

TEST CODE 6 1 3 2 0 2

FIAS – MGP 2023 – Cohort 13 Alt – Sectional Test #4

Time Allowed : Three Hours
समय : तीन घंटे

Forum IAS

Maximum Marks : 250
अधिकतम अंक : 250

GENERAL STUDIES / सामान्य अध्ययन

Name Of Candidate परीक्षार्थी का नाम	Tejas K		
Roll No./अनुक्रमांक	1910129854	Medium/माध्यम	English <input checked="" type="checkbox"/> हिंदी <input type="checkbox"/>
Center Code/परीक्षा केंद्र	1902	Date/दिनांक	20/07/2023

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

INDEX TABLE / अनुक्रमिका

INSTRUCTION / अनुदेश

Q. No. प्र.सं.	Max. Marks अधिकतम अंक	Marks Obtained प्राप्तांक	
1			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 भरें।
2			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।
3			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।
4			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।
5			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

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Examiner's Discretion/मूल्यांकन कर्ता का विवेक :	Start Time/प्रारंभ करने का समय : 3:39	End Time/समाप्त करने का समय : 6:39
Total Marks/कुल अंक :	Mode Of Examination/ परीक्षा की विधि :	Online/ऑनलाइन <input checked="" 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, तालिकाएँ, तथ्यों और आंकड़ों या समग्र रूप किसी अन्य विषय पर, जो मूल्यांकन कर्ता को आपकी कॉपी में पसंद आती है के आधार पर (लेकिन इसी तक सीमित नहीं) पर दिए गए अंक हैं।

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ECN CODE/ ईसीएन कोड :	EG/ईजी : ① ② ③ ④ ⑤	Evaluation Date/ मूल्यांकन तिथि :
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Note: You can discuss your evaluated copy with the Mentor. Raise a ticket from your portal to schedule a call or visit the offline centre to meet mentor (all 7 days, Timings - 11 AM to 6 PM). Further if you are unsatisfied with the evaluation, you can seek re-evaluation of the copy.

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 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 part of your 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, quotes, flowcharts, diagrams, facts and figures, data etc. This affects objective components of assessment.
3. **S & F = Structure & Flow =** Whether you have structured your answer properly or not. Whether the answer has been broken into parts and sub-parts, each part has been addressed appropriately or not. Whether the flow of the answer is maintained. Affects both subjective and objective components of assessment.
4. **P & R =** How your answer performs on the criteria of presentation, ease of read, clarity and apparent effort in writing the answer. This affects subjective components of assessment.

Q.1) The STEM (Science, Technology, 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 लोकतंत्रीकरण करने की आवश्यकता है। विश्लेषण करें।

(10 अंक, 150 शब्द)

Knowledge economy would enable

India to take full advantage of the demographic

dividend

STEM providing opportunities to be leader in Knowledge economy

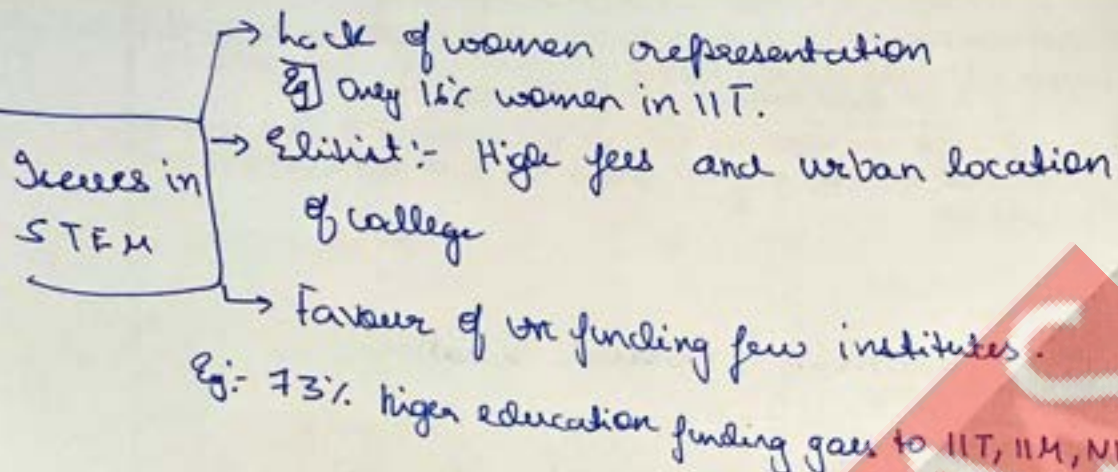
① Global service export hubs in knowledge intensive sectors.

②- E.g. consultancy, BPO, R&D.

② Geo Strategic :- Decoupling of world from China

③ China+1 Strategy.

③ Trade loss :- Yearly over 35 lakh + Engineers Graduate.



Measures to democratise:-

- ① Reservations based on gender (for women) in institutes of excellence.
- ② Blended learning :- (UGC suggestion) :- To increase capacity of uptake of colleges.
- ③ New colleges in rural and backward areas
Eg] Northeast, Chhattisgarh.
- ④ All India Scholarship tests for needy candidates.
- ⑤ Decentralized funding :- Not just to elite institutes.

As said by APJ Kalam, science and technology is as much for common man as it is for scientists.

AWIS
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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 के महत्व का परीक्षण कीजिए।

(10 अंक, 150 शब्द)

At present, India is the largest importer of defence goods and 50%+ of procurements are imported.

Defence indigenization and security architecture:-

① Geopolitical:- 17500 km + marine boundary
13500+ land boundary.

Immediate neighbourhood of 2 nuclear powers.
(No other country in world situated like this).

② Indispensability:- External reliance = subjugation and uncertainty.

Ex] Delay of \$400 delivery due to RUS - UKR war.

③ Indian Position:- → High industrial base, 100+ startups/visions

→ World looking to support India's indigenization

Ex] USA GE engine tech transfer.

Ex] P75 → Submarine indigenization.

Feedback

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Importance of Startups for self reliance.

- ① Innovation:- Ever evolving of defence needs.
Eg:- UAV, Unmanned turrets.
- ② Strong Ecosystem:- 100+ Unicorns + 3rd highest startups in the world + Knowledge economy, + Government support (Eg) Startup India scheme).
- ③ Employment:- Ka 47% + Working age population
- ④ Positive Role Models:- In Fintech, transport (ala) (paytm)

Consumer durables (Mumbai Earth).

∴ Efficiency + Effectiveness is assured.

- Steps taken
- 74% Automatic FOI
 - No global tender for upto 200 crore
 - TREDIS → Trade Trade receivable discounting
 - 7,000 cr worth Indigenisation list.

Startups will enable 'atmanirbhar' in defence sector.

