

TEST CODE 6 1 3 2 0 2

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

Time Allowed : Three Hours
समय : तीन घंटे

ForumIAS

Maximum Marks : 250
अधिकतम अंक : 250

GENERAL STUDIES / सामान्य अध्ययन

Name Of Candidate परीक्षार्थी का नाम	Chhaya Singh		
Roll No./अनुक्रमांक	1910059936	Medium/माध्यम	English <input checked="" type="checkbox"/> हिंदी <input type="checkbox"/>
Center Code/परीक्षा केंद्र	Online	Date/दिनांक	3/09/23

*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
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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. 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. 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. 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. Word limit in questions, if specified, should be adhered to. Any page or portion of the page left blank in the Question-Cum Answer Booklet must be clearly Struck off.
प्रश्नों में शब्द सीमा, यदि निर्दिष्ट हो, का पालन किया जाए। प्रश्न-सह-उत्तर पुस्तिका में खाली छोड़े गये किसी भी पृष्ठ या पृष्ठ के भाग को स्पष्ट रूप से काट दें।

Total/कुल अंक 250

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Examiner's Discretion/मूल्यांकन कर्ता का विवेक :

Start Time/प्रारंभ करने का समय :

End Time/समाप्त करने का समय :

3:00 pm

6:00 pm

Total Marks/कुल अंक :

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

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ECN CODE/
ईसीएन कोड :

EG/ईजी :

① ② ③ ④ ⑤

Evaluation Date/
मूल्यांकन तिथि :

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

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

Note: You can discuss your evaluated copy with the Mentor. Raise a ticket from your portal to schedule a mentor 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

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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 or 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 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 refers to an economic system based on research and innovation, characterised by IPR regime, high-tech production etc. STEM can

help India achieve this.

Need to democratise

(i) Resemingly, dominated by male. more than 80% of scientist are male.
• Female are under-represented.

(ii) funding is only 0.7% of GDP (1991-41), out of which only 20% private.
• Need to include private sector

(iii) Cluster of STEM in top universities
(eg) IISc Bangalore.

• Others such as NIT lag behind.

(i) Research only in certain sectors (eg) IT, space

• Need to democratize to Nano-tech, chemicals (API).

How to democratize

(i) more funding by public sector - send signal to private industries.

• Also autonomy to sector (eg) ISRO.

(ii) Increase workforce (eg) KIRAN policy for female to bring wider perspective.

(iii) Remove academia - industry mismatch and promote collaboration to promote research.

(iv) Centre for Excellence to be set up for H4V crops, API etc. to increase sectors.

In this manner, democratization of STEM can improve India's economy by increasing employment, export and income.

Feedback

(For OFFICE use on)

#	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) 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.

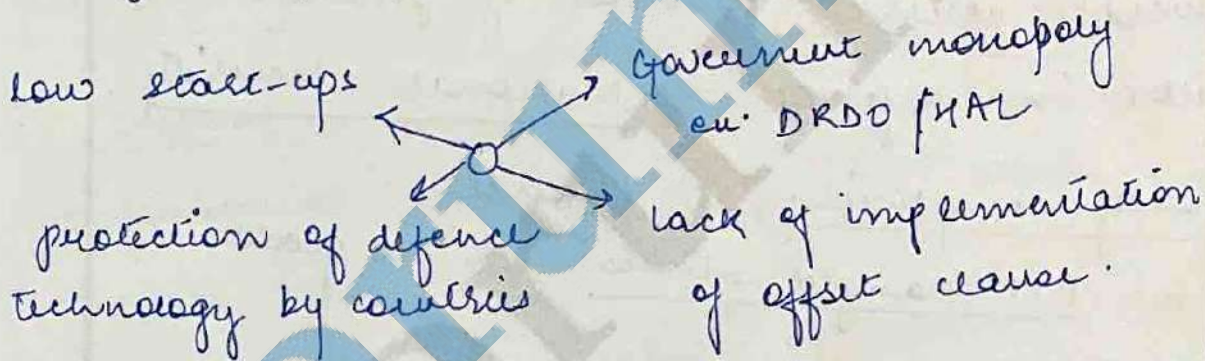
(10 marks, 150 words)

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)

India is one of the largest defence equipment importers of the world, according to SIPRI. Due to lack of defence indigenisation.

fig:- challenges in defence indigenisation



role of startups :-

(i) Provide research and innovation :-

(eg) in cyber warfare.

