



TEST CODE 7 1 3 3 1 4

FIAS | MGP 2024 | Open Test – GS Paper #3

Time Allowed : Three Hours
समय : तीन घंटे

ForumIAS

Maximum Marks : 250
अधिकतम अंक : 250

GENERAL STUDIES / सामान्य अध्ययन

Name Of Candidate परीक्षार्थी का नाम	ARANYA CAIMI	Medium/माध्यम	English ☒ हिंदी ☐
Roll No./अनुक्रमांक	1910128131	Date/दिनांक	September 6, 2024
Center Code/परीक्षा केंद्र	1901		

*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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Total/कुल अंक	250	

- 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।

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Examiner's Discretion/मूल्यांकन कर्ता का विवेक :	Start Time/प्रारंभ करने का समय : 9:30 AM	End Time/समाप्त करने का समय : 12:30 AM
Total Marks/कुल अंक :	Mode Of Examination/ परीक्षा की विधि :	Online/ऑनलाइन ☐ Offline/ऑफलाइन ☒

"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, 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।

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ECN CODE/ ईसीएन कोड :	EG/ईजी :	Evaluation Date/ मूल्यांकन तिथि :
	① ② ③ ④ ⑤	

Note: Students are expected to incorporate suggestions from the feedback provided in the answers. Discussion classes for the tests are also available online in your portal to aid in your preparation. Further, students are requested to see the good 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

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 and 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 and 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 the subjective components of assessment.

Q.1) What do you understand by 'green growth'? Enumerate the measures taken by the government to promote green growth in the country. (10 marks, 150 words)

'हरित विकास' से आप क्या समझते हैं? देश में हरित विकास को बढ़ावा देने के लिए सरकार द्वारा उठाए गए कदमों का उल्लेख करें। (10 अंक, 150 शब्द)

Green growth refers to assimilation of environmental conservation strategies into economic growth, based on principle of 'Sustainable development'.

Significance of green growth

- # ENVIRONMENT : protection, regeneration and sustainable practices.
- # JOB CREATION : in fields of green growth. (Eq) - Green Ammonia production
- # Improved GLOBAL perception.
(Eq) - fulfilments of Nationally Determined goals (Paris Agreement)
- # Waste Mitigation
(Eq) - Creation of 'Circular Economy'
- # Improvement in health and Human Capital. (Eq) - Clean Environment

Measures taken by Government to promote green growth

Policy Reforms

(Eg) - 'Green GDP', Budgeting reforms

Incentives to private sector

(Eg) - CSR activities, PLIs to electronic industries

Awareness and mobilization

(Eg) - Mission Life, Mission FAME

Reforms in economic policy.

(Eg) - PAT Scheme, Carbon credits

New rules for waste - Circular Economy

(Eg) 2024 Plastic waste management rules

Green growth is an avenue of building an inclusive future that is healthier for every citizen, bringing us closer to achieving SDG 1, 2, 12, 13, 14.

Feedback

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#	G	A	P
AWIS			
CD & VA			
S & F			
P & R			

Please put tick marks in the above table.

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

TOTAL MARKS

Q.2) DPI (Digital Public Infrastructure) is a critical enabler of digital transformation for both businesses and citizens; however, it comes with its own set of challenges. Examine. (10 marks, 150 words)

डीपीआई (डिजिटल पब्लिक इन्फ्रास्ट्रक्चर) व्यवसायों और नागरिकों दोनों के लिए डिजिटल परिवर्तन का एक महत्वपूर्ण प्रवर्तक है; हालाँकि, इसके साथ अपनी चुनौतियाँ भी जुड़ी हैं। जाँच करें। (10 अंक, 150 शब्द)

Digital public infrastructure refers to technology led public infrastructure. It has been attributed a key status by 2022-23 Economic Survey to boost Indian economy.

Significance of DPI

① BUSINESS

- Ease of transaction
Eg - UPI
- Ease of Compliance
Eg - GST Digitization
- Boosts MSMEs
Eg - Factoring incentives

② CITIZENS

- Ease of Access (Eg) - Gov.in
- Grievance redressal Eg - CPGRAMS
- Reduced discrimination
- Efficiency in policy implementation. (Eg) - DBT

Challenges associated with DPI

- ↳ Digital literacy is poor in India
- ⇒ Access to Internet
(only 27% of rural population uses internet)
- ⇒ Privacy and ethical concerns
- ⇒ Risk of cyber vulnerability
(eg) - leak of Aadhaar data on dark net
- ⇒ Infrastructure issues : inability of 'Bharat net' to reach remote location.

Solutions

- Security
Vulnerability detection
- PRIVACY - laws
(eg) - DP DP Act 2023
- Literacy and Awareness
(eg) - Change in school curricula
- Infra-resilience

DPIs can transform the Indian economy and governance if given the right stimulus (Digital India Mission)

Feedback

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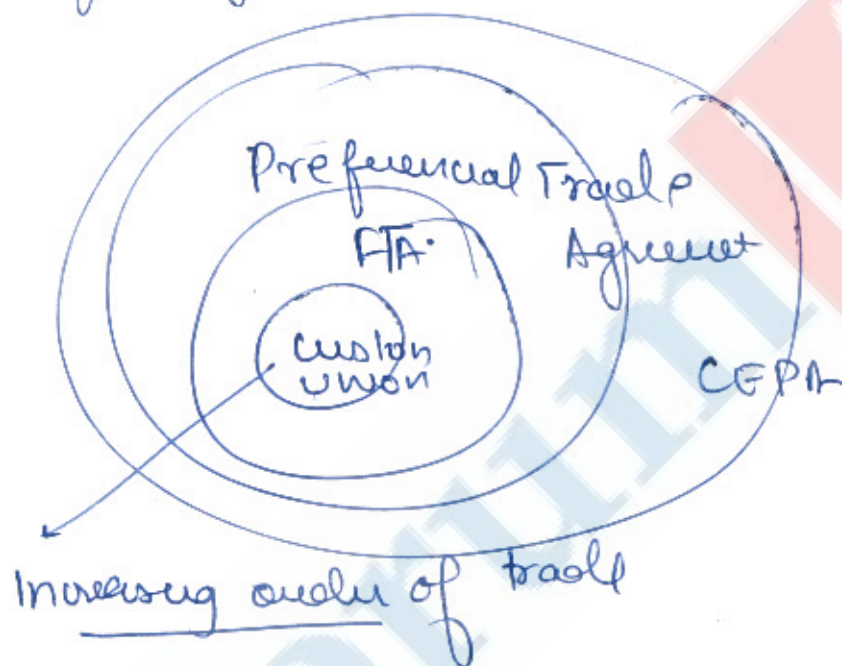
Here G is Good, A is Average and P is Poor.

TOTAL MARKS	
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Q.3) Explain the different types of trade agreements? How is a Comprehensive Economic Partnership Agreement (CEPA) different from a Free Trade Agreement (FTA)? (10 marks, 150 words)

विभिन्न प्रकार के व्यापार समझौतों की व्याख्या करें? व्यापक आर्थिक भागीदारी समझौता (CEPA) मुक्त व्यापार समझौते (FTA) से किस प्रकार भिन्न है? (10 अंक, 150 शब्द)

CEPA and FTA are different levels of foreign Trade agreement.



