

TEST CODE : 5 1 3 2 4

FIAS - MGP 2022 (C-9 Alt) - Sectional Test #6



GENERAL STUDIES

Name Of Candidate	Nawita		
Roll No.	1910035431	Date:	11 th Aug 2022

Time Allowed: Three Hours

Maximum Marks: 250

INDEX TABLE			INSTRUCTION
Q. No.	Max. Marks	Marks Obtained	<p>1. Please do furnish Name, Email, Roll No and Mobile in the answer sheet.</p> <p>2. There are TWENTY questions printed in ENGLISH & HINDI, all questions are compulsory.</p> <p>3. The number of marks carried by a question/part is indicated against it.</p> <p>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.</p> <p>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.</p> <p><i>Any specific messages for ForumIAS Mentors/Evaluators with respect to your copy? Write it here.</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
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Total:	250		
Evaluator's Discretion:			For Student Only
			Start Time 15:00
			End Time 18:00
Total Marks:			Mode Of Examination:
			Online <input checked="" type="checkbox"/> Offline <input type="checkbox"/>
Evaluator's Discretion: This is the marks awarded at the discretion of the evaluator 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.			For Office Use Only
			ECN CODE:
			EG:
			Evaluation Date:

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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.

Parameters	Excellent	Very Good	Good	Average	Poor	Very Poor
Language						
Structure						
Presentation						
Handwriting						
Content						
Attempt						

ADDITIONAL REMARKS



Q.1) The consequences flowing from genetically modified organisms are debatable, but the advantages justify the risk. Do you agree? Discuss. (10 marks, 150 words)

आनुवांशिक रूप से संशोधित जीवों (GMO) से निकलने वाले परिणाम बहस योग्य हैं, लेकिन इसके फायदे जोखिमों का औचित्य सिद्ध करते हैं। क्या आप सहमत हैं? चर्चा कीजिए। (10 अंक, 150 शब्द)

GMO → There are the animals, plants, organisms having their genes modified for human use & application.

Advantages of GMO

i) Crops → high yield
→ high Droush resiltance
→ high Pest susistance.
e.g - GM Bt cotton

ii) Animals → high productivity of Milk
→ improved breeds
→ Xenotransplantation from pigs
Products for Medicine use.
e.g - Insulin.

iii) Micro organisms → vaccines development
→ Drug development
→ Mosquito selective breeding.

Disadvantages and risks

- i) Human Safety risk
 - ↳ allergies from GM foods.
 - ↳ immunosuppression reaction
 - ↳ rejection of organ transplant
e.g - Pig liver transplantation
- ii) High yield is contented
 - ↳ Bt cotton led to surge of use
in herbicide.
 - ↳ Superweeds and Superbugs developed.
- iii) Threat of antibacterial resistance and gene pool contamination.
- iv) Ethical concerns → may arise
in cloning and xenotransplantation
~~can~~ can be used for improved 'designed'
babies.

Altogether banning is not the solution,
Should be regulated through Cartagena
protocol and Biodiversity act.

Feedback

(For OFFICE use only)

Structure/ Presentation	
Question Interpretation	
Content	
Value Addition	
Total	



Q.2) How are fuel cell electric vehicle (FCEV) different from battery electric vehicle (BEV)? Highlighting advantages of electric vehicles, suggest measures for accelerating e-mobility adoption in the country. (10 marks, 150 words)

ईंधन सेल इलेक्ट्रिक वाहन (FCEV) बैटरी इलेक्ट्रिक वाहन (BEV) से कैसे भिन्न हैं? इलेक्ट्रिक वाहनों के लाभों पर प्रकाश डालते हुए, देश में ई-मोबिलिटी अपनाने में तेजी लाने के उपाय सुझाएं। (10 अंक, 150 शब्द)

FCEV and BEV are alternatives of internal combustion engines. to reduce CH₄ emissions.

FCEV Different BEV

- | | |
|--|--|
| <ul style="list-style-type: none"> i) Based on hydrogen fuel cell ii) Continuous supply of fuel is needed iii) Refuelling of H₂ time is 5 min. iv) Long range on single fill v) More expensive | <ul style="list-style-type: none"> i) Based on battery e.g. - Li ion, lead acid etc. ii) on chargeable & rechargeable basis iii) charging time is 35-40 min iv) short range on single charge v) less expensive. |
|--|--|

What are the advantages of electric vehicles :->

- i) No emission of SO_x, NO_x, Particulate matter.
- ii) Lessen reliability on fossil fuels thus reducing CAD. (current account deficit)
- iii) Helps to achieve climate change temp. rise target of 1.5°C.
- iv) Provide sustainable development as transportation sector is the biggest source of black carbon.

Way forward :->

- 1) Build charging infrastructure as per Nation electric mobility mission
- 2) Ensure Lithium availability by signing agreement with Argentina, Bolivia, Chile
- 3) Research & development in H₂ fuel cell technology. etc
- 4) Advanced Li ion battery production
e.g. - (PSRO - BHEL project)
- 5) Adoption of FAME 2.0 programme.

Feedback

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Structure/ Presentation	
Question Interpretation	
Content	
Value Addition	
Total	



Q.3) Space based technologies are helpful in not only monitoring development, but also enhancing it. Discuss. (10 marks, 150 words)

अंतरिक्ष आधारित प्रौद्योगिकियां न केवल विकास की निगरानी करने में सहायक हैं, बल्कि इसे बढ़ाने में भी सहायक हैं। चर्चा कीजिए। (10 अंक, 150 शब्द)

Space based technologies are emerging technologies to provide solution for socio-economic development.

Space technologies enhancing development

i) Satellite internet

- ↳ providing internet in hilly terrain and remote areas.
- ↳ Backbone of defence installations in border area.

ii) Agriculture

- ↳ remote sensing & Earth observation
- Satellite helping in GIS, real time monitoring of crop losses.

3) Land Use Planning

P.g - BHUVAN app → Mapping of Land area for project development.

4) Disaster Management

→ Earth observation satellite to check & predict natural disasters
P.g - cyclone development
Forest fires.

5) NAVIC Constellation providing GPS services for traffic management and transportation.

6) Digitization of land records in Swaminthra scheme is using satellite based imagery.

Now, ~~set~~ Space based technologies are aiding industrial 4.0 revolution.

Feedback

(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

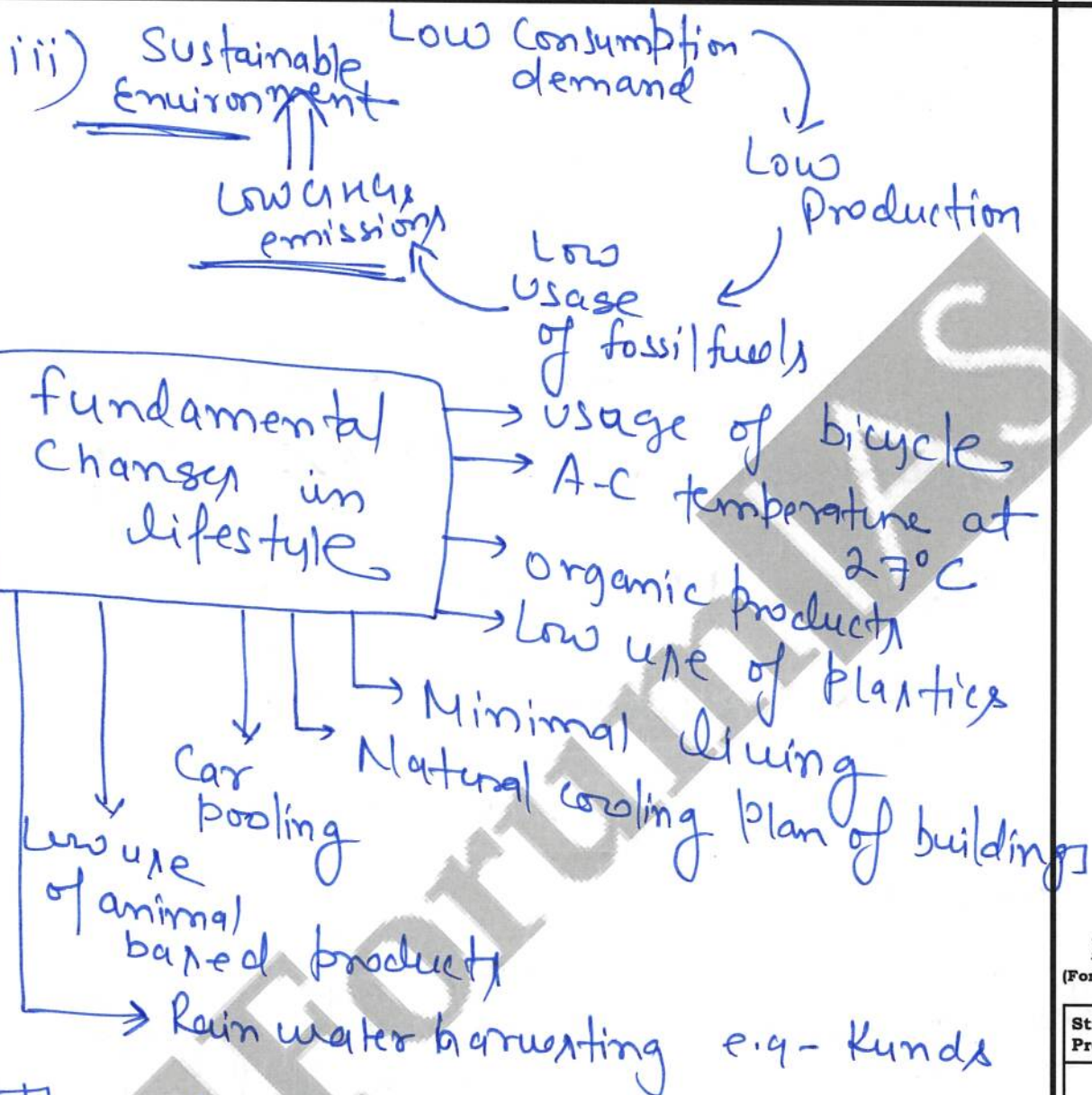
Q.4) Ensuring sustainable consumption and production patterns for an environmentally conscious world is not possible without fundamental changes in lifestyle. Discuss this statement in light of Lifestyle for the Environment (LiFE) Movement. (10 marks, 150 words)

जीवन शैली में मूलभूत परिवर्तन लाए बिना पर्यावरण के प्रति जागरूक दुनिया के लिए सतत उपभोग और उत्पादन पैटर्न सुनिश्चित करना संभव नहीं है। पर्यावरण के लिए जीवन शैली (LiFE) आंदोलन के आलोक में इस कथन की चर्चा कीजिए। (10 अंक, 150 शब्द)

Lifestyle for the Environment movement was launched by India ~~at~~ at COP26 in ~~at~~ Glasgow to have mindful & deliberate utilization rather than mindless and wasteful consumption.