(ii) Provide manufacturing of parts :-

(eg) Presently DRDO manufactures → it's capacity can then be utilised in research.

- (iv) Support PSUs (v) manufacturing of engines for jets.
- (vi) Overall push to economy → leading to further boost of the sector.

Challenges faced by startups :-

- (i) High upfront capital investment required.
- (ii) Risky venture with long term gestation.
- (iii) Overall general distrust of private sector in defence → National security.
- (iv) Policy complexity in defence.
ex. DPP changed times in 10 years.

Way forward :-

- (i) handholding support (eg) Inspace for space.
- (ii) Hackathons or startup challenges by Ministry of Defence.
- (iii) Promotion of defence exports.

These steps can lead to self-sufficiency in defence sector necessary to tap defence market.

Feedback

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TOTAL MARKS

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; हालाँकि, बहिष्कार, शोषण और एकाधिकार की चुनौतियों को नजरअंदाज नहीं किया जा सकता है। परीक्षण कीजिए। (10 अंक, 150 शब्द)

Digital Public Infrastructure refers to services which are offered to the public at large on digital platform.

(eg) UPI for financial inclusion.

Benefits of DPI

(i) Inclusive :-

- financial inclusion by JAM and later UPI
- led to implementation of DBT.

(ii) Better management outcomes :-

(eg) COVID during COVID pandemic or Aarogya Setu to track infections.

(iii) Provision for open source tech to businesses to develop new models

(eg) RuPay / UPI Pay

Challenges of DPI.

(I) Exclusion :-

- Existing digital divide \rightarrow 3x less penetration in rural areas.
- women users only 35% compared to 65% male.
- No access to broadband or smart phones to poor.

(II) Exploitation :-

- In form of financial frauds.
- Data leakage (eg Aadhar)

(III) Monopolisation :-

- (eg) only two telecom players Jio / Airtel for 5G infrastructure can lead to ineffective service for consumers.

India is a global leader in DPI. It needs to fulfill schemes such as Bharat optical fibre network ; Digital Sakshata Abhiyan to deal with challenges.

Feedback

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TOTAL MARKS

Q.4) 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)

Project cheetah is an ambitious project of Indian Gov. to introduce South African and Namibian cheetah in Kuno Palpur wildlife sanctuary, Madhya Pradesh.

Departure from India's precious effort other Projects

Project cheetah

③ Nature

- Transfer of animals from other nations.

- In situ conservation (Trans boundary Transfer)

- Completely new specie introduced

- Has not been done before, focus on protecting existing fauna. (eg) Project Tiger.

- Earlier, on in-situ (eg) Project lion in Gir.

- No introduction of new specie. (eg) Project Rhino.

Justification of reintroduction of puma:-

Yes

- (i) Bring back the ecological balance of the area.
- (ii) Relocation after research → re-establishment of food chain → boost to wildlife.
- (iii) Provide for tourism growth.
- (iv) Renewed effort for protection.
- (Eg) Cheetah introduced in grasslands similar to those in Africa, after proper studies.

No

- (i) Cheetah went extinct in 1948 - since then conditions have changed.
 - (ii) Challenge to other predators (eg) conflict with tigers.
 - (iii) Difference in species → Asian cheetah is different from African.
 - (iv) Recent deaths → point at challenges in relocation and long term damage to cheetah population.
- Relocation is a novel step but requires proper management and research to prevent damage.

Feedback

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TOTAL MARKS

Q.5) What do you understand from Green growth? With special reference to the budget 2023-2024, discuss various government measures to propel green growth in the country.

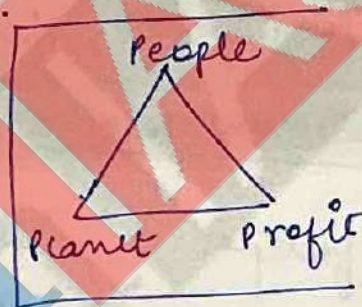
(10 marks, 150 words)

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 economic development which takes into account the ecological balances also.

Government measures to promote :-



(I) Promotion of Green Bonds :-

- to raise funds for companies.

(ii) focus on renewables for energy security

- phasing out of coal by 2030.
- target of 175 GW solar power by 2030.
- focus on solar manufacturing in India.