Feedback

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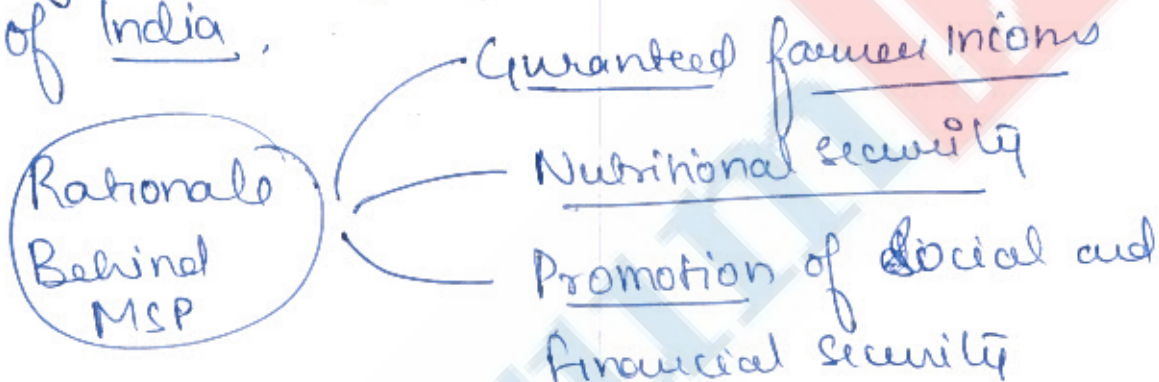
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Please put tick marks in the above table. Here G is Good, A is Average and P is Poor.			
TOTAL MARKS			

Q.4) The rationale behind the MSP system is well acknowledged, but it requires comprehensive reforms to mitigate the unintended consequences on the market and environment. Analyse.

(10 marks, 150 words)

एमएसपी प्रणाली के पीछे का तर्क सर्वविदित है, लेकिन बाजार और पर्यावरण पर पड़ने वाले अनपेक्षित परिणामों को कम करने के लिए इसमें व्यापक सुधारों की आवश्यकता है। विश्लेषण करें (10 अंक, 150 शब्द)

MSP refers to the system of price guarantee, with open ended procurement by state agencies like Food Corporation of India.



Unintended Consequences of MSP

MARKET

- ↳ Market distortions as highlighted by WTO
- ↳ Burden on FCI

ENVIRONMENT

- ↳ Promotion of water and fertilizer intensive crops
(Eg) - rice, sugarcane.

Health Impacts

(Eg) - Bioaccumulation of fertilizers.

Vote bank Politics

(Eg) - Inability to bring reforms (Farm laws)

Measures to counter Unintended consequences of MSP

AWARENESS

Farmers - crop diversification
Consumers - need of a Balanced diet (70% lack it as per WHO)

POLICY REFORM

- Gradual reduction in MSP, and focus on alternatives & Millet
- Reduction of food and fuel subsidies (4 lakh crore)

Integration of private sector

(Eg) - Contract farming of Potatoes

MSP reforms are not merely required for environment and market preservation, but also health of Indian citizens.

Feedback

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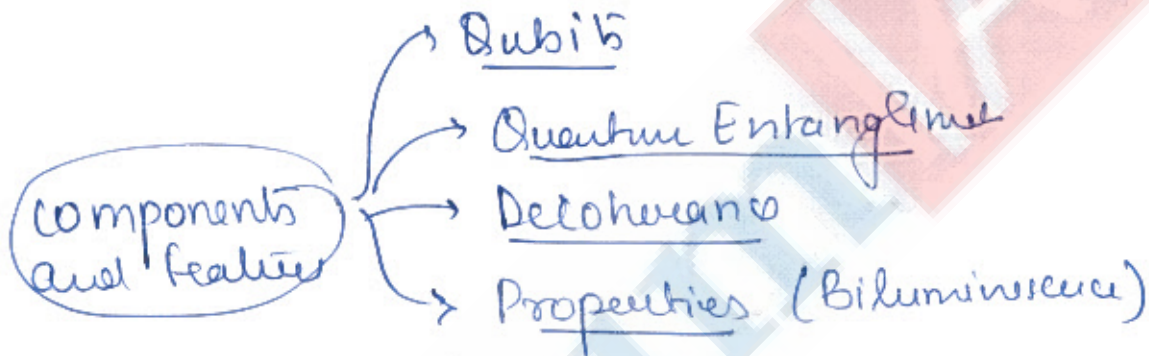
Here G is Good, A is Average and P is Poor.

TOTAL MARKS

Q.5) How can quantum technologies optimize production processes and improve efficiency in the manufacturing sector?
(10 marks, 150 words)

क्वांटम प्रौद्योगिकियां उत्पादन प्रक्रियाओं को कैसे अनुकूलित कर सकती हैं और विनिर्माण क्षेत्र में दक्षता में सुधार कर सकती हैं?
(10 अंक, 150 शब्द)

Quantum technologies refer to the use of quantum physics principles in computation and other sectors.



Use of Quantum Technology in production and Manufacturing

① Quantum Entanglement has application in building instant communication.

(Eg) - Space sector manufacturing.

② Quantum technology can ensure secure communication.

(Eg) - Defense manufacturing applications.

↳ Quantum computation power can enhance AI's ability

(Eq) - Application in Robotics manufacturing

↳ Quantum dots have application in electronics (LEDs) sector.

↳ Quantum Technology can be used in Manufacturing of Biomedical devices meant for scanning.

Challenges → Stability (Qubits need clean and sterile environment)
Scalability
 due to error correction needed as a result of quantum decoherence.

The combination of Quantum Technology and AI are not just monumental to manufacturing sector, but have application in healthcare, security and research.

Feedback

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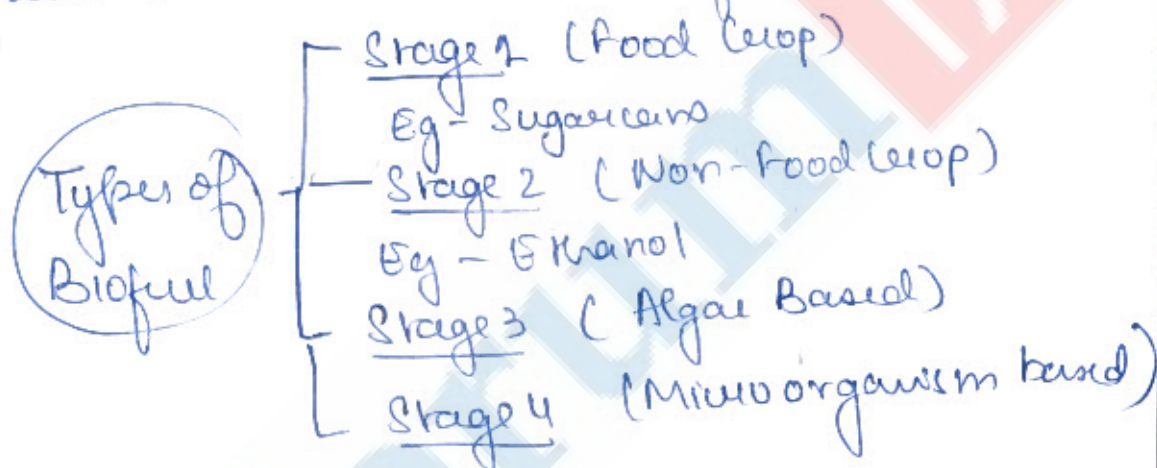
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TOTAL MARKS	
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Q.6) Biofuels can play a role in energy security by reducing India's reliance on imported fossil fuels and diversifying its energy mix. Examine. (10 marks, 150 words)

जैव ईंधन भारत की आयातित जीवाश्म ईंधन पर निर्भरता को कम करके और इसके ऊर्जा मिश्रण में विविधता लाकर ऊर्जा सुरक्षा में भूमिका निभा सकता है। परीक्षण करें। (10 अंक, 150 शब्द)

Biofuels refer to fuels sourced from renewable resources like 'Biomass' meant to reduce carbon emissions and act as an alternate fuel.



Role of Biofuel in Energy Security

- # Reduce subsidy on import.
- # Offer economic boost to rural areas.
- # Significant change in Green house gas emissions
- # New economic opportunities.

- ↳ Manufacturing of Bioplastic
- ↳ Manufacturing of ~~Bioplastic~~ flex fuel vehicles

Challenges associated with BIOFUELS

- # Source → Stage 1 biofuels are a threat to food security in India if produced at large scale
- # Not Green → less, but not zero carbon emission
- # Limited scope of building a supply chain
Farmers → Plant → Market → limited integration of Biofuel
- # Government policies
 (eg) - Brazil - 100% Ethanol vehicles
 India - 20% Blending
- # Infrastructure ~~data~~ capacity limited
 (issue of economy of scale)

Biofuels have capacity to enrich India's energy basket through incentives like FAME-II.

