

TESTI CODE 8 1 3 4 1 1

MGP 2025

Time Allowed : Three Hours
समय : तीन घंटे

ForumIAS

Maximum Marks : 250
अधिकतम अंक : 250

GENERAL STUDIES / सामान्य अध्ययन

Name Of Candidate परीक्षार्थी का नाम	Ayush Pathak		
Roll No./अनुक्रमांक	19/0091577	Medium/माध्यम	English <input type="checkbox"/> हिंदी <input type="checkbox"/>
Center Code/परीक्षा केंद्र	.	Date/दिनांक	7/8/25

*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

Q. No. प्र.सं.	Max. Marks अधिकतम अंक	Marks Obtained प्राप्तांक
1		
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Total/कुल अंक	250	

INSTRUCTION / अनुदेश

- 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।

For Student Only / केवल परीक्षार्थी प्रयोग हेतु

Examiner's Discretion/मूल्यांकन कर्ता का विवेक :	Start Time/प्रारंभ करने का समय : 9:00	End Time/समाप्त करने का समय : 12:08
Total Marks/कुल अंक :	Mode Of Examination/ परीक्षा की विधि :	Online/ऑनलाइन <input type="checkbox"/> Offline/ऑफलाइन <input type="checkbox"/>

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

EXAMINER'S REMARKS

FORUM IAS

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 subjectivity 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, ideas, 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 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)

Debt to GDP ratio refers to the amount of public debt (Internal + external) compared to the GDP levels. FRBM (Amendment) Act (2018) pegged it 40% for central government and 20% for states.

Rationale behind debt to GDP ratio shift as fiscal anchor

① Rigid fiscal deficit targets
→ FRBM Act had pegged it at 3%.

② Need for higher spending by government.
eg → Need for generation of 75 million jobs by 2030 annually - World Bank
eg → To support - MSME and generate demand in the markets.

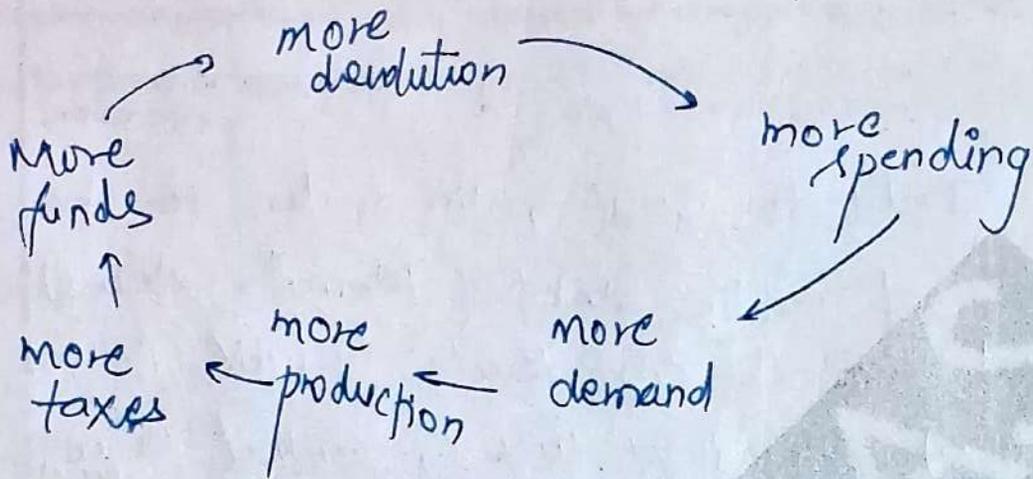


fig: - virtuous cycle of fiscal spending

- ③ Fiscal deficit targets never adhered to unless only one year.
- ④ Debt-to-GDP gives more flexibility for governments and borrowing.

However challenges remain

Challenges

- vague assumptions regarding nominal GDP. (too optimistic) → more borrowing
- Crowding out private sector (high borrowing by govt)
- fiscal indiscipline → freebies culture
- lack of adequate regulation on spending.

Therefore, the Golden Rule of fiscal policy of high capex and fiscal consolidation must be adhered to in longer run.

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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)

In the manufacturing sector which only contributes to 17% to GDP against the target of 25%, a structural and procedural shift is needed.

Need: From Build to Print to Build to design

- ① - More high end value addition in Manufacturing GVA → design led growth.
- ② Driven by autonomous working rather than only by consumer demand. (Build to print) model
- ③ Leverage Indian Engineers who are experts in designing components.
eg → Semiconductor ecosystem.
- ④ Avenue for more research and development as well as job creation.

Steps taken by the government

Design linked Incentive scheme

(DLI) scheme

↳ In manufacturing sector.

India Semiconductor Mission

promoting design of Semiconductor chips.

Promoting designing components in textile, defence, (apparel), automobile etc. sectors.

However some challenges remain

- ① Low R&D spending ~ 0.67% GDP
- ② Lack of capacity of MSMEs → Informality, Drawfism (small size)
- ③ Low private investment in Innovation

Therefore way forward lies in improving skill levels, technology transfers with partner countries to improve efficiency and attain 25% target by 2030 in manufacturing sector.