(iii) fund for mitigation of disasters
as proposed by 15th Finance Comm.

(iv) Production linked Incentive scheme

for panel manufacturing.

(v) Scheme for waste management :-

~~estd~~ ~~employe~~

- Extended producer responsibility for e-waste, plastic waste.

(vi) focus on circular economy → under Mission life → focus on minimalistic lifestyle.

(vii) focus on Reuse → Reduce → Recycle → Repair
↑
-kiss

especially for scrap vehicles / aluminium and steel sector.

(viii) Phasing out of ~~coal~~ 25 year old coal plants.

In this manner green growth is promoted. SEB has also released

ESG norms for the same.

Feedback

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TOTAL MARKS

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)

Recently, there was news of fire hazard in coaching centres in Delhi, leading to death of many students and effects on health. This brings forth challenge of unplanned urbanisation.

Vulnerability of cities to fire hazard

- (i) Improper planning :- Rampant development, no space left between buildings.
 - (ii) No following municipal regulations :- regarding floor space, stories of buildings.
 - (iii) No exit plan or fire safety equipments as recommended.
 - (iv) Improper attention on electrical circuits, which are usually causes of fire.
- All these increase vulnerability.

Measures for dealing

According to National Building Code, the following should be seen :-

Structural measures

- (i) Establishment of a fire safety plan ;
planning proper exit routes.
- (ii) Leave space between buildings ; adhere
to floor indexing
- (iii) Proper ventilation mechanism.

Other measures

- (iv) SOP for such hazards :- regular
fire safety drills.
- (v) Presence of working extinguishers on
site esp. coachings.
- (vi) Checks (surprise) by municipality for
those breaking rules and sealing of
such buildings.

These steps can go a long way in preventing damage and reduce vulnerability of the hazard. This will truly help in becoming of SMART cities.

Feedback

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TOTAL MARKS	
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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)

Modern warfare includes cyber threats, or attacks by autonomous machines for assassinations (e.g. Mahin Rafizadeh, Iran). It also includes machines like drones (Jammu air base) attacks, which become difficult to counter.

Role of intelligence in such situations

(i) Prevention is better than cure :- can effectively target adversary.

(ii) Provides for situational awareness, reconnaissance. (e.g. Vibrant Villages prog - name to keep an eye on Chinese borders.

(iii) Prevents loss of life (e.g. Parliament attack, 2001 was predicted by RAW.

- (i) Maintains political stability (eg) Rajiv Gandhi assassination was also predicted.
- (ii) Prevents damage to critical infrastructure - use (eg) Ghazi attack to Vizag base was prevented.

Challenges associated

- (i) Complexity in organisations involved :-
(eg) RAW, IB, PMO, MHA, NIA → lack of co-ordination between these.
- (ii) Inherent nature :- difficulty in gathering also, not always actionable.
- (iii) Also rings false alarms.
Despite these intelligence gathering is the first line of defence. It should be promoted via policy coherence; over-arching wing for co-ordination and regular meetings to exchange information.

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TOTAL MARKS

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)

India is highly vulnerable to cyber attacks. As per cert - In Ransomware Report the number of cyber-attacks doubled from 2020 to 2021.

Different kinds of cyberthreats

(i) Individual level :-

- financial frauds
- ransomware or Trojans (eg) Wanna Cry
- Zero-click attacks (eg) Pegasus affecting right to privacy.
- Blackmailing or extortion.

(ii) State level :-

- Cyber-espionage of state secrets
- Attack on critical infrastructure (eg) Kindankulam or Red Echo in Mumbai
- Leakage of citizen's data (eg) AUMS data leak.

• Cyber-terrorism as defined by IT act to hack a computer in India.

Cyber Security framework

(I) Legislation → IT Act deals with cyber threats such as terrorism etc

(II) Bodies Institutional → CERT In - first emergency responder.

• National Council for Protection of Critical Infrastructure.

• Cyber security being under NIA

(III) Other measures :-

• Organisations of Hackathon to target vulnerabilities.

• INC for coordination in case of cyber crimes.

Way forward | Needs to update IT Act according to time. Need for more co-ordination with private sector.

• Development of our own software - hardware in IT to prevent espionage. Recent policy to make law on AI is a step in right direction.