Feedback

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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			

Q.7) Alongside the alarming depletion, rising pollution levels of groundwater resources are exacerbating the water crisis in India. In light of the statement, bring out the reasons for groundwater pollution in the country. Suggest remedial measures and mention the initiatives taken by the government in this regard. (10 marks, 150 words)

भूजल संसाधनों में अत्यधिक कमी के साथ-साथ प्रदूषण का बढ़ता स्तर भारत में जल संकट को और बढ़ा रहा है। इस कथन के आलोक में, देश में भूजल प्रदूषण के कारणों को उजागर करें। उपचारात्मक उपाय सुझाएँ और इस संबंध में सरकार द्वारा की गई पहलों का उल्लेख करें। (10 अंक, 150 शब्द)

India is the second largest consumer of ground water in the world, leading to serious of water crisis in urban centres like Bengaluru.

Reason for ground water pollution in India

① POLICY ISSUE

(Eg) - MSP, Electricity subsidy to farmers

② Population pressure & (Eg) Contamination of resources in urban centres

③ Agriculture

Pesticides and fertilizers are excessively used.

Waste disposal

(Eg) - Industrial, nuclear waste contaminates ground water

Measures taken by Government

Changes in Agriculture policy

(Eg) - Focus on Natural Farming

Improved Urbanization

(Eg) - Sustainable cities Mission,

Awareness and mobilization

(Eg) - Swachh Bharat Abhiyan

Technical Reforms

(Eg) - Salt water converters

Ground water, like other fresh water resources is in immediate need of attention to resolve issues like Inter state water disputes.

Feedback

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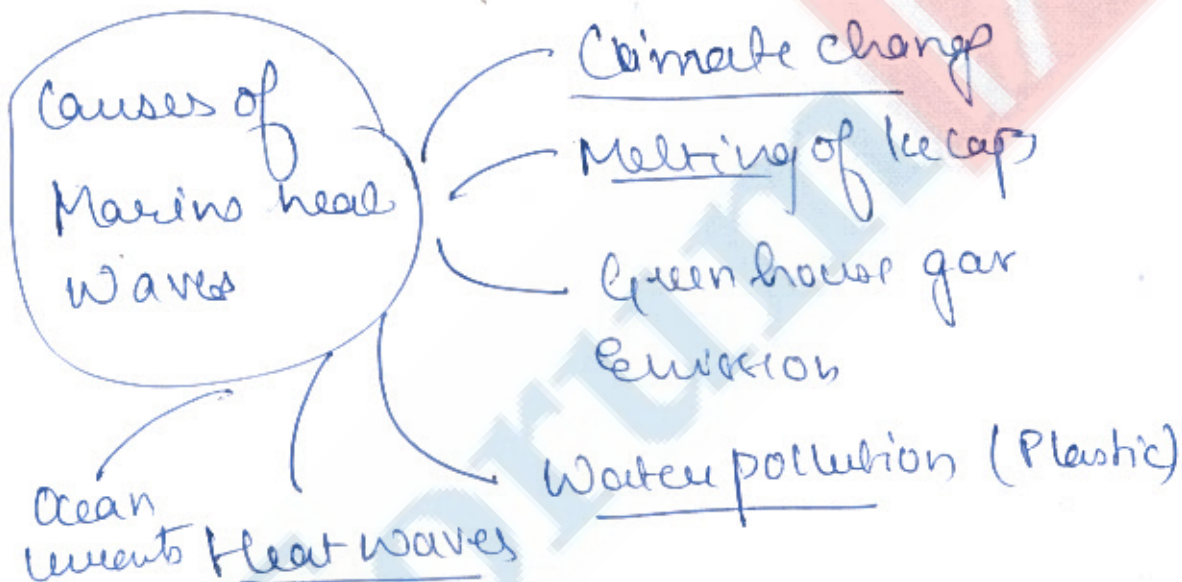
TOTAL MARKS	
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Q.8) What are marine heat waves? Throw light on its impact on marine ecosystem and coastal communities.
(10 marks, 150 words)

समुद्री उष्ण तरंगें क्या हैं? समुद्री पारिस्थितिकी तंत्र और तटीय समुदायों पर इसके प्रभाव पर प्रकाश डालें।

(10 अंक, 150 शब्द)

Marine heat waves refer to excessive rise in temperature of ocean for a prolonged period of time.



Impact of Marine heat waves

Marine Ecosystem

↳ Shift in habitat
(Atlantification)
of Arctic
↳ Changes in breeding pattern

↳ death of coral reefs.

Coastal Community

↳ loss of livelihood

↳ loss of habitat → sea level rise

(Bj) - Alaska Island, Alaska.

Mitigation of Heatwaves

↳ Marine Pollution reduction

↳ Technological Advancement

(Bj) - Microorganisms led cleaning

↳ Research on conservation of Marine life

↳ Long term Effort → Environmental effort

There is a need to reduce rising temperature of Earth by 2025 as per IPCC to control the phenomena like Marine heat waves in future.

Feedback

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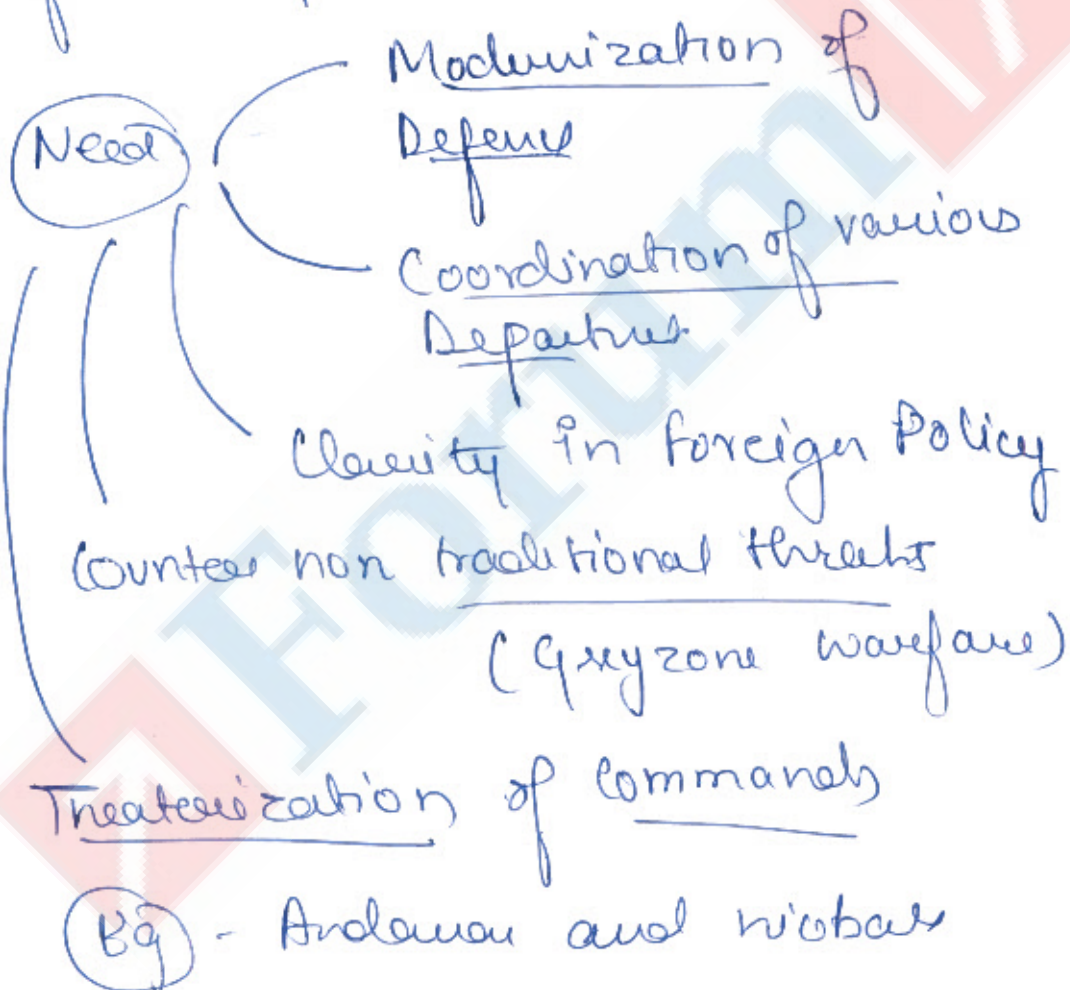
Here G is Good, A is Average and P is Poor.