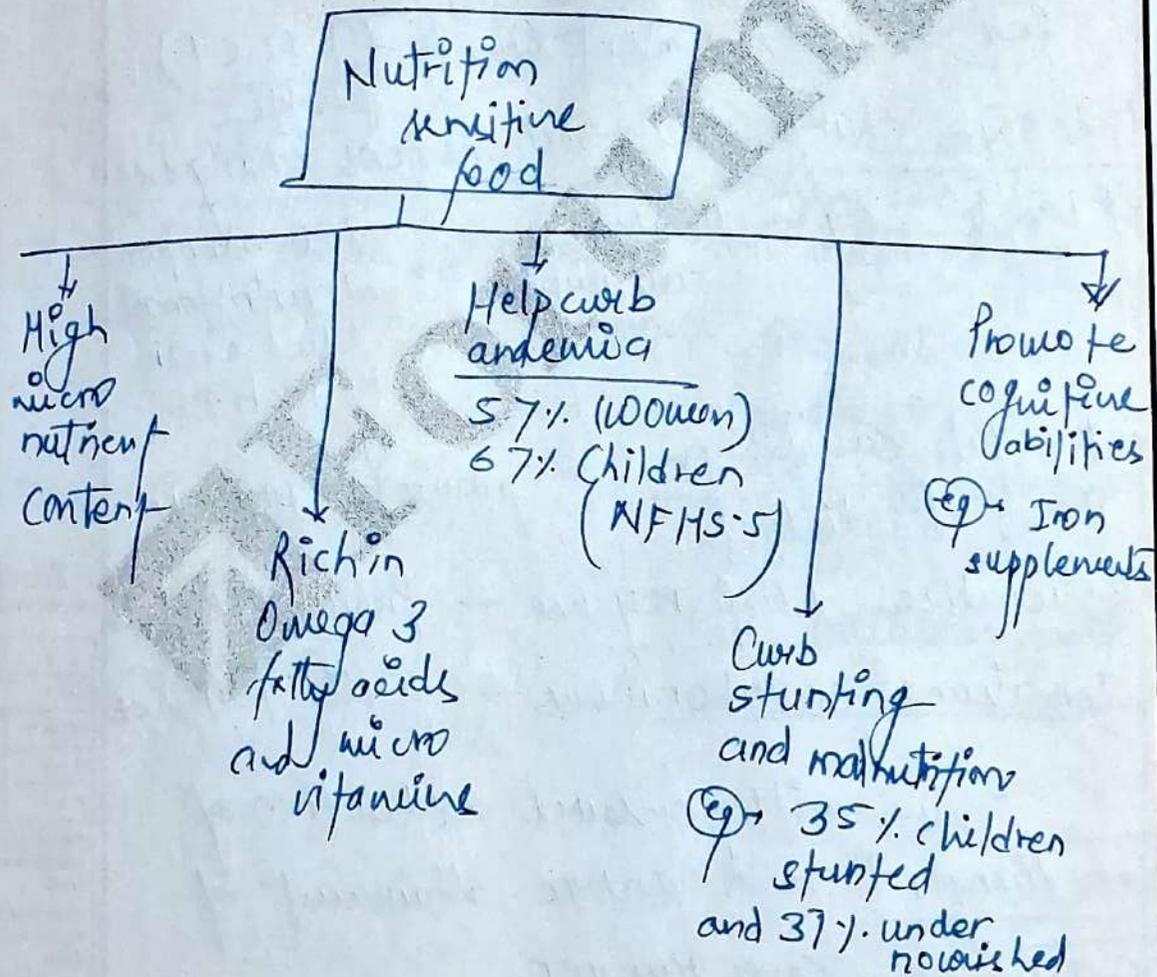
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Q.3) Explain the concept of a nutrition-sensitive food system and suggest strategies to achieve it in the country. (10 marks, 150 words)

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

The future definition of food security will not just be accessibility to affordable food but also include quality nutritious food.

- Ashok Aulati



Strategies to achieve nutrition sensitive food system

- ① Government Interventions
 - Food fortification: Iron supplements in PDS, ICDS, Mid day Meal.
 - Promotion of Millets: super food
 - eg → Dwar. Bajra rich in micro vitamins
- ② Better regulation of transfat
 - eg → 2% content limit (FICCI WHO)
- ③ Life style change and food choices changes by people
 - eg → Household consumption → low adoption of nutritional diet even by rich.
- ④ Eat right campaign: - promote protein rich diets.
- ⑤ Rationalise MSP regime → Promote Millets
- ⑥ International collaborations → WHO, FAO etc.

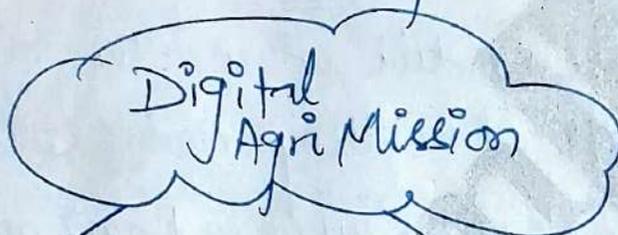
This will ensure reduction of Hidden Hunger and early attainment of SDG 2.0 i.e. Zero Hunger.

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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)

The Union Budget (25-26) aimed to formalise a digital Agriculture Mission to use digital Public Infrastructure for Agriculture and adopt technology.



Agri Stack

- Digital public Infrastructure
- Direct benefit transfer
- Aadhar
- Survey of land (SWAMITVA)
- Land holding title rights

Krishi - DSS

- ie. decision support system
- Geo spatial data
- Remote sensing for crop planning etc.
- Extension services
- Soil health management

Benefit to agriculture sector

- ① Technological adoption
 (eg) → Currently, only 45% mechanisation
- ② Better crop planning and land usage
 (eg) → N:P:K ratio can improve from currently 9:3:1 to 4:2:1
- ③ Remote sensing data for weather
 (eg) → Improved cutting and sowing
- ④ Reduced leakages, improved agri governance
 (eg) → DBT saved 6 Lcr of government.

However many challenges remain in adoption

- Challenges
- Digital divide and literacy low
 - High small and marginal farmers (85%)
 - costly adoption of technologies
 - low skills to use UAVs or data
 - lack of adequate agricultural finance.

Therefore to implement SMART and precision farming, adequate government and private sector support is a sine qua non.

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। सविस्तार वर्णन कीजिए। (10 अंक, 150 शब्द)

Rare Earth Elements involve 15 Lanthanides and two other minerals which are important in many frontier technologies.

eg → REE magnets in Renewable energy, defence, etc.

REE: the seeds of technology →

① Raw Materials → REE are inputs in manufacturing solar PV panels, Batteries etc.

eg → Lithium-Iron Batteries, Silicon based solar PV

② Need for Energy transition

eg → Renewable energy, Electric vehicles need Rare Earth Elements.