Feedback

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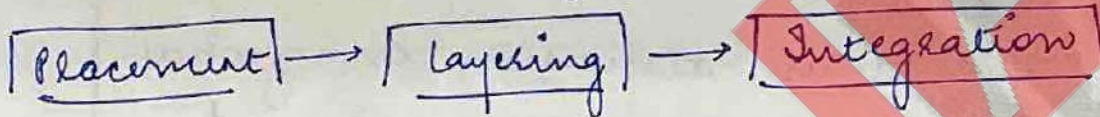
Here G is Good, A is Average and P is Poor.

TOTAL MARKS

Q.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 showing the proceeds of an illegal act as legal. The process of money laundering includes :-



cannot be curbed by isolated responses.

- (i) linked with other organised crimes :-
(eg) Drug trafficking, smuggling.
- (ii) also shares linkages with terrorism, as stated by FATF.
- (iii) Political relations → (eg) Political-bureau - cratic - private network (Vehra committee)
- (iv) use of tax havens worldwide.
(eg) shell company in Mauritius, Cayman Island.
- (v) use of financial markets (eg) FTPI.

Hence, global problem.

Ways to curb money laundering:-

Steps taken

(I) FATF '40+9' guidelines provide for preven-
-tion of money laundering and terror
financing.

(II) OECD Twin Pillar discussion on global
minimum tax can prevent round
tripping.

What else !

(iii) Comprehensive convention CCIT to tackle
terror based money.

(iv) Proper implementation of UN convention
against money laundering via mutual
legal assistance and crackdown.

(v) Collaboration with countries (eg)
Switzerland for bank disclosure.

(vi) Change in national laws (eg) via
grey/black listing. These can help in
tracking the menace and preventing the
mayhem money brings to an economy.

Feedback

(For OFFICE use on

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Please put tick
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is Average and P is
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TOTAL
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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 refers to NASA-ISRO Synthetic Aperture Radar satellite for earth mapping.

Relevance of NISAR

- ① Long term impact can be studied due to SAR.
- ② use of infrared waves ; x-ray waves for mapping the surface.
- ③ We look on cloud / ozone formation
- ④ This can help in predicting future changes such as soil change or rainfall or sea level rise. ~~also~~
- ⑤ Provide real-time information, with different colour coding ~~lefting~~

reflecting different temperature.

It is state of the art technology which can help understand more regarding earth's resources and future changes via mapping.

Feedback

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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 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 technology provides a ~~clean & green~~ ^{clean & green} energy source hence, provides a balance between development and ecology.

India's three stage nuclear program

(i) Stage one :-

- Uranium based pressurised heavy water reactor.
- use of uranium 235 and 238 as a fuel.

(ii) Second stage :-

- P_{239} generated from 1st stage used in this.
- along with addition of U_{232} .

(iii) Last breeder reaction :-

use of Thorium \rightarrow which will produce fissile U_{233} .

Applications of nuclear technology

(i) Energy generation :-

- 2% of India's energy requirement is met by Nuclear energy.

(ii) Space based application :-

- Production of nuclear-fuel based engines, can have higher thrust and also longer fuel life.

(iii) Defence application :-

- use of nuclear fuel in submarines (eg) Arihant → can lead to longer underwater duration.
- manages balance of power in region.
(eg) Nuclear capable missiles.

(iv) Nuclear fission :-

- ex. Tokamak in France can produce massive energy and solve Earth's energy crisis.

Challenges associated

- (I) Distrust in citizens due to lack of awareness and fears.
eg Bhopal gas tragedy.
- (II) Disaster capacity eg Chernobyl or Fukushima - prevents rapid expansion.
- (III) Strategic challenges → India not a part of NSG.
Although has received but slower transfer of technology.
- (IV) Material based challenges :- India doesn't have reserves of uranium.
• Dependence on Kazakhstan, Australia.
- (V) Slow technology transfer eg Jaitapur power plant by France is delayed.
- (VI) Public liability Insurance act prevents foreign partnership eg US priv. companies are reluctant.
India, should focus on building KAMINI (Th. based Reactor) to attain self-sufficiency in area. While collaborating internationally such as ITER, France.

