

NEXT IAS

NEXT IAS (Head Office) : 27-B, Pusa Road, Metro Pillar no. 118, Near Karol Bagh Metro, New Delhi-110060

Bhopal Centre: Plot No. 46, ZONE-2, M.P. Nagar, Bhopal-462011

Ph: 8081300200, 8827664612 | E-mail: mts@nextias.com | Web: www.nextias.com

(To be filled by candidate)

Name of Candidate : Nitin Choudhary

Roll No. : ID = MT23 MACEN006

Registration Number : Date of Examination : 03/09/23

Exam Centre : Old Rajinder Nagar ☐ Bhopal ☐ Online ☒

Test - 3

Code : TC073

MTS IGP Batch 2023

GENERAL INSTRUCTIONS

This Question-cum Answer (QCA) Booklet contains 56 pages. Immediately on receipt of the booklet, please check that this QCA booklet does not have any misprint or torn or missing pages or items, etc. If so, get it replaced by a fresh QCA booklet.

Candidates must read the instructions on this page and the following pages carefully before attempting the paper.

Candidates should attempt the questions strictly in accordance with the instructions specified in the question paper and in the space prescribed under each question in the booklet. Any answer written outside the space allotted may not be given credit.

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. :

(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



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 taxes are tax that is imposed on unprecedented profit made by companies due to external factors.

eg> Tax on oil refineries during crude oil price rise due to war

eg> Tax on money won in gambling

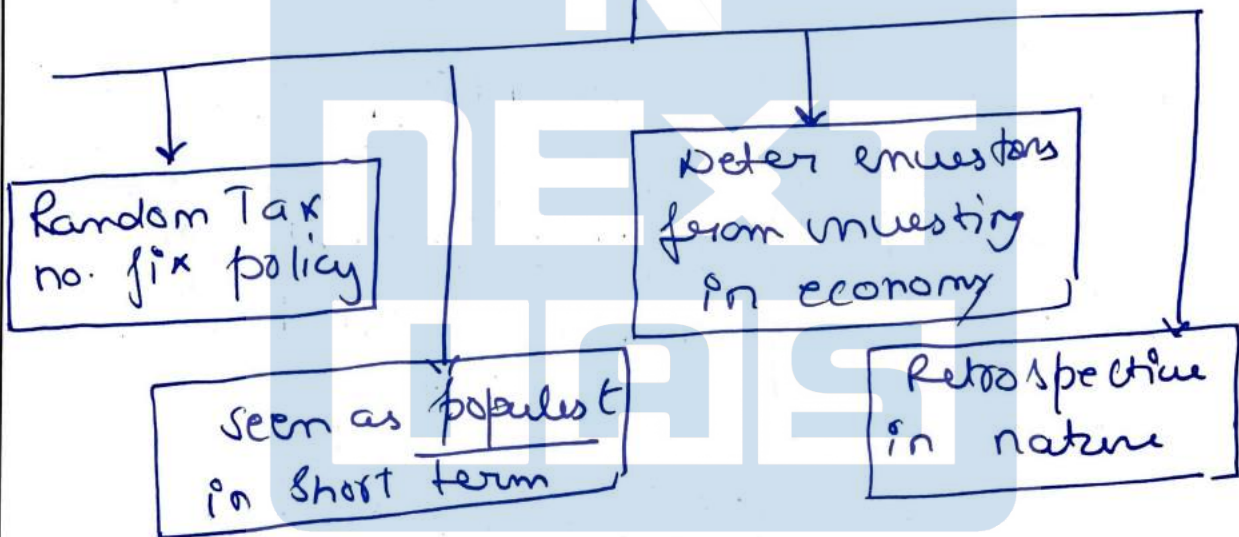
Windfall tax can lead to redistribution of wealth and promote economic equality, As

- 1) Redistribution of profit by companies to the general public.
- 2) Augmenting Govt. Revenue which can be used in social welfare schemes like health, education etc
- 3) Decreased tax burden on common

people as govt. revenue demands are fulfilled.

4) Improving fiscal health of govt due to increased revenue and decreasing trade deficit

But windfall tax can negatively impact economy and hence hamper economic equality as



Hence windfall tax should be implemented by utmost objectivity for social welfare without deterring the confidence of investors in economy.

- 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 (MPC) is a statutory regulatory body under RBI Act 1934, made for controlling inflation and balancing it with growth.

Aim of MPC is to have inflation (CPI) in $(4 \pm 2)\%$ range.

Perceived Successes of MPC

- 1) Controlling inflation - most of the time inflation is within 4 ± 2 band.
- 2) Economic boost by having expansionary monetary policy post covid.
- 3) Hard money - when inflation rose high & MPC increased repo rate by 250 basis point.

Challenges of implementing Inflation Targeting

1) Inflation going out of control.
As seen in figure.

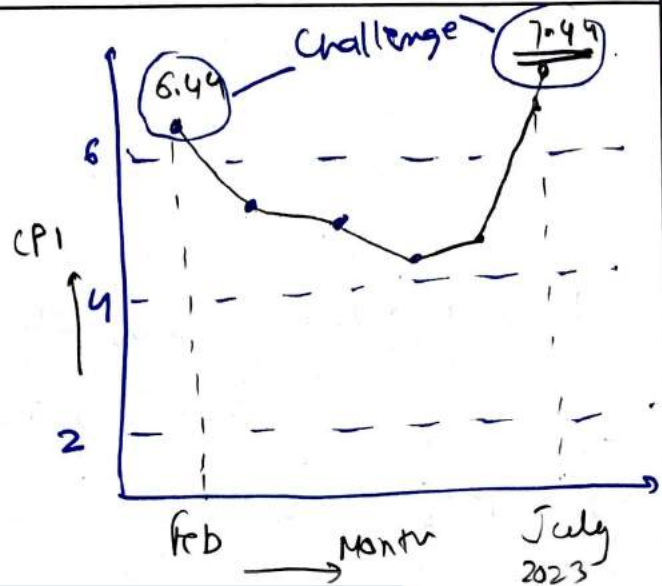


Fig. Showing Monthly CPI value

- 2) Structural inflation caused due to infrastructural bottlenecks, can't be controlled by MPC
- 3) Growth Vs Inflation as Govt. fiscal policy is mostly expansionary
- 4) Transfer of policy via banks in form of interest rate is not always 100% efficient