Q.3 DPI (Digital Public Infrastructure) is indispensable for digitally enabling citizens and businesses 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's are the publicly available critical digital infrastructure that enable the dream of a digital India.

Bridge rural-urban divide
Eg: Ed-tech

Financial inclusion

Ease of financial transaction
Eg: UPI

Indispensability of DPI

Benefit transfer from government

Health digitalisation
Eg: e-Sanjeevani

ID-card based authentication

However challenges are:

- ① Exclusion
 - Digital gender gap → women low digital coverage.
Eg: 31% women have smartphone. men → 53%.
 - Over 15% of population no bank account
 - Rural-Urban divide.

Exploitation

- Scams and irregularity
 Eg] OTP scam, Phishing, Whaling, Cross site Scripting
- Digital Dividends reaped by few, putting excluded persons at lower competitive advantage.
- Eg] Shop with NO QR code → less business.

Monopolisation

- Opaque data go safety standards.
- Privacy issues :- Data leak, backing.
 Eg] Airtel Aadhkaar data leak.
- Non-competitive
 Eg] NO competitor to UPI.

Steps to take

- Common service centres
- Digital literacy Eg] PM Vidya.
- Bharatnet, rural connectivity.

DPI is the key to enable India to progress in 'Aamit Kaal'.

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Q. 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 पुनरुद्धार उचित है? (10 अंक, 150 शब्द)

The last cheetah was shot dead in 1953 in Guree Ghasi Das national park.

Project cheetah:- Re-introduction of African cheetahs batch.
in Kuno national park. 1st from Namibia
2nd from South Africa

Departure from earlier efforts:-

- ① Legal :- Strengthen acts and laws and rules.
Eg:- WPA 1972, FRA 1980, FCA 1980.
- ② Institutional strength :- Project Tiger, MIKE, Animal welfare board.
- ③ International cooperation :- CITES, CBD
- ④ Earlier stance :- Rejected Iran's offer for introduction of Gila Hiss in Iran.

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Re introduction is Justified because:-

- ① Enhancement of biodiversity.
- ② Increased Protection as cheetah is flagship species.
- ③ Climatic conditions in African Savanna ~~steppes~~ and Central Highlands in India is comparable.
- ④ Propulsion to tourism and awareness among masses -

Re-introduction not Justified because:-

- ① Chance of Human - Animal conflict.
- ② Lack of availability of diverse gene pool
- Offspring survivability \rightarrow lower.
- ③ Possible competition with species with similar Niche Habitat
Eg] Tiger, lion.
- ④ Stress to animals during transport.
- ⑤ Recent Death :- 3/4 Cubs died, Lejas, Shakti cheetah died
Reason: Fungal infection due to dampness

Modern techniques like Test tube baby,
Frozen egg resuscitation needs to be explored further
for biodiversity conservation.

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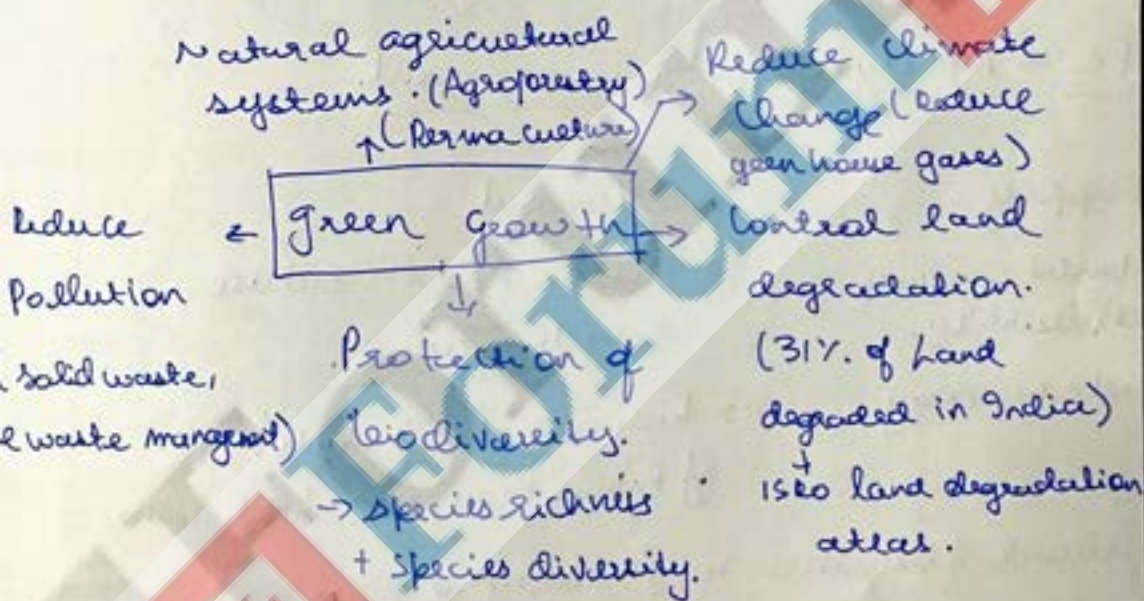
5) What do you understand from Green growth? With special reference to the budget 2023-24, discuss various government measures to propel green growth in the country.

(10 marks, 150 words)

हरित विकास से आप 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 minimization and mitigation of environmental damage on the path to economic - socio-cultural growth.



The various measures taken by Budget 2023-24 for green growth

1) MISTI → Promote rejuvenation of mangrove systems.

② Amrit Dhasodhar:- Rejuvenation of wetlands and traditional Agri water management

Eg] Johade, Kere, Pynes.

③ PRANAM → Use of Natural fertilizers and integrated fertilizer management.

Eg] Krishi Seva Kendras.

④ LiFe → lifestyle for environment.

<p><u>Supply</u></p> <ul style="list-style-type: none"> → Extended producer responsibility. → Waste to energy 	<p><u>Demand</u></p> <ul style="list-style-type: none"> → Focus on 3RS → reduce, recycle, reuse. → Minimalist lifestyle.
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Eg] Public transport, Khadi clothes

⑤ Increased Allocation to Ministry of New and Renewable Energy.

⑥ GOBARDHAN → Biomass to Biogas conversion plants.

⑦ Establish soot waste to energy plants.

Vision of PM Modi → Transform India to
Planet
P3 → Pro People people.

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 coupled with weak enforcement of laws has resulted in increased safety fire hazards.



Measures to be taken for mitigating Urban fires:-

- ① According to National Building Code:-
- ① Provision of fire conduits and emergency escape routes → large public display of the same.