Feedback

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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)

Nanotechnology is the process of using materials in the scale of 10-100 nm. At this size the property both chemical, physical of particle changes.

use of nano-tech in socio-economic growth

(i) Social Growth :-

i) Development of Health sector :-

- By nano-drugs for targetted delivery.
- Nano-sensors for early damage detection
- Treatment of cancers instead of radio-therapy which damages healthy tissues.
- India has 60% Non-communicable disease burden, which can be tackled.

ii) Development of agri-sector :-

- By nano-urea, nano-fertilizer for slow delivery.

• prevents overuse and increase farmer's income.

B Economic Growth

- (i) Promotion of startup in the sector gives - creating employment.
- (ii) Activating agri-cultural districts.
- (iii) Innovation in sectors such as auto - mobile; nano-chips; nano-semi conductor - ctos → can make India a net exporter.

Steps taken by Government :-

- (I) National nanotech Mission for promotion of technology.
- (II) separate wing under DST.
- (iii) Promotion of private companies in sectors eg telecom.

Challenges in nano-tech

- (I) Still-developing → time required to

reach commercial scale.

- (i) Lack of skilled workforce.
- (ii) requires more research (presently only 0.7% GDP, whereas Israel 4%)
- (iii) long term effects of nano-tech unknown
(eg) environmental poisoning. or human body - side-effects.
- (iv) startups require high upfront finance and risky technology.

Way forward

Innovative utilization in disaster management of nano-sensors etc. can be looked into. Government can also handhold research and courses in university to improve the technology.

Feedback

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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 घातक तिकड़ी है जो पर्यावरण के साथ-साथ अर्थव्यवस्था के लिए अपरिवर्तनीय प्रभाव डाल सकती है। स्पष्ट करें। (15 अंक, 250 शब्द)

Climate change is rapidly ~~exp~~ chang-
-ing ocean ecosystem leading to ~~destruc~~
-ng, creation of dead zones (ex:- Gulf of Mexico). These are only bound to incre
-ase in future as per IPCC.

Irreversible repercussions of these

* Warming ocean temperature

(eg) Arabian sea has warmed 0.7°C since pre-industrial era (IPCC)

Challenge → i) Damage to temperature sensitive marine life
(eg) Reefs are moving further south in southern hemisphere.

ii) Increase in formation of storms.

(eg) Rising cyclones in Indian Ocean

damaging mangroves and corals.

* Oxygen loss

• Creation of dead zones due to algal blooms

* Ocean acidification

• Damage to corals and shell forming organisms, as concentration of H^+ ions increase in upper layers of oceans.

Economic Damage

- (I) loss to fisherman due to change in marine life.
- (ii) more expenditure on fuel due to travelling larger distances.
- (iii) can cause marine food inflation → challenges to food security.
- (iv) Diversion of funds towards disaster management and rehabilitation.
- (v) loss of infrastructure in coastal regions.

as sea water rises when it warms.

- (VI) Loss of tourism potential (eg Great Barrier Reef).

What should be done?

- (I) Following NDC targets under Paris climate change to prevent temperature rise below 2°C.

- (II) Take structural measures (eg plantation of coral colony in Gujarat to save ecology).

- (III) Formation of marine conservation zones, as per UNCLOS to let bio-diversity replenish and prevent economic loss.

- (IV) Mitigation efforts and focus on loss & damage funding.

- (V) Prevention of oil spills, follow London & Hongkong protocol to prevent aggravation of damage.

Oceans absorb most of the temperature rise; need to take emergency action for SDG 13 (life under water)

Feedback

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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)

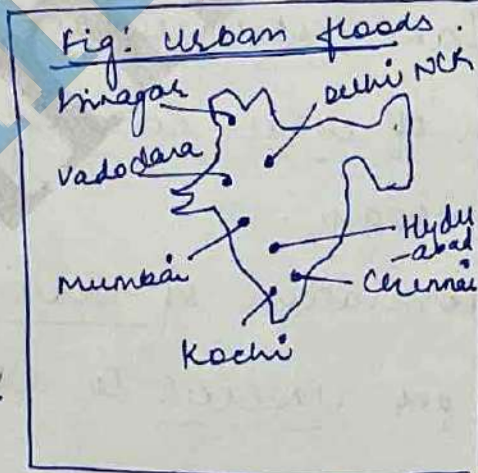
Urban floods are a relatively recent phenomenon, as seen in Delhi (2023) or in Chennai or Vadodra (2021).

Factors increasing vulnerability

(i) Encroachment of urban wetlands :-

(eg) Kochi airport built on wetland.