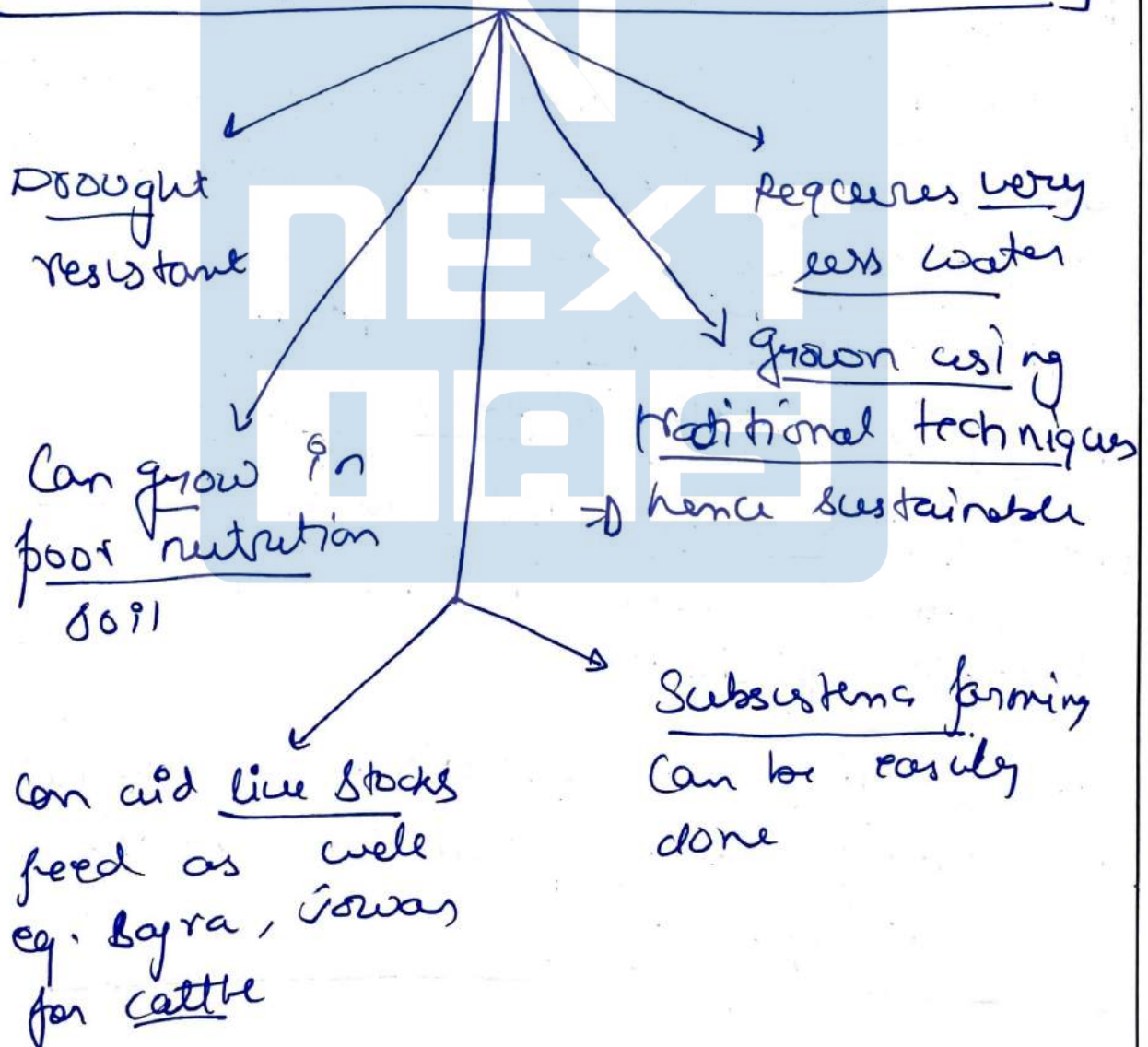
Overall MPC has been able to stabilise the economy and promote growth in economy.

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

UN and FAO has declared ~~millet~~
2023 as International year for millets.
and GoI has declared them Shri Ann.

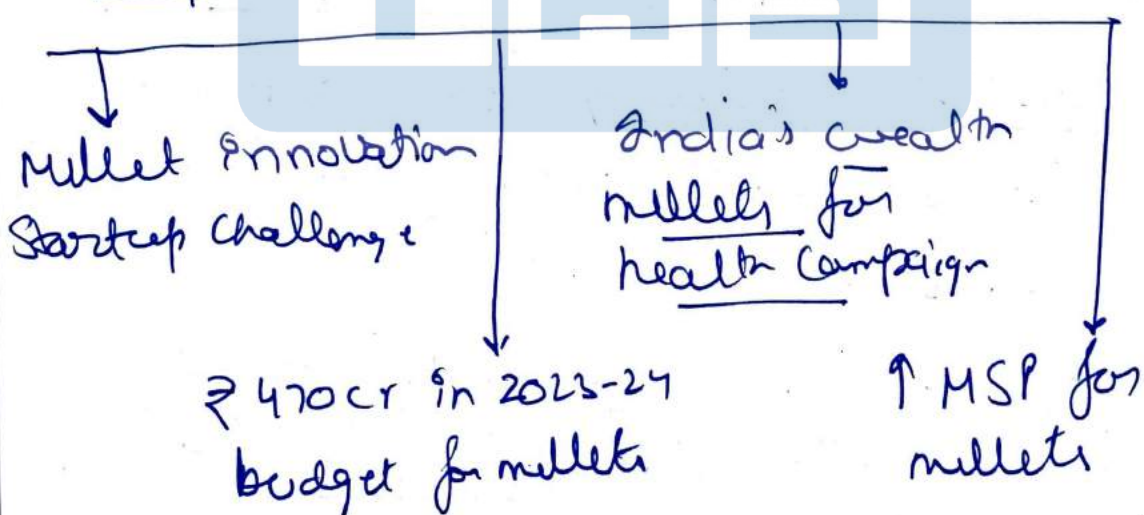
Millets for Sustainable Agriculture



Millet for improving food security



Hence Govt has following programs to promote millets



Further State like Telangana and Karnataka are giving millets in mid day meal & PDS

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 2019 to provide functional tap water connection to every rural household by 2024.