③ Importance in National Security

eg → defense equipments → aircrafts, UAVs etc.

4) Critical in frontier technologies as inputs →

⊙ → Semiconductor manufacturing ecosystem require REEs

However, mining and implementation of REE are riddled with challenges →

① Weaponisation of supply chain

⊙ → China 60% production, 80% processing of REE banned exports of REE magnets.

② Dispersed availability across the globe but mainly in China.

③ Processing and mining of REE is costly and technology intensive.

Way forward → Indian Rare Earth Limited (IREL) exploration projects.

→ KABIL (Khanij Bidesh Limited)

→ MMDR Act → auctions of blocks etc.

→ International collaboration (Argentina, Li, Aus → Li, Co)

These can help towards Viksit Bharat Vision.

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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 डिसल्फ्यूराइजेशन (FGD) प्रणालियाँ लगाने के बजाय विद्युत-अवक्षेपकों (ESPs) का पुनर्संयोजन क्यों अधिक व्यवहार्य और कारगर विकल्प है? (10 अंक, 150 शब्द)

Thermal power plants are a great source of GHG emission thereby necessitating improvement in their greening.

Retrofitting Electrostatic Precipitators over installing flue gas desulfurization

① This will improve existing thermal plant improving their continued usage and still improve GHG emissions.

② Availability of materials for flue gas desulfurization might be an issue.

③ Cost overruns → Retrofitting is a cheaper option.

④ Availability of necessary technology and skills → equipped better for retrofitting needs.

⑤ Energy security considerations
→ India needs Thermal plants continued usage to meet growing energy demand.

⑥ Flue gas desulfurization systems have inherent shortcomings in being a comprehensive solution.

Way forward

→ Improved skilling and technology transfers from Operational partners.

→ Regular auditing of working power plants

→ SOP for frequent retrofitting measures.

→ Improving Just Energy Transition towards Renewables for greener future while improving efficiency of existing power plants.

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 deemed necessary under Environmental Protection Act 1986 though recent amendments have made certain changes.

Weakness of EIA regime →

- ① faster clearance → Without adequate auditing in cases.
- ② lack of local participation.
- ③ Civil societies' feedbacks are seldom not incorporated in the study.
- ④ lack of following all the steps just to expedite the process.

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- ⑤ Lack of specific guidelines based on geography of the region.

Suggestions →

- ① Mandatory EIA for projects of Environmental consequences.
- ② Adherence to NGT guidelines
- ③ Adopt precautionary principles to safeguard environment.
- ④ Region specific and hazard specific EIA guidelines.
- ⑤ Civil society and end user stakeholder consultation
- ⑥ transparent working of EIA procedure

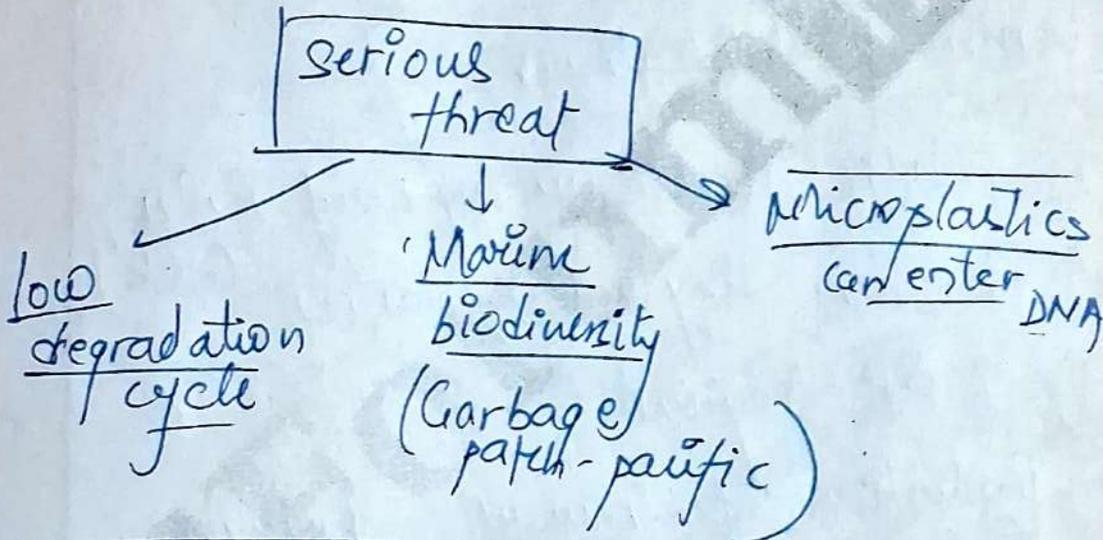
These will help in ensuring sustainability of project balancing conservation with development (Cooverjee Bhattacharya)

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)

India generates 6-7 million tonnes of plastic annually and only 3% are recycled. - IPCC



Mitigation measures →

- ① Reduced production of plastics and promote jute bags.
- ② Improve Circular Economy & Recycling plastic.

③ Ban on Single Use plastics.

④ International Collaborations →

Neptune convention, Vienna Convention

Marpol conventions - Ocean safety

from pollution
being negotiated

⑤ Global plastic treaty

⑥ Government Initiatives →

- ① Plastic waste management Rules
- ② Ban on Single Use plastics (2016)
- ③ EPR regime
- ④ Promotion of Circular Economy through recycling plastics.

These efforts along with global partnerships can address the menace of plastic pollution.