Lifestyle for Environmental Sustainability

- i) Sustainable consumption & production produce pro planet people (P3)
- ii) It will reduce wastage and energy consumption to halt climate change.



Thus, behavior nudging is critical along with govt. policies to reduce green house gas emission, plastic waste and climate change triggered hazards.

Feedback

(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.5) Managing risks, rather than impacts, lies at the core of effective disaster management strategy. In light of this statement, describe the flood risk profile of India and evaluate preparedness for effective flood management. (10 marks, 150 words)

प्रभावों के बजाय जोखिमों का प्रबंधन, प्रभावी आपदा प्रबंधन रणनीति के मूल में निहित है। इस कथन के आलोक में, भारत के बाढ़ जोखिम प्रोफाइल का वर्णन करें और प्रभावी बाढ़ प्रबंधन के लिए तैयारियों का मूल्यांकन करें।

(10 अंक, 150 शब्द)

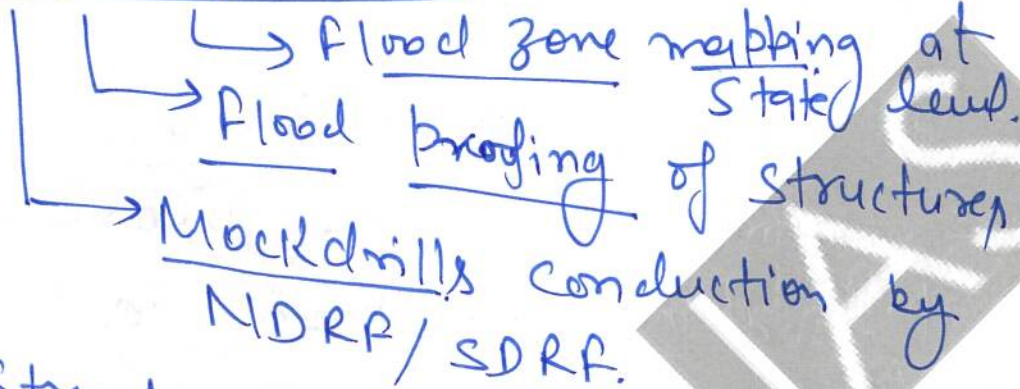
India is among top 5 disaster
prone countries in the world.
12% of land area is prone to
flooding.

Flood risk profile of India

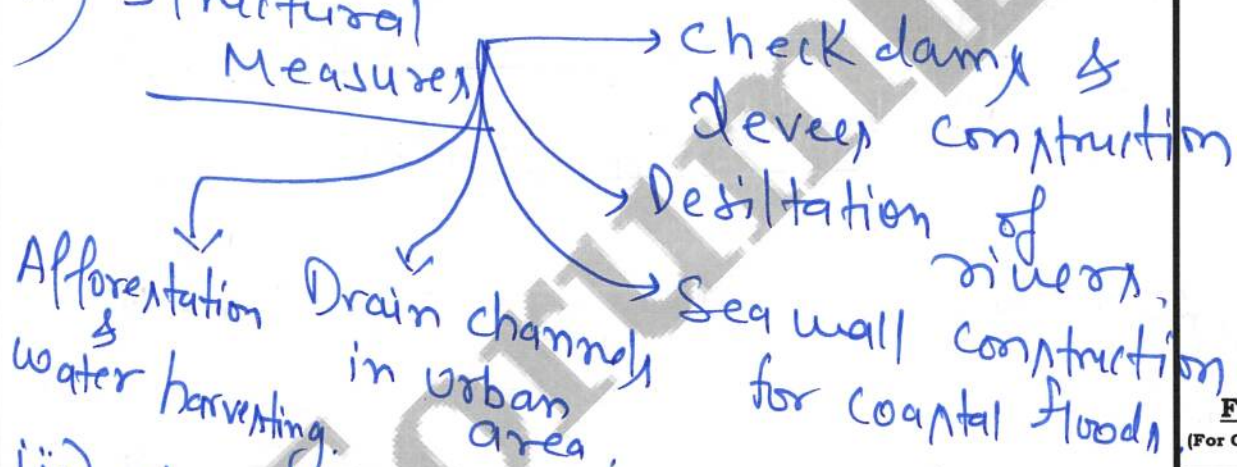
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- 1) cloud burst floods prominent in Himalayan region.
- 2) Urban floods common in Mumbai, Chennai etc.
- 3) Coastal flooding due to cyclone on east coast.
- 4) N-E face floods due to high Monsoon rainfall and siltation.

Preparedness for flood management

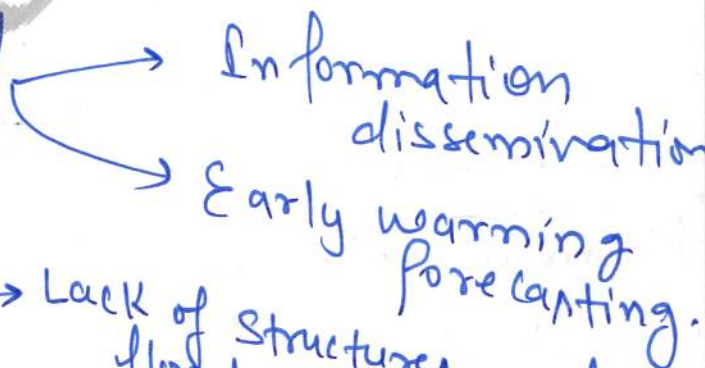
i) NDMA guidelines



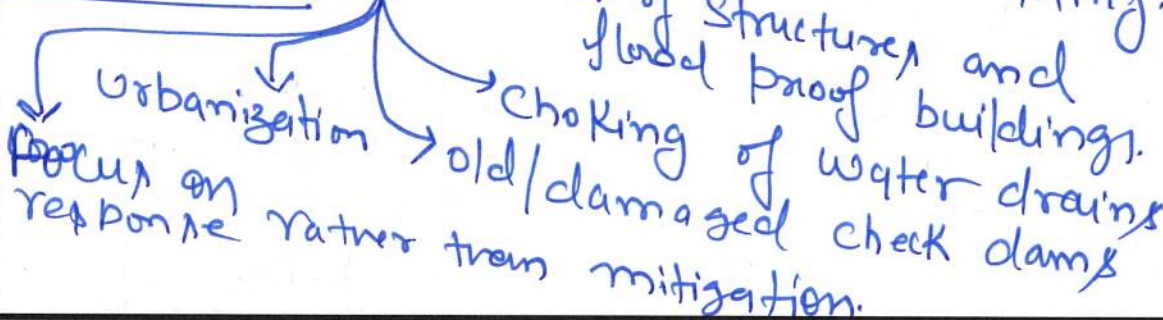
ii) Structural Measures



iii) Non Structural Measures



Challenges :-



Feedback

(For OFFICE use only)

Structure/Presentation
Question Interpretation
Content
Value Addition
Total

Q.6) Solar power sector is not only leading the mitigation efforts against climate change, but the innovations in solar power can also accelerate adaptation of agriculture to a new reality of changed climate. Discuss. (10 marks, 150 words)

सौर ऊर्जा क्षेत्र न केवल जलवायु परिवर्तन के खिलाफ शमन प्रयासों का नेतृत्व कर रहा है, बल्कि सौर ऊर्जा में नवाचार भी बदली हुई जलवायु की एक नई वास्तविकता के लिए कृषि के अनुकूलन में तेजी ला सकते हैं। चर्चा करें।

(10 अंक, 150 शब्द)

India having 4th largest installed solar power capacity in the world.

Solar power to fight climate change

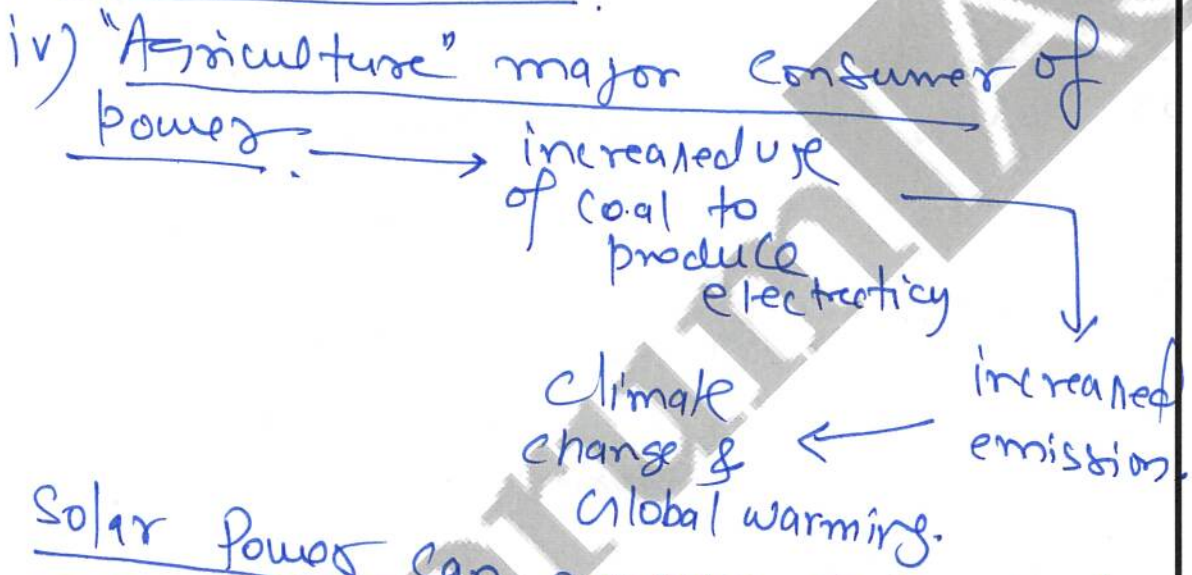
- i) No emission of green house gases.
- ii) Non usage of fossil fuels in its life cycle.
- iii) Renewable source of energy, available in plenty amount.
- iv) Causing no air/water pollution.

