Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

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 : PRAJWAL CHAURASIA

Roll No. : 0409901

Registration Number : PTTP220258 Date of Examination : 13/08/23

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. : .....

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

(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

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

MACRO COMMENTS

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

IMPORTANT INSTRUCTIONS

CANDIDATES SHOULD READ THE UNDERMENTIONED INSTRUCTIONS CAREFULLY. VIOLATION OF ANY OF THE INSTRUCTIONS MAY LEAD TO PENALTY.

DONT'S

1. Do not write your name or registration no. anywhere inside this Question-cum-Answer Booklet.
2. Do not write anything other than the actual answers to the questions anywhere inside your QCA Booklet.
3. Do not tear off any leaves from your QCA Booklet, if you find any page missing do not fail to notify the supervisor/invigilator.
4. Do not leave behind your QCA Booklet on your table unattended, it should be handed over to the invigilator after conclusion of the exam.

DO'S

1. Read the Instructions on the cover page and strictly follow them.
2. Write your registration number and other particulars, in the space provided on the cover of QCA Booklet.
3. Write legibly and neatly. Do not write in bad/illegible handwritings.
4. For rough notes or calculation, the last two blank pages of this booklet should be used. The rough notes should be crossed through afterwards.
5. If you wish to cancel any work, draw your pen through it or write "Cancelled" across it, otherwise it may be evaluated.
6. Handover your QCA Booklet personally to the invigilator before leaving the examination hall.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

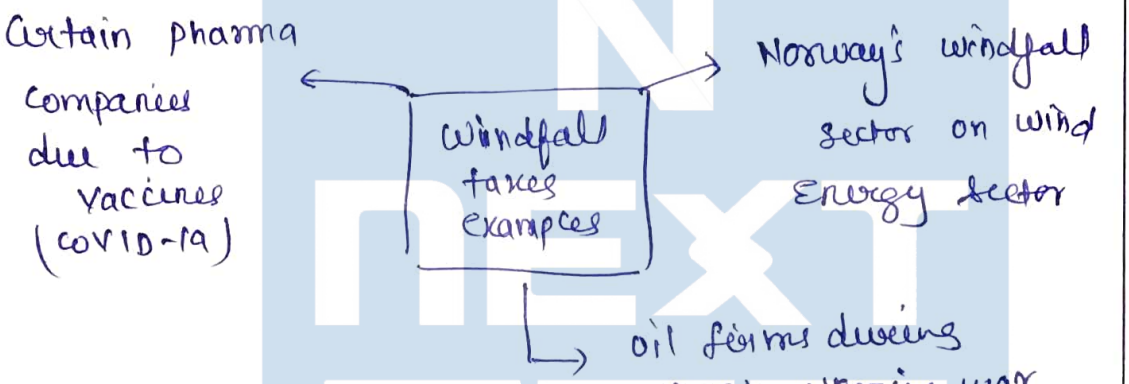
Candidates must no write on this margin

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 refers to the taxes as a one time mechanism against extreme profits made by firms owing to disasters or extra ordinary events like COVID-19 pandemic



Windfall taxes → Redistributive

(i) In lines with principle of progressive taxation

(ii) Reduce monopolistic business and promote well-being of poor.

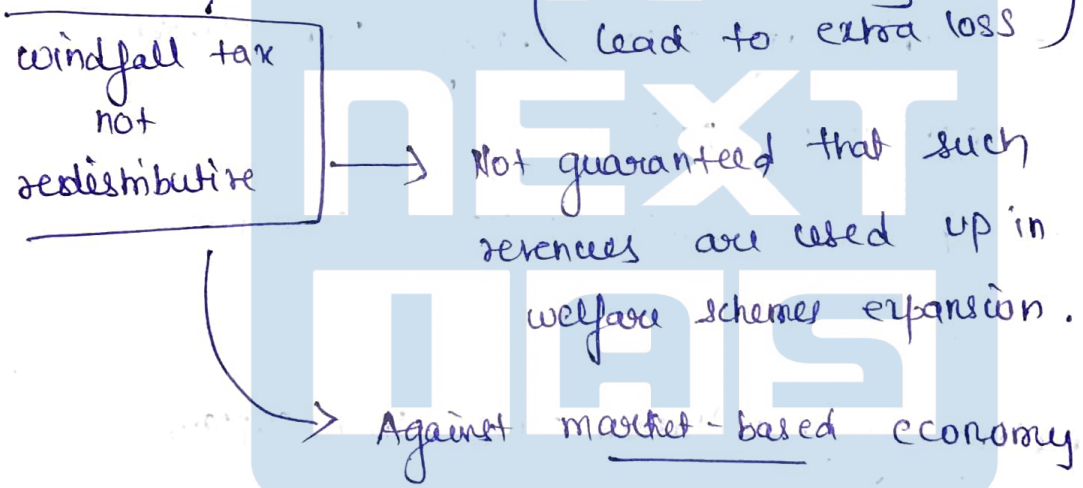
(iii) Extra revenue accrued from these taxes

Candidates must no write on this margin

Can be used in social welfare schemes like PM KISAN etc.

