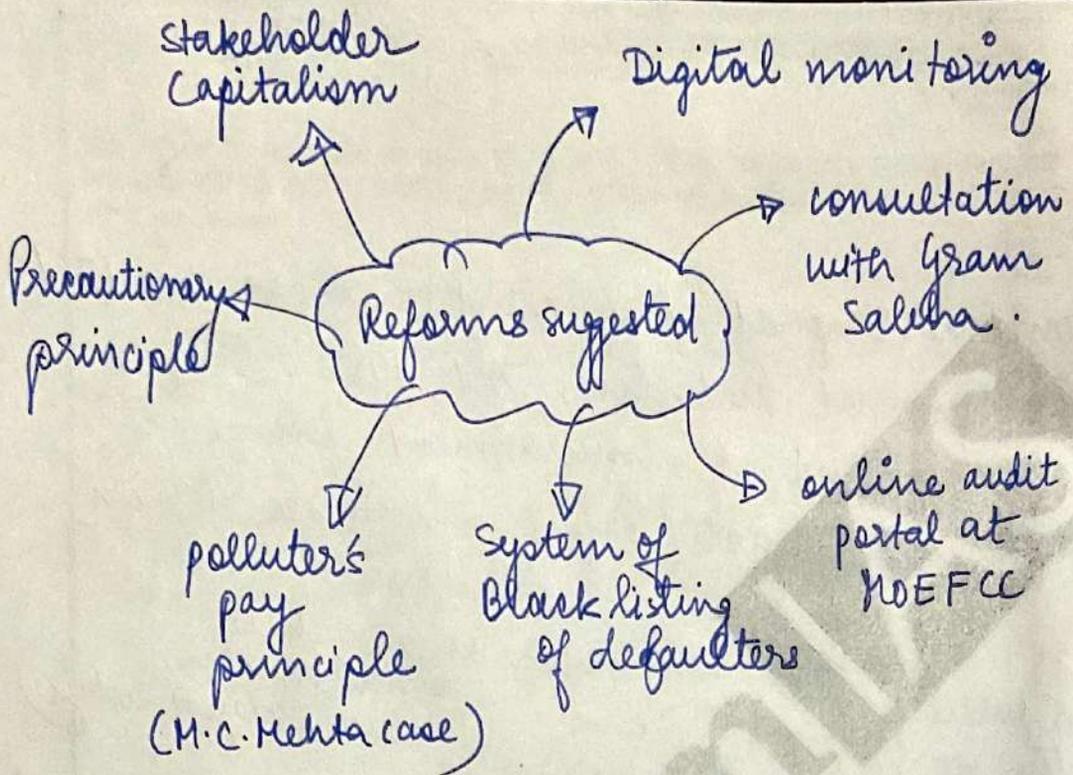
Thus ESP is better than FGD to control air pollution and achieve update INDC (Paris Agreement) targets of CO_2 emission intensity to 45% of GDP.

Q.7) The Environmental Impact Assessment (EIA) regime in India remains weak and is often reduced to a procedural formality. In light of this statement, examine the key challenges in EIA implementation and suggest reforms. (10 marks, 150 words)

भारत में पर्यावरण प्रभाव आकलन (EIA) व्यवस्था कमजोर बनी हुई है और अक्सर इसे प्रक्रियात्मक औपचारिकता तक सीमित कर दिया जाता है। इस कथन के आलोक में, EIA कार्यान्वयन में प्रमुख चुनौतियों का परीक्षण करें और सुधारात्मक उपाय सुझाएँ। (10 अंक, 150 शब्द)

Environment Impact Assessment (EIA) is mandated by Environment Protection Act 1986. It does prior assessment of environment damage of infrastructure projects before clearance is given.



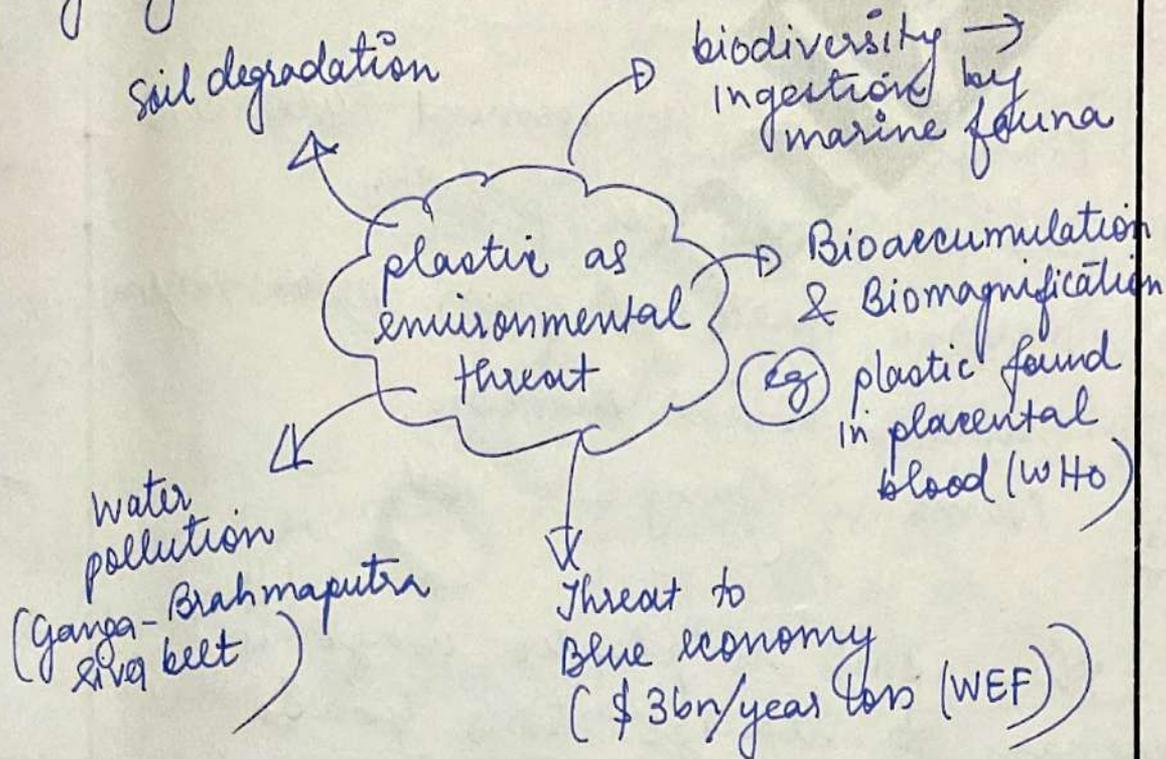


Thus Madhav Gadgil Committee recommendations need to be taken into consideration while preparing a strong EIA regime for sustainable and green growth.

Q.8) Plastic pollution is emerging as a serious environmental threat in India. Discuss the various mitigation measures to address this problem and also the government's initiatives in this regard. (10 marks, 150 words)

प्लास्टिक प्रदूषण भारत में एक गंभीर पर्यावरणीय खतरे के रूप में उभर रहा है। इस समस्या से निपटने के लिए विभिन्न शमन उपायों और इस संबंध में सरकार की पहलों पर चर्चा करें। (10 अंक, 150 शब्द)

In 2024, India surpassed China as largest plastic waste emitter (4MT). OECD Report says by 2040, Microplastics will surge by 50%.



Mitigation measures

- ① Intite Gram Saleha for plastic waste management.
- ② Discourage PET, PVC layering in goods

- ③ Promote R&D in bioplastics
- ④ Encourage startups for zero-plastic green products.
- ⑤ Impose Plastic tax (Pigouvian tax)

Government initiatives

- ① Plastic Waste Management Rules 2016
- ② Ban on single use plastic.
- ③ Increase thickness from 50 μ m - 120 μ m
- ④ Swachh Bharat Mission
- ⑤ Namami Gange etc.

