

NEXT IAS

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(To be filled by candidate)

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Code : TC073

MTS IGP Batch 2023

GENERAL INSTRUCTIONS

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Question paper will be provided separately and can be taken by the candidates after conclusion of the exam.

SUBJECT/PAPER
GENERAL STUDIES

Invigilator's Sign. :

दरिद्र रक्षा योजना
02205 1774



(For filling by Examiners only)

Evaluator Code :

Q.No	Pg No.	Maximum Marks	Marks	Total
1	1			
2	3			
3	5			
4	7			
5	9			
6	11			
7	13			
8	15			
9	17			
10	19			
11	21			
12	24			
13	27			
14	30			
15	33			
16	36			
17	39			
18	42			
19	45			
20	48			
Grand Total				

Signature

MACRO COMMENTS



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2. Write your registration number and other particulars, in the space provided on the cover of QCA Booklet.
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Q.1

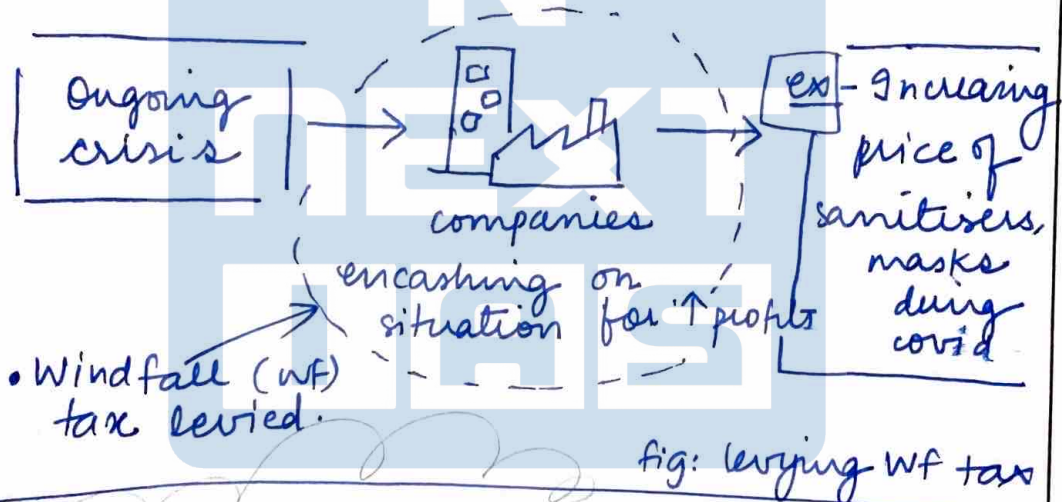
अप्रत्याशित कर (विंडफॉल टैक्स) से आप क्या समझते हैं? क्या आपको लगता है कि अप्रत्याशित करों से संपदा का प्रभावी ढंग से पुनर्वितरण हो सकता है और अधिक आर्थिक समानता को बढ़ावा मिल सकता है?

(150 शब्दों में उत्तर दीजिए) 10 अंक

What do you understand by Windfall tax? Do you think that windfall taxes can effectively redistribute wealth and promote greater economic equality? (Answer in 150 words) 10 Marks

Windfall tax is a tax on unprecedented levels of profits made by some companies by illegitimate means.

ex- imposed on several MNCs & big tech during covid-19 times



→ Effective redistribution of wealth by Windfall tax :-

① follows Herceniyon model of taking from rich & giving to poor.

② Progressive taxation as taxes those who gained higher income
↳ promotes inclusive growth

③ Profiteers pay principle upheld

ex - Defence industry during Russia-Ukraine war to be levied with this tax.

→ Not effective redistribution

④ Uncertainty of use of collections from such taxes for vulnerable

ex - such collect may be siphoned to other needs.

⑤ can lead to Tax evasions, profit shifting

⑥ Will reduce GFCF (33%) & thus reduce capital formation due to flight of such industries

⑦ Reduce Ease of doing business

⑧ Way forward → Promote CSR and ESG efforts by companies

→ follow behavioural economics to improve tax to GDP collection

→ incorporate in GST-slabs (28%)

"Taxation is the economic string crucial to maintain the social contract in Economic sphere" - Eco survey '17

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Q.2

नई मौद्रिक नीति समिति (एमपीसी) व्यवस्था के अंतर्गत मुद्रास्फीति लक्ष्यीकरण को क्रियान्वित करने की कथित सफलताओं और चुनौतियों पर चर्चा कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Discuss the perceived successes and challenges of implementing inflation targeting under the new Monetary Policy Committee (MPC) regime. (Answer in 150 words) 10 Marks

Monetary Policy Committee is a statutory body formed under the RBI Act 1934 with 6 members (3 from RBI & 3 from govt.)

Inflation targeting

• to stay in the safety corridor by controlling inflation by dovish & hawkish monetary policy.

MPC

- Meets every 4 months
- Inflation targeting goal with $4 \pm 2\%$.
- written replies on target breach after 3 consecutive quarters
- RBI deputy governor heads.

perceived
— successes —

① India's inflation rate below global average (date)

② Expertise in policy formulation due to representation equilibrium

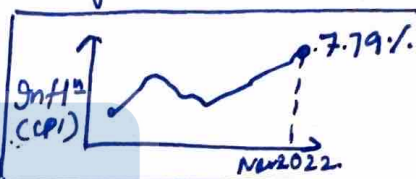
③ Accountability mechanism in place
[ex] - Recently RBI sent in writing

the reasons for target breach & expected time for correction.

- ④ Allows for better monetary policy transmission via open meeting.

— Failures —

- ① Continuously using inflation both WPI & CPI



- ② No specific focus on food inflation or separate core inflation targeting

ex - current tomato crisis

- ③ Doesn't correlate with the fiscal policy
↳ ~~now~~ 'silo based approach'

- ④ Unchanged inflation corridor for some time

Inflation is the tax on poor. In this regard MPC has been a step in right direction to limit it.

Q.3 भारत में सतत कृषि को बढ़ावा देने और खाद्य सुरक्षा में सुधार के लिए मोटे अनाज उत्पादन की क्षमता का आकलन कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Assess the potential of millet production in promoting sustainable agriculture and improving food security in India. (Answer in 150 words) 10 Marks

Recently, Budget 22-23 stressed on the need for promotion of 'Shree Anna' or millets to accommodate to the pillars of Food security

① Affordability

↳ Millets as poor man's cereal

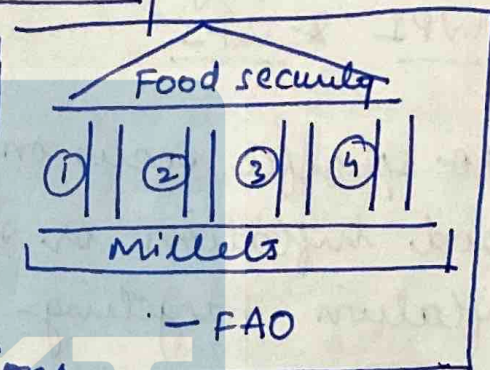
② Accessibility

↳ grown across regions

③ Absorbability

↳ fibrous marvels

④ Availability → in raw & processed forms.