Significance of Mission

- 1) Providing 55 lit of water per person per day
- 2) decreasing deaths due to water borne diseases like diarrhoea
- 3) gender equality is provided as women fetch water from long distances
- 4) promoting awareness about water and its conservation
- 5) Inclusive growth of rural India

- 6) Improving Sanitation & Hygiene.
- 7) has Pan India approach ~~so that~~ it can end regional disparities.

Underlying Challenges

- 1) Availability of water - 60 cr people in India are in water stressed area
- 2) Low recycling of waste ~~water~~ due to infrastructural issues
- 3) Inter State disputes on water sharing of rivers. eg. EKCI in Rajasthan struck due to MP - Rajasthan tussle.
- 4) Lack of public awareness in water use efficiency
- 5) Low water metering facilities

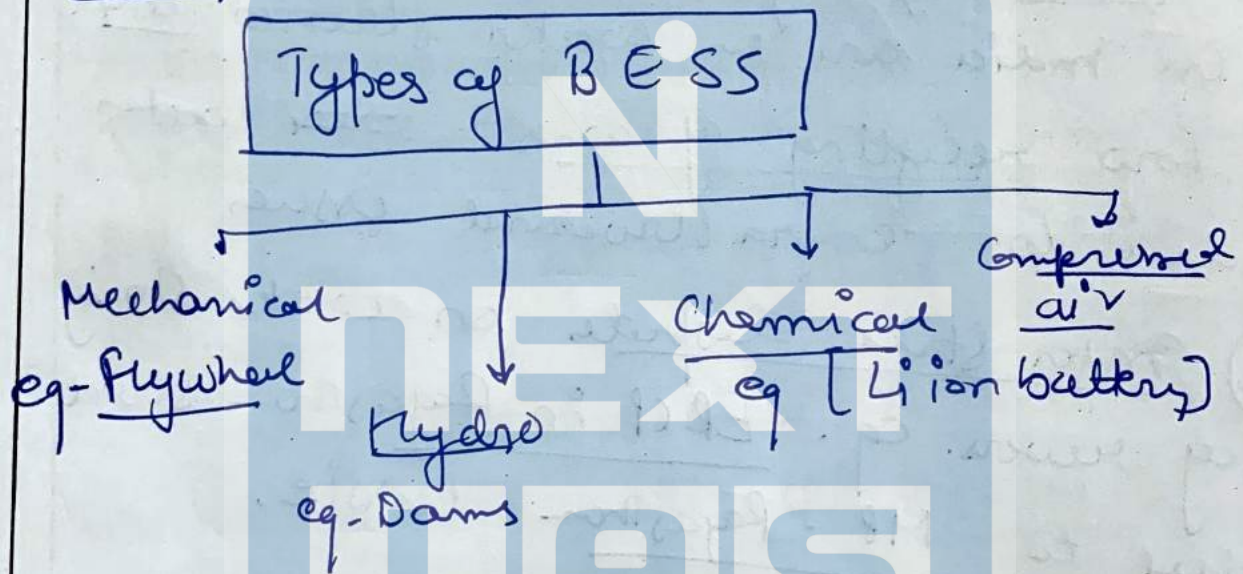
JJM has already provided tapped water connection to 67% of rural households. Further effort is needed like inter linking of rivers to achieve 100% success.

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

Battery energy and Storage System [BESS] ~~are~~ is a group of batteries combined together to store electrical charge.



Applications of BESS

- 1) Storing excess electricity during day time in solar power plants
- 2) Offgrid supply of electricity in Remote areas

3) In power Discoms for having smooth supply of electricity.

India has a target of 450 GW of Renewable energy by 2030 and BESS is helpful in this. Also

BESS- Revolutionary Energy Program in India

- 1) Making Renewable energy 24x7
- 2) Managing Peak load energy supply
- 3) Stabilising the grid electricity supply
- 4) Making a market for carbon trading and RE certificates for energy stored in batteries.

Further research is needed in BESS to prevent cases of battery explosion, overheating, lost \$ as to become BESS & a practical use case.

NEXT IAS

Candidates must write on this margin

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 is the first 3 member crewed space mission of ISRO, where gagan-nauts will remain in space for 3 day in a orbit of $400 \times 170 \text{ km}^2$.

Developments of Gaganyaan

- 1) Gagan Nauts Training - centre has been set up in Bengaluru
- first phase of training in Russia is done.
- 2) new escape technology -
Test on Pad abort test is done
- 3) Human rated Launch vehicle
Test on Vikas engine and cryogenic engine done for human rated
- 4) Habitable orbiter
For this micro gravity test area performed.
- 5) Reentry test are also done

Challenges in Gagan yaan Mission

Survival of humans in outer space

First time experience of ISRO

Risk of failure is high

development of habitable space module

Possible benefits for Society

- 1) Indian ISRO becoming a global leader in space $\Rightarrow$ Nation Power
- 2) Development of Science, R & D in India
- 3) Motivating youth towards space and other tech. fields
- 4) Economy boost to many jobs, $\uparrow$ in per capita income etc

GOI is also collaborating with nations like France, Russia etc to make Gagan yaan a success

Q.7

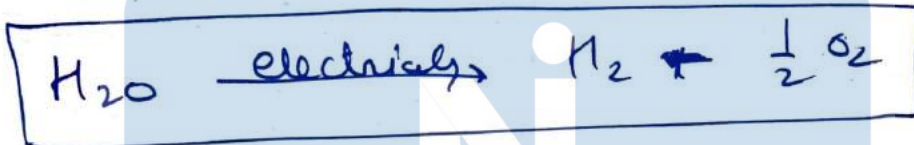
“जलवायु परिवर्तन और प्रदूषण से निपटने की हमारी खोज में हरित हाइड्रोजन एक सरल और जादुई समाधान हो सकता है”। भारत के राष्ट्रीय हरित हाइड्रोजन मिशन के आलोक में कथन का आलोचनात्मक विश्लेषण कीजिए।

(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

Green hydrogen is the hydrogen (H_2) produced using renewable energy for electrolysis of water.