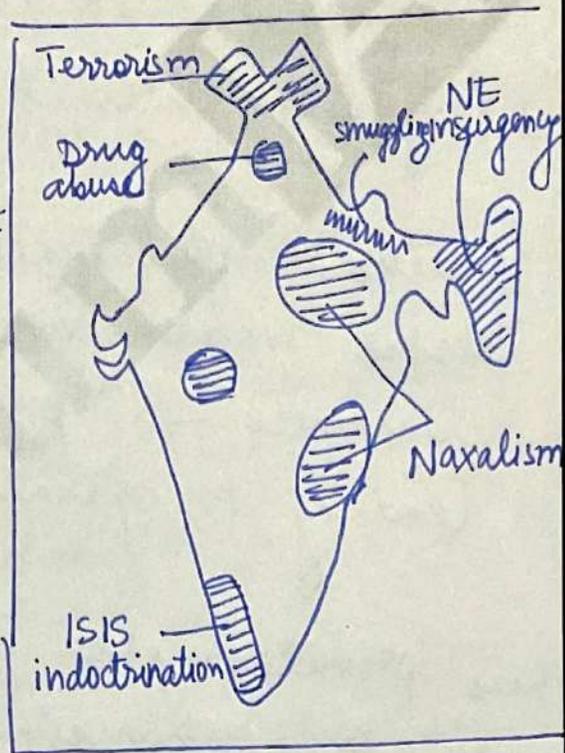
This ban on plastic usage is necessary to realize SDG Goals and create a green, sustainable and circular economy for Viksit Bharat @ 2047.

Q.9) Amid evolving threats, there is a need to blend private sector capabilities with India's current internal security architecture. In this context, elaborate on the ways in which the private sector can contribute to strengthening internal security. (10 marks, 150 words)

उभरते खतरों के बीच, भारत की मौजूदा आंतरिक सुरक्षा संरचना के साथ निजी क्षेत्र की क्षमताओं को जोड़ने की आवश्यकता है। इस संदर्भ में, उन तरीकों पर विस्तार से चर्चा करें जिनसे निजी क्षेत्र आंतरिक सुरक्षा को सशक्त करने में योगदान दे सकता है। (10 अंक, 150 शब्द)

Gen Bipin Rawat (former CDS) has held that India is fighting a 2.5 front war. The 0.5 refers to internal security dilemma of India.

Internal security threats of India



Need of private sector

① Technological expertise for real time monitoring
eg) Pixxel's satellites.

② Better ground intelligence
eg) FBI use private intel operatives.

③ outsource security → reduce government workload

- ④ Augment paramilitary (eg: private security officers + CAPF/CISF)
- ⑤ Better training infrastructure
- ⑥ ~~Adequate~~ Meet. Funding crunch (Augment internal security defence)
- ⑦ Quicker mobilization as private sector would not need too much clearances → panacea to Redtapism leading to operational delays.

Thus private sector can augment state in enhancing the security infrastructure of the country. Dawal Committee recommendations needs to be incorporate make India's security more robust.

Q.10) 'Radicalisation in Jammu and Kashmir is driven as much by socio-economic factors as by external influences'. Discuss how education and youth engagement can play a role in countering radicalisation in J&K..

जम्मू और कश्मीर में कट्टरपंथ सामाजिक-आर्थिक कारकों के साथ-साथ बाहरी प्रभावों से भी प्रेरित है। चर्चा करें कि शिक्षा और युवा भागीदारी किस प्रकार जम्मू और कश्मीर में कट्टरपंथ का मुकाबला करने में भूमिका निभा सकती है।

(10 अंक, 150 शब्द)

Partition (1947) and minority appeasement has sowed seeds of radicalization in J&K. This is now manifested as increased tendency of youth towards "JIHAD" to demand due rights and assert identity.

Radicalization → driven by socio-economic factors

- ① less scope of industries → job creation
↓
trouble for outsiders land acquisition
(J&K Land Act)
- ② lower levels of secular freedom amongst Muslims (eg: restriction on women's education etc).
- ③ Mostly society is dominated by sharia laws.
- ④ Marginalized by mainlanders → suspicion of anti national

Radicalization → due to external influences

- ① Proxy war of Pakistan (Zia doctrine → Bleed India by thousand cuts)
- ② Create sleeper cells and Over ground workers (OGWs) by terror groups (LeT, JeM etc).
- ③ Alleged ISIS recruitments for its cadre

Role of education and youth engagement

- ① Impart rationality → objective and critical thinking
- ② Understand perverted interpretation & embrace true Islamhood.
- ③ Better job opportunities → income generation
- ④ More integration with mainland.

Thus, Sumit Ganguly's winning hearts & mind strategy can help counter radicalization in J&K make it more inclusive towards Indian mainland.

Q.11) Outlining the key characteristics of the care economy, discuss how India can better integrate the value of unpaid and underpaid care work into its economic framework. (15 marks, 250 words)

देखभाल अर्थव्यवस्था (केयर इकोनॉमी) की प्रमुख विशेषताओं को रेखांकित करते हुए चर्चा कीजिए कि भारत किस प्रकार अवैतनिक और अल्प वेतनिक देखभाल कार्य के मूल्य को अपने आर्थिक ढांचे में बेहतर ढंग से एकीकृत कर सकता है। (15 अंक, 250 शब्द)

Care-economy refers to the unpaid work done mostly by women towards pediatric and geriatric demography for their well being and sustenance. NITI Aayog estimate care economy of India to be around 15-17% of its GDP.

Key characteristics of care economy

- ① Nature of work is mostly domestic
(eg) cooking, cleaning, nursing etc.
- ② Female dominated
(eg) women indulge 5-6 hrs in care work
Males only 30 mins.
- ③ Non-remunerative → outside of GDP calculation

- ④ Qualitative in nature. No quantitative value addition to output.
- ⑤ Difficult to quantify → hence lack adequate database
- ⑥ It is more personalized and emotional work

Challenge of care economy

- ① Time-output mismatch
5.6 hrs/day → but no quantitative output.
- ② No defined career path
- ③ vulnerable to "libel" (perception that homemakers do not work)
- ④ patriarchal chauvinism in job roles.

⑤ vulnerable to stereotyping of jobs.

ways to better integrate care work

- ① Flexible work hours / work model
eg: work from home
shift duty.
- ② Introduce parental leaves (maternal + paternal)
eg Zomato's paternal leave policy.
- ③ Integrate SHGs with child care services
- ④ Establish dedicated cadre of care workers
- ⑤ Effective implementation of National Creche Scheme etc.
- ⑥ PPP for care infrastructure
- ⑦ Revised retirement age, tax status and wage rates for women/mothers

Thus by leveraging on care economy India can realize its dream of Viksit, Swasth and Surakshit Bharat @ 2047.

Feedback

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#	G	A	P
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Please put tick marks in the above table.

Here G is Good, A is Average and P is Poor.

TOTAL MARKS	
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Q.12) 'The rapid advancement of artificial intelligence (AI) presents both unprecedented opportunities and significant challenges for India's labour market.' Examine. Also suggest strategies to align AI adoption with inclusive and resilient labour market outcomes. (15 marks, 250 words)

कृत्रिम बुद्धिमत्ता (AI) की तीव्र प्रगति भारत के श्रम बाजार के लिए अभूतपूर्व अवसर और महत्वपूर्ण चुनौतियाँ प्रस्तुत करती है। परीक्षण करें। साथ ही, समावेशी और तन्मयशील श्रम बाजार परिणामों के साथ AI अपनाने को सँरक्षित करने की रणनीतियाँ भी सुझाएँ। (15 अंक, 250 शब्द)

Bain & Co study reveals that AI will create 2.3 Million jobs by 2047. But at the same time Tech companies (Google) says 20-25M entry level jobs will be slashed.

Thus AI is a double-edged sword for India's labour market.

Unprecedented opportunities

① Diverse tech roles

(eg) AI data analysts
AI Market strategy consultants etc.

② Higher productivity with AI tools

(eg) power business analysis
AI in MS-Excel for data research

③ Promotion to R&D

(eg) India AI Mission
AI incubation hubs.

- ④ Upskilling of labour → boost to white collar economy
- ⑤ Increase share of IT services from 55% GDP to 70-80% GDP.
- ⑥ Realize goals of \$ 7 trillion by 2030 → to drive increased per capita income → boost consumption expenditure

demand creation ←

Challenges to India's labour market

- ① low employment elasticity of AI job market (0.01%) as per WEF report
- ② Informalization of work force
- ③ labour productivity led growth instead of labour intensive growth
- ④ Jobless growth → Higher unemployment rates
- ⑤ Industry - skill gap (only 2% has

enrolled for vocation (Ministry of Skill Devt)

Strategies to align AI for better outcomes

- ① Compulsory AI internships in pre-final years in colleges. (eg: PM Internship Scheme)
- ② Change pedagogy from traditional to AI based.
- ③ Mandatory industry 4.0 skill courses
- ④ Promotion to Gig Economy → and its integration to AI job market
- ⑤ Guidelines for Companies on new hire/fire rules in AI roles.
- ⑥ Incorporate AI in manufacturing to expand industrial base.