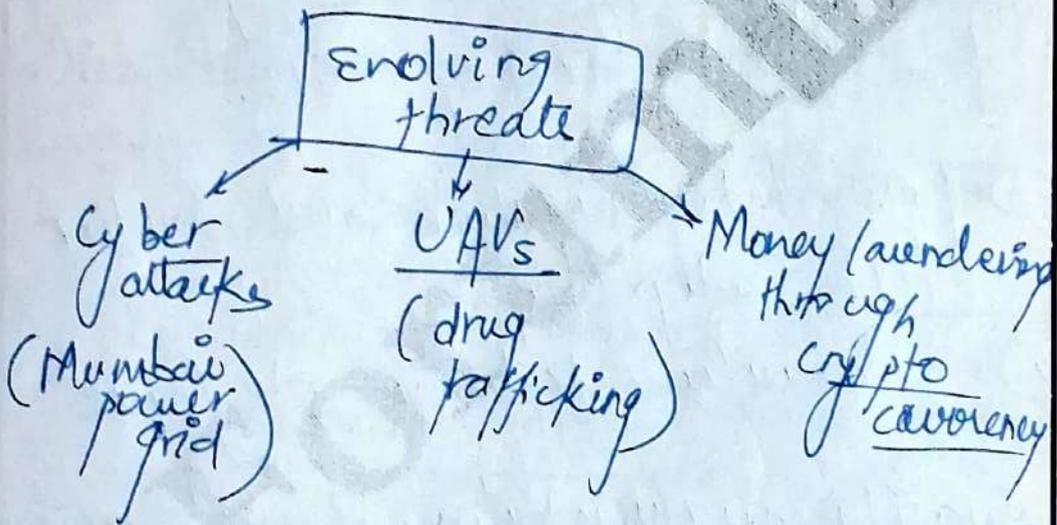
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Q.9) Amid evolving threats, there is a need to blend private sector capabilities with India's current internal security architecture. In this context, elaborate on the ways in which the private sector can contribute to strengthening internal security.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

Internal security contributes to the 2 and half front war India faces and the multitude of threats it encounters.



Ways of Private plays strengthening security

- ① Bringing Innovation
- ② Defense Startups - Garuda Aerospace - UAVs.

- ② Reducing burden from defense PSUs → DRDO
- ③ Technology adoption and civil military fusion. (ARTRAC)
- ④ Usage of dual use technology
egs Remote sensing, GIS.
- ⑤ Defense Indigenization and frontier tech adoption
egs Quantum tech in defense
- ⑥ Capacity augmentation of existing regime
- ⑦ Private sector to adopt global best practices.
- ⑧ Deep pockets to adopt costs of adoption of technology. (eg) Crypto issues.
This augurs well for the future ready security architecture.

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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. (10 marks, 150 words)

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)

Jammu and Kashmir is huddled with multitude of challenges owing to its strategic location.

Radicalisation in J&K : Reasons

① External Influences

↳ Pakistan training centres

↳ Radicalisation through social media

Socio Economic reasons

→ Lack of education and employment

→ Alienation due to prolonged AFSPA

→ low social capital and

harmony in the region. (Q) Kashmiri Pandits Issue.

Youth Engagement and education as a step forward →

- ① Operation Sadbharna of the Army to spread education and skills
- ② Deradicalisation campaign through democracy and election.
 - ⊙ local & state elections in J&K
- ③ Removal of Gradually AFSPA
 - ⊙ Justice Hegde committee recommended 6 month audit and revision.
- ④ Improved security environment along with education and migration
- ⑤ low infiltration of youth to border crossing.

Therefore education and engagement along with security and goodwill will help in deradicalization efforts and

Winning Hearts and Minds Strategy to be adopted

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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 वैतनिक देखभाल कार्य के मूल्य को अपने आर्थिक ढांचे में बेहतर ढंग से एकीकृत कर सकता है। (15 अंक, 250 शब्द)

Care Economy refers to activities involving nursing and care management of elderly, children or patient.

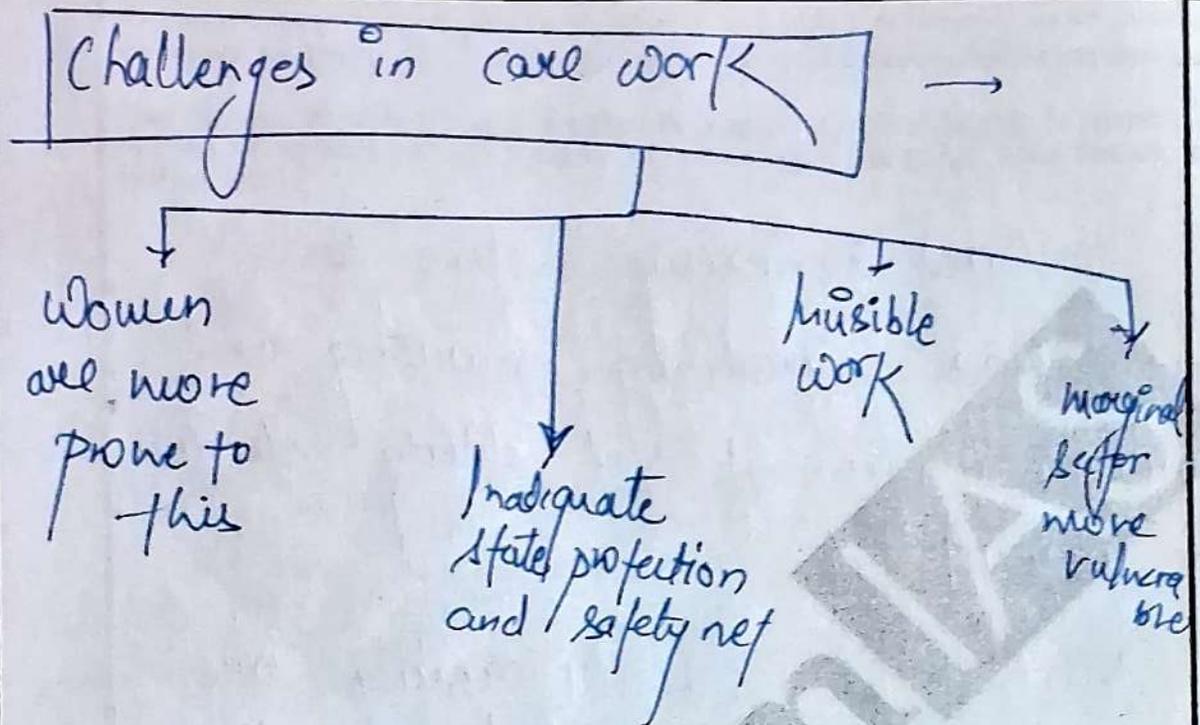
Key characteristics

Performing care related work
(eg. Nurses, ill patient care etc.)