Green H_2 use in tackling Climate Change

- 1) Decarbonising sectors which are difficult to decarbonise.
e.g., Aviation, Heavy industries
- 2) Decreasing use of fossil fuels
e.g.) Fuel cell run car
 H_2 in IC engine
- 3) Producing green ammonia and decarbonising fertiliser sector
- 4) excess of Renewable energy can be stored as Green H_2 in day making solar power 24x7

Challenges in Green H₂

Storage as
H₂ is highly
inflammable

→ high energy
need.
eg. requires 50 kWh
of power for 1 kg
of Green H₂

Costly to produce
= 3.5x the cost
of grey hydrogen

Leakage emissions
in form of NOx from
green H₂ steam IC cars

India's National Green Hydrogen mission

- Target of producing 5 mmt of H₂ by 2030 - Per year.
- Providing support to industries in form of RE supply, storage facilities at ports, long transmission of RE power etc.

But the challenge of infrastructure, non readiness of discoms etc need to be tackled to make mission a success

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

Recently we saw land subsidence at Joshimath leading to eviction of 60+ families and cracks in more than 550 houses.

Key Lessons for Disaster Management and Environmental Conservation

- 1) Not overburdening the environment beyond its natural carrying capacity
- 2) EIA should be done before developmental projects like dams, roads etc.
- 3) Geographical fragility of the Himalayan region should be taken into mind.
eg) Joshimath is made on deposits of sand and stone and not on firm rock, hence more

chances of subsistence.

4) Sustainable tourism as development of many hotels, overburdening of tourists can lead to disasters.

5) Role of govt. in properly fixing the rules and adhering to them.
eg, building codes, safety codes for fire etc

c) following the previous committee recommendations.

eg) Mishra committee recommended for stop of development projects at Joshimath, and ban on drilling, bombing etc.

Hence we have to see that environmental stress can result in a catastrophe one day, if we don't align our developmental needs to Natural conservation.

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

Khalistan is a secessionist movement started in 1940's peaked in 1980's, whose demand is for separate state for Sikh community.

Resurgence of Khalistan Issue

- 1) Rise of leaders like Amritpal Singh, Deep Sidhu etc
- 2) Attack on Mohali Police Station
- 3) Attempt to vandalise Indian Embassy at London and San Francisco
- 4) Referendum for Khalistan at Canada, USA etc
- 5) Clash between Pro India and Khalistanis in Australia.

Reasons for Rise

Unstable govt
in Punjab

Low economic
growth

Khalistan
Sympathisers
Abroad

Role of
Pakistan + ISI

Misguided
govt, due to
drugs, lack of
employment

Social media
brain washing

Measures to handle it

Socio economic
development

Collaborating with
foreign countries
to curb move-
ment them

Arrest of
Khalistani
leaders

Bringing Punjab
youth to
mainstream

Strict policing
in Punjab

India has to use both non combat
and combat measures to tackle
the issue of Khalistan.

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

Drones are unmanned aerial vehicles [UAV], having capability of delivery any payload while being remotely operated.

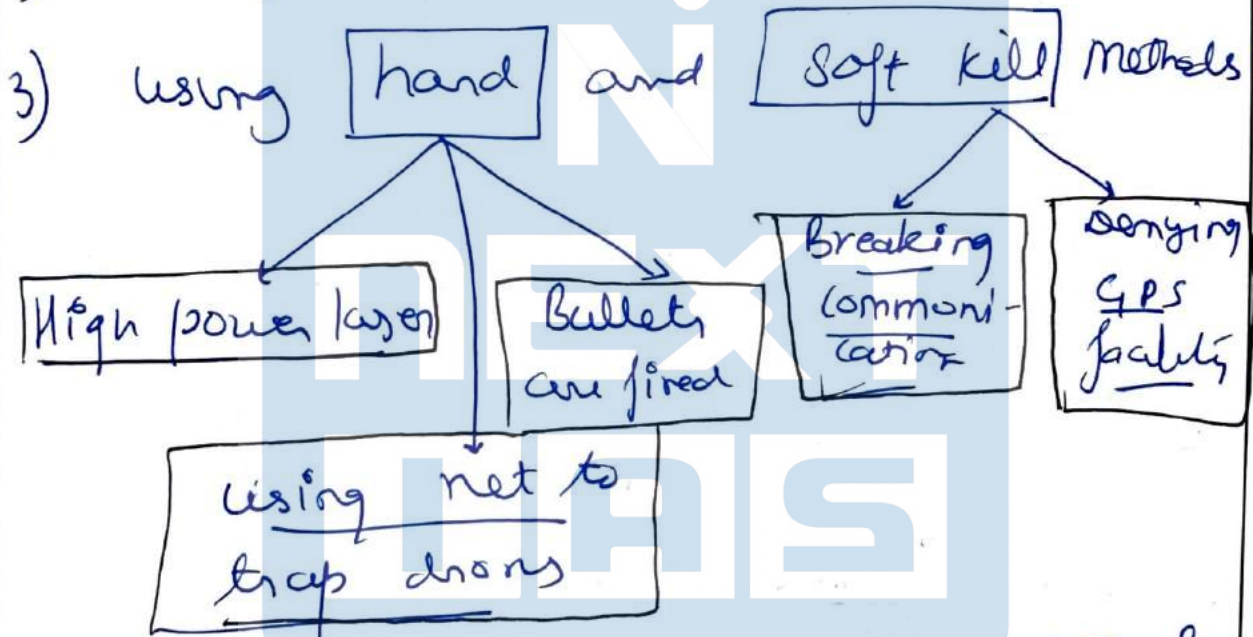
Drones ⇒ Challenge to Border Security

- 1) Anonymity - anyone can order online - via e-com websites and use them.
- 2) Easy to operate using simple remote control or mobile phones.
- 3) Enemy can do surveillance, reconnaissance operation using drones.
- 4) Drones are being used for drug trade, transfer of FICN, Army across Indian border.
- 5) Recent bomb blast at Air force faculty in Jammu was carried

out using drones

Suggestions to tackle drone problem

- 1) Implementing Modhekar Gupta Committee recommendations on border safety
- 2) using lasers to detect drones



- 4) Strict surveillance 24x7 around the border area.

GOI has also brought Drone flyers guidelines so that drones can be used without compromising the national security.