(iv) Create level playing playfield and ensures ~~con~~ healthy competition in economy.

(v) overcomes situational profits and thus creates avenues for expenditure on development



Thus these taxes could be used to usher our speed in attaining SDG 1 (No poverty), SDG 2 (No hunger) etc.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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 body headed by RBI governor tasked with to maintain inflation within the tolerance band of 2-6%.

Perceived successes of MPC

(1) Able to limit inflation through contractionary and expansionary policies.

Ex: Rate cuts during COVID-19 Economic slowdown

(2) Handling good inflation rate that supports the GDP of India.

(3) Helped in tackling external influences like federal Bank rate cut by USA recently seen.

(4) Balancing government view (3 members)

Candidates must no write on this margi

with that of experts (3 RBI members)

Challenges → MPC

① MPC not accountable in event of rising inflation rate (CPI inflation crossed the tolerant band recently)

② lag effect in implementation of MPC decisions.

③ Imported inflation due to interconnected of global economies
Ex: Rising crude oil import bill impact domestic manufacturers

④ inflation linked to other aspects as well
Ex: food inflation due to crop failure

⑤ concern over "greedflation" out of policy ambit.

However, MPC provides a mechanism to better target inflation and better co-ordination with fiscal policy is required.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

Q.3 भारत में सतत् 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

Millets are described as Shree-anna or Nutri cereals that holds the potential to transform agriculture & food security.

Millets → sustainable Agriculture

1. They are hardy crops, i.e, drought tolerant → less irrigation required.
2. Requires minimal pesticides, thus check excessive usage of chemicals.
3. Helps in diversification of crops → from monoculture (wheat, Rice) to polyculture.
4. Replenish soil fertility as legumes fixes nitrogen in soil.
5. Can enhance farmer's income due to their growing demand owing to changing consumer's preferences.

Next IAS ID: RTTP230258, TG070, 13-08-2023 11:22 PM

Candidates must no write on this margi

millets → foods security

(1) provides much needed fibres, proteins and nutri cereals.

(2) Tackles rising diabetes amongst youth and other lifestyle diseases (NCD)

(3) Can address hidden hunger among children, adolescents
Ex: around 35% stunting in India (NFHS-5)

(4) diversify our diet with increased intake of micro-nutrients required for overall development of a child.

(5) through mid-day meal scheme, PDS can check food insecurity.

Thus 2023 is being celebrated as International year of millets. It can bring evergreen revolution to agriculture.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

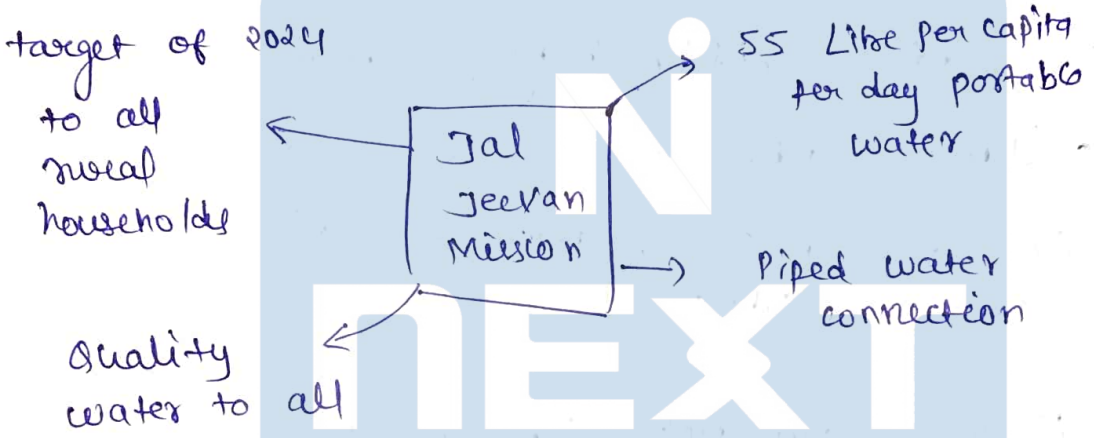
Q.4 जल जीवन मिशन में पेयजल की उपलब्धता और पेयजल तक पहुँच में क्षेत्रीय विषमता को समाप्त करने का सामर्थ्य है। मिशन के महत्त्व पर प्रकाश डालते हुए, वांछित उद्देश्यों की प्राप्ति में अंतर्निहित बाधाओं पर चर्चा कीजिए।

(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 is oriented towards universalisation of portable water to the countours of India.



Jal jeevan mission → significance

(i) Gram panchayat to certify Jal jeevan villages → thus empowerment of local body.

(ii) Empowerment of women as disproportionate burden of collection of water do not fall into their shoulder

Ex: water wires concept.