— Potential in sustainable agriculture —

① Agroecological production promoted

ex - Shawwad region suitable for millets instead of sugarcane as currently produced

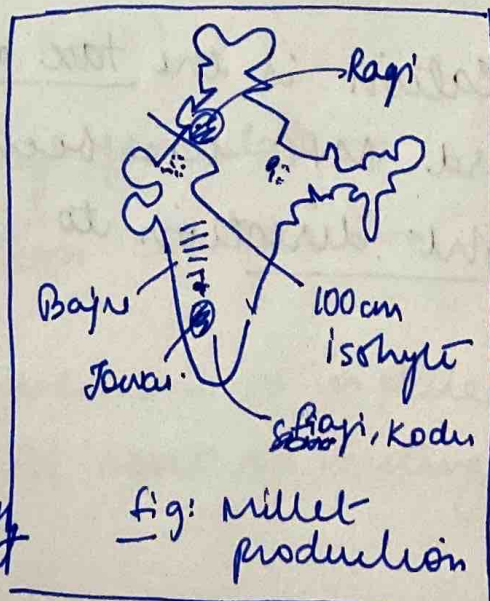


Fig: Millet production

- ② Leguminous roots render soil quality better
- ③ Dryland farming without excessive fertilizer usage
- ④ Rainfed crop so doesn't require excessive irrigation (conservational sustainability)

————— Improving food security —————

- ① Promotes nutritional security
protein
fibres
- ② Improves absorption by reducing disease incidence — ↓ Glycemic index.
- ③ Curbs hidden hunger
- ④ can diversify food basket from currently skewed paddy & wheat

- ⑤ Case study: farmer shifted later, MH from cash crops to Ragi
- increased farmer's income
 - improved child stunting & anaemia
 - processing promoted
 - Ragi Habba festival celebrated

FY 2022-23 has been declared as International Year of Millet by UN

- Q.4 जल जीवन मिशन में पेयजल की उपलब्धता और पेयजल तक पहुँच में क्षेत्रीय विषमता को समाप्त करने का सामर्थ्य है। मिशन के महत्त्व पर प्रकाश डालते हुए, वांछित उद्देश्यों की प्राप्ति में अंतर्निहित बाधाओं पर चर्चा कीजिए।
(150 शब्दों में उत्तर दीजिए) 10 अंक

Jal Jeevan Mission has the potential to end the regional disparity in the availability and accessibility of drinking water. Highlighting the significance of the mission, discuss the underlying impediments in achieving the desired objectives.
(Answer in 150 words) 10 Marks

Jal Jeevan Mission was launched in 2015 with aim to provide tapped water to every household by 2022-
(now 2024)

Potential to end regional disparity :-

I. Availability	II. Accessibility
<ul style="list-style-type: none"> ensuring tapped water connections creating bandhs & dams 'catch the rain' campaign 	<ul style="list-style-type: none"> improves water accessibility in drought prone zones River interlinking provision
<p>• parity of water surplus & deficient regions</p>	

Significance of Mission :-

1. gender empowerment as women had to travel to fetch water [ex] Rajasthan Alwar.

saw rise in girl's enrolment ratio

2. Improved sanitation

3. Health benefits against water borne diseases like diarrhoea.

↳ crucial for HDI ~ UNDP

4. Human rights upheld: Water as basic right
Impediments

① Fiscal impediments - It is a centrally sponsored scheme & coordination of funds is an issue

② Infrastructure incomplete

③ 1st target missed (earlier for 2022)

④ Local devolution of functions of the scheme not done by states.

⑤ Private participation needed for timely completion, currently not there

Thus, JJM is crucial for attaining

SDG 6 + clean water & sanitation &

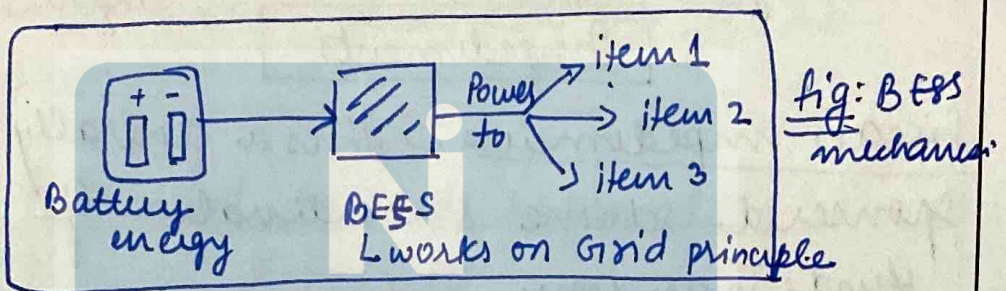
also community involvement by employing MGNREGA workers for

such constructions.

Q.5 बैटरी ऊर्जा भंडारण प्रणाली (बीईएसएस) से आप क्या समझते हैं? इसके अनुप्रयोगों पर चर्चा कीजिए और यह भारत के ऊर्जा कार्यक्रम में किस प्रकार क्रांतिकारी बदलाव ला सकता है। (150 शब्दों में उत्तर दीजिए) 10 अंक

What do you understand by Battery Energy Storage Systems (BESS)? Discuss its applications and how it can revolutionize the energy program of India. (Answer in 150 words) 10 Marks

BESS is a storage mechanism that helps overcome intermittent nature of battery energy by storing it for future use



BESS → doesn't create new energy
 ↳ conserves energy by storing it
 (Principle of thermodynamics)
 ↳ helps minimise switch losses.

Applications

- ① It can be used in mobility & electric vehicles.
- ② BESS can help in powering small watt household devices.
- ③ Li-ion battery, ZnMn-ion battery etc. can be connected to BESS for sustained supply.

Revolutionize India's Energy prog:-

- ① Keep attain Panchamrit Goals of reduced fossil dependence
- ② Green transition step & thus helps contribute to ~~A~~ international committee
- ③ Reduce dependency to ^{no} battery energy
- ④ Prevent extreme dependence on import

LBESS stores energy

↓
no need to frequently use Li-ion

↓
Li dependence on china reduced

↓
forex saved

Hence BESS shows bright promise for a greener, safer, cleaner energy future

Q.6 इसरो के गगनयान मिशन में हुए विकास और उपस्थित चुनौतियों पर संक्षिप्त चर्चा कीजिए। समाज के लिए मिशन के संभावित लाभ क्या हैं? (150 शब्दों में उत्तर दीजिए) 10 अंक

Discuss in brief developments and challenges in the Gaganyaan mission of ISRO. What are the possible benefits of the mission for the society? (Answer in 150 words) 10 Marks

Gaganyaan mission of ISRO is
India's 1st mission to put human beings in space by 2025.

Developments of mission :-

- ① 3 stage project, with crew being sent in the 3rd stage
- ② ISRO had astronauts recruited by Indian Airforce
- ③ These crew selects went under training at Russian Roscosmos.
- ④ Technology support to be given by NASA as well.
- ⑤ Robots also onboard
ex- Vyomitra
- ⑥ Mission to be a 1st to put a woman in space

Challenges

- ① Difficulty of crew entry &

exit from & into outer space

- ② High project cost as need for precision higher than older missions
- ③ Covid 19 delayed timelines
- ④ Apprehensions raised as funds for the mission could have been used for social welfare.

— Benefits for society —

use dim

① India's national & international stature

② Promote scientific orientation & promote STEM education

③ Research from outer space to be used for further studies on

④ Bring forex as rising ISRO's potential in space market

⑤ Soft power enhancement ~~for~~ for India's leadership for global south.

Hence, ^{Indians} ~~India's~~ 1st step in ~~space~~ space in this decade will leap into India's Amritkaal.

Q.7

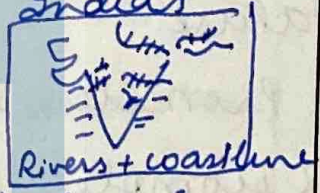
"जलवायु परिवर्तन और प्रदूषण से निपटने की हमारी खोज में हरित हाइड्रोजन एक सरल और जादुई समाधान हो सकता है"। भारत के राष्ट्रीय हरित हाइड्रोजन मिशन के आलोक में कथन का आलोचनात्मक विश्लेषण कीजिए।
(150 शब्दों में उत्तर दीजिए) 10 अंक

"Green hydrogen can be the silver bullet in our quest to tackle climate change and pollution". Critically analyze the statement in light of India's National Green Hydrogen mission.