- Q.11 विद्युत संशोधन विधेयक, 2022 उपभोक्ताओं, डिस्कॉम के साथ-साथ पर्यावरण के लिए कई लाभ प्रस्तुत करता है। सविस्तार 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

Recently Govt. has tabled Electricity Amendment Bill 2022 to bring changes in Electricity Act of 2003, to make it more user ~~friendly~~ environmental friendly.

Advantages of the Bill

1) Consumers

Rising competition
→ Better pricing

More choice of
Discoms to consumers

2) DISCOMS

Rising efficiency in
operation due to more
competition

Decreased infrastructure cost of laying
transfer cable → Sharing of resources

3) Environmental

- Increased use of Renewable Energy.
- Mandatory Renewable purchase agreement and obligation to supply Renewable Energy
- Decreased Carbon emissions

Shortcomings

- 1) Attack on federal structure as electricity in list 3 (38) concurrent list.
- 2) Benefit private discoms as all India supply obligation is only for public discoms
- 3) New players (Disoms) will use the existing infrastructure of Discoms.
⇒ closer to old Discoms

- 4) May put an end to farmers subsidy in electricity, as there is a provision for floor & ceiling Rates
- 5) Power sector Employees in Public discoms may lose jobs as private players come.

Way forward

- 1) Consultation with States and other stakeholders to get them in confidence.
- 2) Making a model law and let States adopt it as their ground reality.
- 3) Balancing the rights of old discoms and new discoms.
- 4) Assuring farmers of continued electricity subsidy.

The bill has good intentions, but it needs wider consultation to avoid fate similar to 3 farm laws.

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 regulatory body formed under SEBI Act 1992 to regulate Primary & Secondary equity market, Mutual funds etc.

Important Role of SEBI

- 1) Curbing fraud practices like insider trading, illegal chit funds scheme etc.
eg. Prompt Action on Sahara group
- 2) Investor education and awareness programs
eg. Jan Jagrukta Abhiyan by SEBI
- 3) Increasing the number of demat accounts and use of Mutual funds
Shows importance of SEBI

4) Digitisation of Service as now online trading can be done, and SEBI has ~~an~~ online clearing system.

But there are Certain Challenges like

- 1) Lack of enforcement powers
- 2) Lack of coordination among multiple regulators like RBI, SEBI, IRDAI etc
- 3) changing dynamics of investment in India

This has led to few failures like

- 1) Satyam Scandal, Ketan Parekh Scam
- 2) NSEL Scam
- 3) ICICI-Videcon Scam
- 4) Recent Adani Hindenburg Issue

Hence there is a need for reforms in SEBI.

Reforms Needed

- 1) Prompt data sharing obligation on companies to SEBI. to maintain transparency.
- 2) Giving wider enforcement powers to SEBI
- 3) Independent cadre and recruitment of officers to SEBI
- 4) Focusing more on investor education and awareness
- 5) Following global standards on equity market regulation.

Further having an umbrella organisation for regulation instead of multiple bodies will facilitate better coordination and avoid duplication of efforts.

- 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 contributes ~ 17% to India's GDP and provides employment to 45% of India's workforce.

Despite such contribution Agriculture is plagued with challenges like

- 1) Low Productivity per hectare of land.
eg. India's wheat productivity is $\frac{1}{3}$ of that of China
- 2) Low mechanisation of farm equipments & services
- 3) Small land holdings
avg land holding = 1.08 hectares
- 4) Impact of climate change.
• can lead to 20% decrease in productivity by 2050

- 5) Overuse of chemicals like fertilisers, pesticides $\Rightarrow$ threat to soil, humans animals etc
- 6) Lack of forward - backward linkages
eg. Seeds, cold storage, transportation etc.
- 7) Lack of food processing and marketing facilities.
- 8) Lack of options for farmers while selling their produce.
- 9) frequent cases of price crash
eg. onion price crash

Role of technology in overcoming these ~~challenges~~ challenges

- 1) Blockchain can be used for cooperative farming, where BCT used ledgers can be used by farmers pooling their resources
- 2) Drones $\rightarrow$ for Crop monitoring
 $\downarrow$
for efficient spray of fertilisers.

- 3) Nano Technology - can be used in form of Nano urea
- 4) Space Technology - To know soil health, crop harvest time etc.
- 5) AI - which crop to grow, when to harvest - etc.
- 6) UBERisation of farm equipments can be done.
- 7) Jan - Adhar - Mobile Number can be used to provide credit so that they can develop infrastructure.
- 8) Solar Run - Cold Storage facilities drying centres can be made
- 9) Development of better seeds suited for drought resistant.

GOI is using technology to help farmers in schemes like Suamitra, Nano urea supply, DBT in PM Kisan 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

In India irrigation demand for water is around 80-90% of total water demand, making agriculture a major user of water resources.

Impact of Irrigation on Environment and Natural Resources

- 1) Depleting ground water level as seen in states like Rajasthan, Haryana. Due to overuse for Rabi-wheat cultivation.
- 2) Flood irrigation technique further decreases water use efficiency to 30%.
- 3) Eutrophication as fertilisers used in farm are carried through water to water bodies.

- 4) Soil Salinisation due to excess use of water.
c) Rising Salinity in Punjab
- 5) Rising humidity in nearby regions due to irrigation.
- c) Pollution of water bodies [algal bloom] and shrinkage of water bodies [over extraction]

Measures to ensure sustainability and equity in irrigation

- 1) Cropping according to agroclimatic regions. eg. not growing Rice in Punjab.
- 2) Use of water efficient irrigation techniques like, drop irrigation, sprinklers etc.
- 3) Fertigation can be used for better use of water + fertilisers

- 4) growing low water demand crops like millet.
- 5) Educating farmers not to use flood irrigation techniques
- 6) Reclaiming water bodies using MGNREGA work

Good Steps

- 1) Drip Irrigation Scheme
 - Har Khet Ko Paani
 - Per drop more crop
- 2) generating awareness among farmers using programs like Krushi darshan
- 3) Promotion to millet
- 4) Soil health Card Scheme

Further we need village level programmes, Nationalisation of Electricity Subsidy, and increasing MSP on less water intensive crops.

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

Dr. Homi Jehangir Bhabha and Dr. Vikram Ambalal Sarabhai were two great scientists from India who laid the foundation for Atomic and Space research respectively.