- (i) Automatic Fire alarms and sprinkler system.
 - (ii) Periodic safety assessment audit and certification regularly.
 - (iv) Building clearance certificate to be given post fire safety surveys.
 - (2) Education and awareness! - conduct mock drills and it include fire safety in school syllabus.
 - (3) Training to building care takers for immediate fire fighting and SOP for rescue.
 - (4) Conducting electrical audit, using fire resistant material during construction.
 - (5) Incorporate fire Hose in Urban Designing
- Firehazards are completely man made and are avoidable with proper rules, regulation and enforcement.

Q.7) 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)

Ajit Doval Describes intelligence in security

as the ability to two steps ahead of the enemy and take proactive approach instead of fire fighting approach when adversity strikes.

Role of Intelligence in national security:-

① Avert Catastrophe:- Arrest, seizure and ~~see~~ surveillance before attack.

Eg] Confiscation of IED in Baramulla.

Counter
② New emerging threats:-

① Use of encrypted softwares for communication.

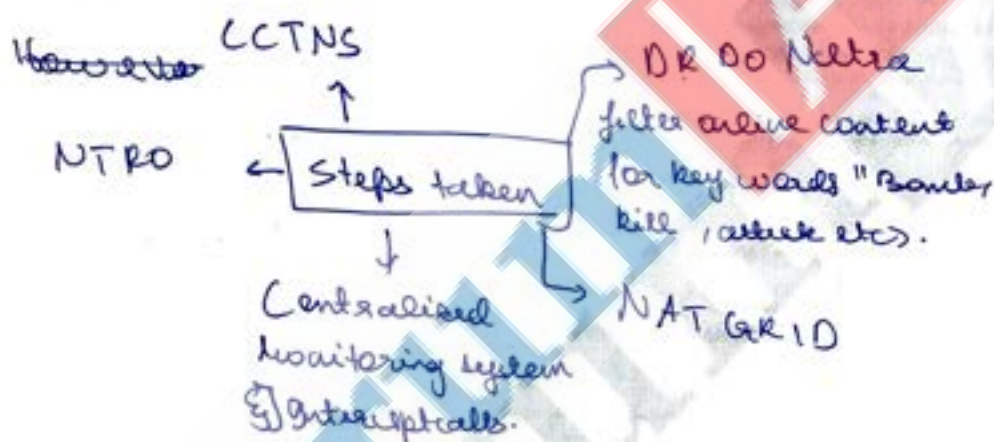
Eg] YSMS → Used by Botnet terrorists.

(ii) Use of social media for radicalisation

(Eg) Kerala story.

(3) Possible loss due to attacks: Huge and Unbearable

(Eg) Pety Stuxnet attack on Mumbai Electricity grid.



However Challenges are:-

(1) Sophisticated Communication:- via code words,

(2) Counter-Intelligence :- Eg ISI of Pak (Eg) Honeytrap of officials.

(3) Invisibilisation:- Due to technology, Encryption
(Eg) Telegram, Whatsapp.

(4) Hardships of spies and vulnerabilities of spies
(Eg) Raazi

Intelligence is like the third eye of National security.

Q.8) Highlighting different kinds of cyber threats 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 threats is the ~~the~~ Unauthorized access to

data, computers and cyber systems with an intention to cause harm to the entities.

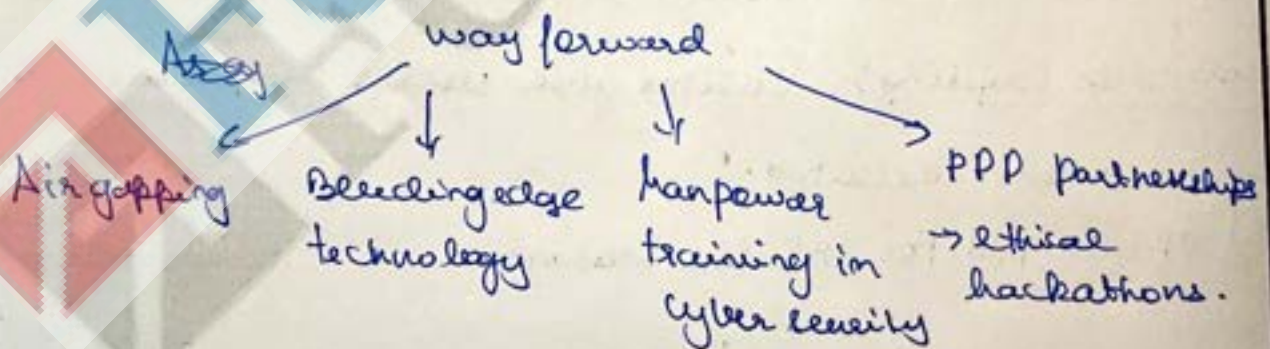
Kinds of cyber threats faced by India:-

- ① Financial crippling :- Hack of financial systems and unauthorized transactions.
 - ↳ Hack of HDFC website.
- ② Espionage :- On citizens and government officials.
 - ↳ Catfish account, Pegasus.
- ③ Cross-site scripting :- Victims give user ID, password on fraudulent websites.
 - ↳ Update PAN For SBI Acc messages.
- ④ Attack on critical infrastructure :- Shutdown electric grid, Dam controls, Banking system.
 - ↳ Shadow pad attack on Mumbai grid.

Cyber security Frame work:-

- ① NTRC → Focus on technical research.
- ② NPIC → Protection of critical infrastructure and information.
- ③ IAC → Cyber coordination between agencies.
- ④ InCert :- Nodal agencies for cyber crimes.
- ⑤ State police → Immediate relief to victims.
- ⑥ Block bank account of criminals.

Frame work is actualized via tools like
 CCTNS, NATGRID, Netra and CMS.



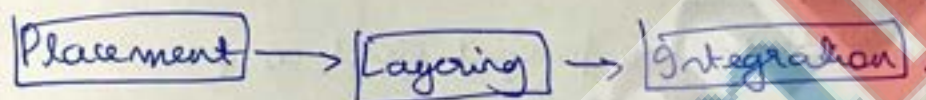
According to Ajit Doval, we need high handedness
 emerging in cyber security to tackle 5th gen warfare

Q) 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)

Q) 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 is the process of incorporating illgotten wealth from either from legal or illegal means into formal economic system.

Steps :-



Money laundering a global problem:-

① World Bank :- Estimates 7-8% of global GDP is laundered per year.

② Techniques used :- No borders

① Shell companies → No Need cooperation of tax heavens.

② Terrorism and Organized crime → transnational issue, globalized issue, use of money mules

③ Crypto currencies :- Decentralized and NFT's

④ Hawala Networks

As money laundering is a global phenomenon, just local efforts will not be useful.

ways to curb the menace:-

① Information sharing: About About ^{criminals and} seizures in one country with allies.