• It damages the natural flood barriers.



(ii) Location beside rivers :-

(eg) Hyderabad flooded due to change in channel of Nusi river.

(iii) Improper dam management + encroachment of floodplains.

(eg) Delhi flooded due to release of

water from hathikhunt sewage

- (iv) concretisation → No place to water to
seep down.
- (v) Improper urbanisation → (eg) slum dwellers
- most without drainage area.
or sewage lines above road level (eg)
Gurgaon.

- (vi) Drainage block / improper municipal
management :- Plastic blocking water drains
in Mumbai every year.

Mitigation and management strategy

(i) Mitigation :-

- i) Non encroachment of wetlands.
- ii) Rejuvenation of floodplains (eg) Yam
-una
- iii) Structural measures by NDMT (eg)
 - Road slope towards drainage
 - Retaining walls on rivers.
 - Parks in wetlands area.

iv) Apps such as e-flows Chennai to raise awareness.

(ii) Management

- i) following SOP as stated by NDMA.
- ii) Provide proper relief and rehabilitation fund.
- iii) Evacuation plans on early warning.
- iv) International best practices (eg) sponge cities - Singapore can be adopted.

The requirement is proper monsoon audit and building of blue-green-grey infrastructure to prevent this challenge in future.

Feedback

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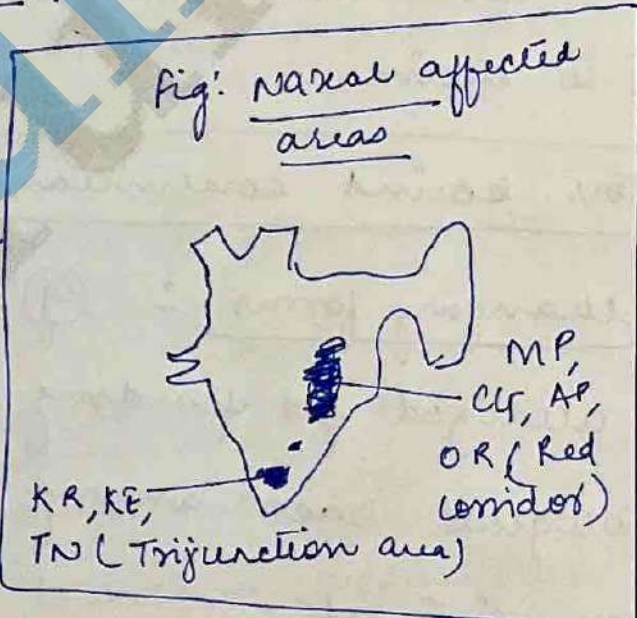
Q.15) Though Naxalism is showing a downward trend, it is not only thriving in its core areas of influence but also changing its form. Analysing the reason for its retreat, underline the factors behind its continuance. Also, discuss measures towards eliminating LWE from the country altogether. (15 marks, 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 कारकों को रेखांकित करें। साथ ही देश से वामपंथी उग्रवाद को पूरी तरह खत्म करने के उपायों पर भी चर्चा करें। (15)

Naxalism refers to a violent extremist ideology of overthrowing the state machinery, arising out of feeling of deprivation or development deficit.

Retreat of Naxalism

According to Ministry of Home Affairs, Naxal related incidents have decreased 5x from 2015 to 2020. Causes :-



(i) Crackdown by government :-

- In form of deployment by CRPF → (eg) COBRA battalion CRPF
- State police forces (eg) Greyhounds, AP.

(i) Reverend policies :-

- providing amnesty and employment on laying down arms.

(ii) Filling governance deficit :-

(eg) establishing model health and education hub in Dantewada

- Rivis action program of CRPF
- Mobile towers, banking, ADL connectivity

This multi pronged approach has led to decline.

Factors behind continuance

(i) changing forms :- (eg) Urban Naxalism is utilized for funding, providing ideological basis among academicians, journalists etc.

(ii) Relative deprivation due to development led displacement still prevalent

(eg) Narayanpur area

- iii) Incapacity of state police to crack down;
- iv) Government schemes still not reaching
(eg) PDS or local body elections.
- v) A culture of "gal, jungal, Zameer" has
also developed as stated by Prakash
Singh.