Contributions of Dr. Homi J. Bhabha

- 1) Nuclear Research program was set up by him.
- 2) Energy security by having a plan for 3 stage nuclear reactor
- 3) Strategic defense by setting up work on India's atomic bomb.

- 4) Nuclear Safety as he participated in IAEA conferences on nuclear safe use.
- 5) Space Key role in founding Space program in India.

Contribution of Vikram A. Sarabhai

- 1) Known as Space man of India
- 2) Set up Physics research lab in Ahmedabad
- 3) Key role in founding IIM Ahmedabad
- 4) Set up INCOSPAR (Then ISRO) and guiding light to India's space program.
- 5) Space research labs and launching facilities were set up in Shriharikota, Bengaluru, under his leadership.

Both of these Scientists have contributed immensely to India Atomic and Space program.

It is their work that has finally led to India becoming a Nuclear State and a major Space power in world despite being a developing nation.

- Q.16 जेनरेटिव 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 is Artificial Intelligence based technology that uses data to form new content like music, images, artwork etc.

Generative AI & Innovation

- 1) Art work → making new images
 eg. Dream image generation
 ↓
 making new musics as per instruction
 ↓
 writing new stories or aiding the writers to get ideas
- 2) Health Sector
 → development of new drugs
 → faster drug trials using simulations.
- 3) Education
 → one to one training

- Real experienced based learning

4) Agriculture

- Solutions to problems like when to hop to grow, when to harvest etc

5) Industries

- development of new products using simulation and faster testing.

6) Taking away burden of humans by doing Repetitive works like PPT making data entry. Saved time can be used for R&D and innovation

Societal impacts & challenges

- 1) Loss of Jobs to AI based Robots
- 2) Ethical issues of credit of the work - whom to be given?
- 3) IPR - copyright issues.
- 4) Degenerate human talent as

new art will be made by generative AI.

- 5) Loss to students as they might misuse it to do projects.
 - 6) Rise of inequality and it may divide society in AI haves and AI have-nots.
 - 7) Rise of Game Culture may cut from real world.
 - 8) Societal desolation may due to fake news, deep fakes etc.
 - 9) Loss of privacy, data
- Hence there is a need for regulation of AI. Now we can learn from western countries like UK's model of light touch regulation or European Union's law to give priority to public data.
-

- 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

Mangrove alliance for Climate (MAC) was launched in COP 27 by countries like India, UAE, Indonesia, Spain etc to conserve and sustain mangrove forest.

Purpose of MAC

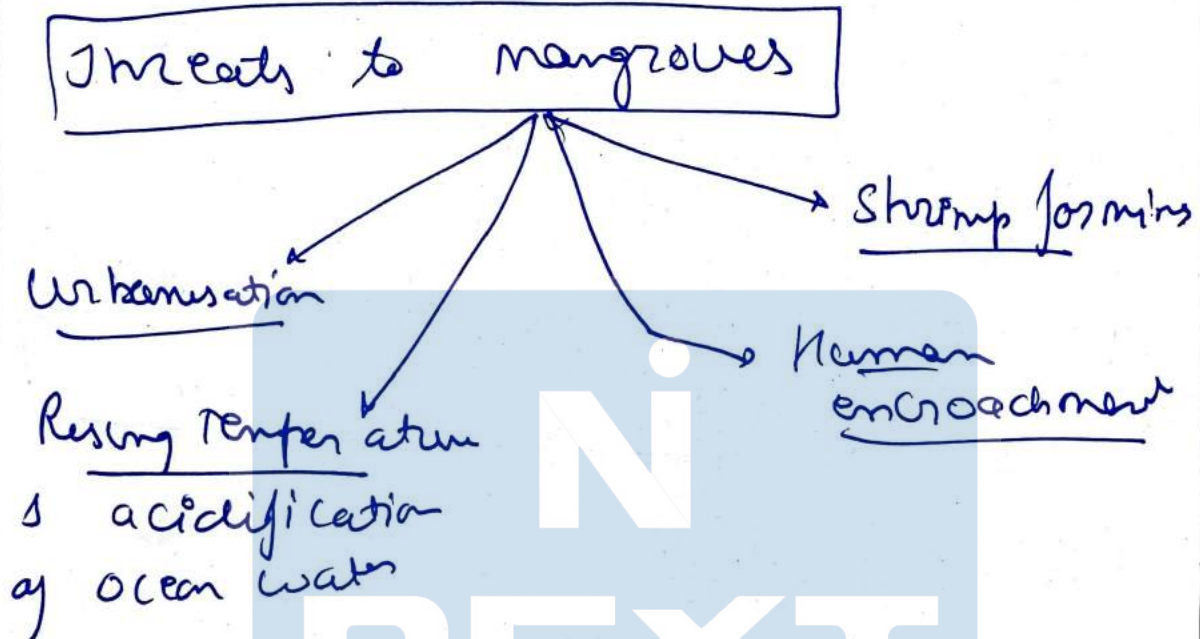
- 1) To replant, conserve and sustain mangrove ecosystem.
- 2) Raising awareness among public regarding challenges due to decreasing mangroves.
- 3) Educating people on role of mangroves in adapting, mitigating the effects of green house gases and climate change.

- 4) Voluntary self monitored commitments by nations to protect grow mangroves
- 5) Data - best practices sharing among nations to facilitate sustainable mangrove forest.

Importance of Mangroves in maintaining the coastal ecology of tropical nations

- 1) Carbon sequestration by mangroves is 10 times the terrestrial forest
- 2) Protects from ~~big~~ cyclones, tidal impact by ~~act~~ acting as a buffer zone
- 3) Protects soil-land erosions by holding the land together.
- 4) Home to variety of diverse and vulnerable species.
eg. Royal Bengal tiger in Sundarbans

- 5) Provide oxygen supply to under water system hence sustaining the biodiversity.



Hence we need steps like MAC and GOI scheme MISHRI so that we can protect mangroves and have sustainable development.

- 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

Coalition for disaster Resilient Infrastructure (CDRI) is an Indian initiative to have disaster resilient infrastructure so as to mitigate the impact of disasters.