Women are disproportionately employed.

Misclassification of care work within household → Triple Burden (work, home, care work)

Inadequate economic remuneration not acknowledged as productive work.



Therefore: it requires better integration of care work into economic frameworks.

Suggestions →

- ① Acknowledgement as productive work
eg → Care work amounts to 2-3% GDP.
- ② State protection for women
eg → Address income levels of women through interventions.

- ③ Address the underpaid work
 (9) → Minimum wages to be fixed and adequate regulation.
- ④ National policy for care work for better comprehensive framework
- ⑤ Creche systems at work space
 → Reduced motherhood penalty and work space issues.
- ⑥ Paternity leaves → to reduce burden off mothers for care leaves.

This will help attain SDGs i.e. Gender Justice while also address the economic mobility of women.

Best Practice
 Karnataka - Griha Lakshmi scheme
 monthly payment by acknowledging domestic care work of women

Feedback

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Please put tick marks in the above table.

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

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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 तन्वशील श्रम बाजार परिणामों के साथ AI अपनाने को संरक्षित करने की रणनीतियाँ भी सुझाएँ। (15 अंक, 250 शब्द)

Economic Survey (24-25) highlights

that ~70 million jobs may be affected globally due to AI adaption, while also providing opportunities for income growth.

Opportunities by AI for labour market

- ① Increased productivity of work force
→ Better skilling and optimum utilization
- ② Efficient hiring based on marketable skills → rooted in AI tools and expertise
- ③ Capacity augmentation within production and human resource management
- ④ Technology for continued upskilling.

Challenges due to AI →

① Threat of Job Loss

(eg) → NASS COMM report → ~70 million jobs might be affected

② Issue of adoption by MSMEs - due to low capacity and small size

③ Low employability of Indian workforce

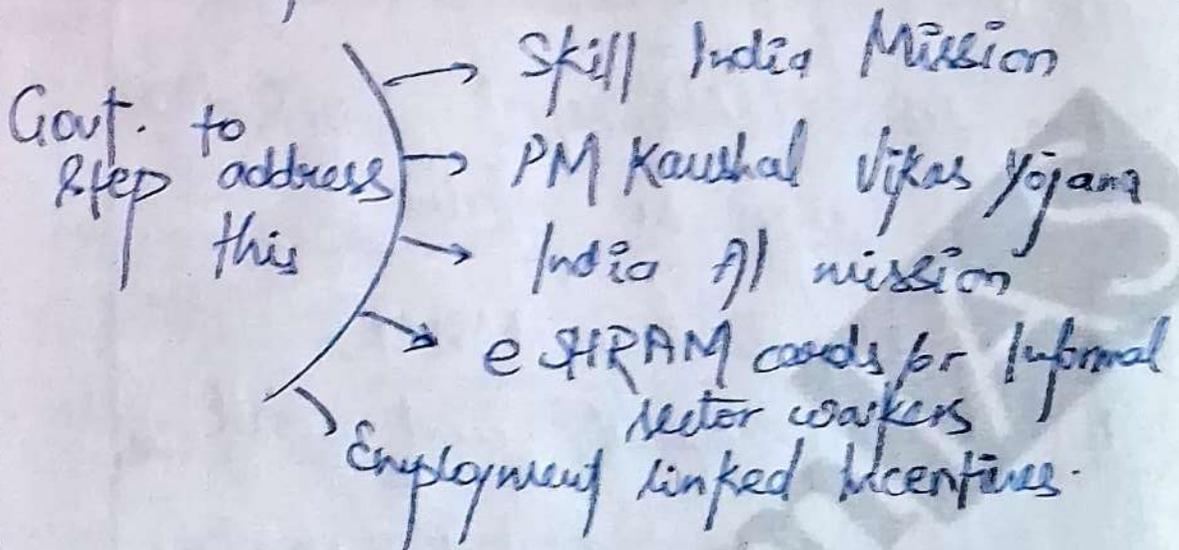
(eg) → 51% employable graduates as per India Skills Report.

④ Low governmental support in labour market → for Informal sector ~90% workforce.

⑤ High scale educated unemployment levels

(eg) → lack of marketable skills.

(6) Lack of adequate market-academia linkage.



Further suggestions for strategies →

- (1) Eco Survey 24 recommends adoption of Starving Institutions along with Inclusive Institutions to ensure inclusive, resilient labour.
- (2) Promote further capacity through Global Capability Centre for skilling.
- (3) Upgradation of Skills - Vocational Training (NEP'20)
- (4) Market regulations to ensure job security against mass firing events.

Therefore, resilient labour force needs skilling while having adequate social security & other

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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)

Agricultural exports have only risen $\approx 1.4\%$ around (2020-25) levels despite Agricultural GVA rose at 4% average.

Reasons for poor exports

- ① Reduced global consumption demand
- geopolitical crisis and supply chain disruptions. (Russia-Ukraine war)
- ② Sanitary and phytosanitary tariffs
↳ eg → returning consignments from US, FDA, EU etc.
- ③ Reduced productivity of agricultural sector
↳ eg → $\frac{1}{3}$ of China, $\frac{1}{2}$ of Vietnam in rice sector.

- ④ Increased population and consumption demand.
 (eg) → India import pulses despite being largest producer.
- ⑤ Global competitiveness from other countries
 (eg) → China in rice exports, Horticulture exports etc.
- ⑥ Lack of diversification to high value crops
 (eg) → horticulture, floriculture etc.
- ⑦ Issue in food processing sector
 (eg) → low exports, focus on staples.

Measures needed →

- ① Crop diversification :- toward high value crops of horticulture and floriculture.
 (eg) → Mixed cropping flowers with staples.

② Bibek Debroy committee argued exports to be in line with global demands.
 (eg) → allied sector → fisheries to be further promoted.