Measures to eliminate

- i) Multi pronged approach → Governance
→ strict action
→ surrender.
- ii) following WHAM strategy → providing
jobs to youth.
- iii) Gathering intelligence → separate wing
of NIA.
- iv) Increase powers of CAPFs → by giving
proper tech (eg) to deal with IED.
- v) Resolve functional issues → coordination
between various authorities in the area.
this along with Tele-medicine,
Tele-education, civic action can lead
to trust on government and resolution of
biggest internal security threat of India.

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 disproportionately affect marginalized sector more as they do not have adequate capacity to deal with the effects.

Effect on marginalised sector

- (i) women → affected more as traditionally the duty to collect wood or fetch water lies on them.
with climate change → difficulty in same.
- (ii) farmers → affected by extreme weather events such as droughts and floods
→ eg suicides in Vidharbha.
- (iii) poor coastal communities :- cannot relocate in case of sea-rise or loss of fisheries.

④ Refugees → as seen in Africa due to rising desertification.
or Rohingyas settled on discovering Bahar Chal island.

⑤ Lack of mitigation capacity :- can't ⁱⁿ ^{by} ^{an}
cooling devices.
• work in open → (eg) construction workers affected by heat waves.

⑥ Marginalised Pacific nations (eg) Fiji are experiencing existential crisis.

Climate resilient model

⑦ Inclusive → involve climate refugees.

⑧ Mitigation → ~~building~~ undertaking climate pledges and fulfilling NDCs.

• follow up of CBDR by nations.

• Developed countries to shoulder un-
able burden.

• Provide funding to Global climate fund

(40) Adaptation :-

- funds for loss and damage (COP 29)
- Joint partnerships for technology transfer.
- focus on food security and resilient agriculture.
- focus on developing cool-houses.

Climate change will increase the frequency of disasters and large scale displacements of marginalised communities. Pro-active steps need to be taken to deal with the same, to fulfil SDG 13.

Feedback

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Q.17) 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 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)

The Disaster Risk Reduction strategy of India is stated in National Disaster Management Act. It includes formation of funds, formation of NDRF/SDRF and NDMA to provide for mitigation and adaptation strategy.

Constraints in DRR Strategy

(i) Highly centralised :-

- Disaster is a residuary subject
- However, need to be dealt with at local level.

- State capacity for funding and mitigation is limited.

(ii) Reaction based approach :-

- Lack of proactive planning.

- focus on relief and rehabilitation, rather than mitigation.

(iii) Narrow approach :-

- Heat waves, for ex, are not included as disasters, no step are taken for these.
- Biological disasters such as COVID-19 should limitation to tackle.

(iv) Only one ministry → ministry of Home is nodal agency.

- But disasters also affect sectors such as Agriculture, Husbandry, Water, Health among others.

Measures for building a robust strategy

(I) Devolution of power to states and further to districts :-

- (eg) local level plans - area specific with detailed mapping.

- (eg) landslide map to include soil nature,

population of area etc.

(ii) Nodal committees for specific disasters, containing of representatives from each affected ministry.

(iii) revised definition to deal with new disasters (eg) Heat waves or post-droughts or fire hazards in urban areas.

(iv) 15th finance commission guidelines to

- create mitigation fund to be followed
- State should earmark / should be given ^{fiscal} deficit leverage for same.

Disaster = Hazard x Vulnerability;

while hazard will stay; Vulnerability can effectively be reduced by DRK and hence, reducing social and economic effect of disaster.

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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 (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)

North-east provide a major security challenge to India due to its location, geography and ethnic causes.

Challenges in North-east

① Due to ethnic faultlines:-

- Rivalry between ethnicities

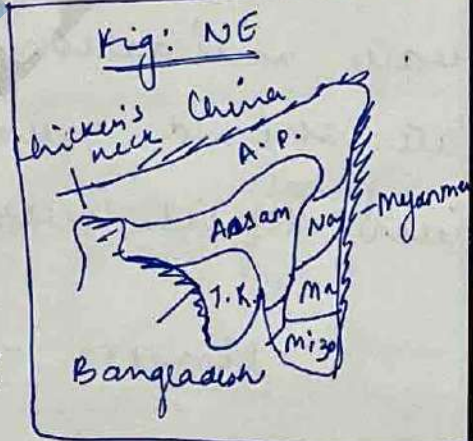
(eg) Naga demand for greater Nagalim.