Solar energy for adaptation of agriculture

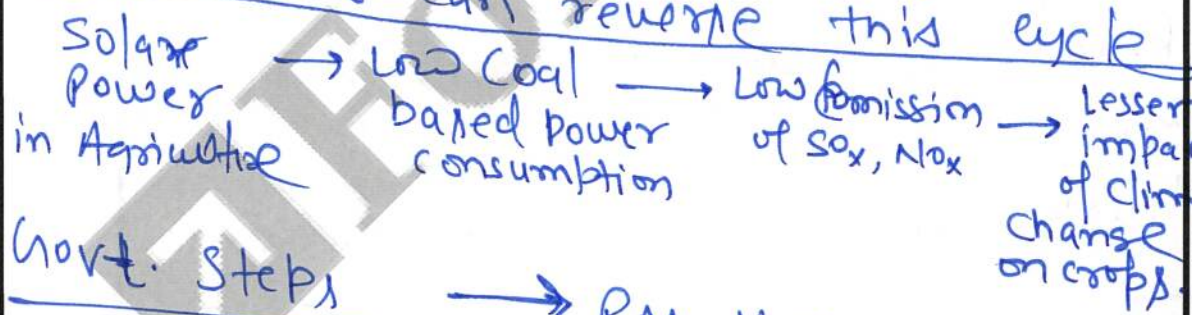
- i) Can replace diesel run pumps with solar pumps. hence cutting emissions of CO₂ & methane.

ii) Solar panels can be installed along field boundaries and surplus power can be fed to grid.

iii) Surplus power will enhance farmer's income.



Solar power can reverse this cycle



Govt. Steps → PM KUSUM scheme for standalone solar pumps and grid connected power.

India being a tropical country should harness solar energy to fuel power demand.

Feedback (For OFFICE use only)	
Structure/ Presentation	
Question Interpretation	
Content	
Value Addition	
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Q.7) Necessitated by contingent law & order situation in the North-Eastern states in 1958, Armed Forces (Special Powers) Act (AFSPA) continues to be applicable even after six decades of its enactment despite widespread criticism. Critically evaluate the utility of AFSPA in light of prevailing security environment in the country. (10 marks, 150 words)

1958 में उत्तर-पूर्वी राज्यों में आकस्मिक कानून और व्यवस्था की स्थिति के कारण, सशस्त्र बल (विशेष अधिकार) अधिनियम (AFSPA) व्यापक आलोचना के बावजूद इसके लागू होने के छह दशकों के बाद भी लागू है। देश में प्रचलित सुरक्षा वातावरण के आलोक में AFSPA की उपयोगिता का समालोचनात्मक मूल्यांकन कीजिए। (10 अंक, 150 शब्द)

AFSPA → enacted to give security forces special powers / immunity to deal with insurgency in North-east.

Utility of AFSPA

- 1) Insurgency & ethnic violence in N-E east states
- 2) Porous border with Myanmar gives safe hideout to insurgents.
- 3) Nexus of organized crime & insurgency.
- 4) crime of human trafficking, illegal trade of arms, instability in Myanmar.
- 5) Fundamentalist forces in Bangladesh

caus~~ing~~ terrorism threat in N-E.

AFSPA should be repealed

- i) Jeevan Reddy Committee and Law Commission report asked for AFSPA repeal.
- ii) UAPA law, IPC / CrPc are available to check terrorism.
- iii) Absolute immunity is violating human rights and fundamental rights of Article 21, 22.
- iv) Alleged violence by Security forces. P.g - Men tragedy in Nagaland.

AFSPA to be used as last resort and not as per se judgement and Personnel charged with violation of act should be booked & persecuted rather than giving blanket immunity.

Feedback (For OFFICE use only)	
Structure/ Presentation	
Question Interpretation	
Content	
Value Addition	
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Q.8) Why has fake news on the internet emerged as an internal security challenge? How can we identify a fake news? Also, throw light on legal and institutional arrangements to tackle fake news.

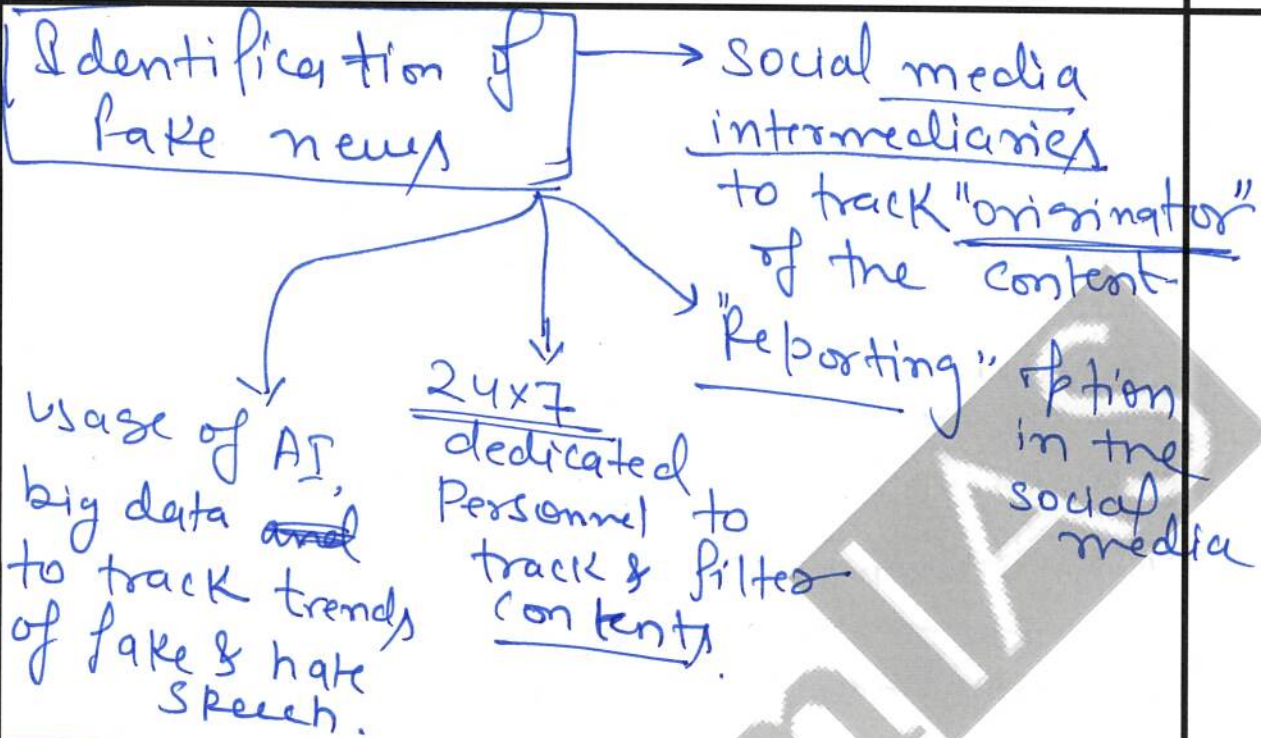
(10 marks, 150 words)

इंटरनेट पर फेक न्यूज आंतरिक सुरक्षा चुनौती के रूप में क्यों उभरी हैं? हम एक फेक न्यूज की पहचान कैसे कर सकते हैं? साथ ही, फेक न्यूज से निपटने के लिए कानूनी और संस्थागत व्यवस्थाओं पर प्रकाश डालें। (10 अंक, 150 शब्द)

fake news → It is half truth and manipulated information to deliberately cause enmity & violence.

fake news threat on internal security

- 1) It may cause mob violence & mob lynching
e.g. - Trikurat mob lynching for children kidnapping
- 2) Doctored videos may cause riots and inflame the situation.
- 3) fake news cause hatred against security forces.
e.g. - J & K militants doctored videos of Military human rights violations.
- 4) fake news can cause xenophobic tendencies.
e.g. - North eastern people exodus from Bangalore



Legal & institutional arrangements available →

- 1) IT Act 2008 Sect 69 → Centre can block any content on social media.
- 2) IT rules 2021 → intermediary to share "first originator" of message → "Nodal Person" to act upon complaints within 48 hrs.
- 3) IPC → Fake news can be tackled by "Spreading enmity between two groups"

Fake news is a new threat to plural diversity of India.

Feedback
(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

Q.9) Discuss the salient features of Agnipath scheme. Underlining the benefits of the scheme, mention ways to overcome associated challenges. (10 marks, 150 words)

अग्निपथ योजना की मुख्य विशेषताओं की चर्चा कीजिए। योजना के लाभों को रेखांकित करते हुए, संबंधित चुनौतियों को दूर करने के तरीकों का उल्लेख करें। (10 अंक, 150 शब्द)

Agnipath scheme - It is based on short term and tour of duty in military service.

