

Time Allowed - Three Hours
समय तीन घंटे

Forum IAS

Maximum Marks 250
अधिकतम अंक 250

GENERAL STUDIES / सामान्य अध्ययन

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| Name Of Candidate परीक्षार्थी का नाम | Amritanshu Nayak | | |
| Roll No./अनुक्रमांक | 0701931 | Medium/माध्यम | English <input checked="" type="checkbox"/> हिंदी <input type="checkbox"/> |
| Center Code/परीक्षा केंद्र | | Date/दिनांक | 30/7/23 |

*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. Please do furnish Name, Email, Roll No and Mobile in the answer sheet. कृपया उत्तर-पुस्तिका में नाम, ईमेल, रोल नंबर और मोबाइल नंबर भर। | |
| 1 | | | 2. 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। | |
| 2 | | | 3. 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। | |
| 3 | | | 4. 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। | |
| 4 | | | 5. 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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| Total/कुल अंक | 250 | | For Student Only / केवल परीक्षार्थी प्रयोग हेतु | |
| Examiner's Discretion/मूल्यांकन कर्ता का विवेक : | | | Start Time/प्रारंभ करने का समय : | End Time/समाप्त करने का समय : |
| Total Marks/कुल अंक : | | | Mode Of Examination/ परीक्षा की विधि : | Online/ऑनलाइन <input type="checkbox"/> Offline/ऑफलाइन <input type="checkbox"/> |
| *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 परांद आयी के आधार पर (लेकिन इन्हीं तक सीमित नहीं) पर दिए गए अंक हैं। | | | For Office Use Only / केवल कार्यालय प्रयोग हेतु | |
| | | | ECN CODE/ ईसीएन कोड : | Evaluation Date/ मूल्यांकन तिथि : |
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Q209129_613202_1910128580 (2023-07-31 15:36:07) (Engineering and Mathematics) sector provides opportunities for India to become a leader in knowledge economy; however, there is a need to democratise its access in order to harness its complete potential. Analyse. (10 marks, 150 words)

STEM (विज्ञान, प्रौद्योगिकी, इंजीनियरिंग और गणित) क्षेत्र भारत को ज्ञान अर्थव्यवस्था में अग्रणी बनने के अवसर प्रदान करता है, हालांकि, इसकी पूरी क्षमता का उपयोग करने के लिए इसकी पहुंच का लोकतांत्रिकरण करने की आवश्यकता है। विश्लेषण करें।

(10 अंक, 150 शब्द)

Knowledge economy refers to the use of education to create multiplier effects in the economy. In this regard, STEM sector is very critical to harness this knowledge economy & make India a leader:

- ① Generate Research & development (R&D) for newer technologies which help to increase growth.
- ② Skilling → Creates new highly paid jobs creating demand and attracting investment
- ③ Creation of newer industries and companies to boost entrepreneurship Eg sun rise sectors like Pharmaceuticals, AI, IT etc.
- ④ Industry academia linkages increase research & their monetisation.

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① Alignment with these sectors can give strategic advantage to India and increase exports. 54 IT.

However there is a need to democratize step to increase access:

- ① Affordability → so that all sections of population can aspire for higher success
- ② Inter sector disparity → At present most of funds for R & D go to software, hence there is a need to equitably distribute funds
- ③ Inclusive growth as STEM has the potential to create grassroot growth
Eg. Rudimentary solar panel winning National Science award.
- ④ Increase accessibility to quality education

Thus, steps like increasing education budget to 3% of GDP, foreign collaboration etc. is need to harness knowledge economy and utilize the demographic dividend

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Q.2) Defense indigenization remains the Achilles heel of India's security architecture. Examine the importance of startups in defense sector to make India secure and self-reliant.

(10 marks, 150 words)

रक्षा स्वदेशीकरण भारत की सुरक्षा संरचना का आधार बना हुआ है। भारत को सुरक्षित और आत्मनिर्भर बनाने के लिए रक्षा क्षेत्र में स्टार्टअप को महत्व का परीक्षण कीजिए।

(10 अंक, 150 शब्द)

As per SIPRI report, India is the 2nd largest weapon importer, in the world of nearly \$70 billion.

Reasons for slow defense indigenization

- ① Funding → Most of the budget goes into paying salaries & pension, Less funds for R & D and capital expenditure
- ② Limited private sector involvement due to heavy regulation
- ③ Poor linkages between academia and defense leading to lack of tallos made solution
- ④ Long gestation periods of 15-20 years
- ⑤ Corruption & middlemen which damage indigenouse industry for containing.

Imports Eg. Augusta Westland boom

In this context, startups can play a huge role to make India self-reliant!

- ① Technological Innovation especially in newer sectors of AI, ML which create multiplicar effects
- ② More nimble and flexible so that faster work happens.
- ③ Cost effectiveness of equipment which conserves military budget
- ④ Can connect Industry, military, academia together. Eg IIT Madras projects.
- ⑤ Idealism of youth to serve the nation in various way and overcome obstacles

In addition, allowing FDI in defense up to 100% (government route), defense corridors formation, Agriveter etc. can lead to Atmanirbhar Bharat in defense within reasonable time frame.

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nesses; however, the challenges of exclusion, exploitation, and monopolisation cannot be ignored. Examine. (10 marks, 150 words)

DPI (डिजिटल पब्लिक इंफ्रास्ट्रक्चर) नागरिकों और व्यवसायों को डिजिटल रूप से सक्षम करने के लिए अपरिहार्य है; हालांकि, बहिष्कार, शोषण और एकाधिकार की चुनौतियों को नजरअंदाज नहीं किया जा सकता है। परीक्षण कीजिए। (10 अंक, 150 शब्द)

DPI refers to the infrastructure in digital domain to facilitate better governance. Eg CowIN app, UP2 etc.

It is indispensable for digitally enabling citizens and businesses.

(A) Citizens

- ↳ Easier access to public service delivery
Eg DBT transfer of subsidy.
- ↳ Reduce corruptions & bribery
Eg DBT transfer from bank to bank.
- ↳ Citizen empowerment
Eg. CPGRAMS for 24x7 grievance redressal

(B) Businesses

- ↳ Reduce time of taking permissions
Eg Online input tax credit of GST

Reduce the red-tapism & red-tapism
 Eg Swiss challenge in NHA2 projects.

Factor payments & approval.

Eg. VPI, NEFT etc.

However some challenges still exist:

(A) Exclusion due to
 ↳ Poor access to internet & lack of
smartphones & lack
 ↳ lack of awareness & digital illiteracy

(B) Exploitation ↳ Cyber frauds, hacking
violation of data privacy and cyber bullying.
 ↳ Online crimes using loan apps,
betting apps etc
 ↳ Improper protection

(C) Monopolisation → Rise of big tech which
concentrates digital tools and
technology
 ↳ Lack of access creates a class of haves and have-nots.

In order to gain sustainable digital growth,
 Government has taken steps like semiconductor
manufacturing, India's digital stack and others

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Q4) Project cheetah marks a departure from India's efforts for conservation of various critically-endangered species. In this perspective, do you think the reintroduction of major fauna that has gone extinct is justified?
(10 marks, 150 words)

प्रोजेक्ट चीता विभिन्न गंभीर रूप से लुप्तप्राय प्रजातियों के संरक्षण के लिए भारत के प्रयासों से विचलन का प्रतीक है। इस परिप्रेक्ष्य में, क्या आपको लगता है कि विलुप्त हो चुके प्रमुख जीवों का पुनर्स्थापन उचित है?
(10 अंक, 150 शब्द)

Project cheetah refers to the reintroduction of cheetahs in India post its extinction in 1952. The first step is introduction of African cheetahs at Kuno Palpur, MP

It's a departure from India's efforts because:

- ① World's first case of trans continental artificial movement of fauna.
- ② Earlier India used to conserve population but now it is introducing new species

Benefits of such reintroduction of mega fauna

- ① ~~It~~ Int Newer keystone species which will help to conserve ecology of the whole area
- ② Introduction of diversity in gene pool to prevent inbreeding.