TOTAL MARKS

Q.9) Elaborate on the need for a clearly articulated National Security Strategy for systematic, consistent and coherent approach towards national security. (10 marks, 150 words)

राष्ट्रीय सुरक्षा के प्रति व्यवस्थित, सुसंगत और अनुकूल दृष्टिकोण के लिए स्पष्ट रूप से व्यक्त राष्ट्रीय सुरक्षा रणनीति की आवश्यकता पर विस्तार से प्रकाश डालिए। (10 अंक, 150 शब्द)

National Security Strategy refers to a combined policy on all spheres of security in India.



Mechanisms to achieve NSS

- ↳ Combined defence head
- ↳ Inter-agency cooperation
- ↳ Security Council in India

NSS can help combine the already existing defence infrastructure and policies efficiently or per

Agit Doval.

Feedback

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TOTAL MARKS			

Q.10) India's precarious location on the drug map makes it extremely vulnerable to drug trafficking. Illustrate. How does drug trafficking affect India's internal security? (10 marks, 150 words)

नशीले पदार्थों के मानचित्र पर भारत की अनिश्चित स्थिति इसे नशीले पदार्थों की तस्करी के लिए अत्यंत संवेदनशील बनाती है। उदाहरण देकर समझाइए। नशीले पदार्थों की तस्करी भारत की आंतरिक सुरक्षा को कैसे प्रभावित करती है?

(10 अंक, 150 शब्द)

India's location on the drug map not only makes it a transit, but also victim of drug abuse

Issue of location

① Long Porous Borders

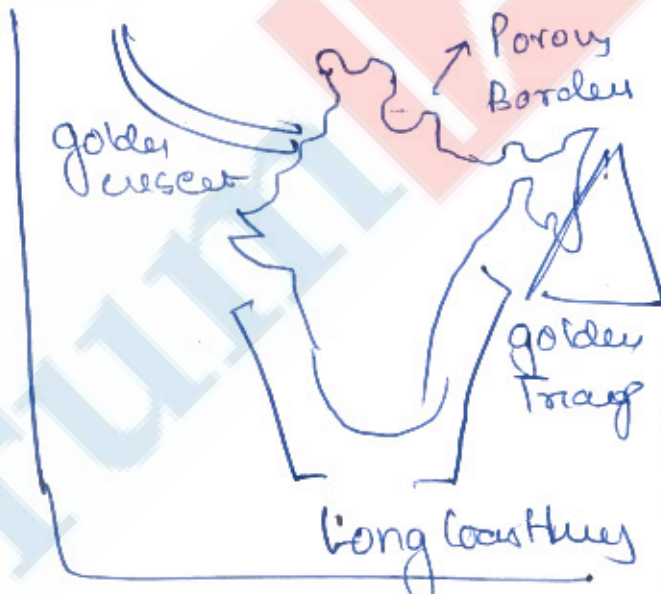
② - Nepal

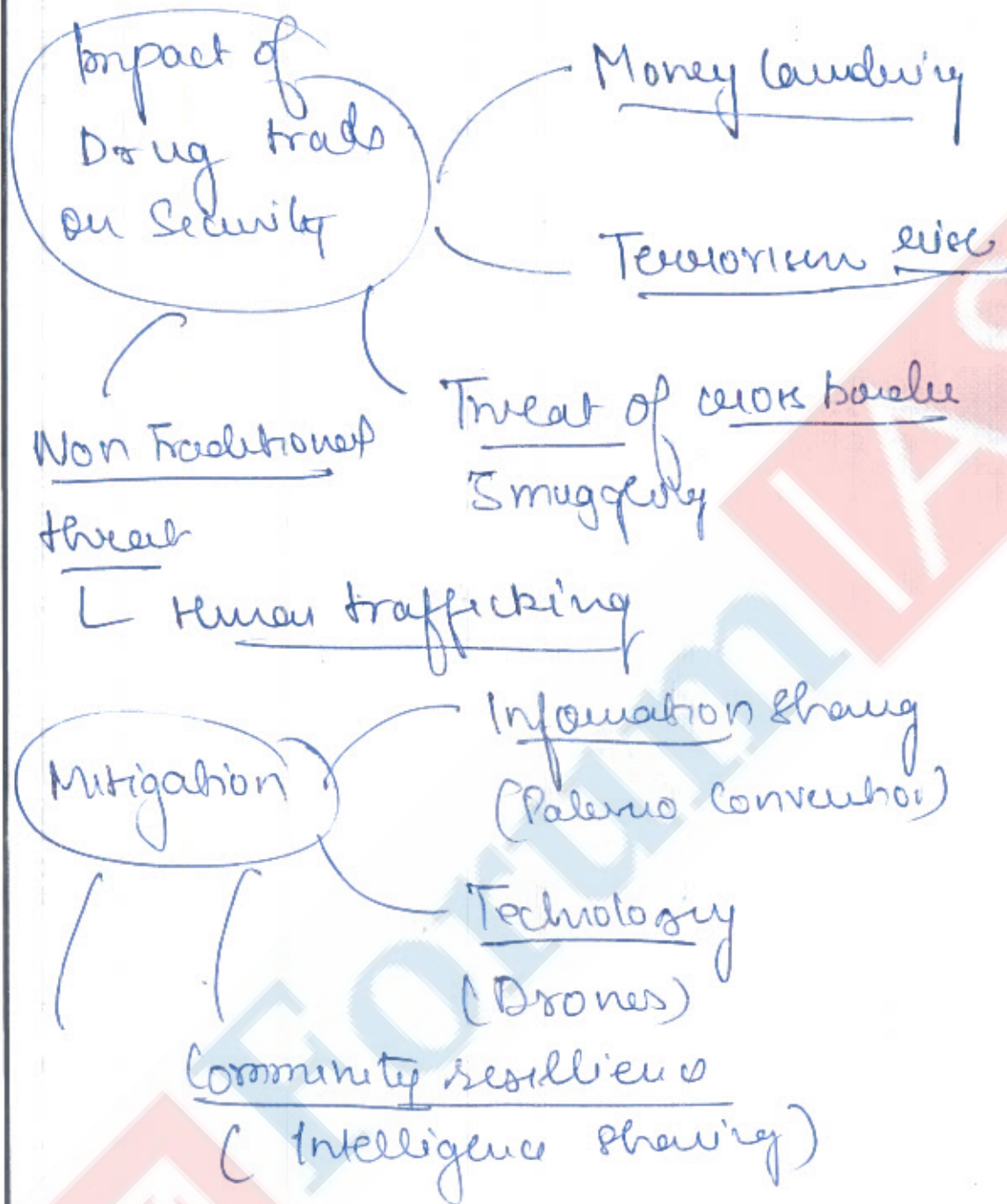
② Between the

golden Triangle (Thailand, Myanmar, Laos) and

golden Crescent (Iran, Pakistan, Afghanistan)

③ Long coastline open to drug smuggling





Feedback

(For OFFICE use only)