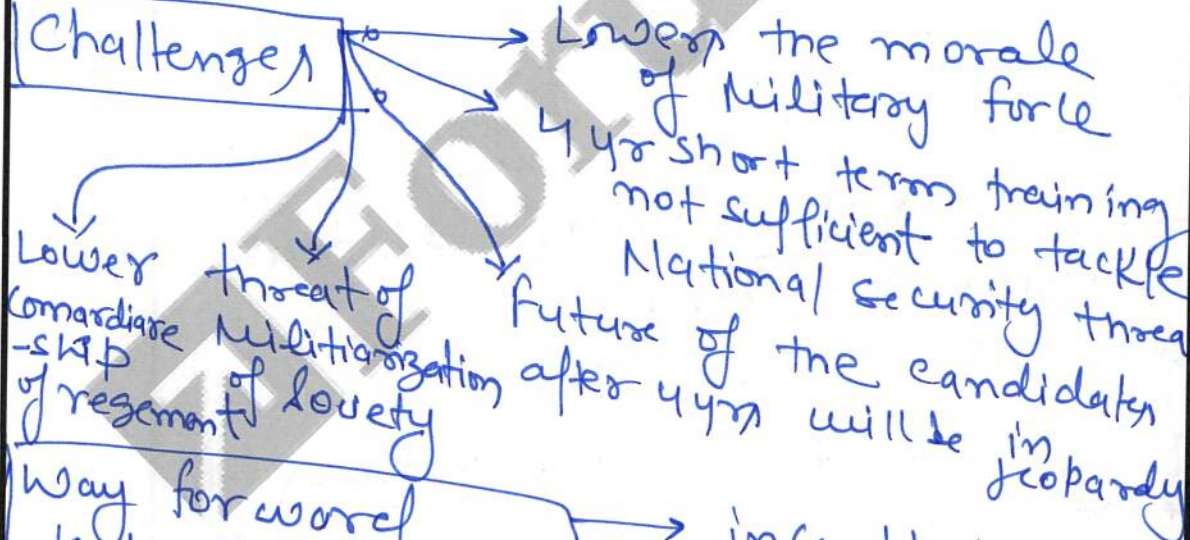
Features of Agnipath scheme

- 1) 4 year short term military service.
- 2) Age eligibility 17.5 yrs - 23 yrs
- 3) Different ranks than full time military personnel.
- 4) 25% will be absorbed in full time after completion of 4 years.
- 5) 6 months rigorous intense training for future ready, quick & mobile force.

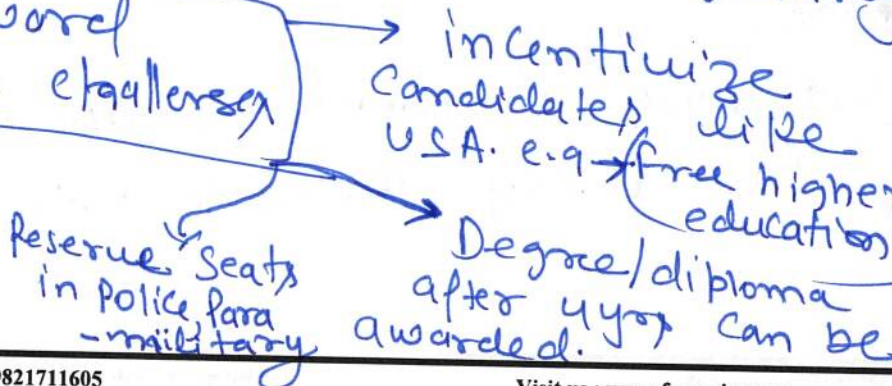
Benefits of the Scheme

- 1) Army can maintain youthful profile
- 2) Technological Savvy workforce to deal with emerging technologies.
- 3) Reduce the pension & Medical burden of defence.
- 4) Foster Nationalism and discipline in Civilian population.
- 5) Recruits after 4 years will be give preference in Paramilitary forces and Corporate sector

Challenges



Way forward to tackle challenges



Feedback

(For OFFICE use only)

Structure/Presentation
Question Interpretation
Content
Value Addition
Total

Q.10) Examine how advancements in technology has allowed organize crime syndicates to not only expand but also diversify their activities. Also recommend suitable measures to tackle the menace of organized crime. (10 marks, 150 words)

परीक्षण करें कि कैसे प्रौद्योगिकी में प्रगति ने संगठित अपराध सिंडिकेट को न केवल विस्तार करने बल्कि उनकी गतिविधियों में विविधता लाने की भी अनुमति दी है। संगठित अपराध के खतरे से निपटने के लिए उपयुक्त उपायों की भी सिफारिश करें। (10 अंक, 150 शब्द)

Organized crime → It is the crime committed by 3 or more people to attain direct / indirect monetary benefit.

Technology aiding organized crime

- 1) Drone usage → Drugs delivery through drones.
e.g. - "Drug crescent region"
- 2) Bitcoin / crypto currency → Money laundering using cryptocurrency.
Purchase & Sale of arms.
- 3) Darknet → illicit racket of trafficking narcotics are operating in Dark net.

4) Sharemarkets → using laundries to enter into sharemarket through participatory notes.

Suitable measures to tackle the crime

- 1) Remove safe havens and harbours near porous border of these Syndicates.
- 2) Strict implementation of PMLA act
- 3) Building capacity of CERT-In, FIU, Cybercell to tackle organized crime on cybersystem.
- 4) Extradition treaty with neighbouring countries to convict accused.
- 5) Multilateral Cooperation with foreign states to tackle transboundary crimes, e.g - Myanmar, Bangladesh.
- 6) Strengthen capacity of paramilitary forces and police forces.

Organized crime are threat to the stability & security of nations.

Feedback

(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.11) Nanotechnology is an inter-disciplinary and inter-connected science that has revolutionary applications across sectors. In this perspective, discuss the relevance of nanotechnology for socio-economic development in the country. (15 marks, 250 words)

नैनोटेक्नोलॉजी एक अंतर-अनुशासनात्मक और परस्पर जुड़ा हुआ विज्ञान है जिसके सभी क्षेत्रों में क्रांतिकारी अनुप्रयोग हैं। इस परिप्रेक्ष्य में, देश में सामाजिक-आर्थिक विकास के लिए नैनो प्रौद्योगिकी की प्रासंगिकता पर चर्चा करें।

(15 अंक, 250 शब्द)

Nano-technology → It is the branch of science that deals with the study of elements sized ~~at~~ between 1-100 nanometers.

India ranks 5th in the world in terms of publishing research documents on nanoscience.

Application of Nanotechnology for Socioeconomic development

- i) Health → * It is used in creating nanomedicines for cancer treatment.
* Targeted drug delivery.

* Nano fibres for organ transplant.

* Nanowearables containing sensors to check biophysical parameters.

ii) Agriculture :→ Nanomaterials are used in pest management.

* Nanourrea & Nanofertilizers for efficient use.

* Nanobiosensors to check soil health.

(ii) Graphene :→ lightest & hardest nanomaterial used for thermal strength in industries.

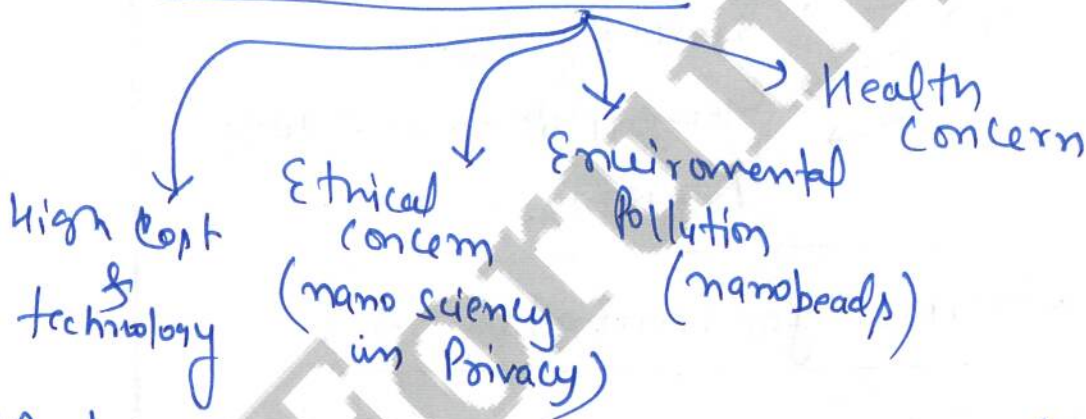
iv) Carbon nanotubes :→ are used in energy storage & energy transfer.

Nanosemiconductors usage for capturing solar energy

v) Water treatment → nano carbon filters
are used in waste water treatment.

vi) Food industry → Nanomaterial films
for packaging and antibacterial film coating.

Challenges associated :-



Despite these challenges Nano science holds solution for benefits as envisaged in Mission on Nano science & technology launched in 2007.