(Answer in 150 words) 10 Marks

India push to Green Hydrogen ^(GH) was reflected in Budget '23 target of 5MMT by 2025.

GH as ⁱⁿ tackling climate change :-

- ① Since water electrolysed, helps propel green transition.
- ② Reduces fossil dependency (currently >55%).
- ③ Has potential due to India's geography → 
- ④ contribute to Panchamrit targets
↳ 500 GW by 2050 (Non fossil energy)
↳ Net zero by 2070.
- ⑤ Create opportunity for jobs
↳ shift disguised employment from agriculture here → reduce GHG emissions

Issues with mission

- ① long term potential, no short term gains

2. Initial cost high - difficulty to put stronghold of mission

3. Poor R&D (0.75% of GDP) limits use of electrolyser (Inefficiency)

↳ can increase import bill then not practical silver bullet.

Green H₂ mission -

↳ aims to generate 125 GW renewable energy by 2030.

↳ 60-100 GW of electrolyser

↳ aims jobs generation for around 6 lakh people

↳ aims 50 M MT of carbon absorption

This mission can put India as a champion of Green H₂ & Clean Energy transition

Q.8

हाल ही में जोशीमठ, उत्तराखंड में आई आपदा के आलोक में, हिमालय क्षेत्र में आपदा प्रबंधन और पर्यावरण संरक्षण के लिए मुख्य सबक क्या हैं? (150 शब्दों में उत्तर दीजिए) 10 अंक

What are the key lessons for disaster management and environmental conservation in the Himalayan region, in light of the recent disaster in Joshimath, Uttarakhand? (Answer in 150 words) 10 Marks

Recent Joshimath landslides are a continuation of High altitude hazards being faced like Chamoli GLOF, Kedarnath cloudburst, Beas flash floods in Mandi & Rajas etc

Key lessons :-

- ① Protection of niche ecology
ex- alteration of slopes by construction leads to land slides
- ② Sustainable tourism to prevent heat islands & microclimate extremes
- ③ Hill area development plan for conservation of Himalayas
- ④ NAPCC enforcement for Himalaya Ecosystem

for disaster management :-

I. Prevention

- Proper hazard zonation mapping
- constructions of settlements based on physio-meteorological feasibility

II. Mitigation

- NDMA 2005 guidelines for community preparedness
- Early evacuation routes be made available

III. Rehabilitation

- Losses of lives & livelihood must be compensated
- Psychological impacts of disasters to be treated

In the light of Joshimath incident Mihir Shah committee recommendations must be adhered to for Himalayan region.

Q.9

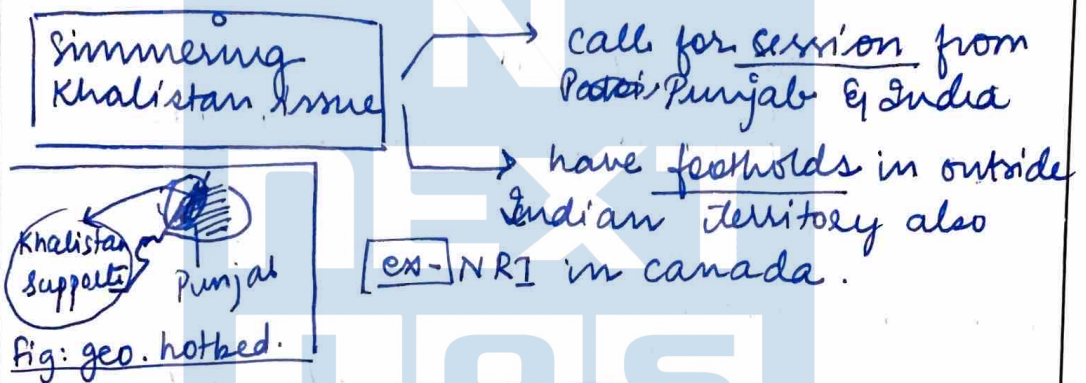
"पंजाब में हालिया कट्टरपंथी रुझानों से पता चलता है कि खालिस्तान का मुद्दा अभी भी उबल रहा है।" हालिया घटनाक्रम के संबंध में कथन पर चर्चा कीजिए और इससे निपटने के उपाय सुझाएँ।

(150 शब्दों में उत्तर दीजिए) 10 अंक

"The recent radical trends in Punjab show that the Khalistan issue is still simmering." Discuss the statement with respect to recent developments and suggest measures to handle it.

(Answer in 150 words) 10 Marks

The recent distensions in Punjab over search operations of Anurag Pal Singh & supporters of Khalistan issue (waris-de-Punjab) had chilling effects on states functioning.



Recent developments :-

1. State police crackdown of supporters of the issue
2. Internet shutdown in state for the covert operation
3. Khalistan sympathisers across world built narrative

[ex] An MP in Canadian parliament brought up the issue citing security concerns in Punjab.

4. sovereignty challenge gaining recurrency
 ex - Indian embassy at UK attacked
 by Khalistan supporters

Measures to handle

1. Crackdown on militants (punjab police ~~forces~~)
2. Curbing wrong narrative by awareness dissemination
 ex - UK govt. parliamentarian allege false concerns over safety in Punjab must be tackled
3. Deterrence for drug ingestion & strengthen border safety (Chandrashekhar Committee)
4. Use spy system to identify hotspots
5. Contain state & non state actors fueling the issue by cutting monetary support
 (Pakistan support for ^{issue:} cutting ^{bleeding} India through 1000 cuts')

Security & development in the region with proper trust building & social capital enhancement would help overcome the crisis

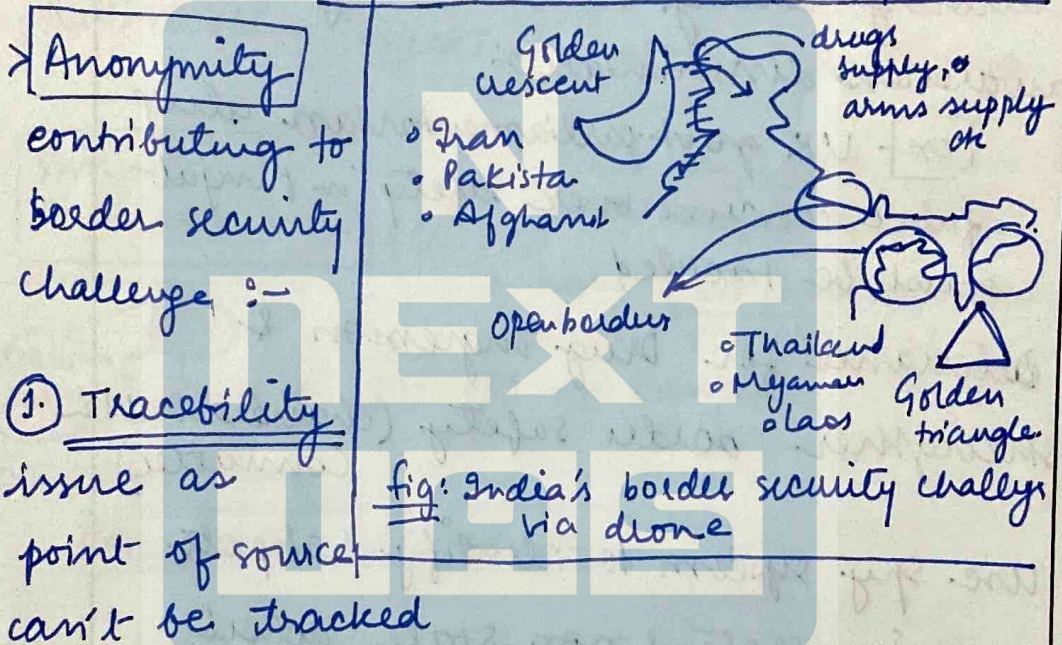
Q.10 ड्रोन संचालन में आसानी और साथ ही इसके संचालक की अनामिता, भारत की सीमा सुरक्षा की चुनौतियों में वृद्धि करती है। विस्तारपूर्वक वर्णन कीजिए और सीमावर्ती क्षेत्रों में ड्रोन समस्या से निपटने के लिए सुझाव दीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

The anonymity and ease of drone operation contribute to the challenges of India's border security. Elaborate and give suggestions to tackle the drone problem in border areas.