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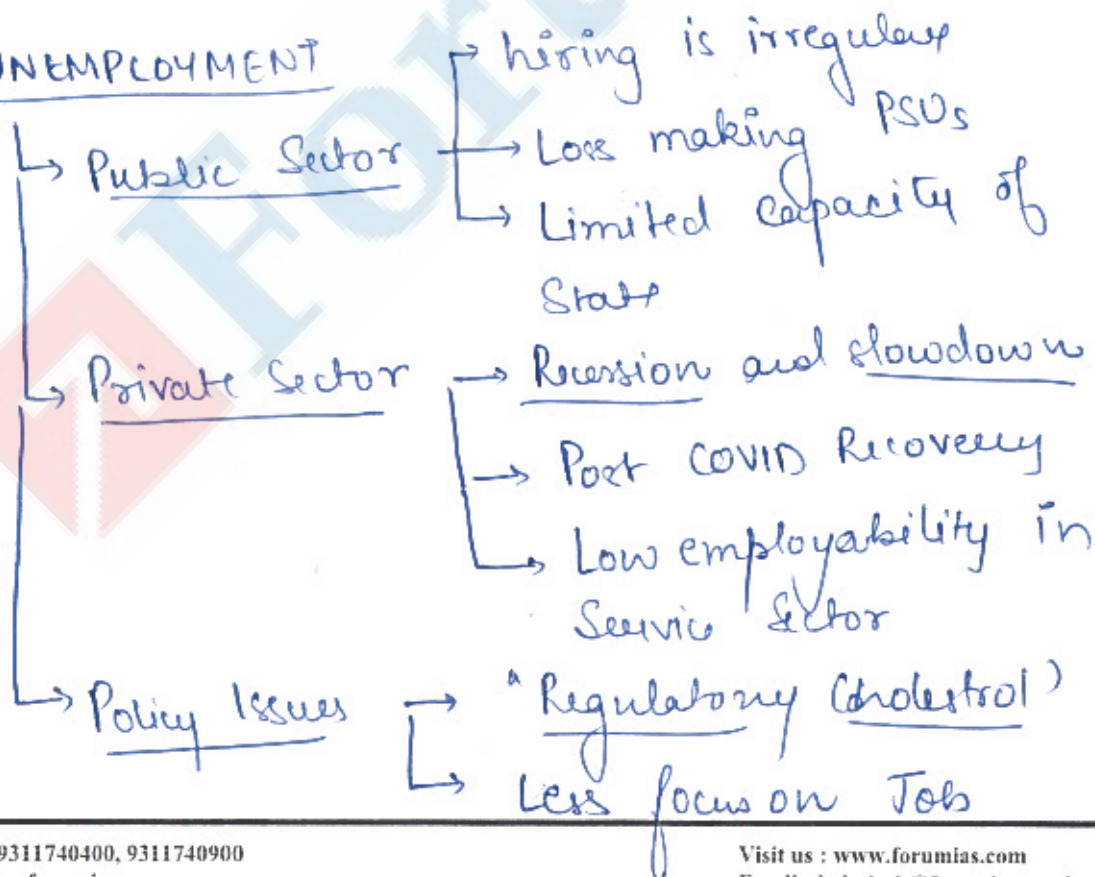
Q.11) The much-cherished demographic dividend of India can be leveraged only if the twin challenges of unemployment and unemployability are addressed holistically. Analyse. (15 marks, 250 words)

भारत के बहु-प्रशंसित जनसांख्यिकीय लाभांश का लाभ तभी उठाया जा सकता है जब बेरोजगारी और अनियोज्यता की दोहरी चुनौतियों का समग्र रूप से समाधान किया जाए। विश्लेषण करें। (15 अंक, 250 शब्द)

2022-23 Economic Survey (estimated by NSO) plans unemployment at 4%. In India, which despite being a notable improvement, has serious challenges in managing aspirations of workforce.

Causes of Unemployment and unemployability

UNEMPLOYMENT



Intensive service sector
↳ Ease of doing Business.

UNEMPLOYABILITY

- ↳ Human Capital : Education, skill development
- ↳ lack of pace with respect to changing demand of Market
(Eg) - AI, cryptocurrency, Globalization
- ↳ Social Constraints
 - ↳ Gender Inequality - (Eg) - labour force participation rate of women - 37%.
(Economic Survey)



Mitigation of Unemployment issue to utilize demographic dividend

Capital Expenditure by state

Eg - PM GatiShakti, National Logistics Program.

Private Sector - crowd in

(Eg) - Product Linked Incentivization, especially in Industrial Sectors
↳ (Textile)

Human Capital building

↳ Education - Sarva Shiksha Abhiyan
↳ Skill development - Skill India Mission
↳ Healthcare / Nutrition - Mid day Meals

Community based Solutions

(Eg) - Promoting Co-operations

Boosting Agriculture production
(Employees over 50% of the population)

In a young nation with approximately half the population in working age, mitigating unemployment can avert 'demographic disaster' to 'demographic dividend'.

Feedback

(For OFFICE use only)

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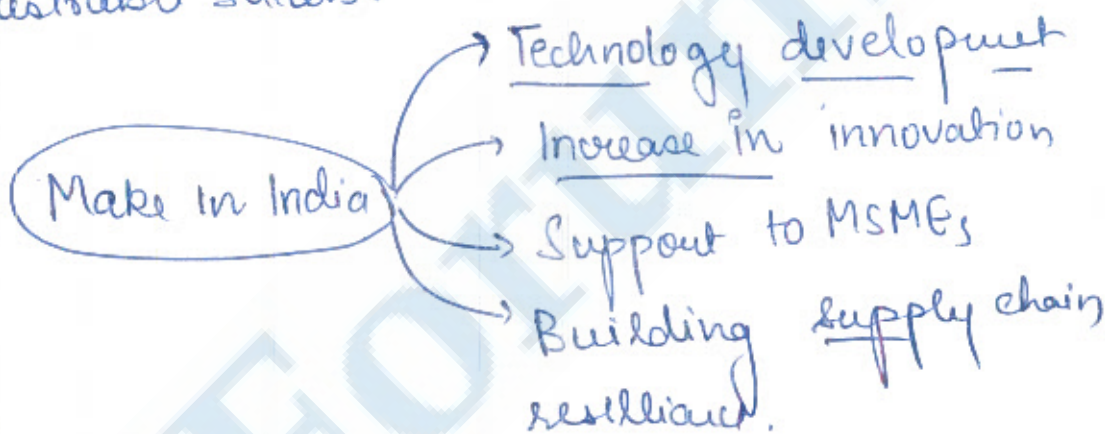
Here G is Good, A is Average and P is Poor.

TOTAL MARKS	
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Q.12) Despite government efforts at 'Make in India', what are the key impediments in making in India? Suggest measures to encourage domestic manufacturing. (15 marks, 250 words)

'मेक इन इंडिया' के सरकारी प्रयासों के बावजूद, मेक इन इंडिया में मुख्य बाधाएँ क्या हैं? घरेलू विनिर्माण को प्रोत्साहित करने के उपाय सुझाएँ! (15 अंक, 250 शब्द)

Make in India, Assembly in India or the Atmanirbhar Bharat package have been instrumental in providing stimulus to private sector, but failed to achieve desirable success.