Eg] Five eye alliance.

② Global Partnerships: - To prevent shell companies and Base erosion.

Eg] Global minimum corporate tax.

③ Efforts to curb terrorism and transnational crime:-

Eg] CCIT → Comprehensive convention on international terrorism
Resolution 1267, 1540 of UNSC.



Money laundering is a mockery of the honest tax paying citizens of country.

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

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

NISAR is a low earth satellite jointly developed by NASA and ISRO.



Relevance of NISAR in climate change and Natural Hazards.

- ① Swath period of 12 days :- ∴ whole earth mapping in short time.
- ② L and S Band Communication :- Increased band width and stability in connection.
- ③ Climate change :-) Estimate primary productivity, time scale of environment changes

ii) → Alignment of efforts and NOC's as per Paris agreement.

④ Disaster:-

i) Risk vulnerability mapping → of hotspots and resultant effects on humans.

ii) Early warning system and wide area awareness system.

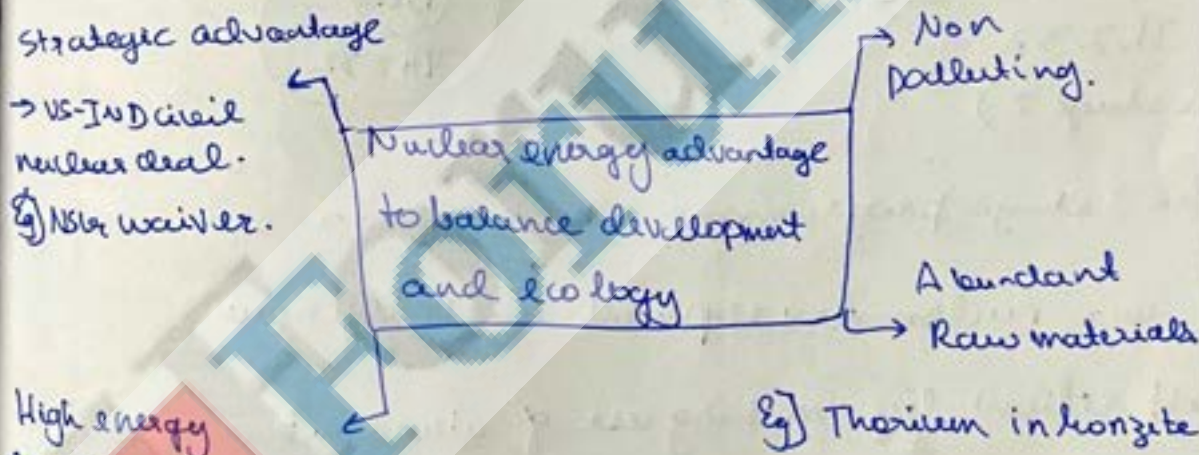
iii) Coordinating rescue and response efforts post disaster.

NISAR is not just the biggest satellite by size but also by its mission objectives.

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 रामबाण 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)

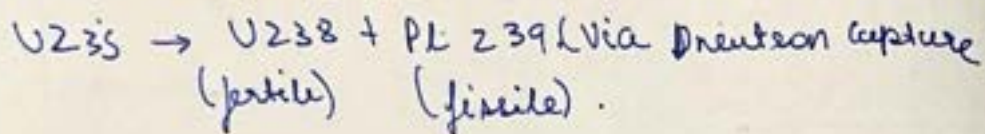
Nuclear energy is the science of harnessing the energy present in nucleus of atoms in accordance with Einsteins $E = mc^2$



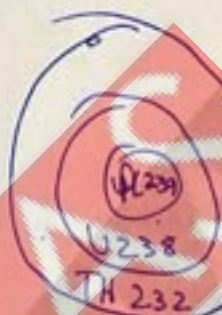
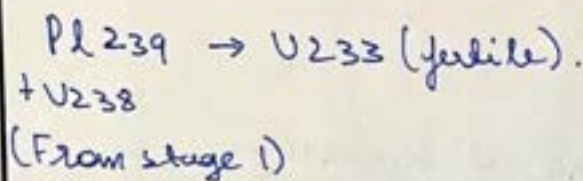
India's 3 stage Nuclear programme.

Stage I

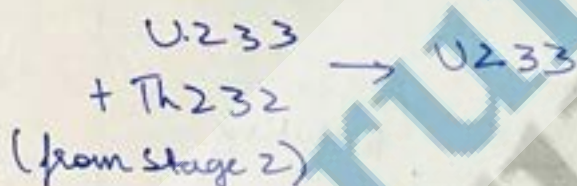
Use of Uranium 235 in Pressurised heavy water reactor:-



Stage 2:



Stage 3:- Fast Breeder Stage:



The 3 stage programme envisions to make our nuclear development self indigenous and self reliant by making use of abundant Thorium 232 resources and reducing our deep import dependence for U_{235} .

Other applications of Nuclear energy:-

- ① Agriculture :- ② Mutagenesis \rightarrow Random changes in genetic makeup for better varieties

① Agri tracer: ^{15}N - 14 isotope to measure fertilizer use efficiency.

② Medical

- Diagnosis → ^{131}I - Iodine → thyroid cancer.
- Brachytherapy → Irradiation by nuclear source on cancer cells.
- Pain Relievement → ^{32}P

③ Industrial

- Industrial tracer ^{59}Fe find out fuel leaks in oil pipeline.
- Find out strength of metals.
- Application in sensors.
 - Eg) Americium in fire sensor.

Radio active
 Issues → Nuclear control regimes ^{137}Cs MTR, Wastewater group

- ↳ Possibility of dual use.
- ↳ Import dependency.

Research and breakthrough in fusion reactors

Can India to overcome the drawbacks of fusion reactors.

Feedback

(For OFFICE use only)

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

Please put tick marks in the above table.

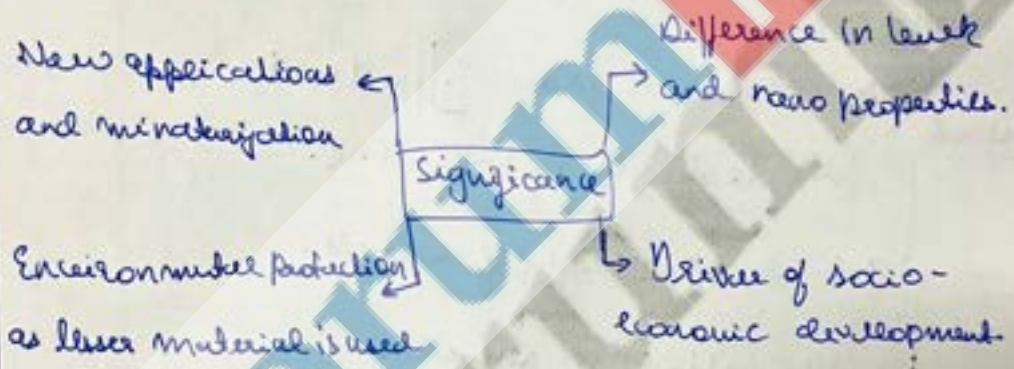
Here G is Good, A is Average and P is Poor.