① Increased potential for tourism and the resultant economic growth.

② Help in study and research of various ecological phenomena

However, it has some issues:

① Changes in food chains due to introduction of newer predators

② Lack of availability of sufficient prey due to competition between cheetah, tiger, jaguar etc.

③ Increased risk of diseases due to habitat change. Eg Multiple deaths in Kuno-Palpur.

④ Increased scope of human animal conflict.

However, such type of initiatives need to be encouraged with safeguards and precautions for conservation of the species.

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Q13) What do you understand from Green Growth? With special reference to the Budget 2023-24, discuss various governmental measures to promote green growth in the country.

(10 marks, 150 words)

हरित विकास से क्या क्या समझते हैं? बजट 2023-2024 के विशेष संदर्भ में, देश में हरित विकास को बढ़ावा देने के लिए विभिन्न सरकारी उपायों का आकलन कीजिए। (10 अंक 150 शब्द)

Green growth refers to the phenomenon of environmentally sustainable growth..

Use of mass transportation
green energy

Decarbonising of important sectors. like energy, transport etc

Important features

Environment, Society, Governance (ESG) regulations for companies

Computation of Green GDP
Eg Uttarakhand.

Increased R & D expenditure on green technology.

Green government steps

① Budget 2023-24.

- Efficient policy on battery management
- Environment conservation schemes like MISHRI for Mangroves.

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subsidies to agriculture through PM PRASHAM and use of alternate fertilizers

Increased allocation for wind and solar energy projects.

Committing to Panchamrit Promise of Net Zero by 2070 (COP26)

② Renewable Energy steps

- ↳ National - Offshore Wind Energy Policy
- ↳ National Solar Mission
- ↳ Geothermal energy project at Lakechadong

③ Transportation sector

- ↳ Green highway construction by NHAI
- ↳ FAME for electric vehicles.

④ Manufacturing sector → PLI Scheme for solar panels, battery sector etc.

However, more needs to be done through. increased fund allocation, global cooperation, tax benefits etc. Green growth is not just important for economy for also for sustainable development of future.

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Q.6) Unplanned urbanization has made Indian cities vulnerable to fire safety hazards. Discuss and recommend measures for mitigating urban fires, with special reference to national building code, 2016. (10 marks, 150 words)

अनियोजित शहरीकरण ने भारतीय शहरों को अग्नि सुरक्षा खतरों के प्रति संवेदनशील बना दिया है। राष्ट्रीय भवन संहिता, 2016 के विशेष संदर्भ में, शहरी अग्नि को कम करने के उपायों पर चर्चा करें और सुझाव दीजिए। (10 अंक, 150 शब्द)

Unplanned urbanization refers to the non following of urban planning guidelines, illegal construction and encroachment.

This leads to many hazards including fire safety hazards. Eg Mukherjee Nagar Fire in Delhi

Reasons for vulnerability

- ① Non following of fire safety protocol like ~~availability~~ availability of fire extinguishers, sprinklers etc
- ② Overcrowding leads to increased propensity of man made disaster
- ③ Haphazard construction leads to poor space management increasing risk of spread of fire. Eg Slums.

④ Electricity theft using ropper poes increases risk of tripping and faulting

⑤ In case of fire, illegal construction prevent timely arrival of fire department and water trucks

In this context, National Building code, 2016 gives various guidelines to mitigate urban fires:

- ① Appropriate fire fighting protocols like number of fire extinguishers etc
- ② Warning systems like sensors and their use to detect fires.
- ③ Evacuation plans to minimize casualties
- ④ Provision of regular audits of fire and electricity measures.
- ⑤ Fire Zonation plans to prevent spread of fires.

However, public awareness, empowering municipalities etc. can go a long way. in curbing unplanned urbanization and the urban fire vulnerabilities.

Q7) Edge in modern warfare lies not so much in the capacity to overwhelm the adversary as much in the ability to nip the threat in the bud. In this context, discuss the role of intelligence in maintaining national security, and also cite challenges associated. (10 marks, 150 words)

आधुनिक युद्ध में बढ़त प्रतिद्वंद्वी पर हावी होने की क्षमता में उतनी नहीं है जितनी कि खतरे को शुरुआत में ही खत्म करने की क्षमता में है। इस संदर्भ में, राष्ट्रीय सुरक्षा को बनाए रखने में खुफिया जानकारी की भूमिका पर चर्चा कीजिए और इससे जुड़ी चुनौतियों का भी उल्लेख कीजिए।

(10 अंक, 150 शब्द)

Intelligence refers to the ability to collect sensitive information for national interest.

Whereas modern wars can lead to huge scale destruction, Intelligence can help to maintain national security in following ways:

① Get information of threats before hand and nip the threat in the bud.

Eg IB operations in Nepal against terror modules.

② Boost offensive capabilities by getting knowledge of ~~the~~ adversaries essential infrastructure Eg Mosad in Yom Kippur

War (1973)

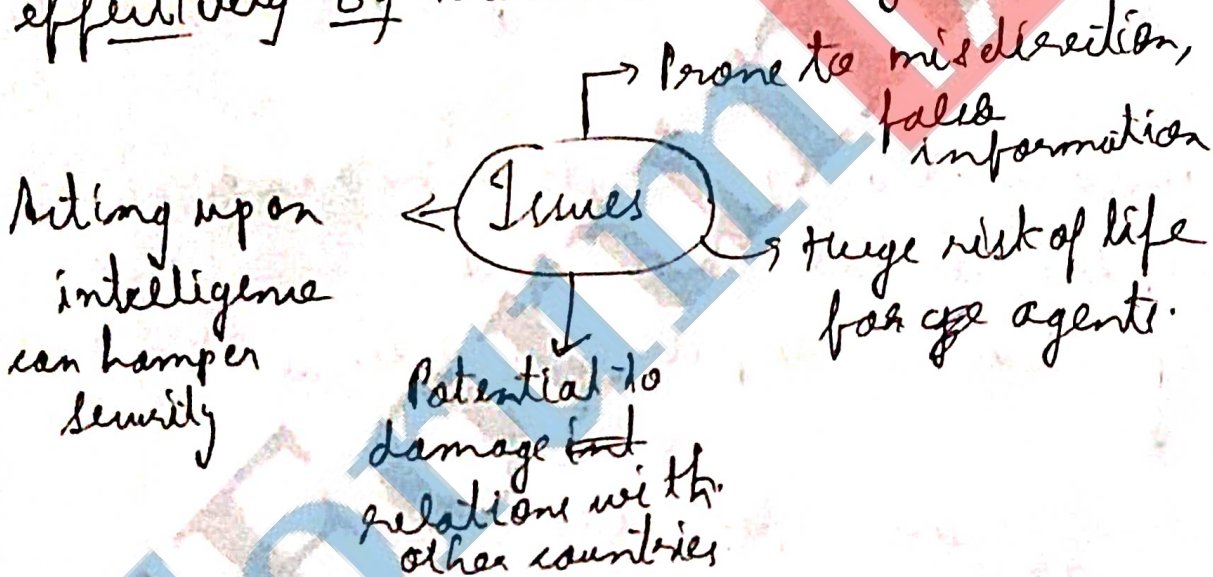
③ Counter terrorism and associated threats
Eg RAW's work against terrorism

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⑤ Generating offensive capabilities beyond national borders. for future threats. Eg getting foreign assets, Use attack.

⑥ Reducing cost of war
Eg 251 & terrorists collaborating against India

⑦ Counter internal security threats to effectively Eg North East Insurgency issue.