Impediments in 'Make in India'

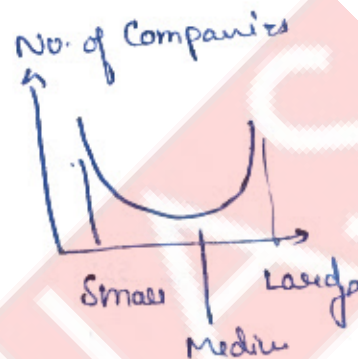
④ Policy Issues / Regulatory blockages

- ↳ Licensing requirements (Eg) - Bioplastic production
- ↳ Limitations on FDI in many sectors

Capacity Issue (Technology constrain)
 (Eg) - Inability to Manufacture critical commodities like 'Electrolyzers'

Missing Middle Problem

(Eg) Less number of Medium Scale enterprises



Inability to compete with

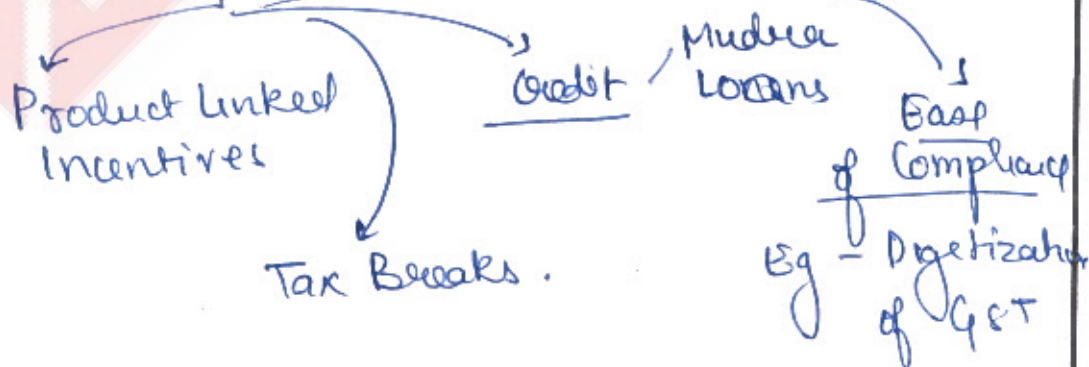
Exports : (Eg) - Dumping practices by China

Lack of Global Co-operation

Inability to transfer Information from USA/Europe. (Eg - Space Sector)

Measures to encourage Domestic Manufacturing

Incentives towards new entrepreneurs



Building Resilience of Supply chain
Focus on Logistics, forward and backward linkages

(Eg) - Industrial Corridors, Food parks etc.

Research and Development
Increase spending on industrial research from 0.7%

Target Critical Sectors
(Eg) - Semiconductors, Chips, Electronics

Bridging Gender Gaps
Only 17% of MSMEs are women owned
(Stand up India)

Make in India has potential to not only boost economy, but increase self reliance and help India achieve its 30 Trillion dollar economy vision.

Feedback

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TOTAL MARKS			

Q.13) India is one of the largest producers of food, yet Food Processing Industry (FPI) is not well developed in the country. Examine the inhibiting factors and recommend some remedial actions to promote FPIs. (15 marks, 250 words)

भारत खाद्यान्नों के सबसे बड़े उत्पादकों में से एक है, फिर भी देश में खाद्य प्रसंस्करण उद्योग (एफपीआई) का पर्याप्त विकास नहीं हुआ है। अवरोधक कारकों की जांच करें और एफपीआई को बढ़ावा देने के लिए कुछ उपचारात्मक कार्रवाइयों की सिफारिश करें। (15 अंक, 250 शब्द)

India is the second largest global producer of rice, wheat and vegetables, yet challenges in FPIs puts our food inflation well above 9% (Economic Survey 2022-23).

Significance of Food Processing Industries

↳ Alternate income to farmers

(Eg) - Vision of doubling farmers Income

↳ Ensuring Nutrition Security in India

(Eg) - Fortification of food

↳ Job opportunities (Sunrise sector)

↳ Attracts Foreign Direct Investment

(Eg) - Chips industry.

Inhibiting factors affecting FPIs

- # Lack of Awareness and risk taking ability in farmers (Eg) - Protest on Farm laws
- # Logistics and Infrastructure issues
Lack of Cold storage, transportation etc.
(Eg) - 30-40% vegetables get wasted on way to FPIs
- # Policy constraints
Lack of credit stimulus, excessive regulations. (Eg) - Case of Contract Farming
- # Less inclination to form Co-operatives
(Eg) - North India
- # Diversification of crop is absent due to skewed policies - MSP, subsidies on fertilizers and electricity
- # Standardisation
(Eg) - Inability to meet phyto sanitary standards of USA

Measures to enhance and promote APs

- ④ Resilience of Infrastructure
 - Storage → Technology → Smart Warehouse
 - ↓
 - IoT Based Devices
 - Cold Trucks
- ④ → Transit

(Eg) - PM Gatishakti, Dedicated Freight Corridors

④ Food Parks can act as a measure to centralise and increase efficiency

④ Changes in agriculture patterns
(Eg) - "2023 - International Year of Millets"

④ Promotion of collectives -
(Eg) - Farmer producer's organizations

④ Research and development
(Eg) - Increasing shelf life

With proper intervention, APs can not only ^{met} ~~make~~ domestic market aspiration, but also contribute to exports.

Feedback

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TOTAL MARKS	
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Q.14) Adoption of millets can provide unique solutions to the problems of nutritional deficiency, ecological degradation, and receding farm incomes; however, the realization of its complete potential is hindered by a slew of factors. Analyse. (15 marks, 250 words)

मोटे अनाज को अपनाने से पोषण की कमी, पारिस्थितिकी क्षरण और घटती कृषि आय जैसी समस्याओं का अनूठा समाधान मिल सकता है; हालाँकि, इसकी पूरी क्षमता की प्राप्ति कई कारकों से बाधित है। विश्लेषण करें (15 अंक, 250 शब्द)

Millets, also called the 'superfood' of India, have provided an answer to various challenges like sustainability of agriculture and nutrition security in India.

Significance of Millets

NUTRITIONAL DEFICIENCY

Key source of Minerals and Vitamins

(Eg) - Ragi is a source of 'Calcium'.

Ecological DEGRADATION

↳ Climate Resistant (Heat Resistant)

↳ Water : Drought Resistant

(Eg) - Bajra and jowar can grow in semi arid conditions.

INCOME OPPORTUNITY : Alternative source of Income to farmers

(Eg) - Millet Cereals, Millet oats etc.

Factors hindering the potential of Millets

Attitude of Consumers

- ↳ Seen as food of 'poor people'
- ↳ perception of 'bland Taste'

Skewed Agricultural practices

- ↳ focus on growing rice, wheat etc.
- ↳ less risk taking ability ↓ 'MSP'

Poor linkages to Industries

(Eg) - less number of Food processing Industries involved in 'Millet's

Government policies

nonavailability of income guarantees and Subsidies on millets

Lack of awareness

↓
Producers
(Farmers)

↓
Consumer
↓
Benefits

↓
Availability

Measures to harness potential of 'Millets'

- # Incentives - 'Nudge' Policy making
 - (Eg) - MSP on Millets by diverting spending on staples
- # Crowd in FPIs.
 - (Eg) - Credit availability to MSMEs
- # Harness Rural Economy
 - (Eg) - Focus on Self help groups like 'didi ki Rasoi' in Bihar
- # Increase Awareness on Benefits as well as potential as a healthy alternative
 - (Eg) - Demonstration of millet based meals at G20.

With the conclusion of International Year of Millets, India is collectively combating health risks as well as moving closer to achieving SDG 1, 2, 4.

Feedback

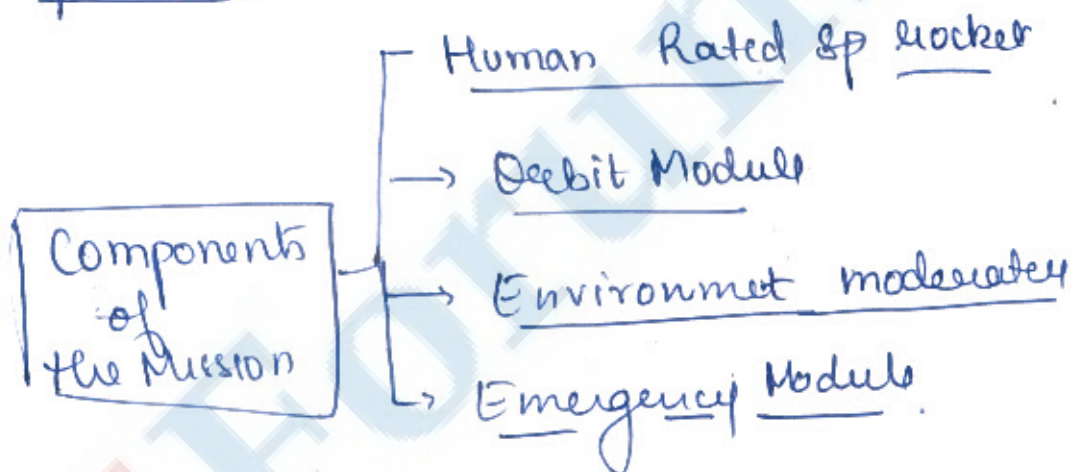
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TOTAL MARKS			

Q.15) Describe how the Gaganyaan mission can help achieve India's broader national objectives. Also, throw light on the key challenges that the mission faces. (15 marks, 250 words)

वर्णन कीजिए कि गगनयान मिशन भारत के व्यापक राष्ट्रीय उद्देश्यों को प्राप्त करने में किस प्रकार सहायक हो सकता है। साथ ही, मिशन के समक्ष आने वाली प्रमुख चुनौतियों पर भी प्रकाश डालिए। (15 अंक, 250 शब्द)

Gaganyaan Mission of ISRO is set to achieve its objective of sending a 3^{person} crew in lower Earth orbit, thereby demonstrating human spaceflight capability.