TOTAL MARKS	
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Q.12) 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)

Nano technology is the use of materials which is of the order of 10^{-9} m in any one of the dimensions.

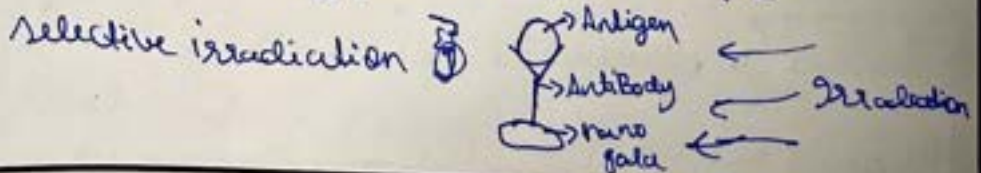


ways in which socio-economic growth is aided

Health

- 1) Use for targeted drug delivery
- 2) Fullerene.

3) Cancer therapy: Gold nano particles for



③ Scaffolding for artificial 3D printed tissues.

④] Carbon Nanosheet.

④ Nano smart wearables.

⑤ Diagnosis on a chip.

② Agriculture:-

1) Higher efficiency fertilizers.

④] Nano-Nitrogen fertilizer IF FCO.

2) Development of new plant varieties.

④] Nano bots in gene-engineering.

③ Electronics:-

① Flexible screens

② Higher efficiency battery (④] Carbon Nanotube).

③ Lighter components and miniaturization.

④ Faster processors (④] AMD 3nm Fabs).

④ Defence:-

① Stronger Kevlar and Helmets.

② Lighter weapons and more durable.

④] Carbon fibre body

→ Manufacturing

- ① Nano coating :- Durable and longevity of materials. \Rightarrow Nano coating of ceramic
- ② strength and durability: \Rightarrow Carbon Fibre Body in Porsche.

Possible health adversity and toxicity.

Increase inequalities of haves and have nots

Challenges

Technologically intensive

\Rightarrow IPR with countries of developed nations

Measures taken like Nano technology mission, learning centre for Nanotech will propel the industry further.

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.
(15 marks, 250 words)

समुद्र का गर्म होना, ऑक्सीजन की कमी और समुद्र का अम्लीकरण समुद्री पारिस्थितिकी तंत्र के लिए एक घातक त्रिकड़ी है जो पर्यावरण के साथ-साथ अर्थव्यवस्था के लिए अपरिवर्तनीय प्रभाव डाल सकती है। स्पष्ट करें।
(15 अंक, 250 शब्द)

According to IPCC, Oceans hold over 70% of emitted green house gases and have warmed by over 1.1° over pre industrial levels.

Irreversible repercussions for environment and economy.

1) Warming Ocean Temperature & oxygenless and acidification.
in environment.

a) Death of corals and marine animals, loss of biodiversity. (25% Biodiversity in 1% area).

b) over 40% of great bar barrier reef is destroyed

c) Formation of Anoxic zones ~~blue~~ and dead zones. e) Great Atlantic gyre.

d) Eutrophication and Algal Blooms

e) Sea of Marmara.

(8) Destruction of ecosystem:-

Eg] Melting of polar ice caps → Loss of habitat for Polar bears.

(9) Alteration of Natural Patterns of wind and ocean currents.

Eg] Slowing down of Atlantic meridional current.

Effect on economy:-

(1) Submergence of low lying land.

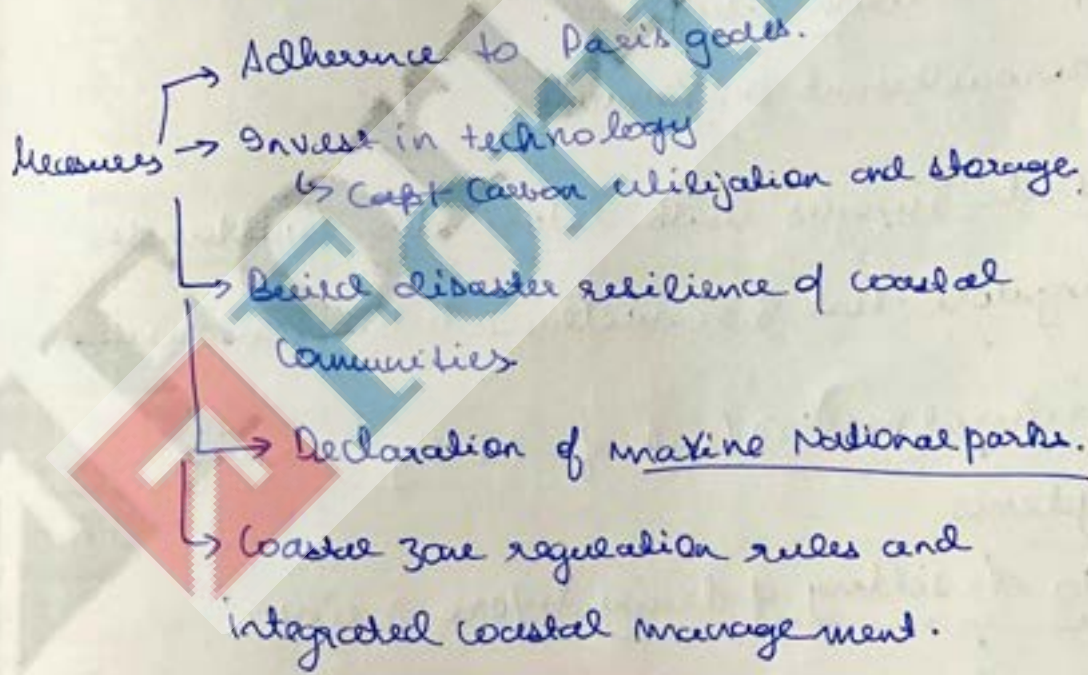
Eg] Bangladesh, Netherlands.

(2) Mass migration and humanitarian crisis.

Eg] World bank → 216 mil water area displacements.

(3) Increased disasters → Warm oceans causing intense rains and increased occurrence of tropical cyclones.

- ④ Loss of fishing grounds and loss of livelihood. Eg] Newfoundland fisheries depletion.
- ⑤ Geopolitical tensions and fallout of trade relations.
Eg] South China sea → Philippines v/s China.
- ⑥ Agricultural unpredictability due to unpredictable rains.
- ⑦ Loss of corals = loss of resilience for rain formation.