Feedback
(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

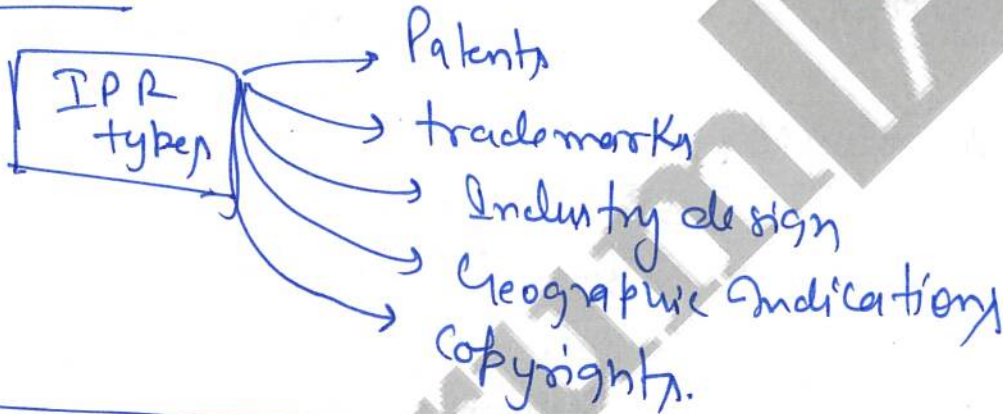


Q.12) The increasing demand for stronger Intellectual Property Rights (IPR) protections is motivated by a desire to invigorate a groundswell of innovation, but it is more likely to lead towards IP monopolies. Examine. (15 marks, 250 words)

मजबूत बौद्धिक संपदा अधिकार (IPR) सुरक्षा की बढ़ती मांग नवाचार के आधार को मजबूत करने की इच्छा से प्रेरित है, लेकिन इससे बौद्धिक संपदा (IPR) के एकाधिकार की ओर ले जाने की अधिक संभावना है। परीक्षण करें।

(15 अंक, 250 शब्द)

IPR → It is defined as the rights over innovations or creations of human mind.



IPR protection for innovation :-

- i) IPR protection creates favourable condition for research & development.
e.g - Pharmaceutical industry.
- ii) It attracts foreign investment & funds.
- iii) It balances innovators' right vs Public benefit rights.

- iv) It leads to Pathbreaking discoveries.
 e.g. — Cancer treatment drugs.
 e.g. — COVID 19 vaccines.

How IPR leads to Monopolies

- i) Product Patent → After signing TRIPS Andia removed to product patent from process patent.

Product patent protects the end product rather than process to produce that.

- ii) Evergreening → Big companies evergreening patents after tweaking minor changes.

e.g. — Novartis, Glaxosmithkline.

- iii) Biopiracy → MNCs are utilizing traditional knowledge to claim their monopoly.

e.g. → Therapeutic properties of "Turmeric"

iv) ~~Cont~~ opposing Compulsory licensing →
CL can be evoked by govt. to award
"patented production" to other firms without
consent of licensee.

e.g - COVID 19 vaccines.

v) Big MNCs of European & western
countries allying against compulsory
licensing for COVID drugs as it will
cut their profits.

"Way forward"

i) Balancing rights of inventors & public
welfare by "voluntary licensing".

ii) Preventing IPR counterfeiting and
quick judicial process.

iii) CIPAM - Centre of intellectual & property
rights management in DIPP
to check malpractices.

Hence, it is through multilateral agreement
IPRs have to be used for common, equitable
benefits.

Feedback

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

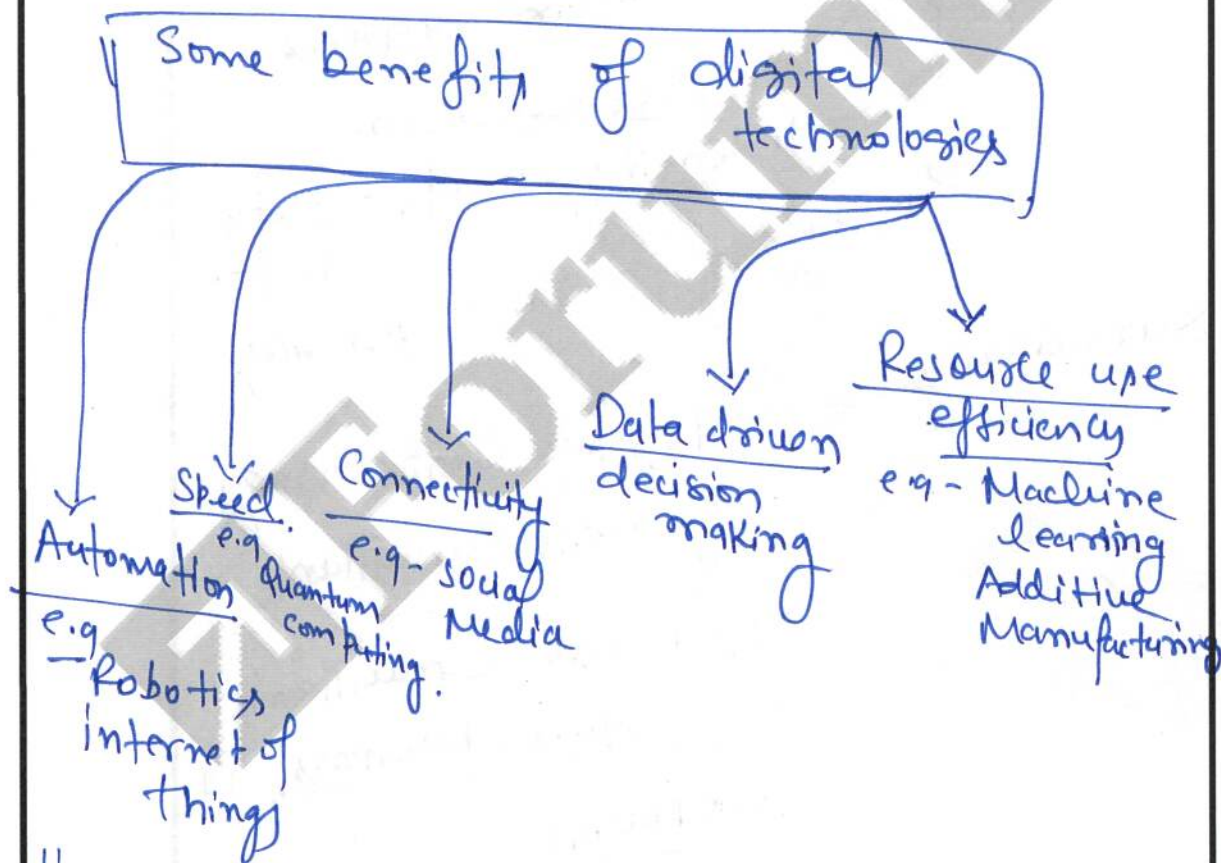


Q.13) New age digital technologies are creating disruptions that open fascinating opportunities and pose frightening threats. Give an account of how digital disruptive technologies are changing our lives. (15 marks, 250 words)

नए जमाने की डिजिटल प्रौद्योगिकियां व्यवधान पैदा कर रही हैं जो आकर्षक अवसरों को खोलती हैं और भयावह खतरे पैदा करती हैं। डिजिटल डिसरप्टिव प्रौद्योगिकियां हमारे जीवन को कैसे बदल रही हैं, उनका लेखा-जोखा दीजिए।

(15 अंक, 250 शब्द)

Today it is Industrial revolution 4.0 that is driven by digital technologies based on ICT.



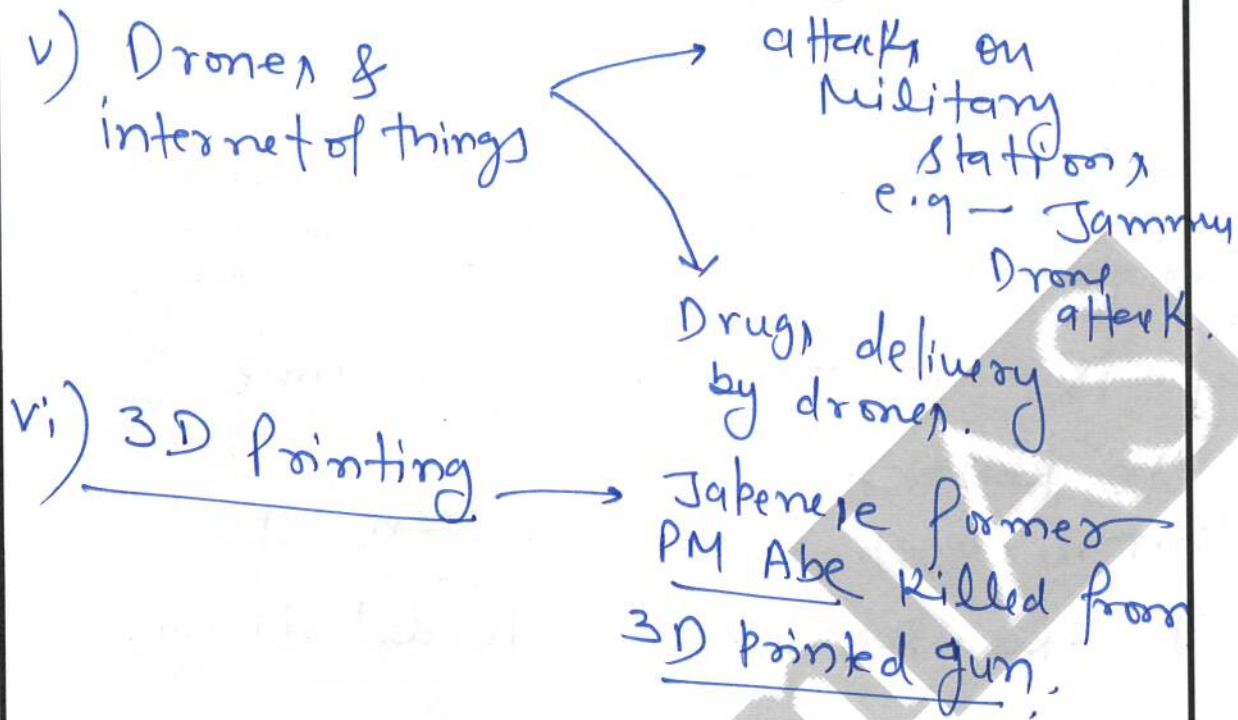
"Disruptions created by digital technologies"

i) Block chain technology → Bitcoin, based on this is financing terrorism. and threat to international finance mechanism

ii) Cyber threats → Ransomware, Phishing attacks, Cyber terrorism, Identity theft / Data theft, Breach of right to privacy.

iii) Surveillance → Pegasus Controversy of mass surveillance, Chinese surveillance on Uighur Muslims, is Xenophobic.

iv) Dark Net → Drugs sale, Narcotics sale, illicit arms sale



Hence, digital technologies are two sided swords.