Candidates must no write on this margi

(3) reduces water conflicts between villages and even states
Ex: Cauvery water sharing dispute

(4) promoting hygiene and ensure water-borne diseases could be minimized

Underlying Impediments

(i) Groundwater depletion still not addressed

(ii) Rising pollutants in drinking water.
Ex: Arsenic, uranium contamination in water.

(iii) water, being a state subject, requires full implementation support.

(iv) use of sub-standard materials in pipeline
Ex: CAG audit highlights corruption

(v) Non-attainment of target
Ex: just 51% targets achieved till date

Thus Jal jeevan mission will go a long way in providing access to clean & safe drinking water.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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 storage system (BESS) are the devices used for storing produced electricity for future use.

Ex: Li-ion Battery in Electric vehicles.

BESS applications:

- Decentralisation of power production
- Re-distribution of Electricity to deficit areas
  Ex: To North East region in absence of renewable Energy plant.
- Storage of Renewable energy thus checking fluctuation and interruptions
- Promoting flexi-fuel (hybrid) vehicles (better portability)
- can be used in rainy seasons or winter season.

Next IAS ID: PMTE223258, TC:13-08-2023 11:22 PM

Candidates must no write on this margi

BESS → revolutionise Indian Energy program

(i) Can help in meeting Panchamrit goals of 500 GW of renewable energy.

(ii) Diversify Energy basket from coal-dependent to green-energy.

(iii) Promote decentralised Energy production even in rural hinterlands.
Ex, Biomass, biofuel energy can be stored.

(iv) Reduce import dependency of India for energy requirement.

(v) Can help in meeting ever-increasing domestic demand of energy.

Thus, BESS will help India to meet SDG 7.2 (Renewable Energy) while promoting green hydrogen Energy.

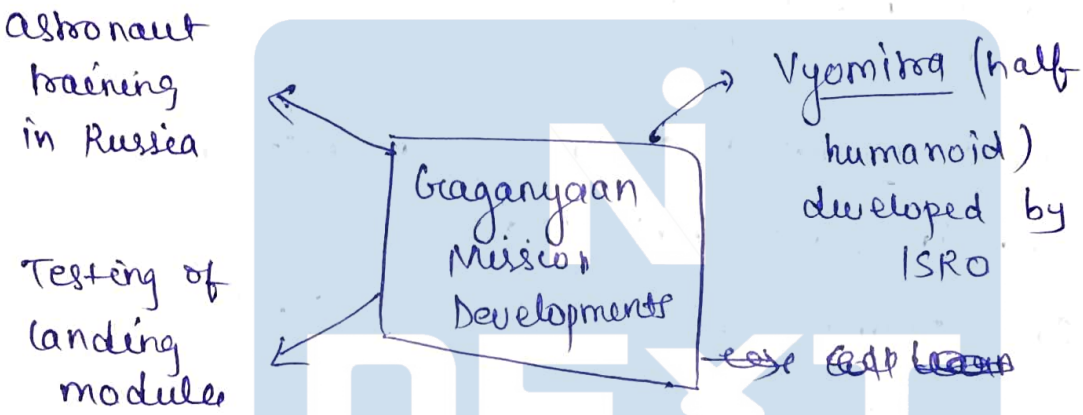
Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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 a 1st manned mission of ISRO to take 3 Indian astronaut to space and back to Earth.



Gaganyaan mission → challenges

(i) delay due to Russia - Ukraine war (training + sharing expertise)

(ii) LVM-3 rocket had not launched individuals earlier (No prior experience)

(iii) Limited funds and resources.

Next IAS ID: RTTP220258, TG073, 13-08-2023 11:22 PM

Candidates must no write on this margi

(iv) failure of Chandrayaan-2 landing also pushes a setback.

(v) limited private participation in such a program.

possible benefits —mission→ society

(1) will enhance scientific temper amongst youth (Article 51A)

(2) creation of Employment opportunities to youth in space sector
Ex: Space start-ups, engineer jobs etc.

(3) Boost research institutions and academic culture.

(4) sense of achievement as India would be 4th nation to achieve this feat.
(self-reliance capability)

Thus Gaganyaan mission will have multiplier effect on Indian society in near future.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