Thus AI can be harnessed through India AI Mission so that it can serve as a boon for an inclusive and resilient labour market.

Q.13) Why does India's agricultural export performance remain weak despite high production levels? What measures would you suggest to improve agri-export competitiveness? (15 marks, 250 words)

उच्च उत्पादन स्तर के बावजूद भारत का कृषि निर्यात प्रदर्शन कमजोर क्यों है? कृषि-निर्यात प्रतिस्पर्धात्मकता में सुधार के लिए आप क्या उपाय सुझाएंगे? (15 अंक, 250 शब्द)

India's agriculture production stands at 359MT (2023-24) but agri-exports comprise only a meagre 11% share in overall \$778 bn export of India

Reasons for weak agri export

① Pre-harvest farmer issues

(a) lack of access to HYV seeds → most GM crops have terminator genes

(b) inadequate soil data → overuse of fertilizers → rejection on phytosanitary grounds.

(eg: Alphonso mangoes in EU)

(c) vagaries of climate → low yields

(d) micro irrigation (only 26.1% of land)

(e) Credit accessibility (dependent on middlemen)

During harvest

- (a) lack of adequate mechanization
 India \rightarrow 45%
 USA \rightarrow 95%

- (b) ~~stubble burning~~ \rightarrow ~~pollution~~
 lack to access $\&$ to common service centres

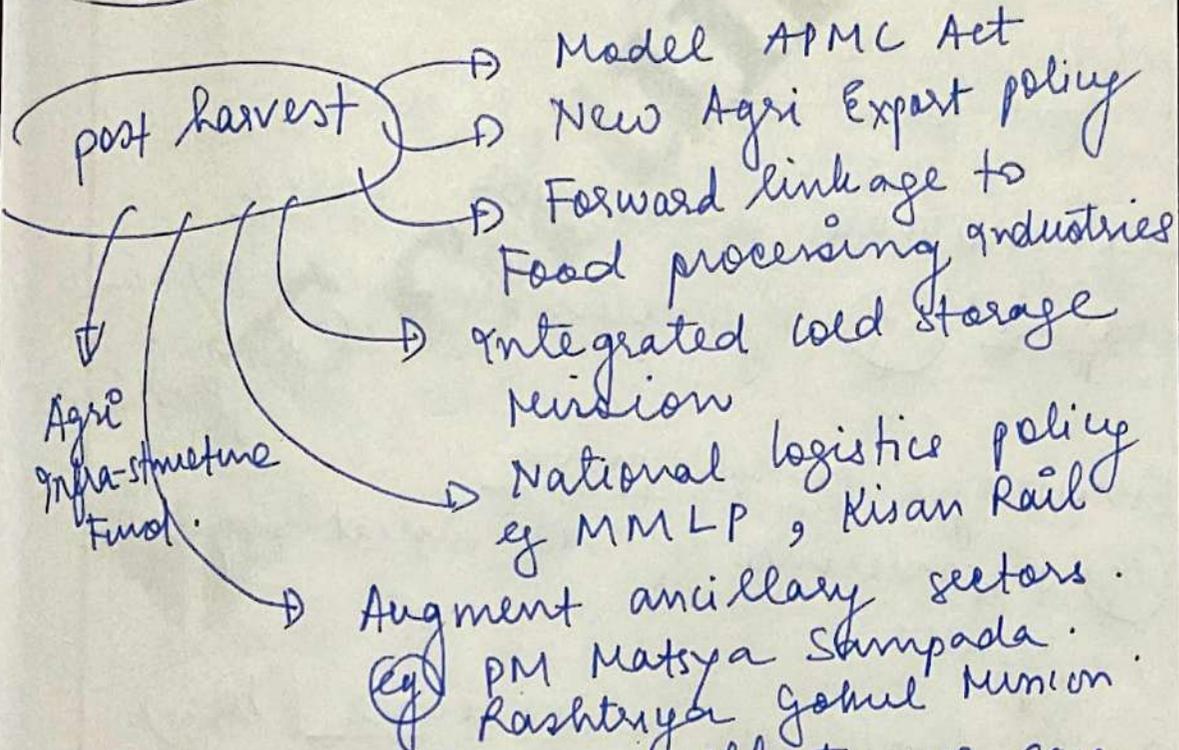
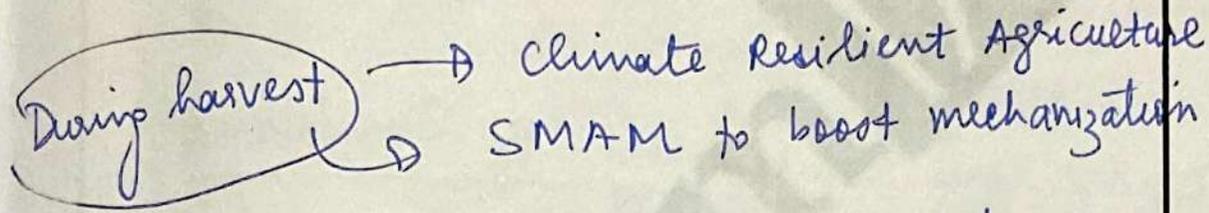
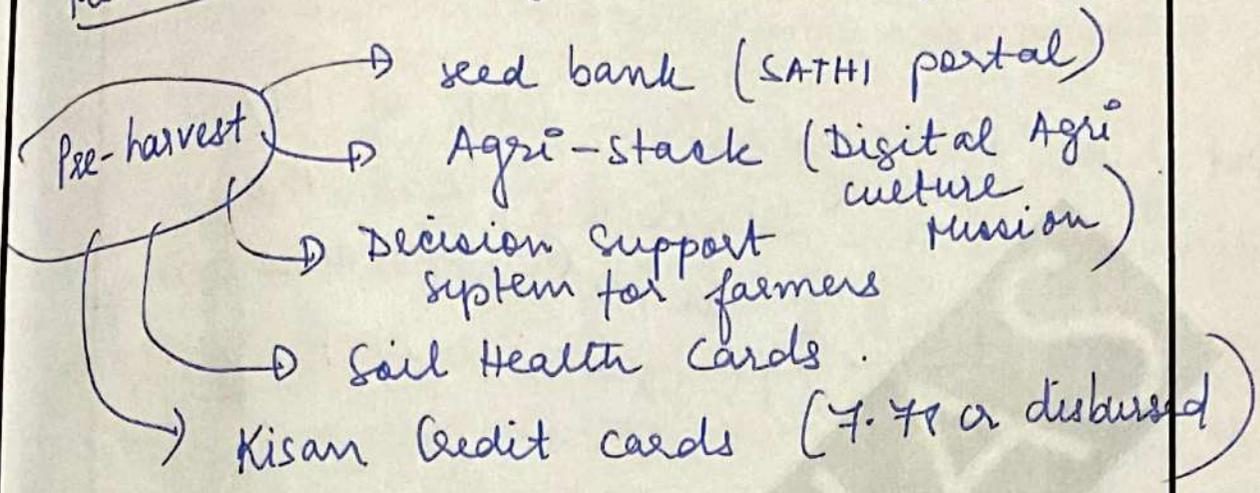
post harvest

- (a) fragmented APMC Mandi system
 (1 in 940 km)
 (b) Lack of cold storage (Rs 920000 loss)
 (c) Issues of logistics \rightarrow improper integration to supply chain

Potential to boost exports

- ① 46% population still dependent on agriculture.
- ② ~~Food security~~ Presence of over 22 agro-climatic zones.
- ③ Geographical boon — myriad soil types and fertile agriculture land
- ④ Water resources (eg: Ganga system etc)

Measures to boost agri-export competitiveness



Thus with comprehensive efforts we can realize the goal of \$60bn agri exports (Agri Export policy 2018) (Ashok Dalwai Committee)

Feedback

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Q.14) "The agricultural subsidy regime in the country needs reforms to address the distortions it causes." Comment. (15 marks, 250 words)

देश में कृषि सब्सिडी व्यवस्था में सुधार की आवश्यकता है ताकि इससे होने वाली विकृतियों को दूर किया जा सके। टिप्पणी करें। (15 अंक, 250 शब्द)

Out of the total agriculture GDP of 14%, almost 8% goes to subsidy. But the multiplier effect of subsidy on India's economy is abysmally low 1.5-3X as against agri-research 11X.