Way forward :-

- i) Multilateral global convention
e.g. - Budapest Convention
- ii) enacting digital data privacy bill.
- iii) Global treaty on emerging technologies to be signed.
e.g. - IPEF (Indo Pacific Economic Framework)
have emerging technologies killer.

Digital technologies have to be used with morality and conscience for humanity welfare.

Feedback

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.14) Single use plastic (SUP) is a health, economic and environmental scourge, that requires governments to regulate, businesses to innovate and individuals to act. Examine in context of recently introduced ban on SUPs. (15 marks, 250 words)

सिंगल यूज प्लास्टिक (SUP) स्वास्थ्य, आर्थिक और पर्यावरणीय संकट है, जिसके लिए सरकारों को विनियमित करने, व्यवसायों को नवाचार करने और व्यक्तिगत रूप से कार्य करने की आवश्यकता होती है। सिंगल यूज प्लास्टिक पर हाल ही में शुरू किए गए प्रतिबंध के संदर्भ में परीक्षण करें। (15 अंक, 250 शब्द)

SUP is use and throw one time
use plastic.
Recently govt. have put ban on
SUP like polystyrene / expanded styrene.

SUP constitutes the greatest portion
among plastic usage - 1/3rd is single
use.

Why SUP needs to be regulated

① Health concern

- ↳ when burnt releases di-oxins that is carcinogenic
- ↳ Secondary source of microplastics
- ↳ Bioaccumulate & Biomagnify
- ↳ Animal health concern.

② Economic Scourge

↳ Produced from fossil fuels, India is import dependent.

③ Environmental Scourge

↳ Emission of GHGs during lifecycle.

↳ Marine pollution, oceans have become sink.

↳ Difficult to recycle & reuse.

↳ Non-biodegradable in nature

Solutions & Alternatives

① By Government

- ↳ regulate use by Environment Act 1986.
- ↳ Polluter's Pay Principle
- ↳ Extended Producer's Responsibility clause.
- ↳ Penalty provision for deviation.

② By Business

↳ innovation to replace plastics.

e.g - Bamboo products.

e.g - Biodegradable polymers.

e.g - Forest produce based products.

e.g - Coconut husk products.

③ By Individuals

↳ Mindful consumption to minimize waste

↳ say no to "plastic use" - behavioral change.

e.g - (Life movement)

Hence, it is the responsibility of Govt., Business and consumers to prevent the planet from plastic scourge.

Feedback

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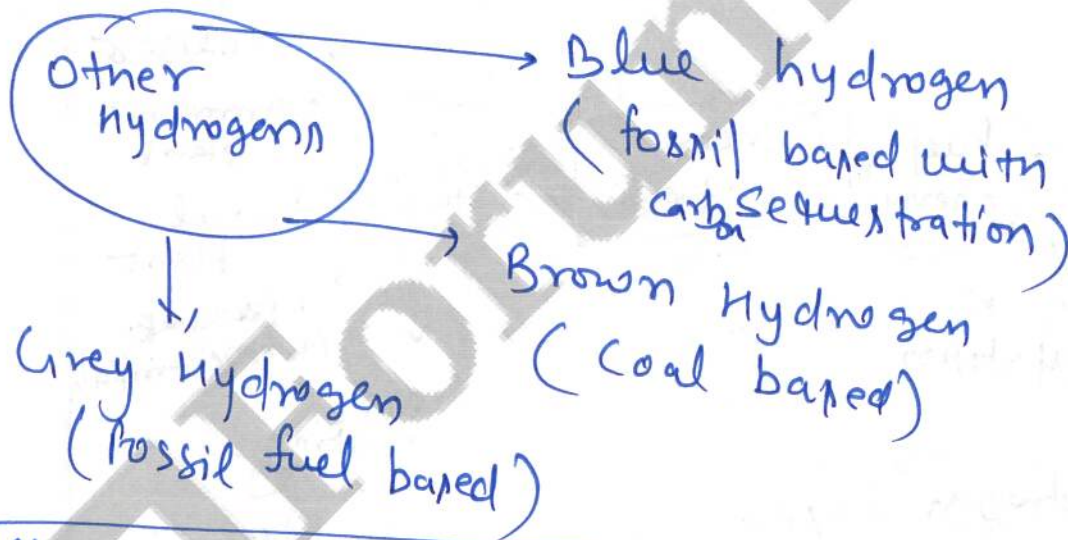
Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.15) Green hydrogen can be the engine of a sustainable economy, but it would require crossing financial and technological barriers. Discuss the reasons for increasing interest in green hydrogen and challenges in its adoption as the fuel of the future. (15 marks, 250 words)

ग्रीन हाइड्रोजन एक स्थायी अर्थव्यवस्था का इंजन हो सकता है, लेकिन इसके लिए वित्तीय और तकनीकी बाधाओं को पार करना होगा। ग्रीन हाइड्रोजन में बढ़ती रुचि के कारणों और भविष्य के ईंधन के रूप में इसे अपनाने में चुनौतियों की चर्चा करें। (15 अंक, 250 शब्द)

Green Hydrogen → It is hydrogen produced from electrolysis of water using sustainable energy source.



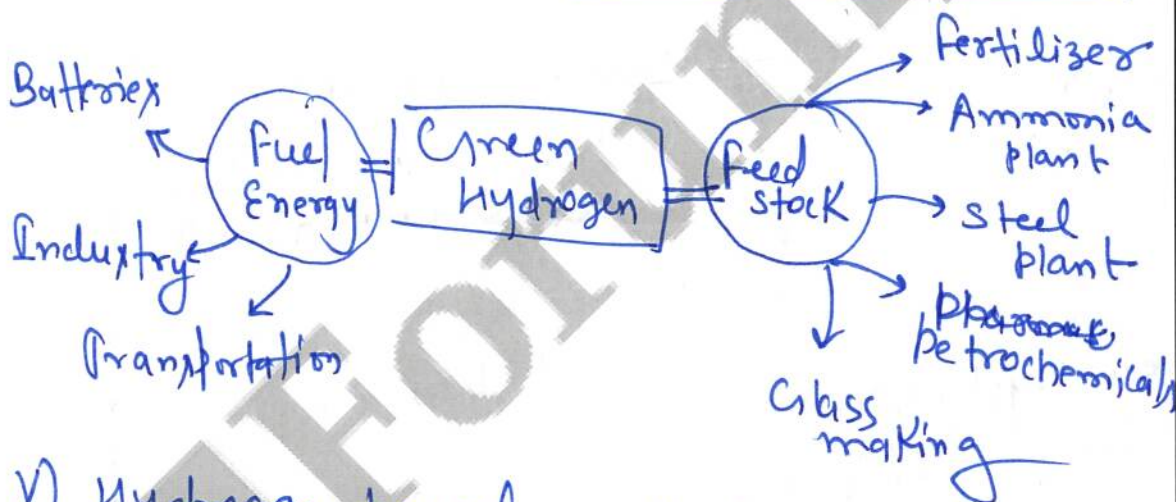
Why increasing interest in Green Hydrogen :->

i) Decarbonization of economy.
e.g - Steel sector, fertilizer sector.

ii) No GHGs are produced during Green Hydrogen usage.
Only H_2O is the end result.

iii) Prevents Air, soil, land, water pollution.

iv) Limits climate change and can halt temp. rise below $1.5^\circ C$.



v) Hydrogen based vehicle will not emit exhaust-chemicals - $\left(\begin{array}{l} SO_x \\ NO_x \\ \text{Particulate matter} \end{array} \right)$

Challenges of Green Hydrogen technology →

- i) Green hydrogen electrolysis technology is costly & for mass production.
 - ii) Green hydrogen based fuel cell is in its nascent stage of development.
 - iii) Hydrogen is flammable & explosive so storage is problem.
 - iv) Transportation of hydrogen in liquid form → liquefaction infra/technology is capital intensive.
 - v) Renewable energy availability for electrolysis is challenge (India Capacity 155 MW)
- Way forward ⇒

- i) Govt. to provide funding support.
e.g - National Hydrogen Mission
 - ii) PSU's Business should innovate.
(e.g - H₂-CNG fuel in Delhi for buses.)
(e.g - H₂-distributed gas by rail)
 - iii) Developed nation to provide under UN FCC funding mechanism to developing nations.
- Green Hydrogen is the future for world's energy security.

Feedback

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.16) Making the invisible groundwater visible is critical for building climate resilience and achieving sustainable development goals. Examine. (15 marks, 250 words)

अदृश्य भूजल को दृश्यमान बनाना जलवायु को लचीलापन बनाने और सतत विकास लक्ष्यों को प्राप्त करने के लिए महत्वपूर्ण है। परीक्षण कीजिए। (15 अंक, 250 शब्द)

Groundwater is a critical source of freshwater out of 2% availability on earth.

Why groundwater is critical for Sustainable development

- i) Ensures water security and life sustainable.
- ii) Critical source of Agriculture, so livelihood dependency.
- iii) It is finite in quantity.
- iv) Maintains soil moisture.
- v) Groundwater is the source of Springs, marshy areas etc. (captures carbon).
- vi) Balances water cycle.
- vii) Critical for forests, trees and terrestrial ecosystems growth.