Potential of achieving broad objectives

① Global Perception
Demonstration of space sector capabilities.

(Eg) - NISAR collaboration

Boost Economy

- ↳ Attract Private Sector
- ↳ Increase space economy share from 3%
- ↳ Creation of Jobs in space sector

Scientific Advancement

(Eg) - Microgravity experiments to be conducted in space.

Development of New technology

(Eg) - Reusable spacecrafts (Pushpak)

Research in field of Medicine

(As several preventative measures have to be taken)

Challenges in front of Mission

Human Capacity

Challenging to find qualified astronauts
Capable of ~~the~~ learning 'Multiple Skills'

Health Concerns

Training of several months is required for sustaining in a Microgravity environment.

Technological Constraints

(Eg) - Building 'Human Rated' spacecrafts with adequate emergency provision.

Budget Constraints

(Eg) ISRO has a total of 2B\$ Budget only.

Coordination of ISRO and it's multiple agencies (NSIL)

With accurate testing of unmanned missions, Mission Gaganyaan can not only become a triumph in space sector, but also boost our economy by opening avenues to 'space Tourism'.

Feedback

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TOTAL MARKS

Q.16) Green Hydrogen is necessary for the country to modernize without carbonizing; however, its adoption is beset with several challenges. Discuss. (15 marks, 250 words)

देश को कार्बनीकरण के बिना आधुनिक बनाने के लिए ग्रीन हाइड्रोजन आवश्यक है; हालाँकि, इसे अपनाना कई चुनौतियों से घिरा हुआ है। चर्चा करें। (15 अंक, 250 शब्द)

Green Hydrogen refers to production of hydrogen via renewable resources, i.e., electrolysis of water.

Significance of Green Hydrogen

ENVIRONMENT

↳ Produced via renewable sources
↳ No ~~to~~ emission of carbon when Hydrogen is used as a fuel.

INDUSTRIES

Hydrogen is necessary for many industries as a raw material
(eg) - Haber-Bosch process of Ammonia production

AGRICULTURE

Critical component to boost the domestic production of fertilizers.

CREATION of Alternate Economic opportunities

(Eg) - Boost to Hybrid / flex fuel ~~car~~ automobile industries.

Reduces burden on RESOURCES as it can be easily manufactured

Challenges associated with green hydrogen

Limitation in Manufacturing capacity

(Eg) - India still imports electrolyzers from Germany.

Issue of Stability as a fuel

(Eg) - Hydrogen is highly combustible

Lack of Integration into practical applications

(Eg) - Hydrogen fuel based cars are not yet popular.

Very limited private sector involvement

(Eg) - Handful of plants in Gujarat, North east.

Measures to boost Green Hydrogen production

- # Policy Reforms
(Eg) - National Green Hydrogen Mission
- # Incentives to Industries
(Eg) - Subsidies on production
- # Research and innovation
(Eg) - Make in India → 'Electrolysis'
- # Increased awareness on benefits of Green Hydrogen . (Eg) - Changes in School Curriculum
- # Forwarded linkages
(Eg) - H₂ transportation 'pipelines'

Green hydrogen is a step towards building alternate fuels, self reliance, fulfilling commitments on environmental goals and a cleaner society in India.

Feedback

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TOTAL MARKS			

Q.17) Biotechnology, by integrating biological sciences with technological innovations, offers comprehensive solutions to some of the most pressing challenges in food production, waste management and human health. Elucidate. (15 marks, 250 words)

जैव प्रौद्योगिकी, जैविक विज्ञान को तकनीकी नवाचारों के साथ एकीकृत करके, खाद्य उत्पादन, अपशिष्ट प्रबंधन और मानव स्वास्थ्य में सबसे अधिक दबाव वाली चुनौतियों में से कुछ के लिए व्यापक समाधान प्रदान करती है। स्पष्ट करें। (15 अंक, 250 शब्द)

Biotechnology refers to field of science where scientific advancements are applied to fields of health and agriculture, primarily focusing on improving quality of life.

Significance of Biotechnology

① FOOD PRODUCTION

Increase in yield, resistance to diseases in crop. (Eg) - Bt Brinjal | Bt Cotton.

② WASTE MANAGEMENT

(Eg) - Use of Microorganisms to clean oil spills; Bioplastic production

③ HEALTH BENEFITS

↳ Precision healthcare

(Eg) - Cancer Cell Therapy

↳ Genetic disorders treatment

(Eg) - Gene Therapy

↳ Advancement in prosthetics / Disability

care. (Eg) - Neuralink Devices

NUTRITION SECURITY

(Eg) - Production of 'Super foods'

ECONOMY

↳ Medical Tourism

↳ Job creation

(Eg) - Surrogacy / IVF specializations

Challenges in the Field of Biotechnology

① Limited Research capacity

(Eg) - Risk of 'neurotoxicity' in CART cell Therapy.

② Bioethics and privacy

(Eg) - Risk of 'Information download' in 'neuralink' or other assisted care devices

- Issue of Informed consent

Regulatory challenges and potential of sub-standardization
 (Eg) - Irregularities in clinical trial

ENVIRONMENTAL IMPACT

(Eg) - ill effects of HVV seed based agriculture practices.

Limited funding to academic institutions.

Government Measures

Regulatory overruler

(Eg) - GEAC

Legal / Judicial constraints

(Eg) - Biodiversity Act

Focus on Research

Awareness Campaigns

(Eg) - Awareness on latest treatments on AIDS.

(Eg) - Centre for Academic Excellence.

With ethical safeguards in place, biotechnology has tremendous potential in healthcare, economy and nutritional Security in India.

Feedback

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TOTAL MARKS			

Q.18) Explain the causes and impacts of landslides. Also, discuss the various measures to mitigate their impact, with a special emphasis on National Disaster Management Authority (NDMA) guidelines. (15 marks, 250 words)

भूस्खलन के कारणों और प्रभावों की व्याख्या करें। इसके अलावा, राष्ट्रीय आपदा प्रबंधन प्राधिकरण (एनडीएमए) के दिशा-निर्देशों पर विशेष जोर देते हुए, उनके प्रभाव को कम करने के विभिन्न उपायों पर चर्चा करें। (15 अंक, 250 शब्द)

Recent amendments to the National Disaster Management Act (2023) have highlighted the need of 'risk mitigation' in disasters like landslides.

Causes of landslides

① NATURAL CAUSES

① Extreme weather events : Excessive Rainfall

(Eg) - Manali

② Geological Events : Earthquakes

(Eg) - GLOF event in Unonak lake

③ Topography : Most likely to happen on mountain slopes of unconsolidated

soil . (Eg) - Shivalik foothills

ANTHROPOGENIC CAUSES

- ① Unplanned urbanization : Densely populated areas. (Eg) - Shimla
- ② Excessive construction and infrastructure activities. (Eg) - Building Highways in hilly region
- ③ Climate Change aggravated by human activities
- ④ Artificially induced earthquakes.
(Eg) - Cases of Avalanches due to human activity

Impact of landslides

- # Loss of Lives and Property
(Eg) - Joshimath crisis of Uttarakhand
- # Disruption of daily activities / critical sector
(Eg) - School, healthcare, jobs
- # Impact on Tourism in popular destinations. (Eg) - Himachal Pradesh.