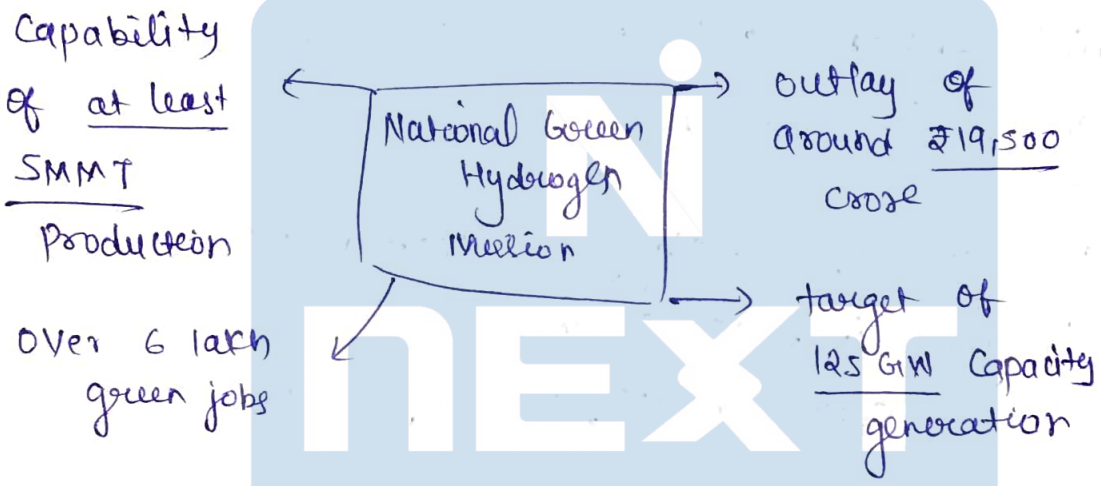
Q.7 "जलवायु परिवर्तन और प्रदूषण से निपटने की हमारी खोज में हरित हाइड्रोजन एक सरल और जादुई समाधान हो सकता है"। भारत के राष्ट्रीय हरित हाइड्रोजन मिशन के आलोक में कथन का आलोचनात्मक विश्लेषण कीजिए।

(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 a clean energy source produced through electrolysis of water using renewables like solar, wind etc.



Green H_2 → tackle climate change + Pollution

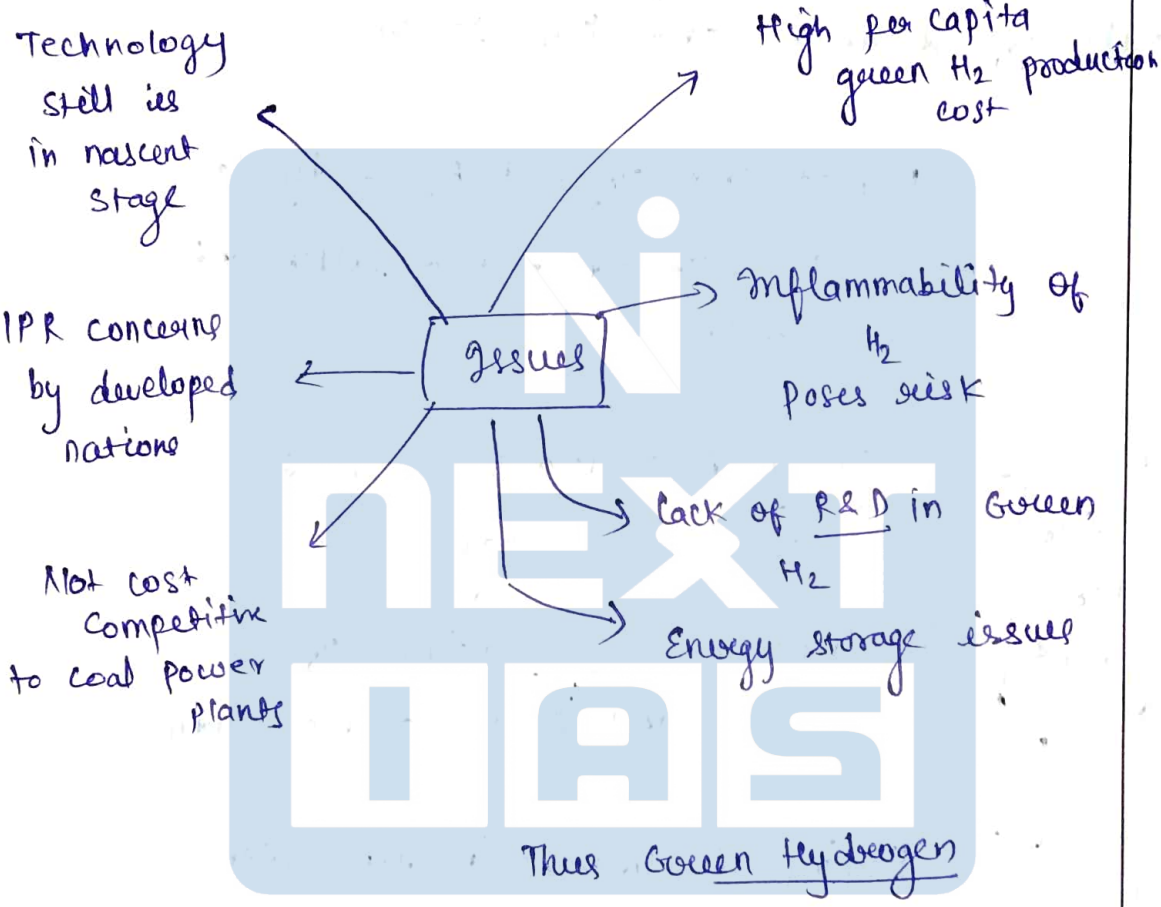
1. To decarbonise essential sectors like steel, cement etc.
2. Reduce fossil fuel imports thus less CO_2 in atm.
3. lead to promotion of Green amonia in fertilizer industry.
4. promote renewable Energy production

Next IAS ID: PTTF220258, TC073, 13-08-2023 11:22 PM
Candidates must no write on this margi

through electrolysis of water

(5) Zero carbon footprint and PM emissions thus no pollution.