Reasons for its depletion

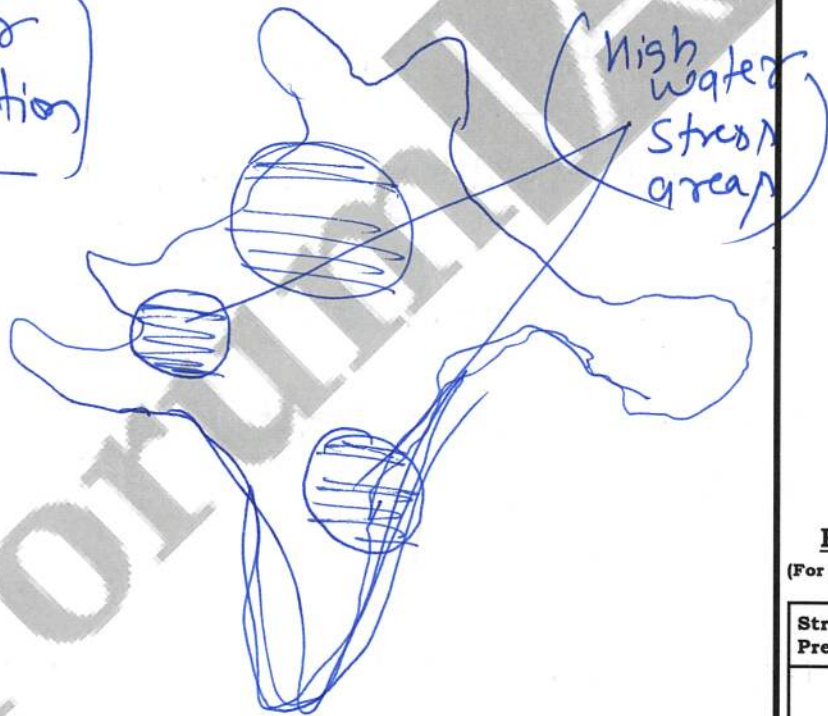
- i) Overuse by agriculture - 80% of GW
- ii) Concrete tization & urbanization, so ground water is not recharged.
- iii) Industrial overuse and pollution by oil drilling operations.
- iv) Arsenic ~~cont~~ and uranium contamination.
- v) Land pollution, waste landfills - heavy metals seeping into ground water.

What steps taken by government? →

- i) Atal Bhujal yojna in water stress districts
- ii) Jal Shakti Abhiyan for water reuse
- iii) PM Krishi Sinchai yojna for micro irrigation

- iv) Promoting dry land farming.
- v) Promoting "direct seeding technique of rice"
- vi) Nagar van scheme and water parks in urban area to recharge aquifers.

Ground water stress situation



Gndwa comes under sewer water stress category and Niti ayog's report on water composite index also shows scarcity, so it high time to conserve ground water.

Feedback

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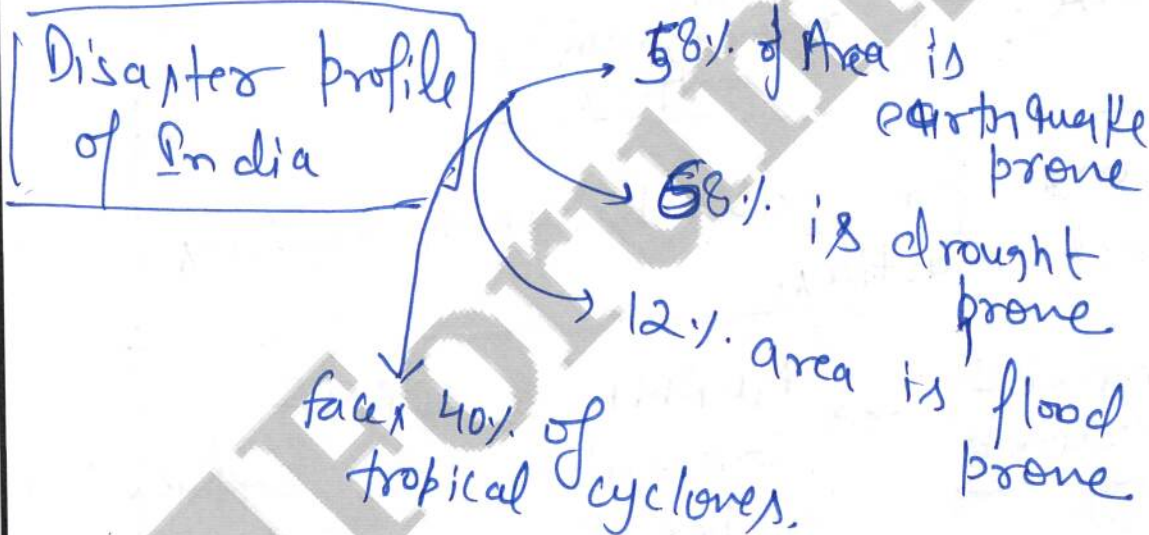
Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.17) Despite the presence of a strong institutional framework and clearly stated policy, huge losses in terms of human, financial, environmental and livelihood show that India still struggles in effective management of disasters. Discuss the reasons for the gap between policy and practices related to disaster management in the country. (15 marks, 250 words)

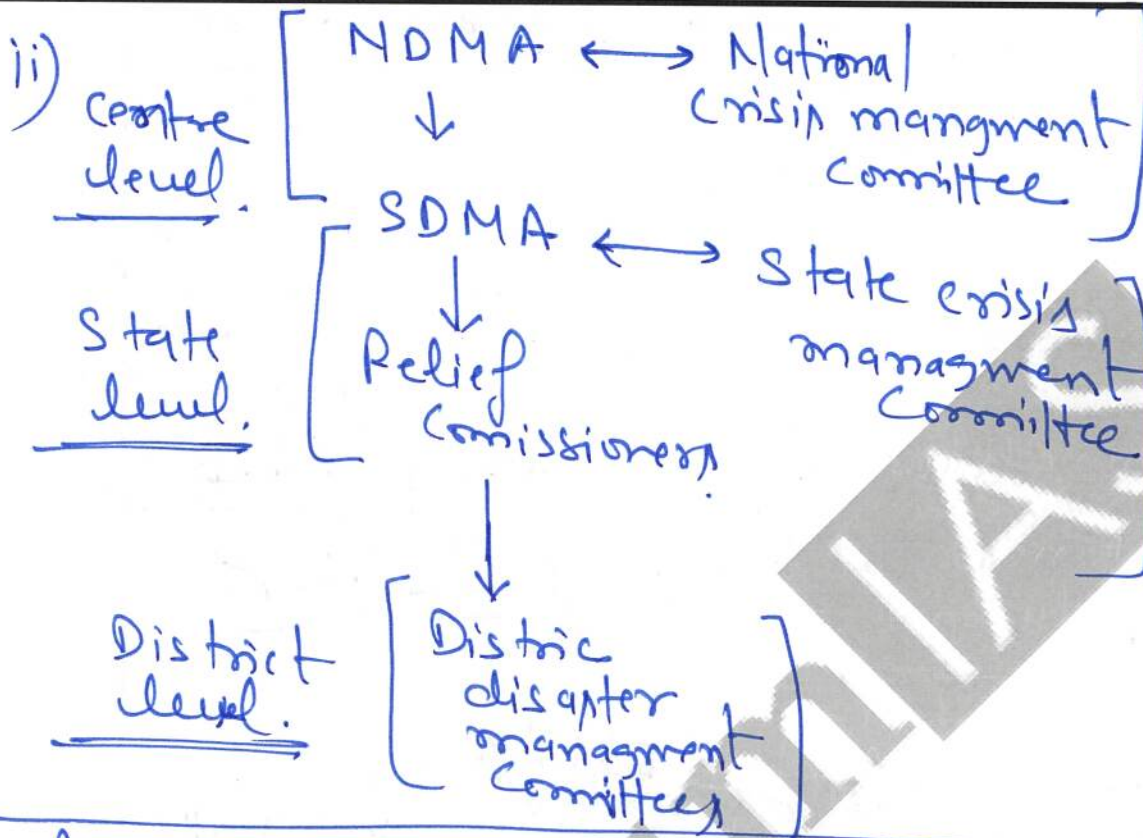
एक मजबूत संस्थागत ढांचे और स्पष्ट रूप से बताई गई नीति की उपस्थिति के बावजूद, मानव, वित्तीय, पर्यावरण और आजीविका के मामले में भारी नुकसान दर्शाता है कि भारत अभी भी आपदाओं के प्रभावी प्रबंधन में संघर्ष कर रहा है। देश में आपदा प्रबंधन से संबंधित नीति और उनके कार्यान्वयन के बीच अंतर के कारणों की चर्चा करें। (15 अंक, 250 शब्द)

India have been among top 5 countries in terms of disaster risks.



Institutional Management of Disasters

- i) Disaster management act 2005 advocates for Disaster management plan at state & local level.



Reasons for gap between policies and practice.

- i) Financial Council → NDRMF & SDRMF Contribution not sufficient as per disaster risk. (by CAG report)
- Low collection of calamity contingency duty.
- ii) NDMA Composition → Top-bottom approach and lacking disaster subject experts.

iii) ARC have recommended to remove National executive committee it is duplication of efforts.

iv) Non coordination among various parties - NDRF, SDRF, IAFB, ^{civil} defence, Coast guards etc.

v) Lack of local participation - people are mere recipients of development aid.

vi) Disaster efforts are mainly in terms of immediate response, less focus on mitigation and prevention.

Way forward's i) implement Sendai framework in letter & spirit.

ii) Involves expertise and local people in risk mitigation. e.g - fishermen in Kerala flood.

iii) Improve structural measures e.g - check dams.

Mitigation & preparedness are needed to save life & property loss.