Rejuvenation of Oceans would enable to move towards blue economy dreams.

Feedback

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#	G	A	P
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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.14) 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)

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

Floods are non drainage of water and resultant submergence of habitable land.

The factors responsible for Urban floods:-

- ① Unplanned Urban spreads and non compliance with city plans.
eg] Encroachment on Yamuna.
- ② Concrete Jungles with deteriorating wetlands.
eg] Bangalore lost 83% wetlands between 2000-2020.
- ③ Unpreparedness: ① Lack of early warning systems
② No desilting of drains before rains.
- ④ Development along low lying lands in violation of CRZ rules.
eg] Chennai.

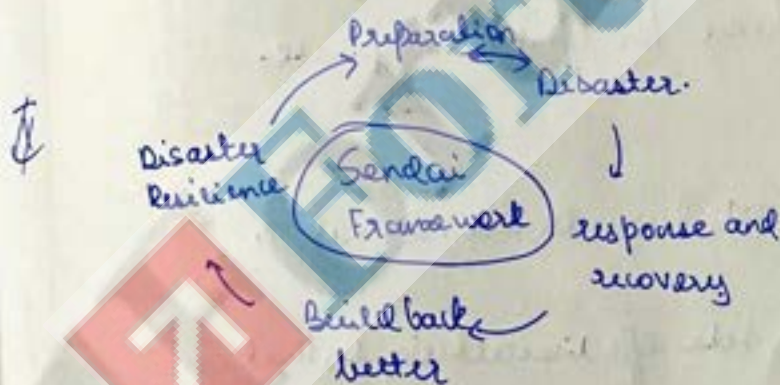
⑤ Non-coordination with Stakeholders:-

eg] Release of water from Mullaperiyar, flood in Kerala.

⑥ Urban heat island effect:- Increased precipitation + climate change and global warming.

eg] Recent Delhi Floods.

Mitigation and Management (NDMA guidelines)



① Disaster Resilience:-

① Structural :-

① Desilting drains,

② Clearing encroachments along water stream drain

③ Construct water storage structures

④ Tokyo underground, Netherlands → Sports fields

Non structural-

- ① Prevent erosion and rejuvenation of wetlands.
Eg) Sponge cities
- ② Establish Area networking for communication.
- ③ Early warning systems.

II Response:-

- ① Quick reaction force
- ② shelter and food and medicines availability.
- ③ Digital management
Eg) iflowas mumbai, Devops Kochi
- ④ Strengthen capacity of civil society and local governance for effective response.

While ~~disast~~ hazards are natural,

it is upto us to take effective action so that it doesn't become a disaster.

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

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

According to MoHA, we have just
 80 districts as LWE affected in 2021 as
 against 152 in 2015.

Changing form :-

- Urban rural → Intellectual propaganda spreading.
- Use of social media for radicalisation.
- Linkage with terrorism and organised form.
- Trans national operation and training bases.

The reasons for retreat:-

Military

① Strong reaction by states :-

→ Operation Greyhound (AP), Rastriya Battalion

of Centre Operation All out →

→ Intelligence via Multi Agency Centre (MAC).

② Developmental efforts and bridge of governance deficit.

eg] → SIDS → Special infrastructure development scheme.
→ RD LWEA → Road development in LWE areas.

③ Multinational co-ordination and weeding
out in neighbouring countries.

eg] ~~border~~ India-Bangladesh Coordinating gear

④ Surrender and rehabilitation opportunity.

⑤ Natural death → No effective alternative development agenda. Lack of effective leadership.

⑥ ICT connectivity → Bridging the inequality gap

eg] Scheme for mobile towers in LWE Areas

Factors Behind Continuance

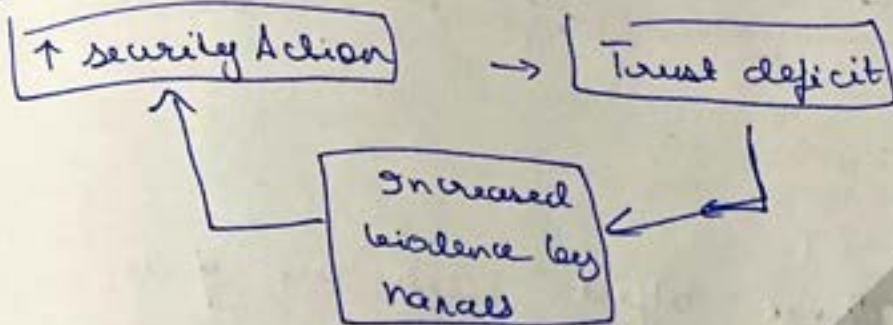
① Financial stability :- via extortion, killings, kidnappings

② Decentralisation of weapons manufacture

eg] Use of Wiki learn to manufacture IED.

③ Ideological :- Propaganda and brainwashing by Urban narals.

③ Power Paradox:-



Measures for eliminating:-

- ① COIN strategy.
- ② Modernisation of Anti Naxal squads.
 - ↳ UAV's, Unmanned IED disposal → DRDO based.
- ③ Community policing and decriminalisation.
- ④ International cooperation and operation ↳ in Myanmar
- ⑤ Actionable intelligence collection.
- ⑥ Make LWE part of development process
 - ↳ Schools, health care centres etc.

Tackling Naxalism cannot be done by

force alone but also needs 'actions on the

'heart' and socio-economic development'.

Feedback

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

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 affects each one of us,
but it impacts the vulnerable disproportionately.

Marginalised affected disproportionately:

① women: increased household care work.

↳ Taking care of sick household.

↳ Travel larger distances for water.

② Agriculturalists's over 60% of India →

no irrigation, depends on monsoon.

→ Unpredictable cropping out put due to

Uncertain climate.

3) Coastal Communities

- ↳ Rising sea levels.
- ↳ loss of livelihood due to lower fish stock.

4) Small Island states :- submergence

Eg] Vanuatu, St. Louis, Kiribati.

5) Least Developed countries :- less capacity

to deal with increased disasters.

Eg] Sand storms and heat strokes in Sahel region.

6) Intergenerational inequalities :- Developed

countries responsible but developing

countries paying price

Eg] Indira Gandhi → Poverty is worst polluter.

Resilient model of development :-

1) Agriculture :-

i) Melioration of according to agro climatic

zonation, firmic natural system

Eg] Permaculture, crop rotation

- ii) Develop new climate resilient varieties.
- iii) New techniques of cultivation → decouple from variables.

Eg: Hydroponics, Greenhouse cultivation.