Distortions caused by agricultural subsidy regime :-

- ① Disproportionate fiscal policy space occupied (eg) Agriculture subsidy = 2% of GDP of India.
- ② Encourages Monocropping (eg) Preponderance of rice-wheat-sugar systems.
- ③ Indiscriminate use of fertilizer (Urea) causing nitrate pollution of environment \rightarrow Blue baby syndrome

④ Virtual water export (eg) 3000-5000kg of water export)

⑤ Depletion of groundwater due to water intensive cropping

(eg) 60% districts of water India are water stressed $< 1500 \text{ m}^3$ per capita (NITI Aayog)

⑥ Political vote bank \rightarrow "Revdi" culture

⑦ WTO issues on Amber ban subsidies

⑧ Burden on gout exchequer
(eg) PM KISAN, ~~PM KISAN~~ \rightarrow leakages & corruption

Reforms needed in agri-subsidy

① Adhaar verified DBT transfer to eliminate ghost beneficiary

② AGRISTACK \rightarrow to incorporate soil health and crop sown data

at delivery centres of fertilizers → curtail over-use and diversion

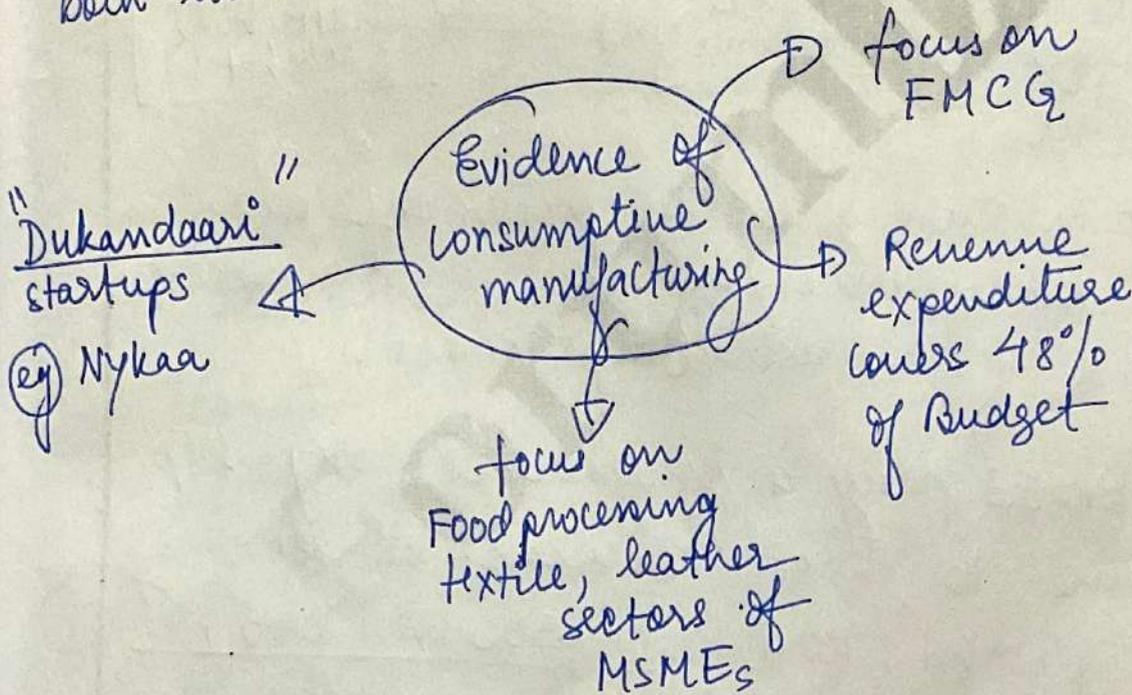
- ③ Incorporate practices like Nano liquid Urea, micro-irrigation, to limit resource wastage → save subsidy Bill
- ④ Incorporate Industry 4.0 tech in agri (eg: Netherland, Israel)
- ⑤ Revisit MSP policy (M.S. Swaminathan)
- ⑥ Focus on Millets that require less inputs + food security + climate resilient agriculture
- ⑦ focus on ZBNF (Zero Budget Natural Farming)

Thus by rationalizing agricultural practices and promotion to agri-preneurs and Agri infrastructure fund, the subsidy dilemma can be effectively managed for increased agri-productivity.

Q.15) How can biomanufacturing transform today's consumptive manufacturing paradigm to the one based on regenerative principles? Also discuss how BioE3 Policy (Biotechnology for Economy, Environment, and Employment) aims to foster biomanufacturing in the country. (15 marks, 250 words)

बायोमैनुफैक्चरिंग आज के उपभोगात्मक विनिर्माण प्रतिमान को पुनर्योजी सिद्धांतों पर आधारित प्रतिमान में कैसे बदल सकता है? यह भी चर्चा करें कि बायोई3 (BioE3) नीति (अर्थव्यवस्था, पर्यावरण और रोजगार के लिए जैव प्रौद्योगिकी) का उद्देश्य देश में बायोमैनुफैक्चरिंग को बढ़ावा देना है। (15 अंक, 250 शब्द)

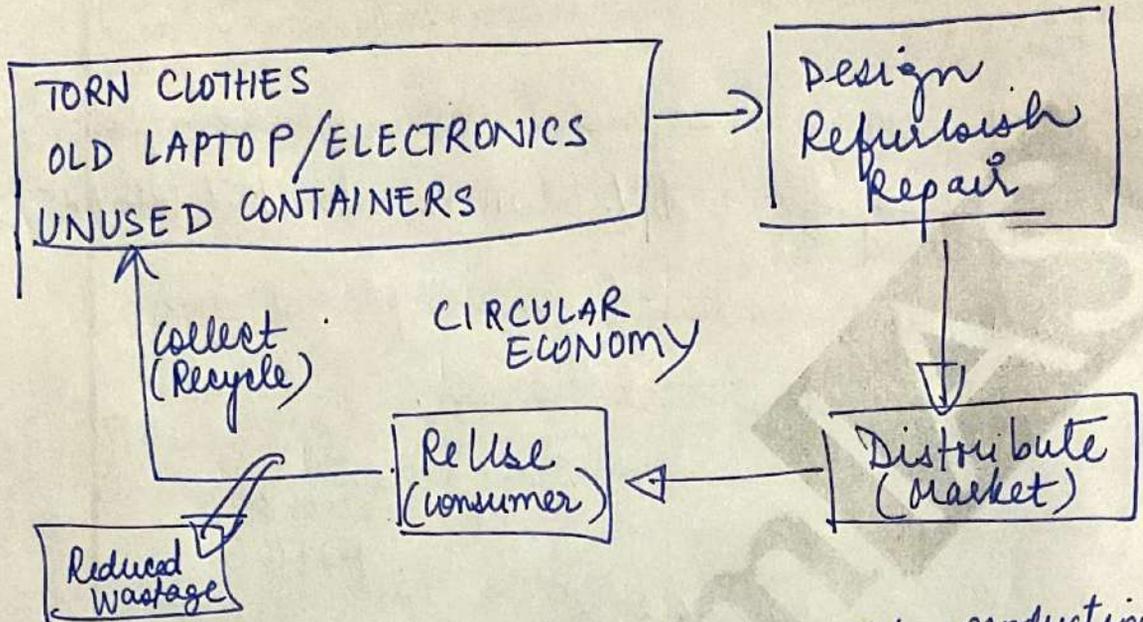
HCES 2024 reveals the rural-urban consumption gap has ~~closed~~ narrowed from 84% (2011-12) to 70% (2024-25). Thus indicating increased consumption in both urban and rural areas.



Regenerative manufacturing is mostly based on circular economy.