(Answer in 150 words) 10 Marks

The New Draft Drone policy '22 aims to address the impending concern of drones with respect to border security & operations



② Distant mode of operation

- 2.1 L abandoned when compromised
- 2.2 L capable of long range stealth operation

③ NO responsibility by non state actors
 [ex] - Pakistan refuses to accept its drone delivery operation to India

> Ease of operation

④ Skill set required to operate a drone is basic.

⑤ Mansuwerability allows expanse of reach

[ex] - Drone for drugs/arms delivery across Indo - Myanmar borders (fig.)

— Suggestions —

① Smart borders to detect & kill using AI (Shelkar committee)

② BOLD & BRT bordering for detection & traceability drive using satellite data (Madhukar Gupta committee)

③ Indigenised dome model on lines of Israel's Iron dome

④ Mapping for open sky

⑤ System in procedure for hard & soft kills on such drone detection

⑥ using local intelligence for drone tackling.

Thus, as Thirukkural states,

Wisdom is to set pace with the changing complexities.

That is of what is to be followed here

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- Q.11 विद्युत संशोधन विधेयक, 2022 उपभोक्ताओं, डिस्कॉम के साथ-साथ पर्यावरण के लिए कई लाभ प्रस्तुत करता है। सविस्तर वर्णन कीजिए। साथ ही इसकी कमियों को भी सूचीबद्ध कीजिए और उन्हें दूर करने के लिए कुछ उपायों का भी सुझाव दीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Electricity Amendment Bill, 2022 brings several advantages for consumers, DISCOMs as well as the environment. Elaborate. Also, list out its shortcomings and suggest some measures to overcome them. (Answer in 250 words) 15 Marks

Electricity Amendment Bill '22 aims to overcome loopholes by amending Electricity Act 2003.

Advantages for :-

I. Consumers :-

1. It will help rationalise exorbitant charges by 'smart metering' clause
2. Uniform tariff across regions

II. DISCOMS

3. Help overcome losses

↳ currently DISCOMS facing loss of ₹9000 crore

4. Revamp structure to prevent inefficiency & state dependence

III. Environment

5. Help move to Green transition by proposed Energy Grid & curtailing power subsidy that fuels excess fossil usage

Shortcomings

- ① Against Federal principles as Electricity is State subject (Schedule VII) concurrent
- ② Private party favoured as can go unregulated like public DISCOMS
- ③ Prices charged to consumers may increase in long term
- ④ Doesn't address structural issues of
 - ⊙ containing DISCOM losses for future
 - ⊙ curbing Electricity thefts
 - ⊙ AT & C losses reduction
- ⑤ Doesn't guarantee green transition

Measures to overcome

- ① Proper deliberation by working committee of :-
 - Centre + State + DISCOM rep }
 - Public
 - Private
 - + Power Engineer
- ② Improve budget allocation for R & D for minimising transfer & storage issue

3. Explore power grid options to sustained supply.
4. Behavioural change promotion (LIFE approach) as long term measure

The idea behind the bill is noble, however, it must have multistakeholder representation for proposing solutions for a profitaring power sector.

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Q.12

भारतीय प्रतिभूति एवं विनियम बोर्ड (सेबी) शेयर बाजार के नियमन और निवेशकों के हितों की सुरक्षा में महत्वपूर्ण भूमिका निभाता है। दिये गए कथन के आलोक में, सेबी के समक्ष आने वाली चुनौतियों पर प्रकाश डालिए और इस संबंध में सुधारों का सुझाव दीजिये। (250 शब्दों में उत्तर दीजिए) 15 अंक

Securities and Exchange Board of India (SEBI) plays an important role in the regulation of the share market and safeguarding the interests of investors. In the light of given statement, highlight the challenges faced by the SEBI and suggest reforms in this regard. (Answer in 250 words) 15 Marks

SEBI is a statutory market regulator, established in 1992.

Important role in regulation & investors of share market :-

① Keeps a check on fraudulent activities in the MONEY market

② SEBI hold responsibility for :-

① ↳ Better financial climate for issues

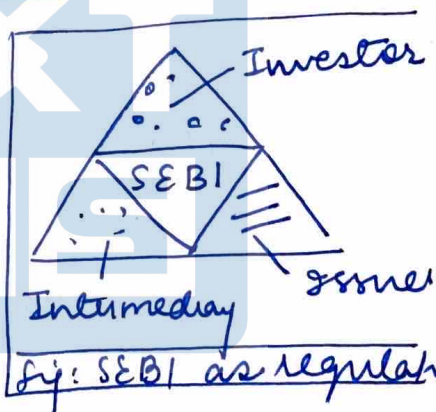
② ↳ fair competition for investors

③ ↳ money market opportunity for issues

③ SEBI curbs insider trading

④ It provides for appellate, to investors via SAT (tribunal) ^{options}

⑤ SEBI chairman has powers to

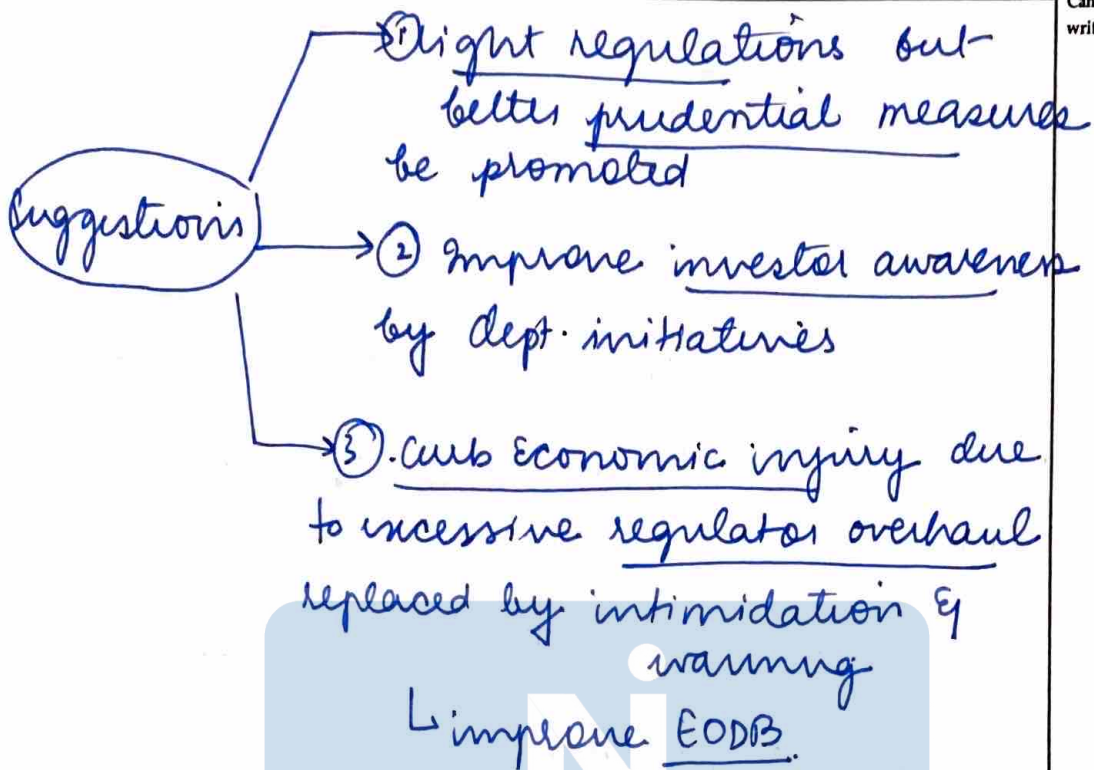


penalise, search & seizure to ensure fairness of interplay in MM.