2) Coastal Community:-

- a) Following and adherence to the CRZ norms.
- b) Eg) No development zones.
- c) Structural:- Sea walls, stilt houses.

3) Miscellaneous:-

- i) Coalition for International Partnerships, Technology sharing in Resilience.

Eg) CDRI, IRIS

- ii) Financial and technological transfers to vulnerable.

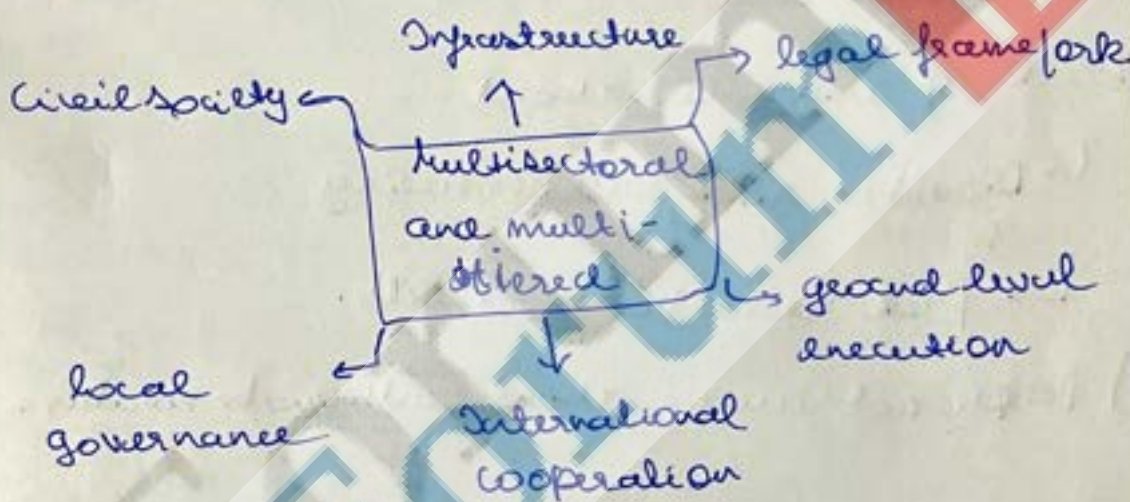
Eg) Loss and damage fund.

Building resilient systems would enable to achieve SDG goals of 10, 13, 17 etc).

7) A multi-sectoral and multi-tiered process, Disaster Risk Reduction (DRR) is beset with a plethora of constraints. Identifying these constraints, recommend measures for building a robust strategy. (15 marks, 250 words)

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

Natural hazards are can be overcome by DRR's → It makes community immune to the wrath of nature and minimise damages.



Constraints on DRR are:-

① Lack of legal frame work:-

↳ No city area wise action plans.

↳ low ~~reser~~ compliance record

Ex] Building codes

② Capital intensive
 ↳ And benefits are not seen immediately
 ∴ Negligence.

③ Technology intensive :- Intellectual property rights with few companies.

Eg] Cheap computers for light house

④ Lack of awareness about

↳ Disaster risk and necessity
 +

↳ Risk reduction methods.

Eg] People not aware about earthquake zonation.

Measures for Robust DRR Strategy :-

① Mainstreaming DRR.

↳ strict enforcement and formulation of Building code and designate no development zones.

Eg] In himalayas → Joshimatsubidence.

② Public Investment in structural measures

Eg] → Tsunami walls, Stone facade.

→ Public cooling centres → for heat strokes.

→ Anchor Bolt for land slides.

③ PPP for resilient systems development

Eg] Large underground tanks → for urban floods.

School playgrounds → designate as last resort water storage structure.

④ Non structural measures:-

① Encourage afforestation → Sponge cities.

② Rejuvenate blue space,

③ Research and development in new technologies

Eg] → Composites for in earthquake areas.

→ Natural cooling system for heat zones

Eg] Paratherm Bricks.

Disaster risk reduction is an important part of PM's 10 point agenda to counter disasters.

Feedback

(For OFFICE use only)

#	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.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 (नृजातीय त्रुटिपूर्ण रेखाएँ) एक बड़ा खतरा हैं, उत्तर-पूर्व में सुरक्षा चुनौतियाँ यहीं तक सीमित नहीं हैं। मणिपुर के विशेष संदर्भ में कथन पर चर्चा कीजिए। (15 अंक, 250 शब्द)

Internal insurgency and regionalism has the capacity to break the conception of 'Union of states' as envisioned by Asiatic!

Role of ethnic-faultline:- North eastern insurgency is a tale of sectarian-tribalism.

where warring identities are pitched against each other for dominance and recognition

However, there are many more reasons:-

① Historical → British policy of divide and rule

→ led to psychological barrier of hill v/s valley people.

② Development Inequality:-

- Valley → 10% of land area, 65% of economic output.
- low infrastructure and last mile connectivity in hills.

③ Politicization:-

- Polarization of communities for votes
- Non-Neutral Bureaucracy.

eg] Keiti Police men providing arms to Keiti groups.

④ Geographical:- Disconnect from mainland. Non beneficiaries of fruits of development.

⑤ Discrimination → fr mainland calling them as 'Chingi', 'Chinese'.

→ targeted violence

eg] 2022 Bangalore New year eve

⑥ Transnational connections:- Provision of

money and Arms

eg] NSCM in Myanmar.

⑦ Nature of economy:- stereotyped and backward
No modern development like IT and ITes industry.

eg] Slash and burn method in hills.

Way forward:-

① Maximum security and fire fighting:- (short term)

long term:-

- ① Confidence building measures
- ② Addressing genuine concerns of all parties.
- ③ Increasing connectivity and promote cosmopolitanism

eg] Kaladan multi modal transport

Concept of India is based on
multiculturalism, inclusivity and pluralism.

(Don't Write in this Area / इस पर कुछ न लिखें)

(Don't Write anything in this Area / इस पर कुछ न लिखें)

...to be fixed and backward like IT and ITES

...in hills.

...fighting! (short term)

...of all parties promote

transport

based on

and pluralism.

Q1) Critically examine the role of development initiatives in addressing the root causes of militancy/terrorism in Jammu & Kashmir. (15 marks, 250 words)

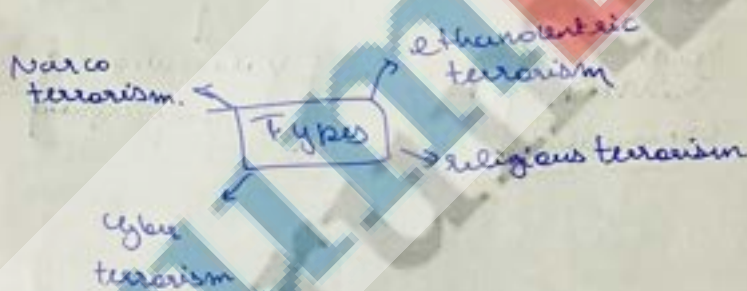
प्रश्न 1) और कश्मीर में उग्रवाद/आतंकवाद के मूल कारणों को संबोधित करने में विकासवात्मक पहल की भूमिका आलोचनात्मक परीक्षण कीजिए। (15 अंक, 250 शब्द)

According to UN Rapperteur, terrorism is defined by:

Means:- violence deadly against citizens.

intent:- Further ideological propaganda.

aim:- Action / Reaction by state.