③ Rationalise MSP (Ashok Gulati)
 ↳ To ensure better cropping patterns soil health and high productivity.

④ Reduce Virtual water exports
 ↳ less water intensive crops like rice/sugar using groundwater
 (eg) → India use 25% global groundwater

⑤ WTO compliance and call for non tariff barrier removal.
 (eg) → US FTA negotiations.

⑥ APEDA to be more capable towards export enhancement

⑦ One district One Product for comprehensive export improvement.

The petrole of 'Bharat Bhagya Vidhata goes through the Farms of the Annadata.'
 - PM Modi

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

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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)

The subsidy regime in India involves direct benefit transfers along with indirect through procurements. leading to India spending highest on food subsidies.

Distortions due to agri subsidy regime

- ① Promote Staples / cereal crops
→ Issue of monocropping and lack of diverse cropping patterns.
- ② Degraded soil health due to increased usage of pesticides and fertilizer
eg → Urea Fertiliser subsidy away from nutrient based subsidy regime.
- ③ Diversion of fertilisers due to subsidies
eg → Urea for Industrial Usage
Urea → Cost 3000/bag, selling price → 300
subsidy → ₹ 2700 Per bag.

- (4) Groundwater extraction → Electricity subsidy
 ↳ free electricity leads to use of pumps to extract water.
- (eg) → 80% groundwater extraction in India for agriculture.
- (5) Lack of incentives for crop diversification due to MSP regime.
- (6) Disbursement of subsidies → Indirect subsidies are regressive in nature.
- (7) WTO compliance issue
 ↳ Agreement on Agriculture - de minimis levels - Amberbox subsidies.

To address these →

- (L) Rationalise subsidies to promote high value crops (Ashok Dalwai committee)
- (eg) Horticulture → 30% Agri GVA contribution.

- ② Use Swaminathan formula to calculate MSP → at C_2
- ③ Electricity subsidy rationalisation to use PM KISUM solar pump and reduce groundwater extraction.
- ④ Fertiliser subsidies → Promote nano Urea, Nano DAP or precision farming.
- ⑤ Remove indirect subsidies (Ashe^{arato}) - to improve leakages and use DBT.
- ⑥ More WTO compliant regime

All this along with improvement of productivity and efficient SMART farming will augur well for Indian agriculture.

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)

Bio manufacturing involves usage of principles of biotechnology to create products for the market and the consumers.

Bio manufacturing transformation

Consumptive manufacturing

Regenerative paradigm

① End of use products to circular economy

② Consumption driven manufacturing to future global demand meeting

eg → drug manufacturing for today eg → vaccine production

③ Usage towards sustainable manufacturing practices

eg → to reduce Antimicrobial Resistance.

④ Improve productivity in line with sustainable development

eg → Lack of harmful chemicals usage in biomanufacturing just to improve productivity

⑤ Bio manufacturing to leverage EPR principles (Producer responsibility) to reduce pollution or waste containment.

Bio E3

in line with

Environment

policy calls for biomanufacturing

promoting

Economy,

and

Employment

This fosters biomanufacturing as

- ① Improves productivity of the components.
- ② Encourages sustainable production methods in line with reduced carbon footprints.
- ③ Employment generation through adopting economy of scale as well as usage of MSME.
- ④ Generating biotechnological patents and Intellectual Property rights.
- ⑤ Posit Indian Biotechnology economy as a global powerhouse.

though challenges persist in biotech industry

- Quality control and regulatory vacuum
- low private sector capabilities and affordability of people.

Still, the biomanufacturing for future is a sine qua non for a healthy, wealthy and prosperous New India.

Feedback

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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)

"Artificial Intelligence is a double edged sword."

though, if used for welfare it can herald a transformative Industrial Revolution 4.0.

Development of Indigenous AI models →

① To ensure digital innovation

eg → AI based tools for digital products, seamless connectivity and beneficiary identification

② Data sovereignty :- Indigenous model will reduce chances of leakages and security threat

eg → logh skill threats, Zero hour vulnerabilities of foreign AI models.

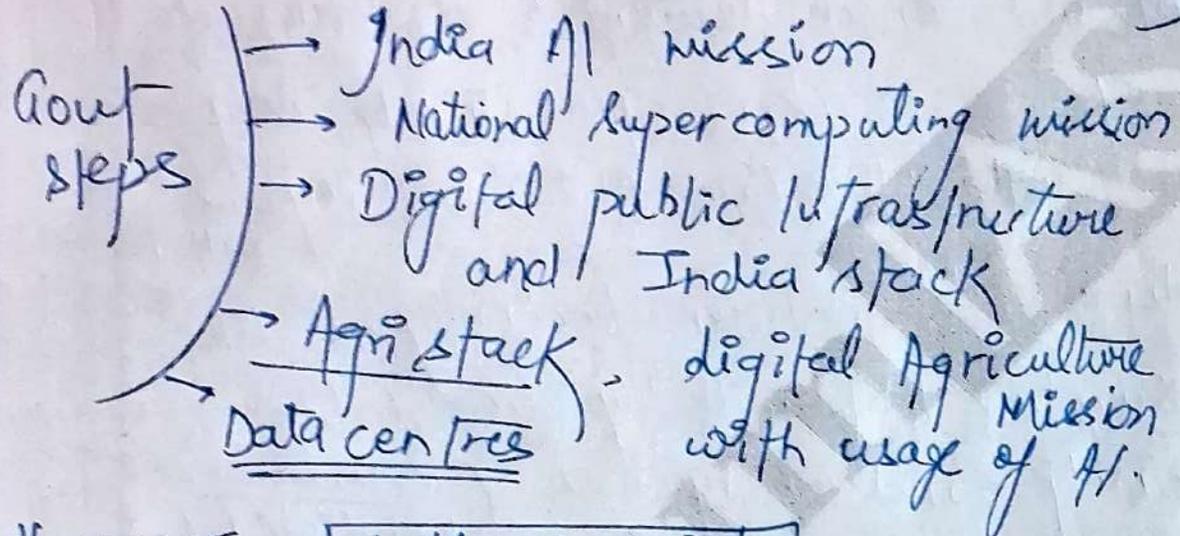
- ③ Improved localised usage through vernacular languages.
 (eg) → BHASHINI AI model for translation
- ④ Improved service deliveries of government
 (eg) → DigiLocker, JAM Trinity along with blockchain, AI tools will improve further.
- ⑤ Adoption of frontier technologies like Quantum AI will improve data security and encryptions (Quantum Key distribution)

Measures to adopt enabled ecosystem in AI

- ① Increased spending on R&D from the current 0.67% GDP
- ② Private sector → Innovation in field
 (eg) → Chaebols in South Korea
- ③ Better International collaboration
 (eg) → GPAI, India AI summit, Paris summit
- ④ National policy for AI adoption.