- ⑥ provides level playing field to novice & old players in stock market
- ⑦ SEBI has powers of a civil court thus regulates non competitive practices

— Challenges —

- ① Money market penetration still not deep in India showing issues with SEBI
- ② Overregulation by SEBI hurts participation.
↳ greater powers in comparison to counterparts at UK, USA etc
- ③ Human resource needs overhaul in the SEBI
- ④ Better technical interventions are not available
- ⑤ coordination with other market regulators ~~not~~ must be uniform
↳ IRDAI, RBI etc.



SEBI has potential to improve India's stock market remuneration & contribute to domestic resource mobilisation effectively

- Q.13 भारतीय अर्थव्यवस्था में एक प्रमुख योगदानकर्ता होने के बावजूद, कृषि क्षेत्र कई बाधाओं से ग्रस्त है जो इसकी वृद्धि और विकास में बाधा डालते हैं। इन बाधाओं पर काबू पाने में प्रौद्योगिकी की भूमिका पर चर्चा कीजिए।
(250 शब्दों में उत्तर दीजिए) 15 अंक

Despite being a major contributor to the Indian economy, the agriculture sector is plagued by several constraints that impede its growth and development. Discuss the role of technology in overcoming these constraints.
(Answer in 250 words) 15 Marks

Agriculture sector accounts for 18% of GVA & employs ~45% of population

Major contributor to economy.

- ① Contributes to the growth in GDP
ex - Only sector that clocked positive growth during pandemic
- ② Provides for Domestic resource mobilisation
ex - Food processing industry, MSME, Textile industry, ^{use} for raw materials
- ③ Export-led growth promotion
ex - Horticulture, organic products have huge offshore demands
- ④ Increases forex
- ⑤ Employment provider sector, especially Rural India

Plagued by constraints :-

I Backward linkage

① Agricultural efficiency & productivity very low.

(i) \hookrightarrow limited resource (land, credit) limits efficiency

(ii) \hookrightarrow Agriculture census 2015 >70% of farms < 2 hectares thus impeding use of modern mechanisation

② Monsoon dependence

(i) \hookrightarrow Only 40% irrigation potential

(ii) \hookrightarrow regional imbalance

(Green revolution belt more prosperous)



③ Soil degradation issue

ex - Punjab over use of fertilisers

ideal	4:2:1	
Punjab	12:8:2	\rightarrow Salinisation

④ Disguised employment

⑤ feminisation of agriculture

II Forward linkage

⑥ Problem of wasting (40% leakage ~FAO)

- ↳ Poor supply chain existing
- ⑦ ~~Poor~~ Markets & export orientation issue. ex Non Tariff barriers at Europe
- ↳ 42% skewed ← Marine products
Basmati rice

- ⑧ low remuneration → farmer suicide

— Role of tech —

- ① Reduce monsoon dependence
→ Kisan Pathak app
- ② land consolidation & databasing
→ blockchain in svamitva for FPOs
- ③ Early warning systems for farmers, fishermen
→ ISROs: GSAT 3A
- ④ Drone delivery of seeds, fertilizers
- ⑤ Microirrigation using AI sensors
- ⑥ GM seeds, Nano fertilizers (ex- Kalsi Gujarat, IFFCO) for improving Agricultural efficiency
- ⑦ Marketing solutions by APMC & e haats.

Agriculture is the backbone in Indian Economy & crucial for SDGs like No hunger(2) No poverty(1) etc.

- Q.14 पर्यावरण एवं प्राकृतिक संसाधनों पर सिंचाई के प्रभाव का मूल्यांकन कीजिए, और कृषि में सिंचाई पद्धतियों की संधारणीयता और समता सुनिश्चित करने के लिए उपाय सुझाएँ। (250 शब्दों में उत्तर दीजिए) 15 अंक

Evaluate the impact of irrigation on the environment and natural resources and suggest measures to ensure the sustainability and equity of irrigation practices in agriculture.

(Answer in 250 words) 15 Marks

Irrigation potential (~40%) of India
shows need for better management
of environment & natural resources
to capture it for agricultural growth

IX - Rainwater harvesting

Impact of irrigation
on :-

I Environment & natural resources :-

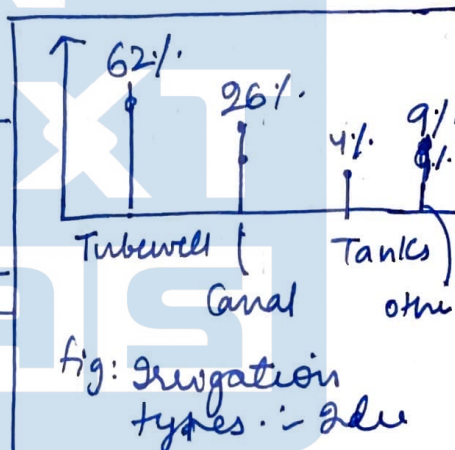
① Soil: flooding
irrigation renders

soil quality degraded due to salinisation

② Water: Excessive use of water
leads to surface water quality
deterioration (non point source)

③ also leads to wasting of water.

④ alters local physiology



ex - canal construction affects natural water flow & biodiversity

⑤ affects microclimate of region (Potential ^{Evapo-}transpiration)

⑥ Proper irrigation techniques help improve soil ecosystem

ex - Microirrigation

- fertigation - root zone watering

⑦ Reduces monsoon dependence of agriculture & reduces pressure on land. (Integrated water management)

Measures for

→ Sustainability of irrigation practices

① Agro ecological orientation of irrigation to be followed

ex - Plateau rocks hard (Dharwad)

↓
uses tanks for irrigation
(Mission Kakatiyas)

② Local participation in irrigation

ex - watershed management

Case study: Tulware Bazar, MH

→ Watershed developed across.

Small stream
 → improved food security & farmer's income
 → reduce extreme weather events

3. Retrofitting & prevention of leakages

4. Irrigation plans in coherence with River interlinking projects & preventing submergence of fields.



→ Equity in practices

5. Skill deployments by Kisan Kendras

6. Gender diffusion of information using ASNAs, Anganwadis

7. Regionally balanced irrigation practices

ex: FAO's GIAS: Kuttanad - Kerala

- Pani panchayat Odisha

Hence, the dictum of 'Sinchai se Samridhi' is need of the hour for per drop more crop

Q.15 परमाणु ऊर्जा और अंतरिक्ष प्रौद्योगिकी के क्षेत्र में क्रमशः डॉ. होमी जहाँगीर भाभा और डॉ. विक्रम अंबालाल साराभाई के योगदान से भारत को रणनीतिक रूप से किस प्रकार लाभ हुआ? (250 शब्दों में उत्तर दीजिए) 15 अंक