Thus, becoming a smart power by integrating offensive capacities with intelligence prowess can help India become a global power.

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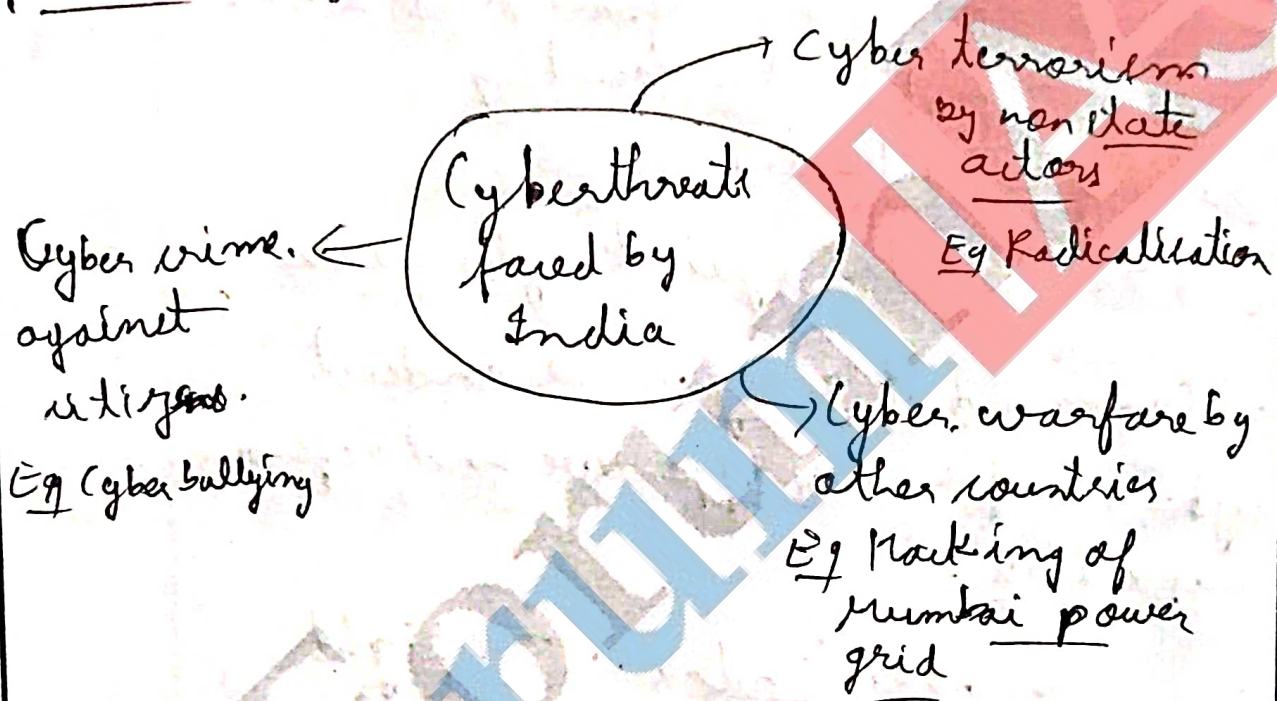
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Q.8) Highlighting different kinds of cyberthreats faced by India, evaluate the current status of cybersecurity framework in the country. (10 marks, 150 words)

भारत द्वारा सामना किए जाने वाले विभिन्न प्रकार के साइबर खतरों पर प्रकाश डालते हुए, देश में साइबर सुरक्षा ढांचे की वर्तमान स्थिति का मूल्यांकन करें। (10 अंक, 150 शब्द)

Cyber threat refers to the use of cyber domain and computers for malicious purposes. Eg Hacking, Phishing.



Current cyber security framework

① Policy & Components

- National Cyber Security Policy, 2013 for securing the digital domain.
- Draft data protection bill to protect privacy.

② Laws → IT Act, 2008 for cyber crimes and penalties

↳ Telegraph Act, 1885 to prevent wire tapping.

③ Institutions → CERT-In → For overall cyber protection

↳ NC IIPC → To protect the country's critical infrastructure

↳ ITC → To counter against cyber crimes

↳ Cyber Command of army → To conduct cyber warfare for offensive and defensive capacities.

↳ Cyber Swachhata Kendra → To fight against malicious content

↳ Cryptography unit of RAW → For latest encryption technology

Some notable steps like banning Chinese apps, fighting hacking have been undertaken. However, this sector needs more funds and further technical specialization and industry involvement.

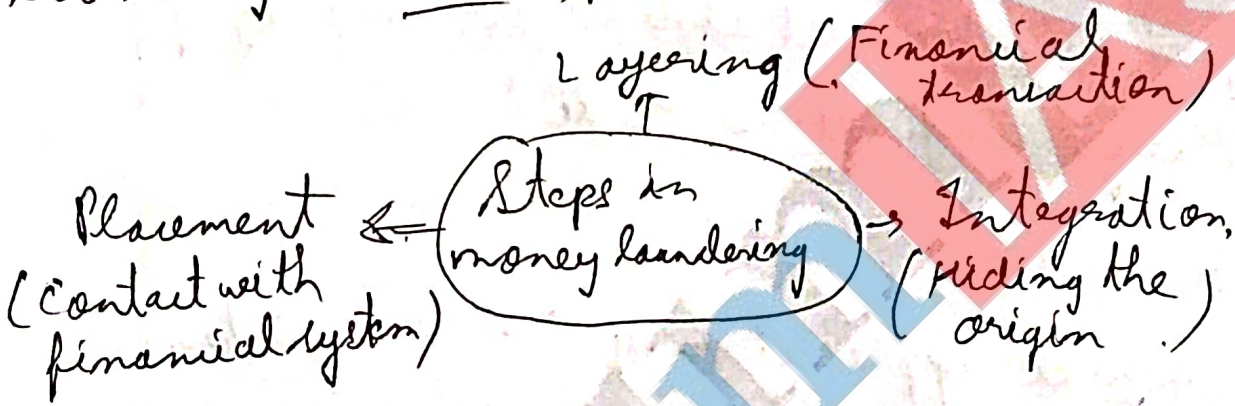
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 2.9) Money laundering is a global problem that cannot be solved by isolated responses. Discuss the statement and also suggest ways to curb the menace. (10 marks, 150 words)

मनी लॉन्ड्रिंग एक वैश्विक समस्या है जिसे विभाजित प्रतिक्रियाओं से हल नहीं किया जा सकता है। कथन पर चर्चा करें और खतरे को रोकने के तरीके भी सुझाएं। (10 अंक, 150 शब्द)

Money laundering refers to hiding the money's origin and its linkage to proceeds of the crime. Eg. India's black economy is 20% of its GDP.



Today, it has emerged as a global problem due to:

- ① Globalization and free flow of capital from one area to another, making monitoring difficult.
- ② Rise of tax havens which allow hiding ownership through shell companies.
 Eg Panama, British Virgin Islands.
- ③ Global spread of hawala networks which.

enable large scale cash transfers at international level. Eg Dubai

④ Rise of technology like cryptocurrency, dark web etc. which makes it difficult for individual crackdown

⑤ Weak extradition treaties to punish the guilty. Eg India not able to get custody of Vijay Mallya and Nirav Modi

Way Forward

① Universal application of FATF regulations

② Bilateral & multilateral treaties to facilitate extradition. Eg India & UAE

③ Crackdown on organized crime like drugs, human trafficking to reduce quantum of black money.

④ Transparency in global banking so that funds can be regulated (like Basel regulation)
Eg HSBC caught laundering drug cartel money

In this day and age of interconnectivity, global and not isolated responses will tame the beast of money laundering.