(6) In line with Panchamrit goals.



Thus Green Hydrogen mission is a big step to reduce GHG in atmosphere while transitioning towards the target of Net Zero by 2070.

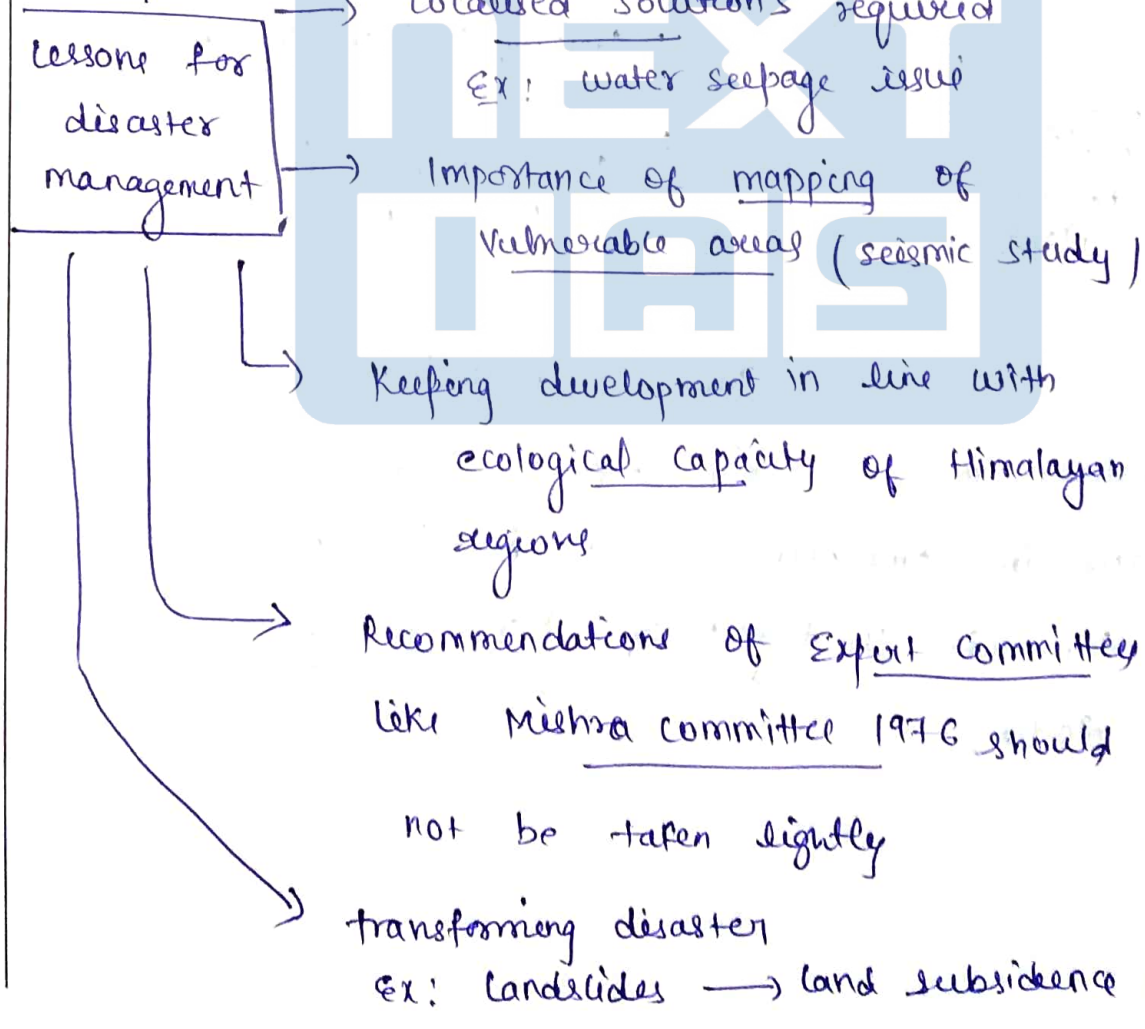
Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margin

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 land subsi-dence incidence once again highlight the perils of disaster and key lessons.



Next IAS ID: RTTE230258, TOSTA 13-08-2023 11:22 PM

Candidates must no write on this margin

Lessons for Environmental Conservation

(I) Do not changing slope (slope modification) of hilly terrains.

(II) Aforestation activity should be accelerated at any cost.

(III) Slope Stabilisation using shelter belts along slopes is a must.

(IV) Rupturing of aquifer should be avoided
Ex: NTPC driller rupture an acquifer leading to seepage of water.

(V) Need for sustainable + controlled tourism in such areas.

(VI) Avoiding the construction of big dams and small dams should be prioritised.