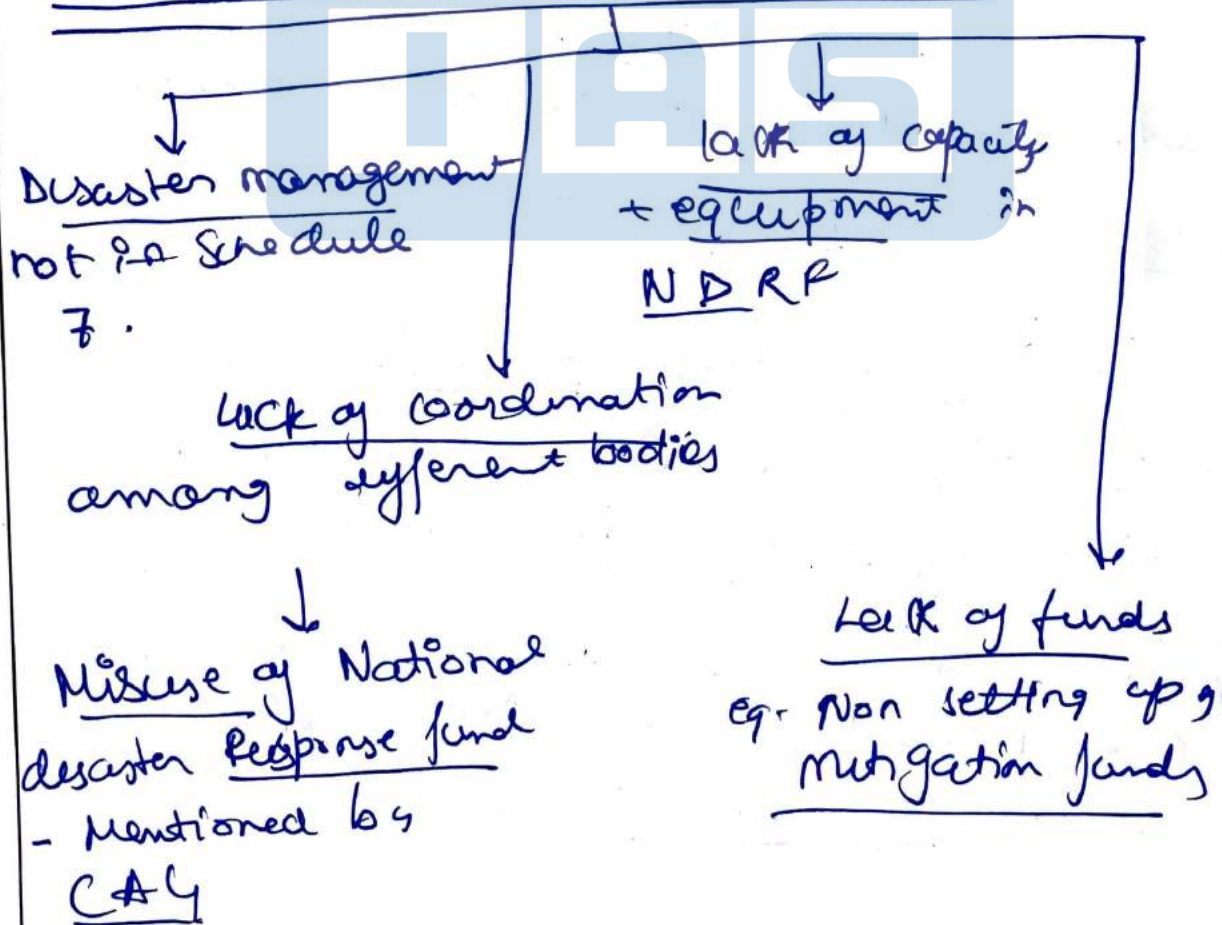
CDRI is in line with Disaster Risk Reduction approach of Sendai framework and brings robustness to disaster management approach in India in following way:-

- 1) Sharing of best practices and technology on disaster resilience with different stake holders.
- 2) Helping two pillars of disaster management i.e. Mitigation and Preparedness.

- 3) Helping in faster recovery to normalcy after disaster.
- 4) Having minimal loss to human and property
- 5) Making certain codes, rules etc for infrastructure so that they are resilient to disasters

New Strategy Need for India
to Tackle Disasters

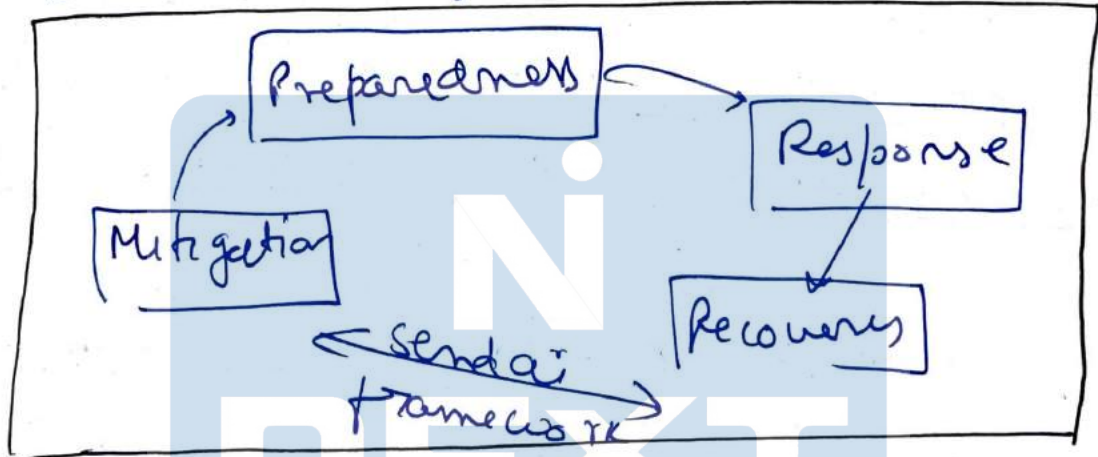
Lacunas in current Model



Way forward

- 1) Bringing disaster management in concurrent list of Sch. 7
- 2) Setting up different ministry for disaster management

3)



Following Sendai framework

- 4) Setting up of mitigation funds both at nation & state level
- 5) Better equipment, training for NDRF personnels
- 6) Objective criteria to declare disaster

we also need to focus on capacity building of public and early warning system to actively deal with rising frequency of disasters due to climate change.