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Q.10) Assess the relevance of the NISAR mission in observing and managing climate change and natural hazards. (10 marks, 150 words)

जलवायु परिवर्तन और प्राकृतिक खतरों के अवलोकन और प्रबंधन में NISAR मिशन की प्रासंगिकता का आकलन कीजिए। (10 अंक, 150 शब्द)

NISAR mission is a joint NASA & ISRO mission to deploy NISAR satellite. Here, the NASA is providing the major components of radar in satellite while India has responsibility for modifying and launching the satellite by 2024.

Relevance of NISAR

(A) climate change

↳ Observing global warming and resultant temperature changes.

↳ Observe and compute the state of natural vegetation

↳ sea level rise can be estimated through the sensors.

↳ Climate modelling can be performed on board.

(B) Natural hazards

- ↳ Monitoring of hazards like earthquakes, cyclones etc
- ↳ Estimating the amount of damage done by the disasters
- ↳ Data can be used to provide inputs to disaster mitigation and disaster risk reduction practices.
- ↳ Help in directing disaster relief activities and resilient recovery

Thus, not only the satellite is a symbol of US-India friendship but also a global public good due to its key role in climate change and natural hazard studies.

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Q.11) Though often presented as a panacea to the dichotomy between development and ecological conservation, nuclear technology has multitude of other uses. Briefly explaining India's three stage nuclear program, throw light upon various applications and challenges associated with nuclear technology in the country.

(15 marks, 250 words)

हालांकि अक्सर विकास और पारिस्थितिक संरक्षण के बीच द्विभाजन के लिए परमाणु प्रौद्योगिकी को समाधान के रूप में प्रस्तुत किया जाता है परंतु इसके कई अन्य उपयोग भी हैं। भारत के तीन चरणों वाले परमाणु कार्यक्रम की संक्षेप में व्याख्या करते हुए, देश में परमाणु प्रौद्योगिकी से जुड़े विभिन्न अनुप्रयोगों और चुनौतियों पर प्रकाश डालिए।

(15 अंक, 250 शब्द)

Nuclear technology refers to the manipulation of materials at the atomic level to get required results -

India's 3 stage program envisioned by Homi Bhabha was to secure the country's energy independence

Stages

- ① Heavy water reactors using uranium to create plutonium
- ② Fast breeder reactors which use plutonium
- ③ Thorium based reactors to utilize vast thorium reserves of the country to become self sufficient.

Applications of Nuclear Technology

- ① Energy → To cut down dependence on fossil fuel. Eg Kalpakdam
- ② Security → Use of nuclear weapons for protecting the nation
- ③ Industry → For various manufacturing processes and products.
- ④ Health → Nuclear medicine, chemotherapy, use of x-rays.
- ⑤ Space → Use of fusion reactors for space travel.
- ⑥ Food → Use of radiation technology to clean foods.
- ⑦ Archaeology → Use of technology for radio carbon dating.

Challenges

- ① Dual use technology which can be used to damage in wrongful hands.
- ② Nuclear Proliferation leading to global instability Eg AQ Khan network, for nuclear weapons.
- ③ Capital Investment in initial stages is very high and with long gestation period
Eg Each nuclear reactor costs \$3-\$4 billion
- ④ Limited availability of Uranium, Thorium, Plutonium in the world.
- ⑤ Environmental issues → Mining ~~and~~ is poisonous and uses huge quantity of water
- ⑥ Complex handling with risk of life of people
Eg Chernobyl.

Though nuclear technology is environment friendly due to less emission & waste but it needs effective regulation to become a panacea to balance growth & environment.

Feedback

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Q127 What do you understand by nanotechnology? In what ways can nano-technology aid in socio-economic growth of the country? (15 marks, 250 words)

नैनो टेक्नोलॉजी से आप क्या समझते हैं? नैनो-प्रौद्योगिकी देश के सामाजिक-आर्थिक विकास में किस प्रकार सहायता कर सकती है? (15 अंक, 250 शब्द)

Nanotechnology refers to the usage of materials with width below 100 nanometres ($1 \text{ nm} = 10^{-9} \text{ metre}$) for various purposes.

At such small sizes, unique physical & chemical properties can be manipulated to develop unique products.

Nano technology can aid in socio-economic growth of the country in following ways.

① Education

Updated education syllabus can lead to surplus incomes in the future

Foreign collaboration can be conducted for knowledge sharing and knowledge economy

② Health

Use of nanomedicines for effective delivery of medicines

↳ Nanobots to repair tissue factors

③ Agriculture → Nano area (IFFCO)
reduced cost of fertilizer
usage

↳ Effective delivery of inputs, pollination
of plants etc

④ Industrial development

↳ Electronics like semiconductors can be
made efficient and faster

Eg 7nm chips used in supercomputers

↳ Superconduction → Helps to develop
next age supercomputing and quantum
computing capacities

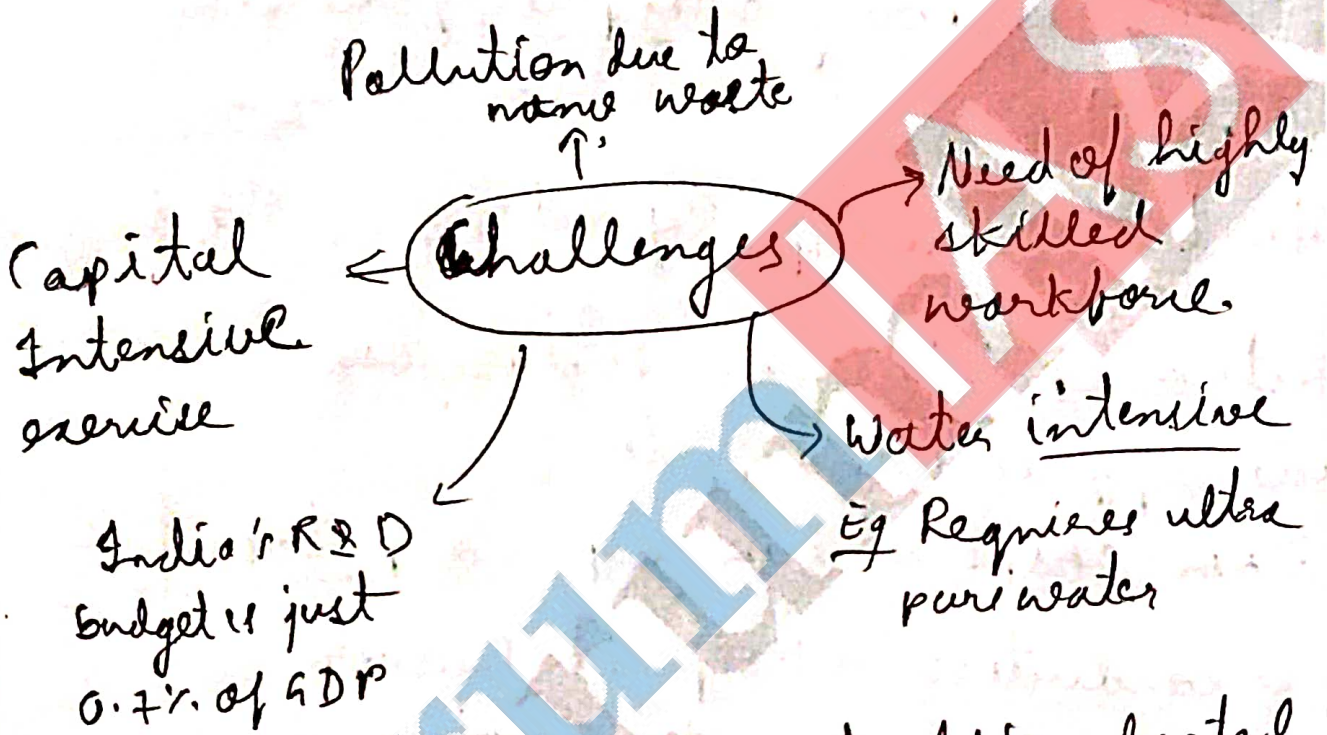
↳ Efficient filtering by use of nano nano
filters increasing yield in industrial,
processes

↳ Developing new age fuels for vehicles
which are emission friendly.