Feedback

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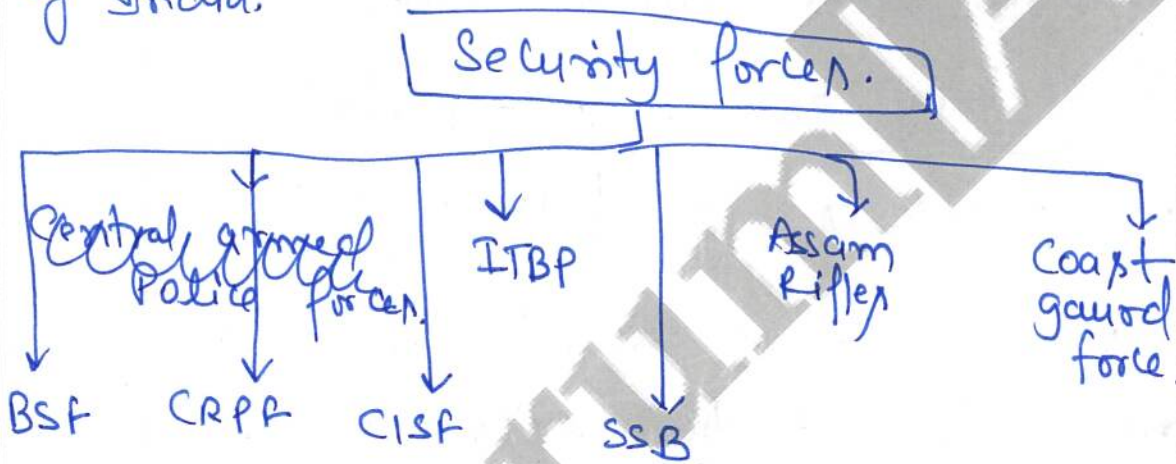
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Question Interpretation
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Q.18) Present a brief account of various security forces deployed to protect India's terrestrial and maritime borders. Also, bring out various challenges faced by border security forces and suggest measures to effectively address them. (15 marks, 250 words)

भारत की स्थलीय और समुद्री सीमाओं की रक्षा के लिए तैनात विभिन्न सुरक्षा बलों का संक्षिप्त विवरण प्रस्तुत करें। साथ ही, सीमा सुरक्षा बलों के सामने आने वाली विभिन्न चुनौतियों को सामने लाएं और उन्हें प्रभावी ढंग से संबोधित करने के उपाय सुझाएं। (15 अंक, 250 शब्द)

Border security forces are akin to protect territorial integrity & Sovereignty of India.



Border Security Force → For protecting Indo-Pakistan border

CRPF → internal law & Order security
→ Nationalism / insurgency

CISF → critical establishments safety

ITBP → Indo China border security
→ check illegal migration & infiltration

SSB → guards indo Nepal & indo tibetan border
 → check organized crime & trafficking

Assam Rifles → guards indo Myanmar border
 → N-E insurgency fighting.

Coastal guards → Maritimi Security upto 200 nautical miles.

Challenges faced by Border security forces

- i) Manpower crunch → acute shortage causing security infringement.
- ii) Lack of appropriate Medical facilities like that of Defense forces.
- iii) Gap positions → filled by IPS rather than inhouse Cadre.
- iv) Tough terrain → fighting enemies in

unfamiliar territories and lack of
peace posting causing depression.

v) Usage of Non border protection purposes
e.g. → election duty, internal disturbance

vi) Lack of modern equipments for
intelligence & surveillance.
e.g. - Night camera, Thermal imager.

(Measures to counter challenges)

i) Kargil committee → coast guard modernization
(Provide patrol vessels)

ii) Provide peace posting / choice posting like
Defense forces.

iii) Medical facilities & salaries to be
made comparable to Defense forces.

iv) Kargil Committee → recommended Non Usage
of border forces for internal
law & order situation.

v) Top positions can be filled from inhouse
cadre through promotion for Morale
building.

Border forces are significant for maintaining
Peace & Stability at borders with hostile elements.

Feedback

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.19) In what ways management of maritime borders differ from that of territorial borders? Also, analyze various vulnerabilities that arise from a large maritime boundary of the country.

(15 marks, 250 words)

समुद्री सीमाओं का प्रबंधन किस प्रकार क्षेत्रीय सीमाओं से भिन्न है? इसके अलावा, देश की लंबी समुद्री सीमा से उत्पन्न होने वाली विभिन्न सुभेदाओं का विश्लेषण करें। (15 अंक, 250 शब्द)

India shares ^{territorial} borders with Pak, China, Bangladesh, Nepal, Bhutan & Myanmar and Maritime border with Sri Lanka, Pakistan, Bangladesh Myanmar, Maldives etc.

Difference in Management

Territorial Borders	Maritime Borders
i) Can be easily demarcated. ii) Managed through <u>fencing</u> , <u>check post</u> , <u>lood lighting</u> . iii) No such busy traffick ing of ships as in SLOG!	i) can't be easily demarcated e.g - fluid boundaries in high seas. ii) Managed through <u>Coastal patrolling vessels</u> difficult to put check posts. iii) At cross roads of sea lanes of communication

iv) Threats of infiltration through mountains.

v) Rough terrain due to forest & Himalayas

iv) Threat of usage of Indian ~~this~~ fishing boats for terrorism

v) Porous borders at coastline due to Mangroves, Sandbars etc.

Vulnerabilities of large Maritime boundary

i) Syndicate organized cartel of drug trafficking in nearby SLOCs.

ii) Non conventional threat of Piracy. Pirates of Somalia are operating in Arabian Sea.

iii) White shipping traffic making difficult to track enemy

military vessels.

iv) China's threat → ^{String of Pearls Policy}
 e.g - Yuan vessel docked at Hambantota port.

v) Maritime dispute with Pakistan & Sri Lanka in Sir Creek and Katchatheevu island.

vi) Terrorism threat thorough long porous maritime coastline.
 e.g - 26/11 Mumbai attacks.

Steps taken by govt →

i) "National Command Control Centre" for IMAE (info. management and analysis)

ii) Installed radar sensors along coastline.

iii) Maritime domain awareness to track white shipping along with other neighbors.

iv) Maritime security agreement with Sri Lanka, Maldives & Mauritius.

v) Andaman & Nicobar theatre Command
At sea IOR is critical theatre for

Feedback

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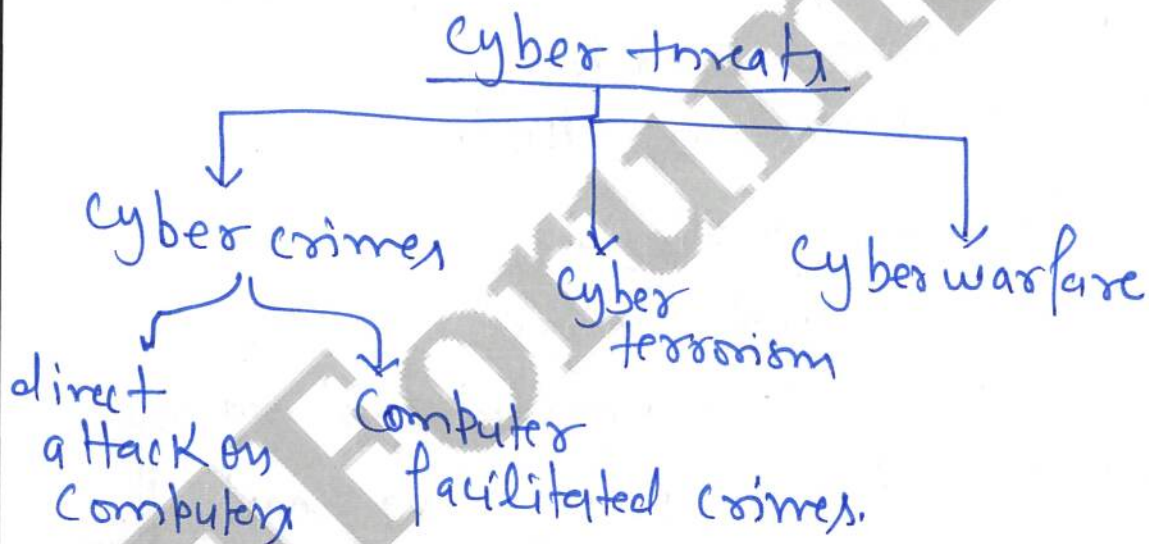
Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.20) Cyberthreats can wage a dual war on the state and citizens, disrupting the national security as well as social stability. Explain. (15 marks, 250 words)

साइबर धमकी राज्य और नागरिकों पर दोहरा युद्ध छेड़ सकती है, जिससे राष्ट्रीय सुरक्षा और सामाजिक स्थिरता बाधित हो सकती है। व्याख्या कीजिए। (15 अंक, 250 शब्द)

Cyber threats → Threats emanating from the systems of computer, software, cloud network to attain unauthorized information & access.



Cyber threat disrupting social stability →

i) Data theft and breach of data privacy.

- ii) Ransomware, Malware, Trojan, Phishing, zombie attacks on Computer system.
- iii) Crime of virtual identity impersonation
- iv) cyber bullying and cyberstalking
- v) outraging women's modesty and pornography crimes over internet.

cyber threats disrupting National Security

- i) Cyber warfare attacks for gaining sensitive & strategic data.
- ii) State sponsored attack by china on power grid infra of Mumbai.
- iii) Can destabilize critical information infrastructure.
e.g → Nuclear station, Telecommunication transportation etc.

iv) Sabotaging & espionage threats.

v) Hacking sites of Home ministry, Defence, ISRO etc.

e.g - Kudankulam cyberattack

vi) New theatre of warfare that can dislodge functioning of Defence & Satellites.

Way forward :->

1) Adopt data protection bill

2) Implement Cyber strategy policy 2013.

3) Institutions Strengthening → CERT-IN
 → NCIIPC
 → NITRO

4) Formation of cyber space theatre agency Defence cyber space

5) Indigenization of hardware & software command
 (e.g - Huawei threat in 5G)

6) Sign "Budapest Convention"

Cyber space have become a new front of war and attacks hence needs to be protected

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Mentor Feedback Questions

- 1
- 2
- 3
- 4
- 5

Test Goal

- 1
- 2
- 3

Outcomes

-
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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.