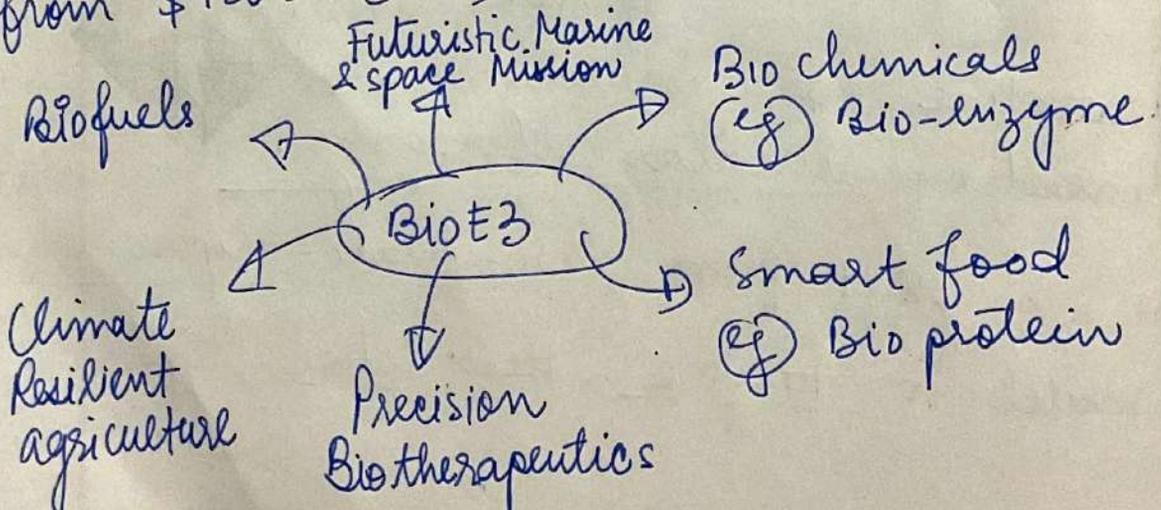
It is a shift from take-make-dispose model to recycle, ~~reuse~~ reuse, repair

and refurbish model



Bio manufacturing is the process of production from biodegradable/organic raw materials instead of chemical processes.

Bio E3 policy is government's flagship programme to boost circular bio-economy from \$130 bn (2024) to \$300 bn (2030)



Ways in which Bio E3 policy help in biomanufacturing

- ① Set up Bio-industrial parks and Bio-manufacturing hubs.
(eg) Hyderabad genome valley.
- ② PLI scheme → Rs 1000 cr subsidy for biomanufacturing.
- ③ Import substitution → Reduce imports of API by 60%
- ④ Promotion to Bio Research → Bio-
Prospecting
- ⑤ Focus on Bio enablers → promote Bio AI — (eg) Neuralink organ designing etc

Thus Biomanufacturing through Bio E3 policy will propel India to become a global power house in biotechnology and realize its Net zero (2070), green growth and Viksit Bharat 2047 ambitions.

Feedback

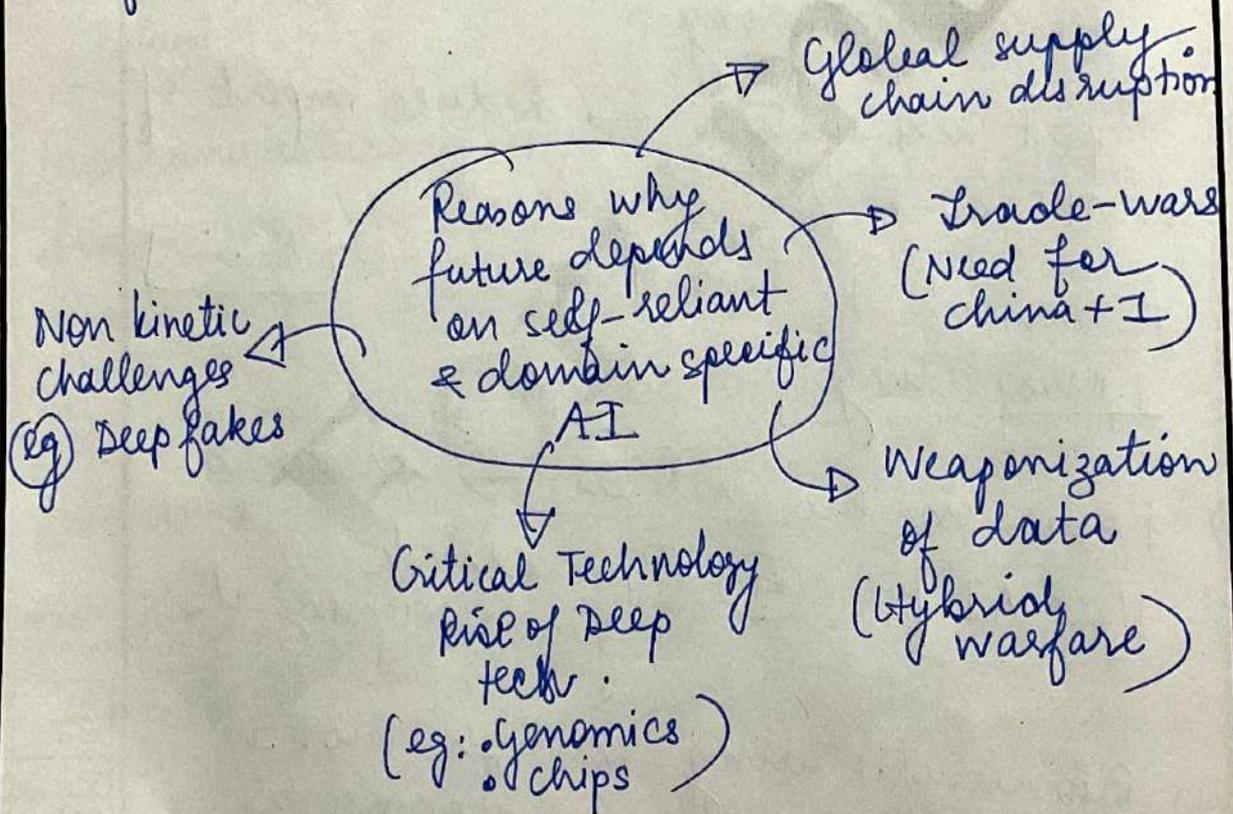
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TOTAL MARKS			

Q.16) The future of digital innovation depends on self-reliant, domain-specific AI capabilities. In this context, bring out the key considerations in developing indigenous AI models and tools. Suggest measures to build an enabling ecosystem for AI innovation in India. What initiatives have been taken by the government in this regard? (15 marks, 250 words)

डिजिटल नवाचार का भविष्य आत्मनिर्भर, डोमेन-विशिष्ट AI क्षमताओं पर निर्भर करता है। इस संदर्भ में, स्वदेशी AI मॉडल और उपकरण विकसित करने में प्रमुख विचारों को स्पष्ट करें। भारत में AI नवाचार के लिए एक सक्षम पारितंत्र बनाने के उपाय सुझाएँ। इस संबंध में सरकार द्वारा क्या पहल की गई है? (15 अंक, 250 शब्द)

As India moves towards Atmanirbhar and Viksit Bharat @ 2047, its Amritkaal should have AI revolution that is self-reliant & domain-specific.



Key considerations in developing indigenous AI models & tools

① Accessibility — ^{regional}
(a) Consider diverse [↑] language obligation
(eg) BHASINI

(b) should be user-friendly

(c) help in public service delivery (last mile)
& citizen charter
(eg) Bharat Gen.