Thus Joshimath incident is a wake-up call to prepare hilly regions sustainable and sensitive to environment.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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

Recent incidents of killing of sidhu Mosewala and attack on police station reminds us of Khalistan Insurgency of 1980s.

Recent developments

(1) Disenchantment and tussle over contentious farm laws, now repealed.

(2) Spreading drugs abuse amongst youth result in khalistani radicalisation.

(3) Support of locals against Amritpal's arrest made by police.

(4) Outside India
- Attack on Hindu temples in canada.
- Attack on Indian flag in consultate located in Britain
- Banned groups like sikh for justice propoganda against India.

Next IAS ID: PTTP220258, TC673, 13-08-2023 11:22 PM

Candidates must no write on this margin

Suggested measures

(A) Hard approach

- arrest of provocative leaders and members of banned groups.
- checking violence and restoring law and order.

(B) soft approach

(1) prioritising youth development
- skill training through PM Kaushal vikas yojana
- De-addiction camps against drug abuse victims.

(2) Border patrolling to check infiltration

(3) Industrialisation through investment in area of punjab.

(4) Persuassion & Role modeling by community members to falsify propoganda.

Thus, such secessionist tendencies should be defeated and build trust with society for peaceful future.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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

Unmanned Aerial vehicles (UAVs) are becoming the hardest challenge for border security owe to its anonymity and ease of operation.

Drone problems in Border areas

1. Can be remotely accessed without any physical presence
2. Can ~~use~~ be used to supply
   - drugs
   - weapons
   - explosives

   } across border regions with ease
3. "Drone swarms" attack can inflict heavy damage to assets and precious lives.
4. Unrestricted access to sensitive areas of military establishments is a challenge emerging.
5. Cannot be detected by radar.

Next IAS ID: PTTE230258, TEST, 13-08-2023 11:22 PM

Candidates must no write on this margi

Suggestions

(1) Implementation of drone policy 2019
Ex: No permission around Red zone (airports etc.)

(2) Jammers around border areas to ~~take~~ cut off connection with the owner.

(3) Capacity building of security personnel in drone technology.

(4) Separate helpline no. to report drones by common people (locals) to the border forces.

(5) Strengthen patrolling by use of drones to check illegal UAVs in airspace.

Hence, UAVs should be regulated specially along border areas to strengthen security in the region.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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

Electricity amendment Bill 2022 presents a paradigm shift in Indian power sector with consumer-centric approach.

Advantages to consumers

- promoting pre-paid (smart) metering to reduce expenditure
- Metering of all electricity connections
- Reducing intermittent disruption by separating feeders for Agriculture, Industries and household.
- Allowing consumers to choose any service provider (choice)

Advantages to DISCOMs

① Timely revision of power tariffs to prevent undue losses.

Candidates must no write on this margi

(2) Multiple DISCOMs in same area - new player can use existing infrastructure by paying nominal fee.

(3) Electricity will not be dispatched if adequate payment security to discom not paid.

(4) Cross-subsidy Balancing fund.

Advantages to Environment
- Incentivises renewable Energy
- Penalty in event of failure to meet RPO obligation
- Promotes decentralised Energy production
- focus on SDG 8 → clean Energy

Shortcomings in Electricity Bill 2022

(1) Need to change model tariffs scheme.

(2) Electricity, being, on concurrent list requires States to implement in full capacity.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

(3) Renewable Energy integration may increase interruption in power supply.

(4) Union interference while selecting SERC members goes against federalism.

(5) One-size-fits-all approach

(6) farmer's concern of ending electricity subsidy.

Way forward

(1) State led model of implementation like Model police act.

(2) Learn from successful PPP models - Delhi-Tata power case study

(3) Strengthening SERC for better regulatory oversight.

(4) Push for smart metering and green energy in long term.