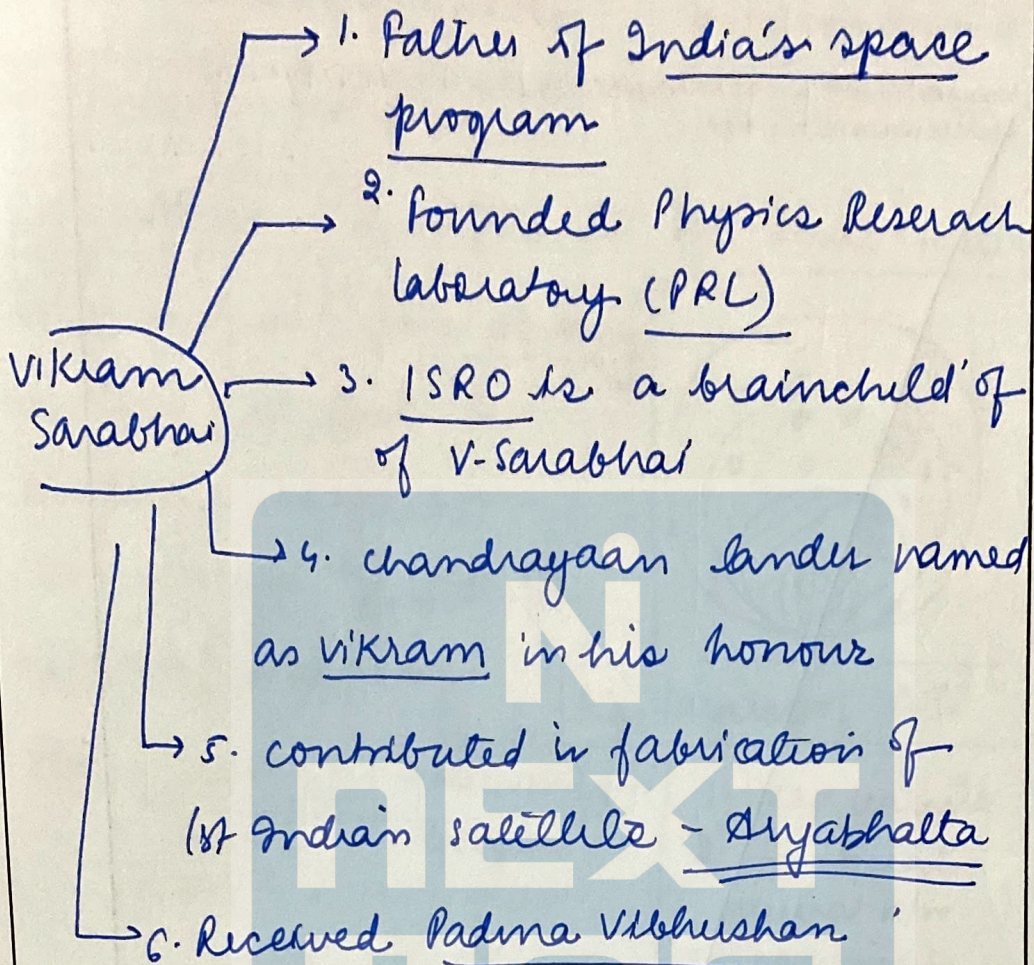
How India benefitted strategically from the contributions of Dr. Homi Jehangir Bhabha and Dr. Vikram Ambalal Sarabhai in the fields of atomic energy and space technology respectively?

(Answer in 250 words) 15 Marks

Contributions of ^{Dr.} Homi J Bhabha & Dr. V.A. Sarabhai has overhauled the atomic & space industry bringing us closer towards Economies of scale in such strategic sectors

contributions of -

- Dr. Homi J Bhabha
1. Established (TIFR) - Tata Inst. of Fundamental Research
 2. Established Atomic Energy establishment
 3. Known as father of India's nuclear programme
 4. IISc, ~~now~~ top ranked in India's ^{univ} rankings. founded by him
 5. Bhabha Atomic Research Centre is his contribution.



Thus, these two stalwarts have contributed not just in strategic sectoral growth but also in enhancing to India's current soft power paradigm

Q.16

जेनेरेटिव एआई निकट भविष्य में नवाचार की सीमाओं को आगे बढ़ाने का सामर्थ्य रखता है, फिर भी इसका सामाजिक प्रभाव पर्याप्त चुनौतियाँ खड़ी करता है। सविस्तार उत्तर दीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Generative AI holds the potential to push the boundaries of innovation in the near future, yet its societal impact raises substantial challenges. Elaborate. (Answer in 250 words) 15 Marks

Generative AI refers to AI that forges new information from already existing content & produces results in real time by neural network mapping

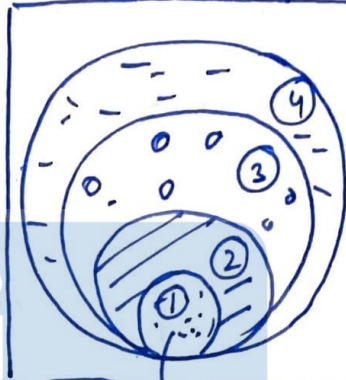


Fig layers of AI

ex - Chat GPT - ^{OpenAI} Microsoft - Bard - Google.

1. Deep learning
2. Artificial neural n/w
3. Machine L
4. ~~Machine learn~~ Artificial Intel

potential to push boundaries of innovation:

→ ① Health

Ⓐ Predictive analysis model for treatment of chronic diseases

ex - Cancers stages benign or malign detectability enhancement

Ⓑ Analysis on impending pandemic or alike situation & repository of best practices.

Ⓒ Drug discovery ex against superbug
A. Baumann

↳ ②. Agriculture

- ① allow democratisation of information thus promoting innovation by all
- ② vernacular linkage beneficial for India [ex] Bhashini with ChatGPT
- ③ Climate modelling for region specific productivity using AI
[ex] - ICRIAT in Hyderabad did this

↳ ③. Administration

- ① Predictive modelling on transport & traffic handling [ex] secretary to Estonia prince
- ② Crime detection & databasing by police department by neural processing
↳ improves innovation in investigation [ex] - Delhi police during CAA protests

↳ Media

- ① AI powered news delivery agents

② Challenges

- ① Rise of Deepfakes eroding

social capital & ~~or~~

② Non reliability of Info can cause socio economic fallout

ex - Google's Bard costed it @ 1 mill \$

③ Safety & dignity of women

↳ AI & delivered model & objectification of women.

④ Questions on racial bias & sentience of AI has deep concerns [ex] - lambda AI.

⑤ leads to reduced cognitive development of students

↳ erodes teacher-student relation in society

[ex] Christ Bangalore banned use of AI for class homework

⑥ widens the digital divide

[National AI strategy] needs an uphaul for consensus oriented approach to extract benefits & minimise tragedies

of AI

Q.17 नवंबर 2022 में मिस्र में COP27 संयुक्त राष्ट्र जलवायु परिवर्तन सम्मेलन में लॉन्च किये गए "जलवायु के लिए मैंग्रोव गठबंधन" के उद्देश्य को स्पष्ट कीजिए। उष्णकटिबंधीय देशों की तटीय पारिस्थितिकी को बनाए रखने में मैंग्रोव के महत्त्व पर विस्तार से प्रकाश डालिए।
(250 शब्दों में उत्तर दीजिए) 15 अंक

Explain the purpose of the "Mangrove Alliance for Climate" launched at the COP27 UN Climate Change Conference in Egypt in November 2022. Elaborate on the importance of mangroves in maintaining the coastal ecology of tropical nations.
(Answer in 250 words) 15 Marks

COP27 in Sharm-El-Sheikh Egypt
mooted for mangrove ^(MAC) alliance for
protection of biodiversity & ecosystem
associated against the impeding threats.

↳ visible impacts in India's budget 22-23
as MISHTI & Amrit Dharohar scheme

Purpose of MAC :-

1. Mangrove ecosystem are Carbon sequesters.
2. They help in reducing GHGs & thus curb global warming.
3. These have several ecological benefits, especially disaster time
[ex] Odisha coast suffered minimum damage from Takutae due to mangrove belts.

4. Provides for provisioning services in agriculture & allied sector
 [ex] - promotion of Blue economy by aquaculture & inland fishing

5. Economic significance of mangroves
 [ex] - Sunderi tree in Sunderbans
 Thus MAC seeks to promote & protect these ecosystem.