(eg) Kuki-Meitei conflict in Mizoram.

(eg) Bhu-Chin conflict in Mizoram.

- Strong ethnic tribal identity gives rise of to regionalism.

- Also rise to communalism (eg) Hindu-Muslim in Assam.



iv) Other causes :-

(i) Relative isolation

→ pre-independence by Britishers as no major resource.

(ii) Post-independence

due to lack of regional integration.

(iii)

Geography :- lack of connectivity and difficult terrain → development deficit
↓
alienation

(iv) Exploitation of alienation by 'insurgents'

eg Manipur - PLA funded by china

(v) Cross-border organised crimes eg drug trafficking / arms trafficking through Myanmar.

(vi) Exploitation of free movement regime

eg by NSCN(IM).

Overall this has caused alienation, frustration amongst people leading to security challenges.

What should be done?

- ① Effective steps to deal with conflict :-
eg Manipur conflict to be resolved via increasing security, peace talks, relief, rehabilitation.
- ② Promotion of development :- eg connecti-
-city with ASEAN via IMT via Manipur.
- ③ Provision of proper connectivity eg
helicopter etc to join separate places.
- ④ Community engagement in case ethnic
conflict arises eg Mesa Paikis in Manipur.
- ⑤ Resolution of boundary conflict eg
Assam-Manipur via North-East
Council.
- ⑥ Long term solution to insurgency as
done in Mizoram.

Social, economic and political
steps are required to truly deal with
security challenge in this region.

Feedback

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Q.19) Critically examine the role of development initiatives in addressing the root causes of militancy/ terrorism in Jammu & Kashmir. (15 marks, 250 words)

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

Operation Tupac was started by Pakistan to start insurgency in J&K in 1990s, the effects of which are still seen due to lack of development in the region.

Role of development initiatives

(i) Increase standard of living of people :-

- Remove discontent
- Provide better opportunities for health and education.

(eg) AIIMS, Jammu or NIT, Srinagar.

(ii) Remove discontent among youth :-

- More employment opportunities
- Lack of diversion of mind towards insurgency.

(iii) Economic integration will create

dependancy on Indian state :-

- ① Tourism or export of Kashmiri saffron or lavender.
- ② Increase connectivity to remote areas :-
via mobile towers / broadband.

In this manner development can divert attention from militancy.

Still challenges prevail :-

- ① Radicalism in the name of religion is high
- ② Graduates eg engineers joining militancy such as Burhan Wani.
- ③ Development has further boosted insu-
-ency → eg alienation due to new settlers in region
 - Perception of threat of identity.
- ④ Private companies still hesitant to invest in the region.

Way forward!

Despite challenges, development provides
a long-term solution, along with this:

- (i) Reduce governance deficit in regions:
 - Regular Panchayat elections
- (ii) Border management via CIPBMs
to prevent infiltration.
- (iii) Check on social media → to prevent
spread of misinformation.
- (iv) Rollback of fences, step by step to prevent
isolation.
- (v) Confidence building measures (eg) Nai
Roshni.

There are cases where youth
join stone pelting to earn 100 Rs. a
day, these can be effectively resolved
by promoting development:

Feedback

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

Generative Artificial Intelligence is based on computer networks that can produce new data - whether text, pictures, videos - on the basis of existing data. (eg) Bard, Chat GPT

works in question-answer based format. Based on large language model. Features → can provide new ideas (eg) write novels, make projects, PPTs. Builds upon already existing data. Acts → responsive according to demand.

Concerns posed

- (I) Education :- can reduce work done by students ; can reduce long-term creativity.
- (II) Ethical issues :- Inherent bias in the system according to database.
- (III) Jurisdictional issues :- can lead to new crimes (eg Deep fakes etc.
 - How to decide case / country → will increase anonymity challenges.
- (IV) Lack of policy framework to regulate the same.
- (V) Plagiarism challenges. This is a disruptive technology can change the framework of society as we know now.

Way forward

- ① Proactive policy - as recently suggested by PM.
- ② Regulation to prevent IPR infringements
- ③ Regulation to prevent misuse in forms of cyber threats / crimes.
- ④ Need for data protection Bill to protect privacy.
- ⑤ Manufacturers to take care of biases.

Sam Altman the founder of Chat GPT has called for effective regulation to prevent misuse.

Feedback

(For OFFICE use on)

#	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	
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