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⑤ Environmentalism

- ↳ Better segregation of pollutants using nanomembranes in filters
- ↳ Water purification process improves



Thus, Nanotechnology should be adopted properly with, increased funds for R&D, training, awareness etc to harness its benefits.

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Q.13) Warming ocean temperatures, oxygen loss and ocean acidification form a deadly trio for marine ecosystem that can have irreversible repercussions for environment as well as economy. Elucidate.

(15 marks, 250 words)

समुद्र का गर्म होना, ऑक्सीजन की कमी और समुद्र का अम्लीकरण समुद्री पारिस्थितिकी तंत्र के लिए एक प्रतिकूल त्रिकोणीय है जो पर्यावरण के साथ-साथ अर्थव्यवस्था के लिए अपरिवर्तनीय प्रभाव डाल सकती है। स्पष्ट करें।

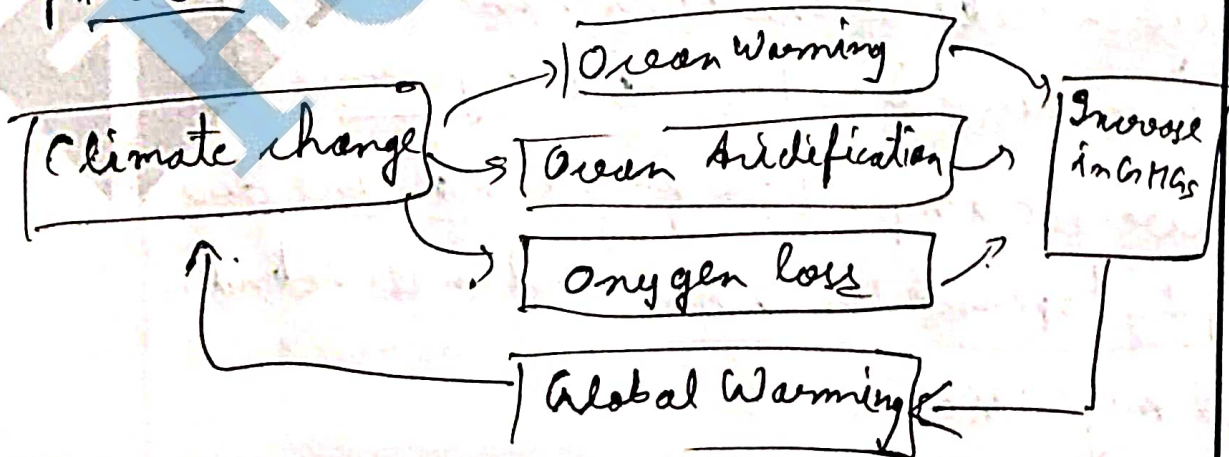
(15 अंक, 250 शब्द)

Climate change due to anthropogenic reasons of emissions, pollution etc is a multidimensional challenge. The most persistent challenge however is to marine domain in form of deadly trio:

① Ocean warming due to rising temperatures

② Oxygen loss due to eutrophication, changing chemical properties, loss of ocean memory Eg Dead Zones in high seas.

③ Ocean acidification → due to rise in pH levels due to increase of CO₂.



This deadly trio is deadly to

① Marine ecosystem

- ↳ Increase of H⁺ ions can lead to change in physiology of organisms
- ↳ Loss of CO₃²⁻ ions can adversely impact shell formation capacity
- ↳ Mass dying of fishes and other creatures

② Environment

- ↳ Creation of dead zones with no marine life due to anoxic conditions
- ↳ Biodiversity loss and decline of nutrient recycling
- ↳ Higher rates of environmental disasters like marine heatwaves & cyclones
- ↳ Adverse impact on food chains due to phytoplankton loss and mass extinction and migration.

③ Economy

→ Increased expenditure to maintain health of oceans, Eg Ocean cleaning.

→ Adverse impact on fisheries sector especially in tropical sector

Eg India is the world's largest supplier of shrimps which will be affected

→ Impact on coastal development due to increased disasters and loss of livelihood

→ Health related issues leading to increased expenditure and loss of disposable income leading to fall in GDP.

Thus, a multifaceted approach with Marine Protected areas, regulation and awareness is needed to reverse this bane of climate change and attain SDG 14 (Life below water)

Feedback

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Q14) Examine the factors that heightens the vulnerability of Indian cities to urban floods. In light of National Disaster Management Authority (NDMA) guidelines on urban floods, discuss suitable mitigation and management strategy. (15 marks, 250 words)

उप कारको का परीक्षण कीजिए जो शहरी बाढ़ के प्रति भारतीय शहरों की सुवेद्यता को बढ़ाते हैं। शहरी बाढ़ पर राष्ट्रीय आपदा प्रबंधन प्राधिकरण (NDMA) के दिशा-निर्देशों के आलोक में, उपयुक्त रायन और प्रबंधन रणनीति पर चर्चा करें। (15 अंक, 250 शब्द)

As per I M D report, India is set to see an increase of 50% in instances of urban flooding.

Factors heightening the vulnerabilities of Indian cities

① Natural factors like cyclones, floods, cloud burst etc

② Anthropogenic factors

↳ Faulty & haphazard urbanisation increasing propensity of flooding

↳ Climate change leading to erratic monsoons & extreme weather events (eg IPCC AR6) report

↳ Unsustainable Agriculture leading to increased surface runoff

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- Deforestation and overgrazing destroying natural vegetation as a natural barrier
- Old dams, loss of wetlands, over-construction, lack of flood management plans etc

Thus, In light of NDMA guidelines, following steps can be undertaken:

① Disaster risk reduction

↳ Develop early monitoring system using radars, stations, sensors and monitoring station

→ Developing of effective floodplain management by effective stakeholder participation

↳ Data collection & analysis

② Disaster preparedness

↳ Implementation of flood management plans

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- Preparing catchment areas and drainage
- Mock drills and preparation shelters

(3) Disaster resilience

- Effective protection and safety and resume operations
- Nature based solutions in urban planning. Eg Sponge cities of China
- Maintain local water bodies

Thus, there is a need for concerted efforts along these lines with increased funds and manpower leading to a sustainable urbanisation balancing economic growth with environmentalism.