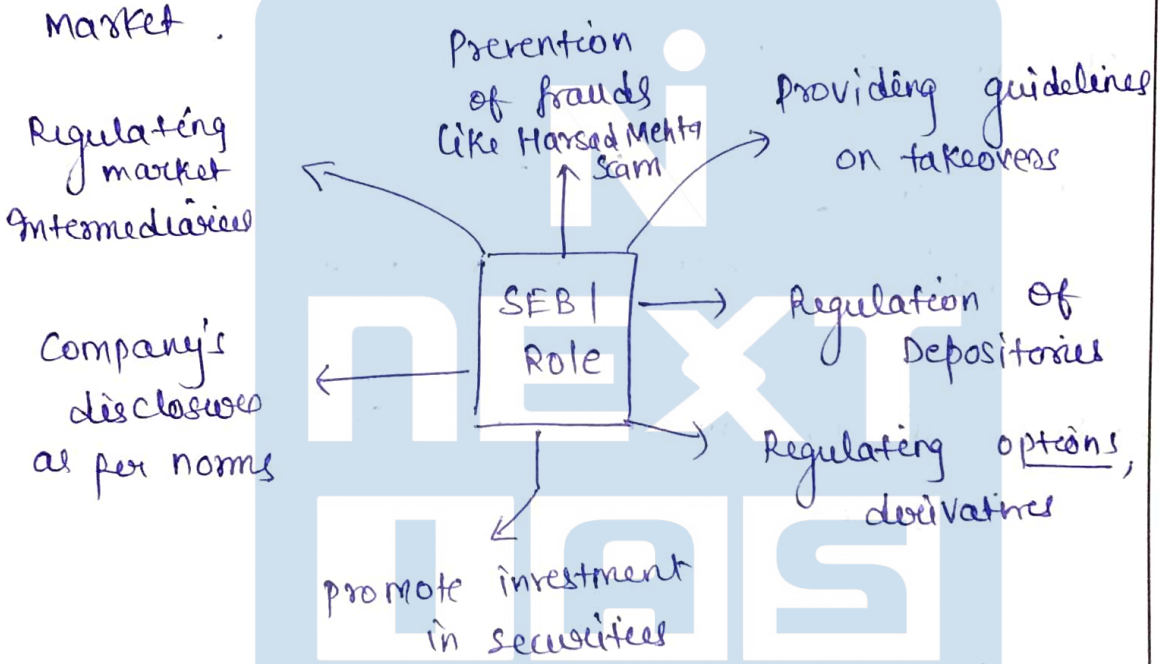
Thus, Co-operative federalism can helps this Bill to achieve accessible & affordable electricity to all.

Candidates must no write on this margin

Q.12 भारतीय प्रतिभूति एवं विनिमय बोर्ड (सेबी) शेयर बाजार के नियमन और निवेशकों के हितों की सुरक्षा में महत्त्वपूर्ण 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 was established as a Statutory body to protect the interest of investors in Securities and regulate securities market.



Challenges faced by SEBI

(1) Role limited to listed companies while unlisted ones comes under Ministry of corporate affairs
Ex: SAHARA fraud case

(2) Lack of proactive mechanism as highlighted

Candidates must no write on this margi

by Hidenburg report on Adani's stock.

(3) limited personnel / workforce for enquiry and investigation.

(4) Concern over independent working and undue political interference.

(5) Insider trading, being banned, still a challenge to SEBI

(6) Rising cybersecurity threats

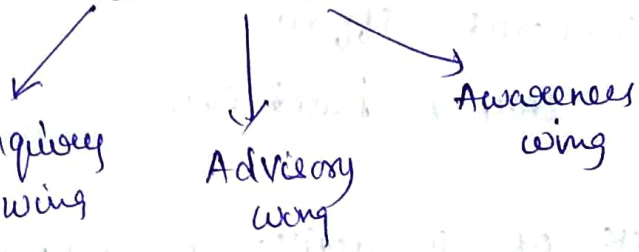
Ex: Attack on NSE server recently

(7) Lack of investor awareness and less participation.

Suggested Reforms

(1) Strengthening SEBI act for independent working of members.

(2) Separation of SEBI wings



Candidates must no write on this margi

(3) Avoid overlapping of functions with RBI, CCI etc.

(4) funds charged on consolidated fund of India for SEBI

(5) Greater use of technology in fraud detection like seen in SEC of USA.

(6) Lateral Entry to SEBI to induct expert pool

(7) ~~as~~ 2nd ARC suggested, single market regulator → SEBI for better oversight

Thus SEBI can act as a protective wall for investors and ~~put~~ accelerates FII of India as it steers to Amrit Kaal (2047).

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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

Despite employing over 55%. of Indian population, Agricultural sector contribute a meere 17%. to Indian GDP.

Agriculture a major contributor to Indian Economy
- → ~70%. of rural Employment
- → Ensuring food security to 2nd largest populated nation

Challenges faced by Indian Agriculture

(1) Lower mechanisation

Ex: 30-40%. mechanisation as compared to 90%. of USA (NCAER)

(2) High land fragmentation of agricultural land.

Ex, ~ 85%. small + medium farmers with < 2 hectares of land. (Agricensus)

(3) Declining agricultural productivity and threat of soil infertility.

Candidates must no write on this margi

④ concern over monocultural practices lead to nutritional insecurity

Ex: wheat, rice as top producing crops.

⑤ Limited adoption of Hybrid seeds

Ex: just 23% HYV seed replacement rate.

⑥ climate change → increased incidents of droughts, pest attacks leading to crop failures.

Technology → overcoming constraints

① Precision agriculture for increasing yield and growth.

Ex: 250 ml Nanourea = 40 kg of Urea bag (IFFCO)

② Micro-Irrigation - can help increase water use efficiency from 30% currently to 70-80%.

Ex: Drip, Sprinkler Irrigation.

③ Mechanization technology in enhancing land productivity

Ex: custom hiring centre in Punjab.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

(4) ATMA (Agricultural Technology Management Agency) to disseminate extension services to farmers.

(5) fortification, gene-editing technology can make crops more resilient.
Ex: DMH-11 Mustard, BT cotton.