- 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

There is a 52% rise in ransomware attacks in India in 2022 as compared to 2021. Further there is 1 cyber attack every 10 min in India.

eg) Black cat attack on Solar company

Key factors contributing to this trend

Lack of preparedness
of Indian institutions
to avert attacks

Rise of organised
crime syndicate
in Ransomware
eg) Russian companies

Cryptocurrency
and other technologies
helping in payments
and user profiling

More inter-connectedness due to
IoT, 5g technology etc. Making
devices vulnerable

Impact of these attacks

- 1) Loss of money as in form of ransom to hackers.
- 2) Health sector - loss of patient data. eg. AIIMS server hack
- 3) Breach of defence security critical information
- 4) Stopping the critical services like navigation, electricity supply, creates supply if these systems are hacked
eg. US - hacking of colonial gas pipe line computers
- 5) Research & Development, important research work and its findings can get compromised.
Hence we need to take strict actions to protect us against such attacks

Steps taken by Govt

- 1) Cyber Suraksha Kendra to clean devices from any malware
- 2) Institutional framework
 - ↓
 - CDAC

14C

CERT-IN

NCIIPC
- 3) Cyber suraksha bharat abhiyaan

Further private players like TCS, Infosys are also working towards Cyber Security in India

Also Govt can use platforms like G20, QUAD, I2U4 to have global consensus and working group against cyber crimes across the globe.

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?

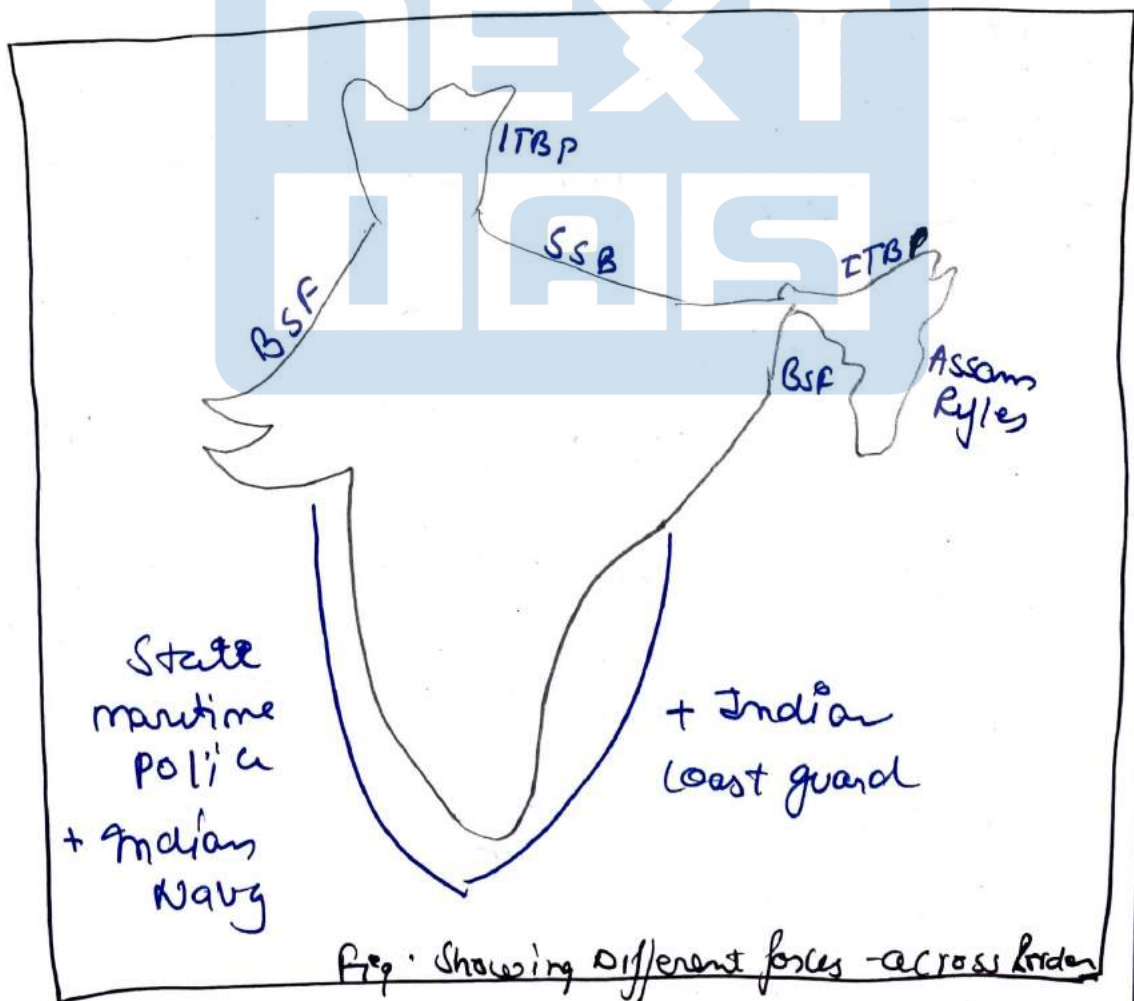
(250 शब्दों में उत्तर दीजिए) 15 अंक

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 uses multiple security forces across its maritime and land border and hence coordination among them is vital to national security

Different agencies at different Border



Need for Cooperation & Coordination for Effective & efficient management of Borders

- 1) To prevent duplication of efforts
- 2) To hold forces accountable in case of breach
eg) 26/11 terrorist came from maritime border
- 3) To have better resource utilization across the security forces.
eg. Tanks, ships etc can be used
- 4) Coordinated intel network and use of assets of each other
- 5) efficient management of borders by united patrolling and surveillance
- 6) integrated - powerful response in case of breach of border security

Challenges to Coordination

- 1) Control of 2 ministries - Min of home affairs and defence ministry
- 2) Lack of Centre State Coordination
- 3) Ego ~~struggle~~ between officers of different forces.

Government efforts towards Coordination

- 1) appointing of Chief of defence staff.
- 2) appointing Integrated Maritime Security - ty officers.
- 3) Delineating the functional area of different forces.

Further we can strengthen coordination by having an umbrella organisation to manage all security forces and making it accountable to its success and failures