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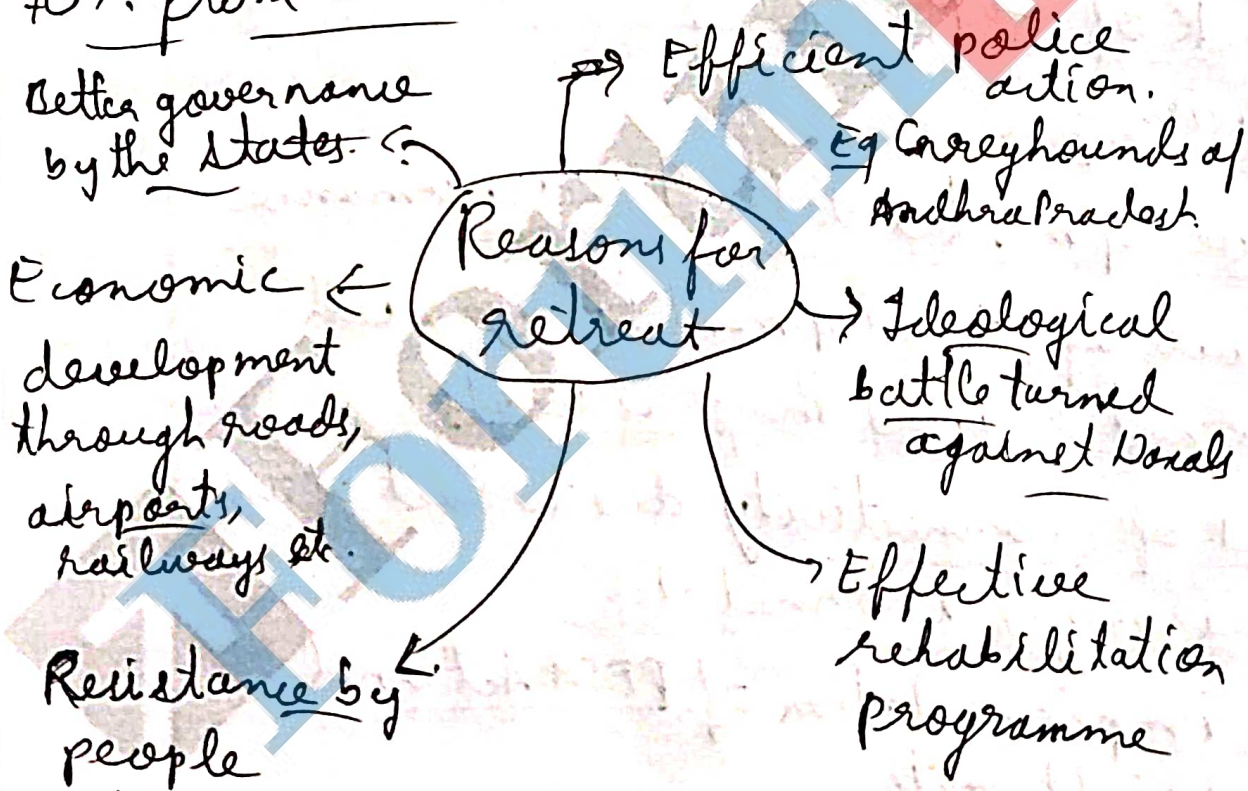
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Q.15) Though Naxalism is showing a downward trend, it is not only thriving in its core areas of influence but also changing its form. Analysing the reason for its retreat, underline the factors behind its continuance. Also, discuss measures towards eliminating LWE from the country altogether. (15 marks, 250 words)

हालांकि नक्सलवाद में गिरावट की प्रवृत्ति दिख रही है, लेकिन यह न केवल अपने प्रभाव के मूल क्षेत्रों में फल-फूल रहा है बल्कि अपना रूप भी बदल रहा है। इसके पीछे हटने के कारणों का विश्लेषण करते हुए, इसके जारी रहने के पीछे के कारणों को रेखांकित करें। साथ ही देश से वागपंथी उग्रवाद को पूरी तरह खत्म करने के उपायों पर भी चर्चा करें। (15 अंक, 250 शब्द)

Naxalism refers to phenomenon of armed left wing extremism (LWE). As per the recent MHA report, just 70 districts are now affected by Naxalism, decline of over 70% from 2010.



However, it continues to exist in, the core areas like tribal belts of.

Chhattisgarh, Odisha, Maharashtra with support from overground workers of cities, universities, government officials etc.

Factors behind continuance

① Security issues

- ↳ Police forces not able to penetrate dense forests
- ↳ Lack of police reforms reduces their efficiency

② Developmental deficit & governance

- ↳ Fruits of development like growth have not reached the grassroots
- ↳ Lack of connectivity due to lack of roads, railways, internet etc
- ↳ Poor implementation of PESA Act and forest right acts
- ↳ Bureaucratic inefficiency + Corruption, treating postings as punishment posting etc

③ Lack of knowledge of local terrain with the administrators & police → Effective use of guerilla warfare by Naxals

④ Change in its form → Turning away from violence to activism and rioting.

→ Ideological backing by civil society like media, universities etc.

→ Foreign support and financing. Eg Chinese weapons found in Raftar.

Police reform & upgradation. Eg modern weapons & gear

Confidence building measures with locals. Eg Tribal mela in Raftar

Increased pace of development

Way forward to eliminate Naxalism

Change in bureaucratic attitude by value education, posting talented officers

Use of carrot (Anti Naxal operations) & stick (rehabilitation) approach.

Employing locals to win hearts & minds

Elimination of Naxalism could drastically favour Internal security scenario of India and freeing up resources for development and security of life.

Feedback
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Q.16) Across sectors and regions, the most marginalised sections are also the most affected by the impacts of climate change. Explain. Also, present a case for a climate resilient model of development that integrates mitigation and adaptation measures.

(15 marks, 250 words)

विभिन्न खंडों और क्षेत्रों में, सबसे अधिक हाशिए पर रहने वाले वर्ग भी जलवायु परिवर्तन के प्रभावों से सबसे अधिक प्रभावित हैं। व्याख्या कीजिए। इसके अलावा, विकास के जलवायु लचीले मॉडल के लिए एक मामला प्रस्तुत कीजिए जो शमन और अनुकूलन उपायों को एकीकृत करता है। (15 अंक, 250 शब्द)

Climate change refers to long term changes in ~~development~~ weather patterns of a given area due to natural (insolation, cloud cover) and anthropogenic (deforestation, pollution) factors.

However, it affects the most marginalized sectors more because:

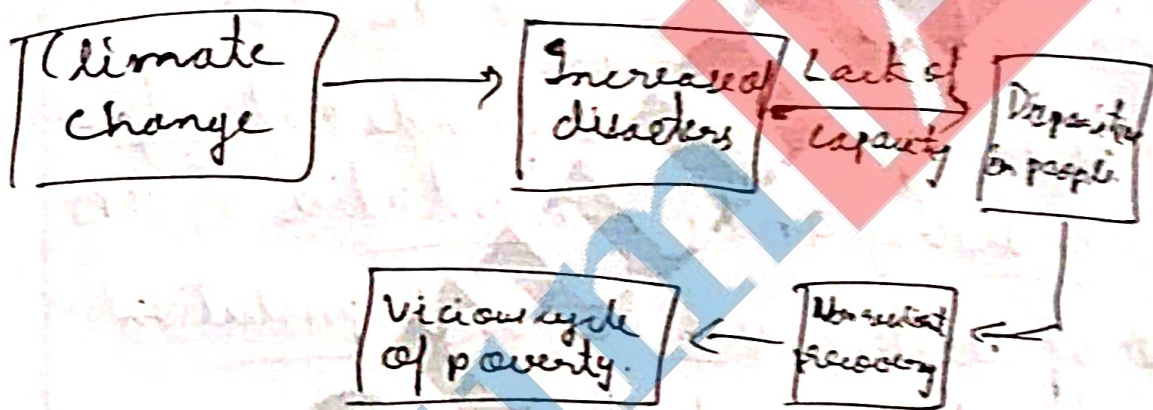
① Deprivation in socio-economic indicators like health, education etc increasing potential for casualty; Eg Fishermen deaths in cyclones in Odisha

② Lack of awareness about the impact of climate change resulting into no change in pre-existing behaviour.

Eg Tsunami of 2004 killed people of local slums who could not guess why water receded

③ Gender based issues → Women suffer the most due to lack of safety, education or skills ~~in disaster~~ Eg Not able to rejoin work

④ Impact on children is also disproportionate leading to learning gaps, stunting etc
Eg Brought related malnutrition



Thus there is a need to introduce climate resilient developmental plans.

① Mitigation measures

- ① Cutting off emissions as per promises made at COP summits
- ② Sustainable agriculture to enhance food security

③ Transfer of finances and technology from Global North to South to augment existing capacities.

④ Afforestation, sustainable land use as per UNCCD guidelines.