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- 5) Academia - Industry Linkage
 (eg) → Incubators → Aatmi Innovation Mission
- 6) Leverage Startup ecosystem (3rd largest in the world)



However, challenges exist

- 1) Digital divide → Rural vs urban, North vs South.
- 2) Low digital literacy → farmers, marginalised
- 3) Low digital penetration → Bharatnet program not yet complete.
- 4) Global supply chains → most digital MNCs located in the west. etc.

Therefore, necessary regulations along with skill development is required for ensuring

$$\boxed{AI + AI = AI} \text{ (Advanced India)}$$

(Artificial Int.) (advent of innovation)

Feed Back (For OFFICER)

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Please put marks in this table.
Here G is Overall Average and Poor.
TOTAL MARKS

Q.179 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)

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

Recently oil spills at Kochi coast and earlier oil spills at Peru in the wake of Tonga Volcano highlights the disaster of marine oil spills

far reaching consequences →

for biodiversity

① fisheries are affected → high scale suffocating, reduced oxygen.

eg → Mass fish kills in Peru coast (2023)

② Coral bleaching due to hampered sunlight and oil cover.

③ Marine organisms consume toxic oil leading to deaths.

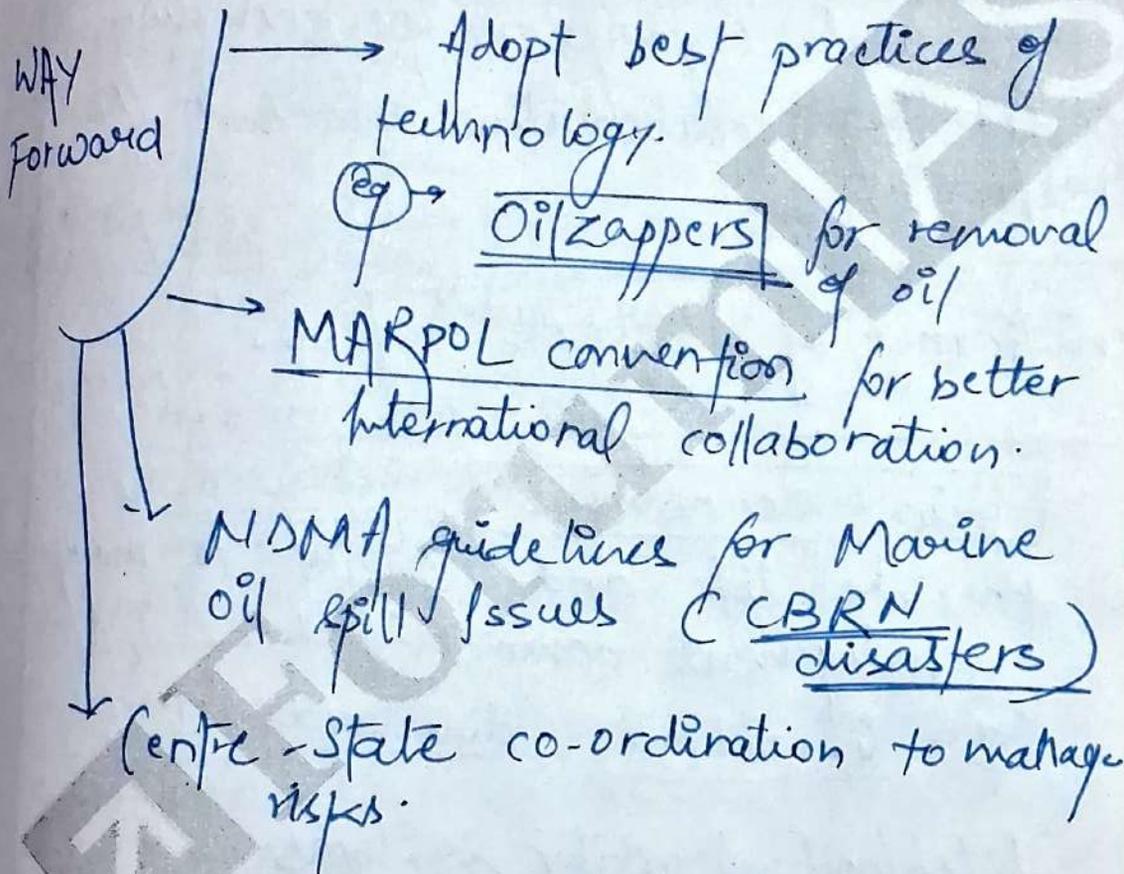
For coastal livelihoods

- (4) Loss of livelihood → reduced fisheries and catch.
- (5) Loss of life → due to contaminated water for consumption.
- (6) Increased diseases and morbidities.
(eg) → water borne → cholera threat.

India's prevention and mitigation gaps

- (1) Lack of adequate plans to address oil spillage
(eg) → leakage from Vizag oil plant threatened lives of people.
- (2) Inadequate preparedness for fishermen
- (3) Interagency co-ordination has been an issue.
- (4) Inadequate usage of satellite technology for mitigating damage.

- 5) Global threat levels → Oil spills in high seas → come to coastal regions.
- 6) Inadequate international regulations.