The root causes of terrorism in Jammu and Kashmir:-

① Patronage support:- From Pakistan

→ Strategy of a thousand cuts

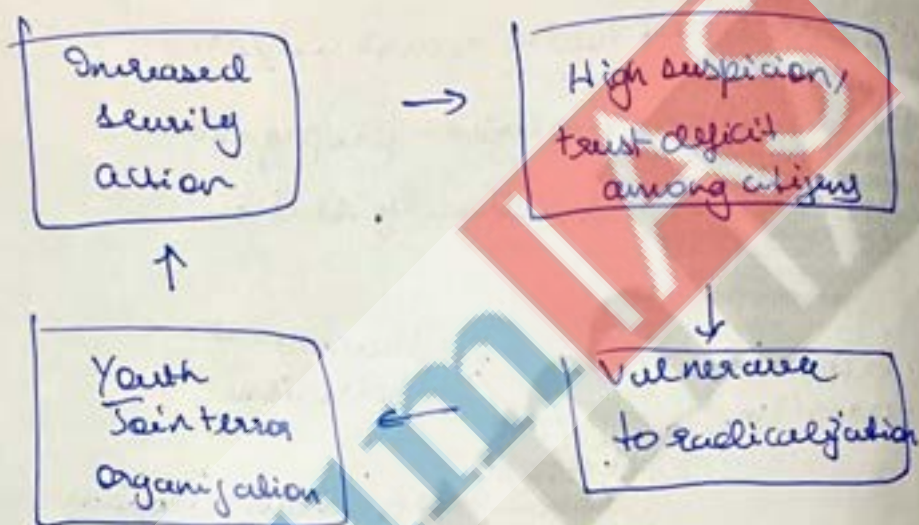
Ex) ISI funding LeT.

② Radicalization by terror outfits

Feedback
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TOTAL MARKS

③ Lack of development → No penetration of modern industries

④ Security Paradox



Developmental activities:-

① Abrogation of sec 370 ^{Article}

↳ De-politisation of security issue.

↳ Police under direct control of centre.

↳ Private purchase of land by any one

② Invest in Kashmir initiative → To attract

new industries and sectors.

Non penetration

High suspicion,
trust deficit
among citizens

↓
Vulnerability
to radicalization

Security issue.

Central of Centre.
land by any one
→ To attract

(Don't Write anything in this Area / इस पर कुछ न लिखें)

- ③ 14th Finance Commission :- 1% devolution from centre to states.
- ④ Vigilant villages programme :- Development of border villages.
- ⑤ Village defence committee :- Encourage men, village heads given guns, training to counter terror.
- ⑥ SADBHAV scheme by army → School, formalization with army culture and deradicalization.
- ⑦ Infrastructure push :- Border roads development
→ All-weather roads → Atal Tunnel, Shyam Prasad Mukherjee Tunnel.
→ Baramulla Train connectivity.

With increased integration with mainland and better opportunities, there is a new hope for terrorism eradication.

Feedback

(For OFFICE use only)

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Please put tick marks in the above table.
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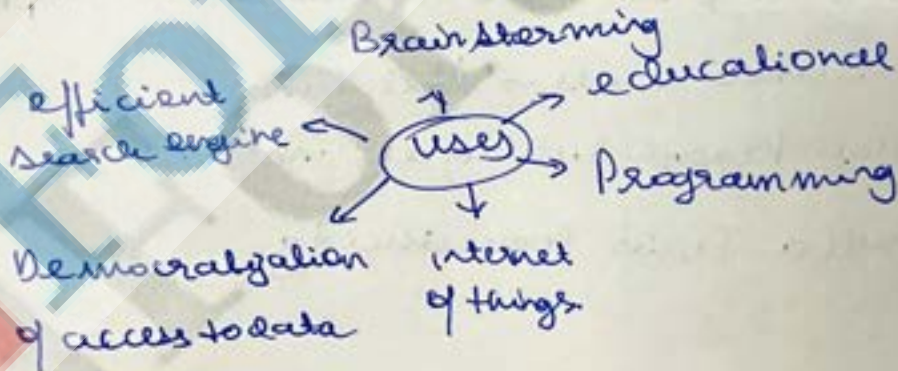
TOTAL MARKS

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 विंताओं और चुनौतियों को प्रभावी ढंग से कैसे संबोधित कर सकते हैं? (15 अंक, 250 शब्द)

Generative AI mimics the working of human brain via back-and-forward propagation algorithms, to produce new data from existing training for ^{questions} asked. And also capable of re-enforcement learning.

Eg:- Chat GPT, Bard (Google).



However issues are :-

Ⓐ IPR violation :- Training data just paraphrased, with no credit to underlying creator.

② Mental Illness :- In students, fallback on AI for answers

Ex] use of AI for doing home work.

③ Generalised Outlets :- Based on statistical models lacking meaning and utility at times.

④ Bigtech instead of internet and access to information.

⑤ Political ramifications :- Deep fake ^{videos} ~~videos~~ difficult to make out if its unauthentic.

Ex] Deep fake of Biden threatening use of nuclear bombs.

⑥ Social Ramification :- Technology assisted sexual abuse (TASA) → deepfakes to create compromising pictures → blackmail, targeted violence.

Regulatory and policy actions :-

① Fact checking and Authenticity checking mechanism to rebuttal of fake AI generated pictures

views.

- ② World wide consensus building as AI knows no boundaries of GPAT.
- ③ Upgrading institutional capacity to deal with AI threats
 - ① Upskilling of Incent & job employees.
- ④ Formulation of laws keeping in mind
 - ① Unhindered development of AI application
 - ② Protection of individual privacy, security of state and national interest.

Every new technology comes with advantages and disadvantages. It is responsibility to state to minimax

↳ minimize threats.

↳ maximize advantages.

Mentor Feedback Questions

- 1
- 2
- 3
- 4
- 5

Test Goal

Outcomes

- 1
- 2
- 3

- 1
- 2
- 3

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
✓✓	Key / Relevant Point		
✗	Vague / Irrelevant		

* Subject to change without prior notice.