⑤ Adaptation steps

① Increase usage of renewable power to decarbonize energy sector. Eg. USA

② Creation of required funds & structures for recovery and rehabilitation. Eg. CDRI

③ Use of electric vehicles and pollution free mass transport etc

In addition, people must take part to uplift their fellow less privileged brothers. Such efforts at the global level could lead to multiplying effects in combating climate change.

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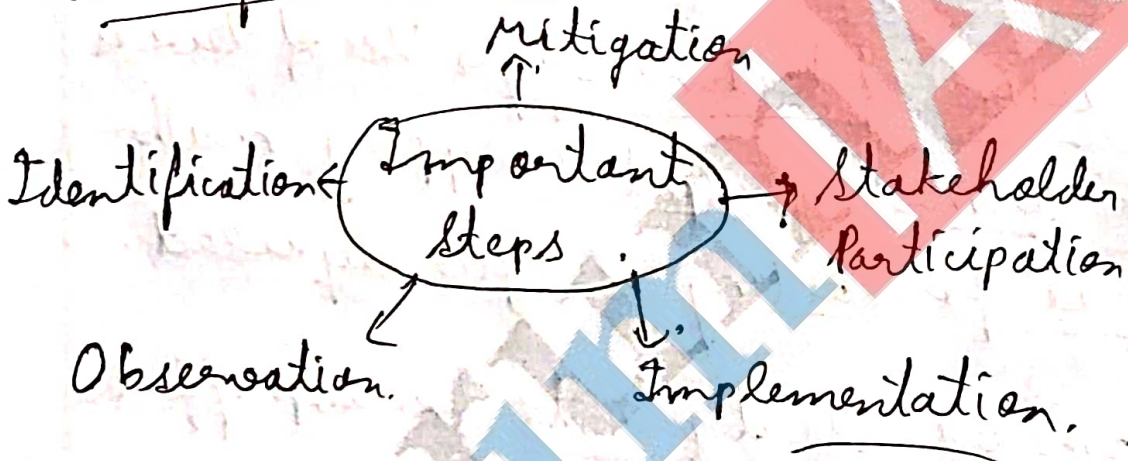
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plethora of constraints. Identifying these constraints, recommend measures for building a robust DRR strategy.

(15 marks, 250 words)

एक बहु-क्षेत्रीय और बहु-स्तरीय प्रक्रिया, आपदा जोखिम न्यूनीकरण (डीआरआर) कई बाधाओं से घिरी हुई है। इन बाधाओं की पहचान करते हुए, एक मजबूत डीआरआर रणनीति बनाने के उपायों की सिफारिश कीजिए। (15 अंक, 250 शब्द)

Disaster risk reduction (DRR) refers to such strategies which help to reduce vulnerabilities and hazards in context of disasters.



However, it faces a plethora of constraints:

- ① Lack of funds which is utilized in the other areas of economy.
- ② Lack of planning in context of unplanned urbanisation, encroachments, executive apathy etc.

- ③ Lack of specialisation in preparing plans due to top down approach and one solution fits all attitude.
- ④ Lack of community participation due to lack of awareness, experiences, capacity and functions.
- ⑤ Poor usage of technology → Use of devices like drones, geospatial mapping, mathematical forecasting is sparsely used.

Recommended strategies to develop effective DRR strategy:

- ① Bottom up approach of planning with stakeholder participation to create customized strategy based on geography & people.
Eg Flood plain management in cities, efficient drainage hills etc.
- ② Building newer forms of infrastructure to mitigate impact of disasters. Eg Miyawaki

method for forests of urban areas

- ③ Nature based solutions like watershed management; sponge cities etc
 - ④ Appropriate development of shelter homes and rations. Eg Cyclone shelters of Odisha
 - ⑤ Increasing awareness through cooperation between state-public-civil society
 - ⑥ Increased allocation of funds, manpower and technology. Eg Geospatial mapping, use of micro drones etc.
- In addition to it, mock drills, emergency plans for evacuation & following NDMA guidelines and implementing SENDAI framework ~~to~~ will go a long way to create an effective DRR strategy.

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Q.18) Though ethnic fault lines are a major threat, security challenges in the North-East are not confined to the same. Discuss the statement with special reference to Manipur. (15 marks, 250 words)

यद्यपि एथनिक फाल्ट लाइन्स (भूजातीय चुट्टिपूर्ण रेखाएँ) एक बड़ा खतरा हैं, उत्तर-पूर्व में सुरक्षा चुनौतियाँ यही तक सीमित नहीं हैं। मणिपुर के विशेष संदर्भ में कथन पर चर्चा कीजिए। (15 अंक, 250 शब्द)

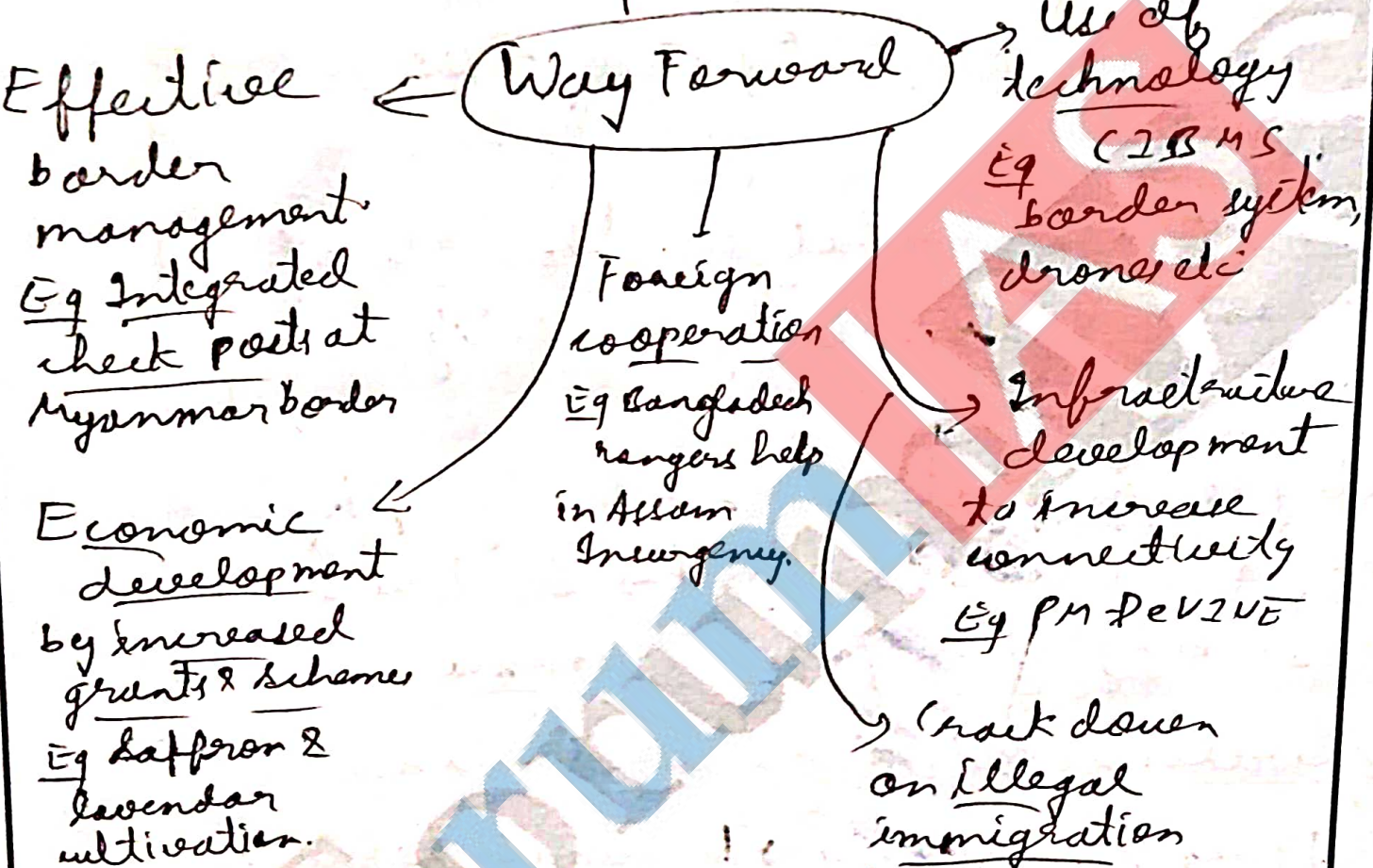
The North Eastern (NE) states are a vibrant society made up of diverse cultures and ethnicities. However, the security challenges are also manifold in NE states. Eg. Manipur riots.