- # Psychological impact of Disasters
(Eg) - Post Traumatic Stress disorder

Mitigation of landslides - NDMA guidelines

- # MONITORING
 - ↳ Early warning systems
 - ↳ Geospatial Monitoring.
- # INFORMATION MITIGATION
 - Use of Social Media, alerts on mobile
- # Building disaster resilient Infrastructure
 - (Eg) - 'Build back Better' policy.
- # Community Resilience
 - (Eg) - Mock drills for population prone to disaster
- # SEARCH and RESCUE
 - (Eg) - Use of Drones to reach disaster struck locations.

Mitigation of landslides like in
Short term (preparedness) and long term
(Environment Conservation) strategies.

Feedback

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Q.19) As threats to maritime security evolve, India faces multifaceted challenges that necessitate a comprehensive and proactive approach to safeguard its strategic interests. In light of the statement, throw light on the key maritime security challenges in India. Also, highlight the measures taken by the government to strengthen maritime security in the country. (15 marks, 250 words)

समुद्री सुरक्षा के लिए खतरे बढ़ने के साथ ही भारत को बहुआयामी चुनौतियों का सामना करना पड़ रहा है, जिसके लिए अपने रणनीतिक हितों की रक्षा के लिए एक व्यापक और सक्रिय दृष्टिकोण की आवश्यकता है। बयान के आलोक में, भारत में प्रमुख समुद्री सुरक्षा चुनौतियों पर प्रकाश डालें। साथ ही, देश में समुद्री सुरक्षा को मजबूत करने के लिए सरकार द्वारा उठाए गए उपायों पर प्रकाश डालें। (15 अंक, 250 शब्द)

Recent attacks by Houthi Rebels in Red sea, contentions in South China sea are alarming indicators to work on building a secure marine neighbourhood.

Challenges faced by India due to Maritime Security

SECURITY CHALLENGE

Issues of drug trafficking, illegal migration are higher due to long coastline (7000 km+)

Securing Sea lines of Communication Necessary to safeguard Economic interests

(Eg) - Critical chokepoints like Strait of Malacca, Suez Canal.

Global Perception

India's vision of being 'regional security provider' is dependent on maritime security

Chinese Threat

String of pearl strategy. (Eg) - taking over hambantota port (Sri Lanka)

Measures to strengthen Maritime Security

Intelligence and Monitoring

(Eg) - Coast Guard and Naval exercises

Providing Emergency aid

(Eg) - Escorting Phillipino ship from Red Sea

Global cooperation

(Eg) - Use of QUAD to further the vision of 'free and open' Indo-Pacific

Policy Interventions

(Eg) - GAGAR to secure Indian Ocean.

- ⑥ Information exchange to counter Non traditional threats - piracy, terrorism
- (Eg) - Cooperation with International Maritime Organization

- ⑦ Building Information Fusion Centers in Indian Ocean region.

By building a secured Indian Ocean, India can leverage opportunities

Improved perception

Better Collaboration

Increased Autonomy
(Eg) - Trade

(Eg) - Naval Exercises

Maritime security is one of 5 threats of modern warfare and needs advanced technological as well as diplomatic efforts to be effectively resolved.

Feedback

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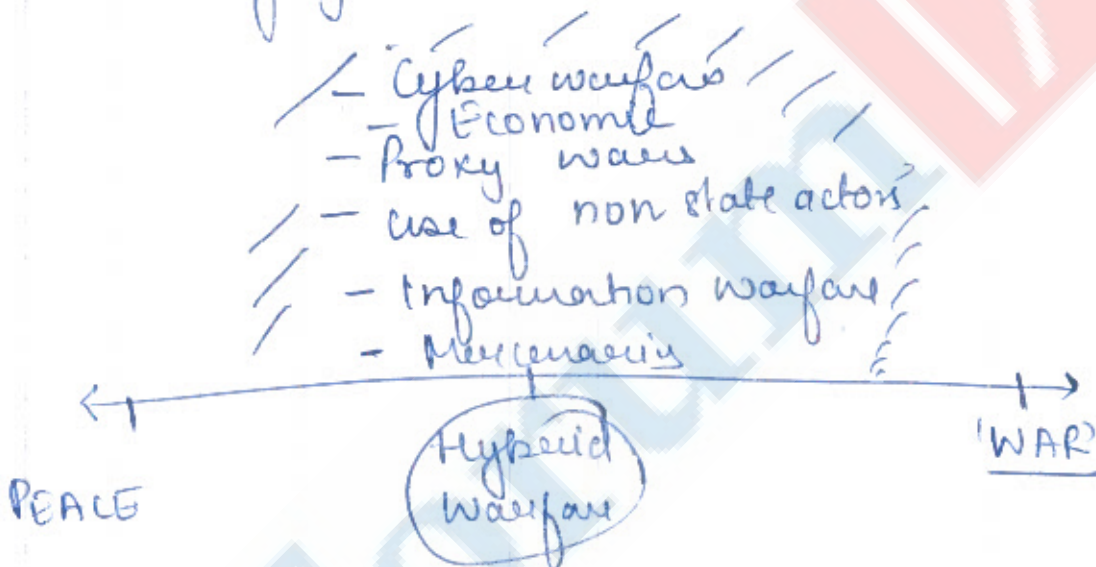
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TOTAL MARKS	
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Q.20) Bring out the challenges posed by 'hybrid warfare' to the national security and suggest comprehensive counter-measures. (15 marks, 250 words)

'हाइब्रिड युद्ध' से राष्ट्रीय सुरक्षा के सामने उत्पन्न होने वाली चुनौतियों को स्पष्ट करें और उनके समाधान के लिए व्यापक प्रतिरोध उपायों का सुझाव दें। (15 अंक, 250 शब्द)

Hybrid warfare refers to a spectrum of unconventional warfare threats, that lie in grey area in terms of accountability



(Fig) - Dimensions to Hybrid Warfare

Challenges posed by hybrid warfare

① DIFFICULT to COUNTER

(Eg) - very complex to contain social media led disinformation campaign

Lack of Accountability

(Eg) - Case of Use of Indian mercenaries or private Militaries

Global Issue →

(Eg) - China supporting cyber attacks on Indian Power grids.

Lack of Technical expertise

(Eg) - Inability to detect sources of funding to proxy groups.

Lack of Concrete International Regulations

Comprehensive counter-measures against hybrid warfare

Capacity Building → Solving 'power' problem with respect to technology.

(Eg) - Use of NATGRID in information sharing.

Counter narrative Strategy

Floating alternative narratives to disinformation.

Strict Legal Measures

(Eg) - UAPA, FEMA, PMLA.

Global Efforts and Collaboration

↳ Information sharing : Budapest Convention

↳ International regulation to fix Liability.

↳ Role of Mediation by institutions like UN

Individual level awareness

↳ Digital literacy

↳ Awareness on drugs, radicalization etc.

Hybrid warfare is a dynamically evolving issue, which needs a holistic mitigation approach → SECURITY, ECONOMY and Individual level interventions.

Feedback

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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		

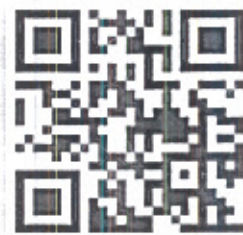
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If we are already doing well, a reinforcement from the Mentor will further assist us in following the right path. A Mentor may also be able to give valuable inputs with respect to time management, presentation, structure etc. He may recommend you clearly to work on content or may suggest you to take courses / read books in case he feels you lack content that may be quickly improved with a course at ForumIAS or elsewhere, or some study material.

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