② Availability

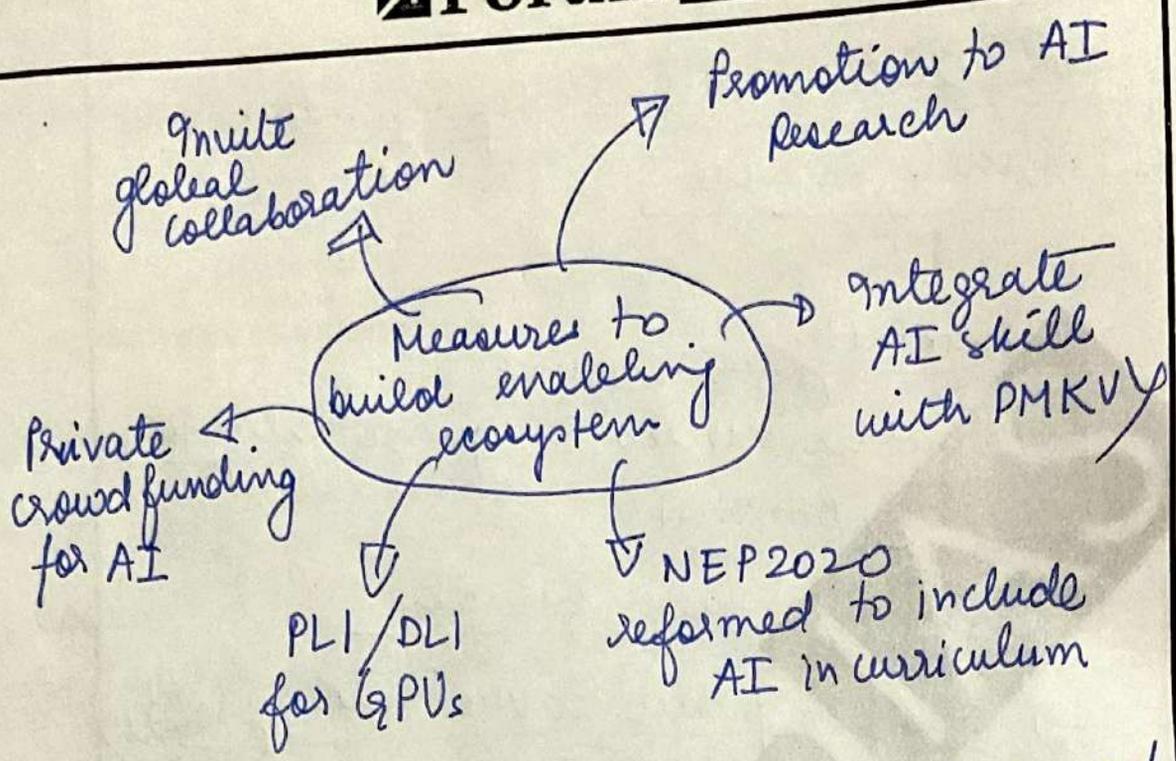
(a) Need of common service centres
incorporated with AI tech

(b) Trained AI experts for information
dissemination (Nudge Economics)

③ Affordability

(a) subsidy (eg GPU use at Rs 100/hr)

(b) low cost AI tools



Initiatives taken by Govt in this regard

- ① India AI Mission
 - ▷ AI Hosh
 - ▷ AI innovation hub
 - ▷ AI startup financing.
- ② GPU supply chain initiative
- ③ National Semiconductor Mission
- ④ Global AI Summit for international participation.

Thus, future is driven by technology, India needs to leverage its AI expertise to realize \$ 30-35 trillion economy by 2047.

Q.17) Marine oil spills are a form of environmental disaster, with far-reaching consequences for biodiversity and coastal livelihoods. However, India's preparedness to prevent such incidents and mitigate their impact has significant gaps. Analyze. (15 marks, 250 words)

समुद्री तेल रिसाव एक प्रकार की पर्यावरणीय आपदा है, जिसके जैव विविधता और तटीय आजीविका पर दूरगामी परिणाम होते हैं। हालाँकि, ऐसी घटनाओं को रोकने और उनके प्रभाव को कम करने के लिए भारत की तैयारियों में महत्वपूर्ण अंतराल हैं। विश्लेषण करें। (15 अंक, 250 शब्द)

Marine oil spill refer to the deliberate / accidental release of crude / petroleum products into oceans / seas / rivers etc. It is governed under MARPOL and LONDON Convention.

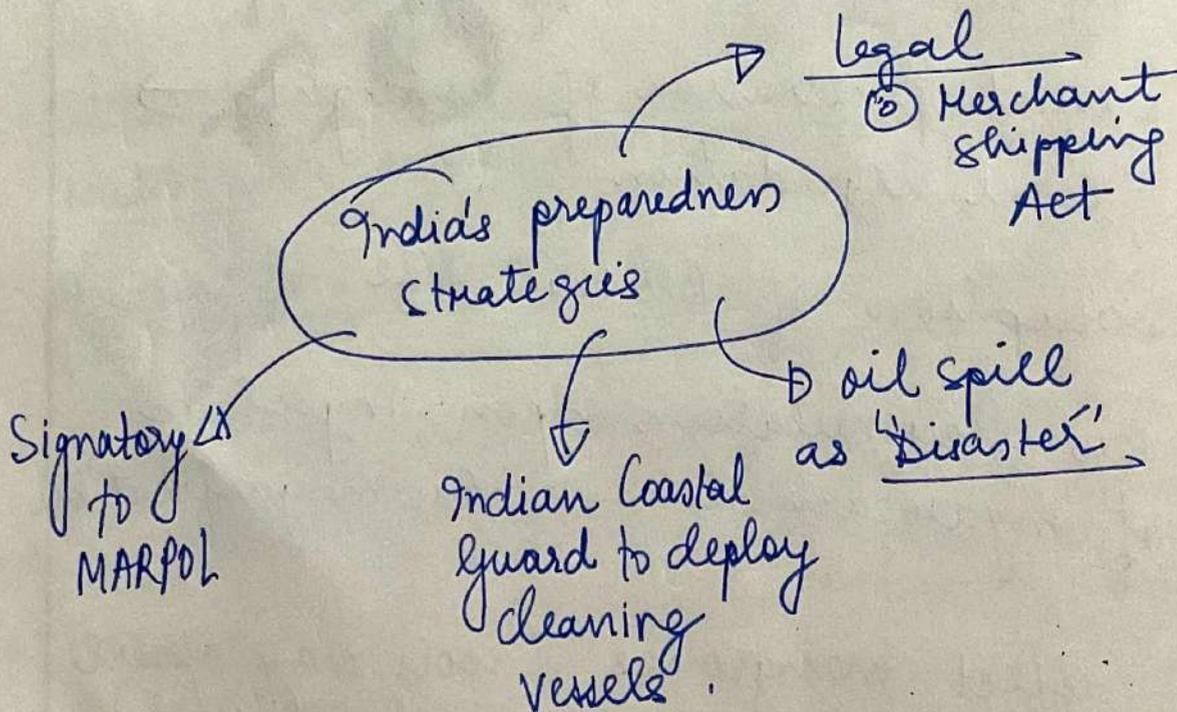
- (eg) Black sea oil spill by Russia (2024)
Kerala oil spill (2025)

Consequences for biodiversity

- ① Hypoxia in oceans → death of marine life
- ② prevent penetration of sunlight → coral degradation
- ③ Disruption of Benthic life
- ④ Bio-accumulation upon ingestion of hydrocarbons → Biomagnification
- ⑤ effect mangroves (roots may absorb oil particles)

Consequences upon coastal livelihood

- ① Death of fishery → fishermen community's income impacted
- ② Disrupt marine ecosystem services
- ③ Affect coastal tourism
- ④ Disease due to hydrocarbon pollution
- ⑤ Impact on Blue economy (UN Report says global oil spills affect 3-5% trade across major SLOC)



Gaps in India's preparedness

- ① Ministerial rivalry → MOEFCC v/s Ministry of Petroleum
- ② Lack of comprehensive legislation to explicitly tackle oil spill
- ③ NO NDMA framework vis-a-vis oil spill
- ④ Jurisdictional tussle → state police (12 Nautical Miles (NM)), Indian Coast Guard (12-200 NM) and Indian Navy (High Seas)

Steps that need to be taken

- ① Demarcate roles and responsibilities
- ② Conduct Mock Drills
- ③ List oil spill as a disaster
- ④ Hazard mapping
- ⑤ Capacity building measures for coastal communities

This India needs to up its game in oil spill disaster management to achieve sustainable and green economic growth.