6. Vanishing Mangroves (ISFR reported only 4.8% in India), thus needs special protection

→ Importance in maintaining coastal ecology :-

- ① Filter ecosystem : prevents salinisation of coastal lands
- ② Disaster defedents against storm surges, tropical cyclones, sea level rise

[ex] - Kerala's Munroe Thuluthu is India's sinking island → efforts

being made to protect these by mangrove protection.

③ Allow ecosystem flourishing of niche biodiversity

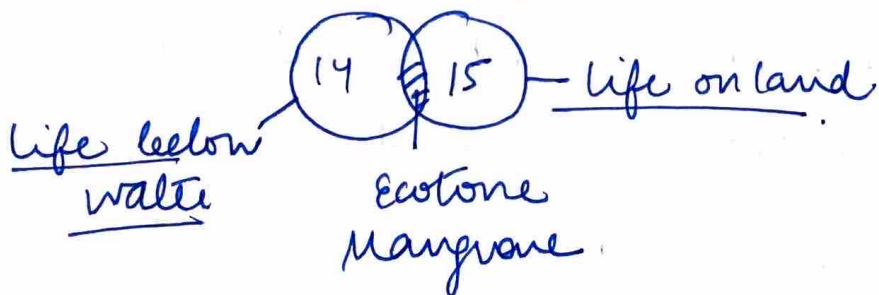
ex - Olive ridley turtles

④ Tourism promotion in coastal nations ex - Kalimantan, Indonesia

⑤ Home for migratory birds etc.

⑥ Ramsar sites receive special attention in preserving these coastal ecological units.

~~Thus~~ Thus, mangroves are crucial for collaboration of SDG 14, 15



Q.18 आपदा प्रतिरोधी बुनियादी ढाँचे के लिए गठबंधन का गठन भारत में आपदा प्रबंधन दृष्टिकोण को और अधिक मजबूती प्रदान करता है। टिप्पणी कीजिए। भारत में आपदाओं से निपटने के लिए एक नई रणनीति की आवश्यकता के औचित्य सिद्ध कीजिए।

(250 शब्दों में उत्तर दीजिए) 15 अंक

The Formation of the Coalition for Disaster Resilient Infrastructure brings more robustness to the Disaster Management approach in India. Comment and justify the need for a new strategy to tackle Disasters in India.

(Answer in 250 words) 15 Marks

India launched coalition for Disaster Resilient Infra for building global consensus on disaster management & sharing best practices.

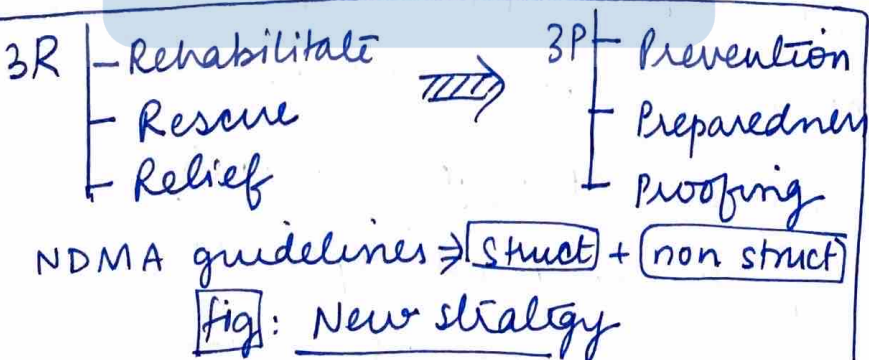
CDRI brings more robustness to

DM approach in India :-

1. Allows diffusion of information
2. Tackling climate change related extreme weather events
3. In line with Gorbachev's equity of safety principle i.e.
"No one is safe until everyone is safe"
4. Sharing of early warning information
ex) GSAT-9 for South Asia
5. Sharing of mitigation strategies

6. Sharing technology via CDR/
 - ex - Japan's Earthquake resistance building for Indian seismic zones
7. Common data base for better predictability of disaster & thus 'kick start' action.
8. Greater focus on Prevention via disaster resilient infra for resilient cities (SDG 11)

New strategy to tackle disasters needed as :-



- ① Changing nature of Disasters
 - flash floods: ex: Yamuna & Beas - 2023
 - Thunderstrike deaths in Bihar rise by 110%.

→ GLOF & cloud bursts ex Chamoli

- ② Rising population of India & higher density requires a prevention approach
- ③ Ensure fiscal burden of disaster mitigation be minimised by early efforts
- ④ using space technology improvement for better hazard zonation mapping as India 3rd most vulnerable to climate change - WFP
- ⑤

Floods - 18%	}	India's vulnerability
Landslide - 68%		
Earthquake - 15%		

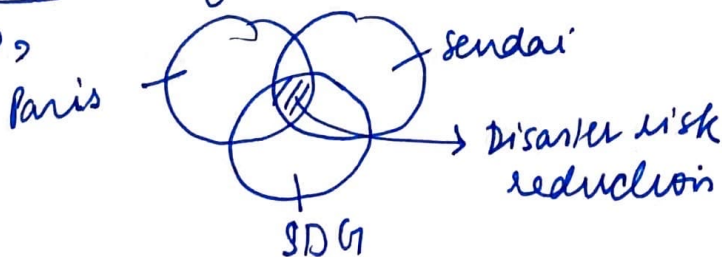
 ↓
 needs shift in approach, & positive

— PERCEPTION MANAGEMENT —

Hence, PM's 10 point sukra & sendai guidelines be incorporated in the

Disaster Management Act 2005.

Also,



- Q.19 महत्वपूर्ण बुनियादी ढाँचे (क्रिटिकल इंफ्रास्ट्रक्चर) और प्रमुख निगमों को लक्षित करने वाले रैंसमवेयर हमलों में हुई हालिया वृद्धि ने मजबूत साइबर सुरक्षा उपायों और नीतियों की तत्काल आवश्यकता पर प्रकाश डाला है। इस प्रवृत्ति में योगदान देने वाले प्रमुख कारकों पर चर्चा करते हुए, विभिन्न क्षेत्रों पर इन हमलों के प्रभाव का विश्लेषण कीजिए।
(250 शब्दों में उत्तर दीजिए) 15 अंक

The recent rise in ransomware attacks targeting critical infrastructure and major corporations has highlighted the urgent need for stronger cybersecurity measures and policies. Discussing the key factors contributing to this trend, analyze the impact of these attacks on various sectors.

(Answer in 250 words) 15 Marks

Critical Infrastructure are information and communication devices whose availability, reliability & resilience are essential for functioning of modern economy, security etc.

ex - Power grids, transport infra etc

Urgent need for stronger cyber security measures :-

① lack of comprehensive & latest cyber security policy in place. after NCS strategy 2020

Recent rise

- Kundankulam plant attacked by North Korean Lazarus group
- Serum Inst. & Bharat Biotech attacked by Chinese group etc.

② Need to ensure SOPs for handling such situation

③ Expanse of impacts such attacks can have on national security

ex → Attack on country's atomic power plants can have mammoth domino

④ Current firewall systems are not at par

ex - Mumbai police criminal database breached by a college graduate.

→ Key factors contributing to the trend :-

① Hybrid warfare on rise.

② Attacks on critical infra have social ramifications

ex - water supply stopped by ransom-ware can halt city's functioning

③ As a measure of pressure tactics

④ Cyber warfare as a new, continuous form of cold war

⑤ Increasing involvement of non state actors

⑥ Ease of skill acquisition by individuals over internet

Impacts

1. On security → ransomwares can extract critical information to hurt national security (Cyber Espionage)
2. On citizens - critical activities halted
ex- ransomware on powergrid affected city functioning (Mumbai)
3. On social contact - Uddes trust in safety by government & hurt social harmony → ~~Naxal~~ leads to radicalisation
4. On international image → can hurt companies ingestion, reduce EODB.