Reasons

- ① Ethnic fault lines
 - ↳ Inter tribal conflict. Eg. Meitei & Kuki tribes
 - ↳ Inter religion conflicts. Eg. In Manipur it is between Hindus and Christians
- ② Fight over land → Due to heavy forests, limited land is available to reside and agriculture.
Eg. Valley people and plain people clash in Manipur

- ③ Developmental deficit due to neglect in economic empowerment over the last many decades. Eg Only 2 NH go into Manipal.
- ④ Geographical Isolation from rest of mainland → Travelling via Siliguri corridor.
- ⑤ Illegal migration and demography changes leading to clashes. Eg. Kuki illegal migration from Myanmar.
- ⑥ Prevalence of organized crime
 - ↳ Drug trafficking → Proximity to Golden triangle
 - ↳ Arms trafficking → Due to presence of insurgents
- ⑦ Outside interference like China, Myanmar to aid and abett the instabilities due to long porous borders and geopolitical games.

Confidence Building Measures
using dialogue & diplomacy



NE India is a key area of India's strategic influence due to I M T highway, land bridge to ASEAN etc. Thus, peace & stability with development is necessary to create a virtuous cycle of security and growth.

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Q.19) Critically examine the role of development initiatives in addressing the root causes of militancy/ terrorism in Jammu & Kashmir. (10 marks, 250 words)

जम्मू और कश्मीर में सशस्त्रता/आतंकवाद के मूल कारणों को संबोधित करने में विकासवादीक पहल की भूमिका का आलोचनात्मक परीक्षण कीजिए। (10 अंक, 250 शब्द)

Jammu & Kashmir since the 1948 War has been the worst affected state in terms of terrorism/militancy. It has resulted in loss of 10000+ soldiers and many thousands of civilians and a persistent development deficit.

Root causes of militancy

- ① Excessive radicalization of youth through extremists
- ② Support from overground workers to facilitate terrorism
- ③ Lack of proactive approach by State to build bridges.
- ④ Role of Pakistan to utilize non-state actors to deplete strength of India
- ⑤ Due to threat to life and persistent

instability, the state could not develop despite huge central grants

② Lack of percolation of benefits due to political ~~corruption~~ ^{corruption}. Eg Article 370's provision mandated that the state could not form Vigilance department

Role of development initiatives to check root causes of terrorism:

① Enhance economic growth in the state to which gave an economic incentive to not join militancy. Eg In peak season, nearly 10000 tourists landed in Kashmir everyday

② Built up capacity of people so that they were not dependent on terrorists for livelihood

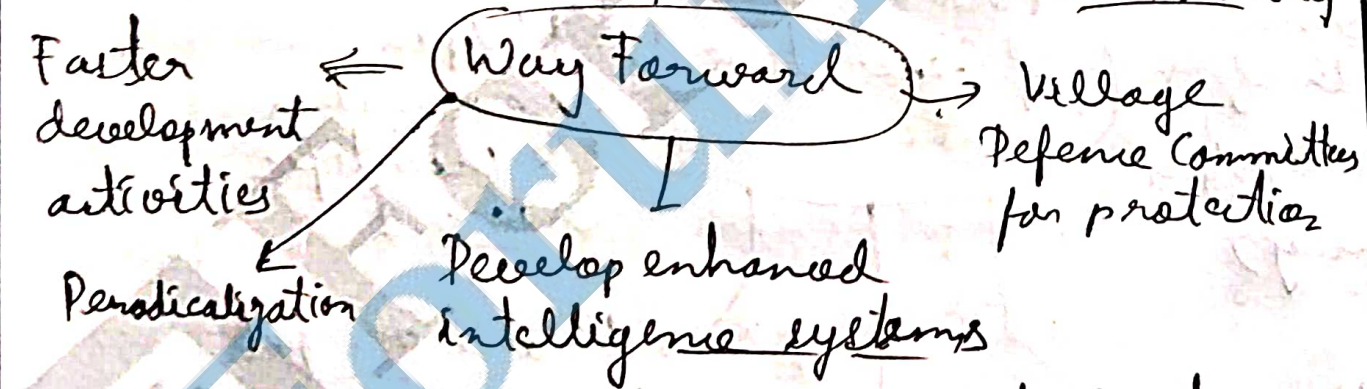
③ Confidence Building Measures helped to tackle trust deficit and radicalization

④ Socio-economic welfare schemes like

Mission Sadhbhavana helped in creating awareness against terror activities.

However, threats still persist due to:

- ① Persistence of radicalization which attempts to brainwash people. Eg Religious killing of Kashmiri Pandits
- ② Proxy war by Pakistan still continues
Eg Pulwama attack.
- ③ Technology pervasion leading to anonymous planning, financing and execution
Involving community leaders for local harmony



Thus with measured and proactive steps, the J&K normalization process could reach to its logical conclusion.

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Q.20) What do you understand by generative Artificial Intelligence (AI)? How can policymakers and regulatory bodies effectively address the concerns and challenges posed by generative AI? (15 marks, 250 words)

जनरेटिव आर्टिफिशियल इंटेलिजेंस (एआई) से आप क्या समझते हैं? नीति निर्माता और नियामकीय निकाय जनरेटिव एआई द्वारा उत्पन्न चिंताओं और चुनौतियों को प्रभावी ढंग से कैसे संबोधित कर सकते हैं? (15 अंक, 250 शब्द)

Generative AI refers to AI which can use pre-existing data to create new data like texts, images, audio etc. It is based on deep learning and natural language processing. Eg Chat GPT, Bard

↑
Augment human creativity & productivity
Eg copywriting, Painting etc.

← Economic growth of \$200 billion/year (McKinsey)

Positives of Generative AI

→ Help in innovation & scientific research

→ Health benefits like new drug discovery.

→ Entertainment by producing newer music and books etc.

← Better educational outcomes through use of intelligent teaching chatbots.

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Challenges & concerns

- ① Mass unemployment due to enhanced efficiency of AI
- ② Biasness in AI algorithms can harm the human society - Eg Wrong identification by Facial Recognition Software
- ③ Data Privacy under threat due to rising influence of big tech companies, rise of deepfakes etc
- ④ National Security will be affected due to newer cyber & digital threats
- ⑤ Intellectual Property rights (IPR) vis-a-vis algorithms and creativity

Steps taken to address the issues.

- ① Update the legal provisions to include AI based regulation. Eg Amending IT Act, 2000 for AI based provision

② Data privacy frameworks to protect personal data & identity Eg EU's GDPR provisions, Data localization

③ Augment domestic capabilities by skilling, education, resource generation and research. Eg NEP 2020 aims to start AI teaching at school level

④ International collaboration
 { In research initiatives. Eg ICET between India & USA
 , In regulation Eg Global Partnership on AI (GPAI)

⑤ Equity in benefit sharing to prevent inequalities between haves & have nots
 Though AI has the capacity to increase the frontiers of human kind, but care needs to be taken for just policies and regulation so that even the common man is benefitted.