Feedback

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TOTAL MARKS			

Q.18) The United Nations has declared 2025 as the International Year of Glacier Preservation. Bring out the ecological and socio-economic significance of glaciers. What are the key challenges in preserving them? What measures have been taken at national and international levels towards preservation of glaciers? (15 marks, 250 words)

संयुक्त राष्ट्र ने वर्ष 2025 को अंतर्राष्ट्रीय ग्लेशियर संरक्षण वर्ष घोषित किया है। ग्लेशियरों के पारिस्थितिक और सामाजिक-आर्थिक महत्व को उजागर करें। उन्हें संरक्षित करने में मुख्य चुनौतियाँ क्या हैं? ग्लेशियरों के संरक्षण के लिए राष्ट्रीय और अंतर्राष्ट्रीय स्तर पर क्या उपाय किए गए हैं? (15 अंक, 250 शब्द)

glaciers are slow moving mass of ice that move due to gravity and comprise 2% of world's water resource.

Ecological significance

① Water supply to rivers

eg) HKH glacier is source of 12 major rivers (water tower of Asia)



② Nutrient recycling
(phytoplankton & benthic flora/fauna)

③ Regulate microclimate
(eg) AMOC, ENSO

④ Limit solar insolation (albedo effect)
→ keep earth cool → prevent global warming

- ⑤ Regulate cryo-biodiversity eg: penguins, seals, polar bears, ferns etc.

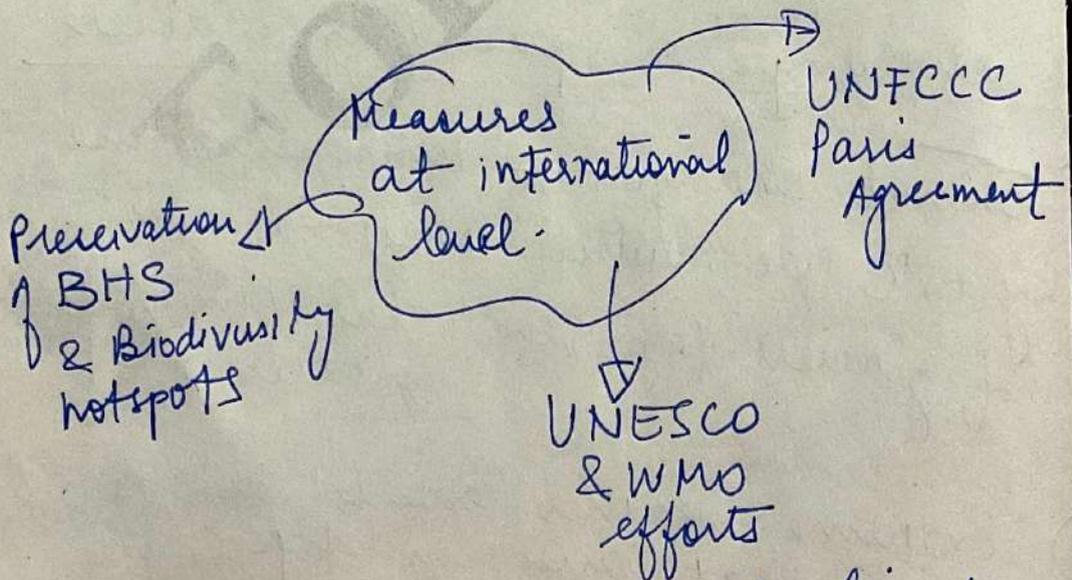
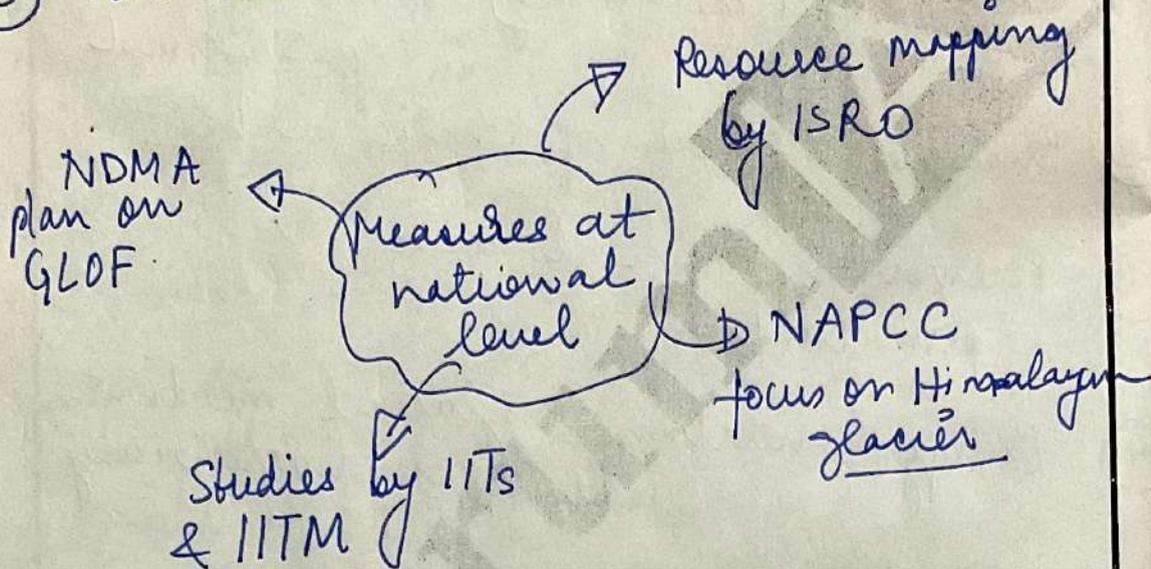
Socio-economic significance of glaciers

- ① Cryo-Tourism → (eg) igloo ice hotels in Greenland
- ② Preserve lifestyle of Arctic tribes
- ③ Reservoir of minerals and gas (permafrost)
- ④ Energy generation → glacial meltwater used for hydroelectricity

Key challenges in preserving glaciers

- ① climate change → temperature rise by 1.5°C (pre-industrial levels) → loss of glaciers (eg: Venezuela's Humboldt glacier)
- ② Extreme weather events ~~is~~ (eg) Heat waves in Alps.

- ③ Unreachable terrain → lack of adequate preservation infrastructure.
- ④ Lack of comprehensive data base and guidelines.
- ⑤ low Research on glacier preservation



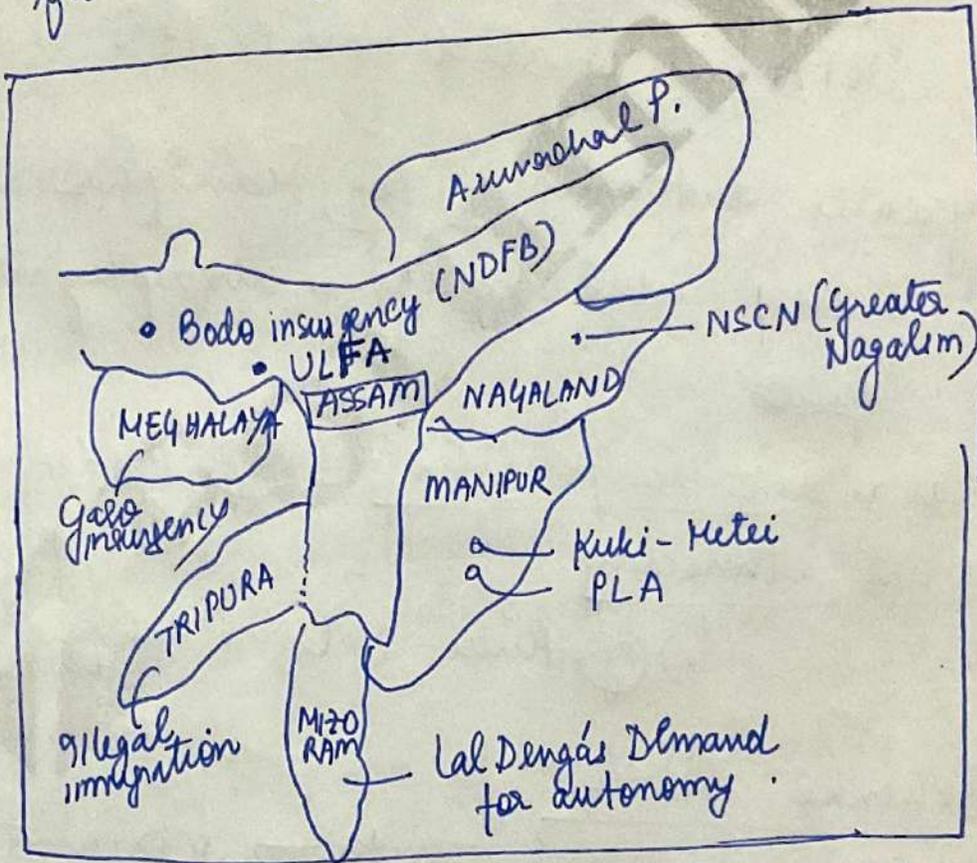
thus with increased instances of climate change, preservation of glaciers for sustainable environment is essential

Jeevan Kaddy

Q. 19) What are the determinants of insurgency in the north-eastern region of India? What strategy should the Government of India, civil administration and security forces adopt to counter the threat in the affected areas? (15 marks, 250 words)

भारत के उत्तर-पूर्वी क्षेत्र में उग्रवाद के निर्धारक तत्व क्या हैं? प्रभावित क्षेत्रों में खतरे का मुकाबला करने के लिए भारत सरकार, नागरिक प्रशासन और सुरक्षा बलों को क्या रणनीति अपनानी चाहिए? (15 अंक, 250 शब्द)

NE India represents 8% of India's area, 4% population and 2% of India's GDP. However, despite immense potential, the region is mired in insurgency stemming out from vestige of colonial blunders.