Thus, a cyber hygiene orchestration by CAARTIA ~~harvest~~ approach & revamping Cyber safety & firewall of critical infra is the need of hour.

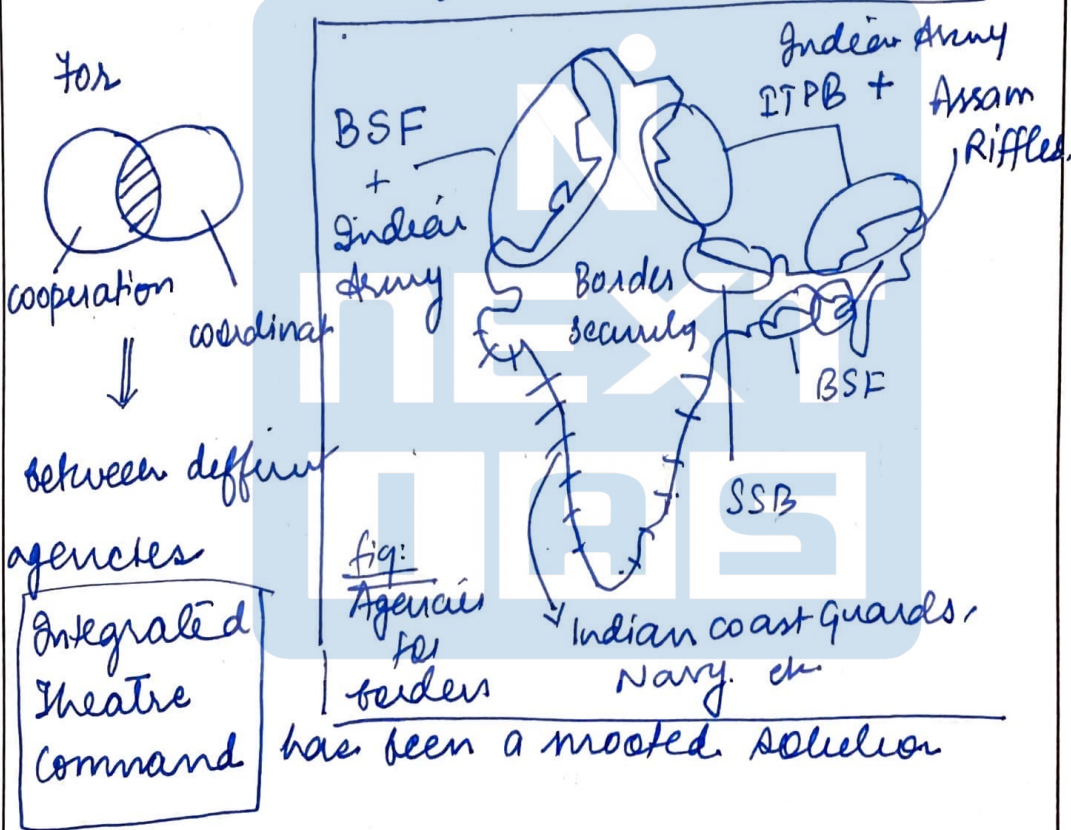
Q.20 सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(250 शब्दों में उत्तर दीजिए) 15 अंक

In the context of border security, how can cooperation and coordination between different security agencies be improved to ensure effective and efficient management of coastal and terrestrial borders?

(Answer in 250 words) 15 Marks

India shares international land boundary ~15000 Km & maritime boundaries of ~7500 Km monitored by several agencies.



Improving security cooperation in terrestrial borders :-

- ① Better horizontal, ^{vertical} unity between agencies → Min of Defence
" " Home etc.

2. ICT for communication between agencies allows reconnaissance

[ex] - IB information system on border infiltration

3. coordination via space cooperation

[ex] - GSAT-9 for monitoring

4. coordination with local intelligence

(a) → trust building improves (Assam rifles in Assam)

(b) → containing OGW (T&K by local squads)

(c) → detection of drone infiltration
[ex] Drug smuggling caught in Myanmar via Kuki tribe coordination

Coordination for Maritime border

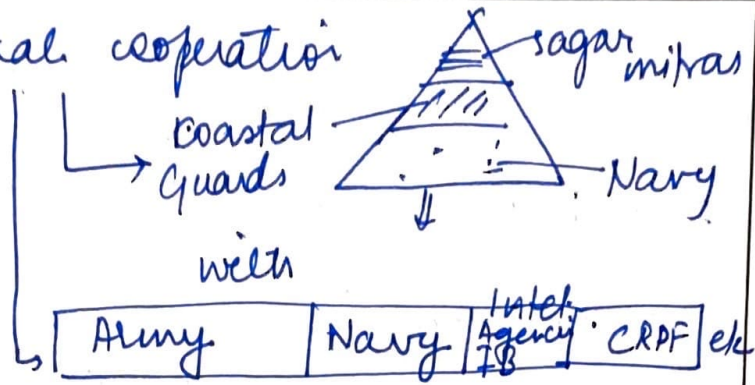
(1) Quicker deployment → better response time needed

ex - 26/11 attacks,

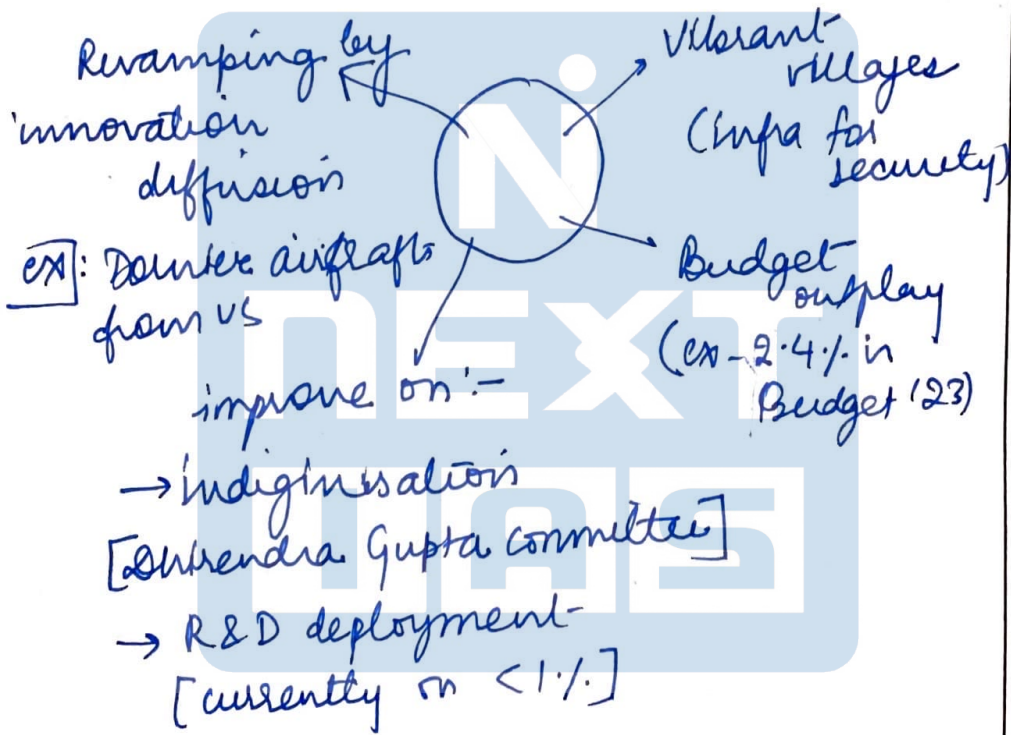
(2) Technological cooperation via common database [ex] - NATGRID.

(3) complex attacks dealing via cyber bots & monitorings

4. Hierarchical cooperation



Apartment from Better coordination :-



"Safe borders are prerequisite for stable nation".