This will ensure improved capacity and reduced vulnerability of the community for future disasters.

Feedback

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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)

UN year of 2025 calls for
Glacier and cryosphere preservation.
Necessitating collaborative efforts in the
direction.

Significance of glaciers

Socio-economic

① Provide life and habitat to many
Indigenous communities.

☞ Greenland, Himalayas etc.

② Lifeblood of water systems

☞ Rivers of Himalayas/Hindu
Kush

③ Promoting Agriculture

☞ Ganga river basin.

- 4) Navigation and economic activities
 (eg) → Northern Sea route - Arctic

Ecological benefits

- 5) Maintaining heat transfers
 (eg) → AMOC → water heat transfers
 Atmospheric meridional circulations.
 (Polar regions)
- 6) Support to biodiversity
 (eg) → Polar bears.
- 7) Carbon sequestration in the permafrosts.

Challenges in Preservation →

- 1) Climate change → and enhanced Albedo effect of Arctic region.
 (eg) → melting of glaciers (enhanced 15% in last 20 years)
- 2) Inhabitable regions of Arctic and Antarctic.
- 3) Global atmospheric phenomenon
 (eg) → lack of control over them.

- ④ Inadequate international collaboration
→ work in siloes.
- ⑤ Climate denialism → US withdrawal from Paris agreement.
- ⑥ Lack of climate finance (Paris, COP-26 Glasgow commitment)
↳ IPCC ⇒ \$6 trillion needed by 2050. (Now)

Measures taken →

National

- National Mission on Sustainable Himalayan Ecosystem
- Himadri Station at Antarctica
- Arctic policy.

International

- Antarctica as no-go zone (inhabitable global common)
- SVALbard seed bank
- Cryopreservation missions.

However, to sustain further health of glaciers and cryosphere, Enhanced co-operation is the need of the hour.

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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)

North Eastern Region of India is (NER) the gateway to South East Asia and strategically and culturally integral to its development vision.

Insurgency in the region

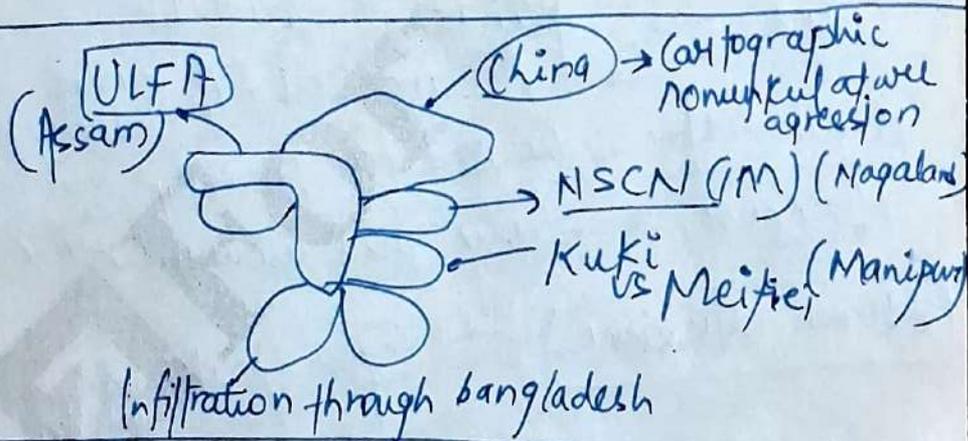


Fig: North Eastern Region: ongoing issues.

There are many determinants of insurgency in the region.

Determinants of insurgency →

① Historical →

↳ British policy of alienation

eg → Criminal Tribes Act

↳ Tea planters exploitation.

② Developmental deficit

eg → low penetration of service delivery
low connectivity (Chicken neck issue)

③ Role of External states

China → Arunachal Pradesh

Bangladesh → Assam (ULFA cadre training)

↳ housed ULFA early.

Myanmar → early free movement regime.

④ Ethnic divisions →

eg → Kuki vs Mizo
Naga vs Co etc

⑤ Evolving threats

→ Cyberattacks, difficult terrain

UAVs usage for drug smuggling.

⑥ Proximity to golden triangle - drug trafficking
(Myanmar)

Strategy to counter the threat →

① Government of India

- Agreements (Bru rang, Khasi Anglong)
- border dispute resolution (Nanua declaration)
- International collaboration (Bangladesh, Bhutan)

② Civil administration

- Service delivery
- Efficient PESA act, FRA rights.
- district-tribal councils to be efficient

③ Security forces

Hard power → to counter Insurgency (Para SF)

Soft power → to ensure goodwill

④ → Operation Sadbhavna

In this way a combination of SAMADHAN Strategy along with Winning Hearts and Minds to be used for Insurgency solution

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 सुझाएँ। (15 अंक, 250 शब्द)

Operation Sindoor saw the usage of UAVs by both India and Pakistan while war in middle East saw its usage by Non State actors like Hezbollah, Hamas, Houthies

Implications for India →

- ① Evolving nature of hybrid warfare
 eg → UAVs usage very liberally
- ② Need for defense modernization
 ↳ Dedicated drone force
 ↳ Capacity building of DRDO.

- ③ Civil-military fusion requirements
eg - Drone startups - Garuda etc.
- ④ Use of proper geospatial technology
for precision targeting.
eg - Usage of MAVIC in Op. Sindoor.
- ⑤ Building on defense indigenisation
for self reliance.

Measures have been taken →

- ① Capacity building of defense PSCs.
- ② DRDO has increased research.
- ③ India has 5 layer security ^{two} system
for counter drone systems.
- ④ Procurements of S-400 despite
threats of CAATSA.
- ⑤ Akash Air defense system.
- ⑥ Defense startups have been leveraged.

Further steps needed →

- ① enhanced startup linkages.
- ② Capacity building through GIS and GPS technology
 (eg) NAVIC satellites
- ③ Civil - Military fusion for innovation
- ④ International collaboration for joint-ventures (eg) Hermes Israeli drones etc

→ This can lead to more secure and tech friendly defence capabilities of India.

Feedback
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