Map: showing NE insurgency

Determinants of NE insurgency.

- ① Secessionist demands → (eg) Greater Nagalim of NSCN
- ② Demographic anxiety → (eg) Tripura and Assam over Bangladeshi illegal immigration
ULFA was created due to this
- ③ Greater autonomy (eg) Manipur & Developmental deficit → unemployment etc.
(~~full~~)
- ④ Language imposition and ethnicity → (eg) Bodoland (NDFB)
(eg) Kuki-Metei (Manipur)
- ⑤ External threats
 - (eg) Myanmar's Junta → proximity to Golden Triangle
 - (eg) China's covert support

strategy by government of India

- ① Peace Agreement (eg: ULFA Peace Talks 2023, Bodo Peace Accord)
- ② Economic development → (eg) PM DEVINE UNNATI
- ③ Social Development → Aspirational District, PM JANMAN

strategy by civil administration

- ① Surrender cum Rehab scheme
- ② Disburse Developmental packages to conflict hotspots (eg: Karbi Anglong, Kokima, Mokok etc)

strategy by security forces

- ① proportionate deployment (Jeevan Reddy Committee)
- ② Hearts & Mind strategy (Sumit Ganguly)

thus with a whole of govt approach we can Empower, strengthen & transform NE from a insurgency hotbed to connectivity and development hotspot (Act East policy)

Feedback

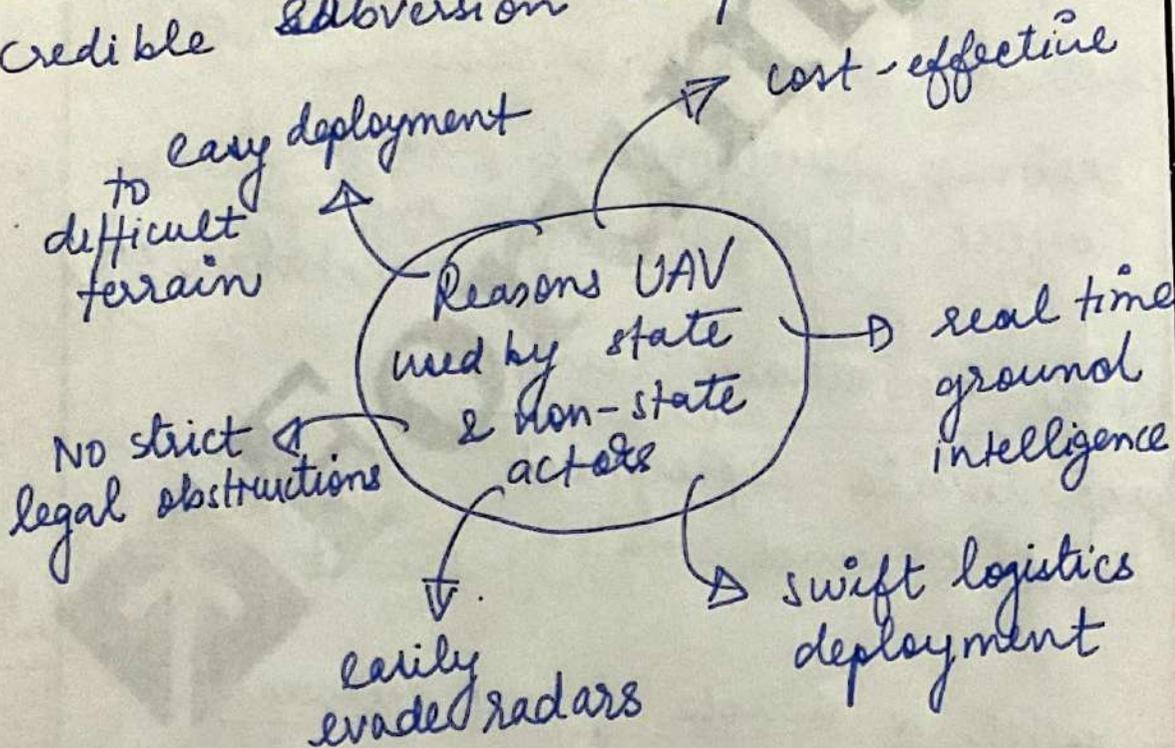
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Q.20) Unmanned Aerial Vehicles (UAVs) have become an integral aspect of modern conflict and warfare, employed by both state and non-state actors. Discuss its implications for India's security architecture and state the measures being taken to address them. Also suggest other steps to tackle the threats emanating from UAVs. (15 marks, 250 words)

मानव रहित हवाई वाहन (UAVs) आधुनिक संघर्ष और युद्ध का अभिन्न अंग बन गए हैं, जिनका उपयोग राज्य और गैर-राज्य दोनों ही प्रकार के अभिकर्ता करते हैं। भारत की सुरक्षा संरचना के लिए इसके निहितार्थों पर चर्चा करें और उन्हें संबोधित करने के लिए किए जा रहे उपायों का वर्णन करें। UAVs से उत्पन्न होने वाले खतरों से निपटने के लिए अन्य कदम भी सुझाएं। (15 अंक, 250 शब्द)

UAV are operated by sensors and IoT using AI and other Industry 4.0 technologies. They are precise, low-cost and stealth which makes them credible subversion weapons.



Implications on India's security architecture

positive	Negative
<p>① Reflects India's preparedness for hybrid warfare</p>	<p>① Jeopardize territorial integrity through subversion attacks (eg) Grenade blasts etc.</p>
<p>② UAV are boon to deploy in hard areas like Ladakh, Sir Creek High Seas etc</p>	<p>② Used by proxy groups to collect intel about India & aerial smuggling</p>
<p>③ Save cost on personnel and logistics</p>	<p>③ Low cost makes it accessible to non-state actors/insurgents</p>
<p>④ Stealth → help avoid enemy's radar</p>	<p>④ Swarm attacks on include air defense Cyber attack DDNS/DOS/Jamming & spoofing etc.</p>

Measures taken to address them (by India)

- ① Integrated Air Defence system
(eg: Akash tir.)
- ② Drone Rules
- ③ Radars (eg: Rajendra, Suathi)
- ④ Anti-Drone Missile system (eg) D4.
↳ (eg) Indrajaal

Other measures to tackle threats:

- ① AI based drone surveillance
- ② AI base "OODA" for UAV attack

Thus with effective technological and strategic intervention, India can use UAVs to its leverage to maintain the security & integrity of the country.

Mentor Feedback Questions

- 1
- 2
- 3
- 4
- 5

Test Goal

- 1
- 2
- 3

Outcomes

-
-
-
-

Marking Scheme

Mark	Good	Average	Below average
10 Marker	3.75 - 5.0	3.0 - 3.5	< 3.0
15 Marker	5.75 - 7.0	4.0 - 5.5	< 4.0
20 Marker	7.75 - 10	6 - 7.5	< 6
	Key / Relevant Point		
	Vague / Irrelevant		

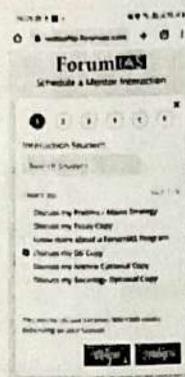
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