(6) through apps like KISAN app, sharing of best practices to all farmers.

(7) use of drones for mapping and utilising it to prepare soil health cards for better output.

(8) Integrating with market and robust supply chains
Ex: e-NAM, cold supply chains, Krishi rail, kisan udan.

Thus climate smart agriculture with help of technology can usher evergreen revolution and double's farmers income.

Candidates must no write on this margi

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 refers to the supply and application of needed water for growth of crops.

Impact of Irrigation → Environment

Positive

- Sustains the plant growth and hence enriches diversity.
- Promotes the growth of micro-organism like Rhizophora etc.
- transportation of nutrients with water becomes easy

Negative

- Too much irrigation is making the land alkaline / saline
  Ex: Punjab, Karnataka example.
- Increase desertification process
- Growth of invasive species affects / threaten natural habitat of plants.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

Impact of Irrigation on natural resources

+ve	-ve
• Recharge of ground-water when applied on field. • completes the nutrient cycle, water cycle etc.	• Depletion of ground-water • Pollution of water • Eutrophication of lakes around agricultural land.

Suggested measures → Ensuring Sustainable & Equity in Irrigation

---

(1) Government support
- ↳ PM Krishi Sinchayee Yojana
- → Atal Bhujal Yojana
- → Micro-Irrigation fund by NABARD
- → Rivers Interlinking (Ken-Betwa)

(2) promoting participatory Irrigation practices for small & marginal farmers

(3) use of Micro-Irrigation - drip Irrigation

Candidates must no write on this margin

to supply the water in required amount as and when needed.

(4) promoting NANO UREA, nano pesticides to reduce irrigation requirements.

(5) Nudging behaviour of farmers towards millets, horticulture etc. that requires less water.

(6) use of technology like AI in Irrigation practices.

(7) Less use of groundwater.

(8) promoting rainwater harvesting "Catch the rain where it falls" type campaign will help.

(9) Diversification of crops + Agro-forestry practices.

Thus, transforming Irrigation practices will yield sustainable agriculture in future & fulfil SDG 2 //.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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 was a nuclear physicist widely known as father of Nuclear programme in India.

Dr. Homi Jehangir Bhabha contribution to Atomic Energy

- established of TIFR (Tata Institute of fundamental Research) dedicated to fundamental physics
- laid foundation for India's 3-tier Nuclear Energy program
  - Pressurised Heavy water reactor
  - Heavy Breeder Reactor (Plutonium)
  - Thorium reactor
- role in enacting Atomic Energy Act 1962
- Advocating peaceful use of Nuclear Energy in India and outside

Candidates must no write on this margin

Through his efforts, today India had achieved 1.8% of its Energy from Nuclear sources. And continue to spread its efforts.

Dr. Vikram Sarabhai is considered as Father of Indian space program.

Contributions in Space technology

(i) Establishment of institutions like ISRO in 1962 that led the development of ~~missiles and~~ satellites & launch vehicles
Ex: PSLV

(ii) Launch of India's 1st satellite - Aryabhata in 1975

(iii) Efforts led to creation of Department of Space.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

④ setting up thumba Rocket launching centre in India.

⑤ pioneered research ecosystem for future scientist to accelerate works.

Ex: A.P.J Abdul Kalam missile development program.

⑥ Nurturing the Indian ecosystem in field of space.

His efforts led the ISRO to launch chandrayan → because of the early start he give to India.

Thus contributions of both will help India to foster scientific temper (ARTICLE 51A) and initiatives like Young Scientist program.

Candidates must no write on this margi

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

Genreative 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 uses Artificial Intelligence and Machine learning algorithms to enable machines to generate new content like audio, texts, videos etc.

Ex: ChatGPT, Bard (google)

Generative AI → pushing Innovation boundaries

---

(1) can lead to new content generation not known to humanity.

Ex: DALL-E generating paintings of past characters.

(2) processing of data / information within seconds can help in prediction models

Ex: predicting Monsoon in India!

(3) Accelerates automation and subsequent job losses in future.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

(4) Can make our education system more interactive with models & chatbots.

(5) Making virtual reality a new normal to future society
Ex: Recreating and living in history.

(6) Remote access could be made easy 24x7 oversight by AI
Ex: Border management.

Generative AI → societal challenges

(1) Further widens the digital divide with few tech giants controlling the future.

(2) Increased risk of cyber frauds as generative AI task make it hard to difficult.

(3) Concern over deep fakes → can be used to

Candidates must no write on this margi

spread fake news and provocative remarks by wrongly using faces of famous persons.

Ex: Riots

(4) Plagiarism and IPR challenges are on rise

(5) Discriminatory & Biased content may further deepen the fault lines within the society

Ex: ChatGPT racial abuse of blacks.

(6) concern over privacy of data.

way forward
- → Regulation of such technology
- → International collaboration like GPAI (Global partnership in AI)
- → "AI for All" strategy by NITI Aayog

Thus, technology like generative AI must follow ethics so as to prevent harms in future.

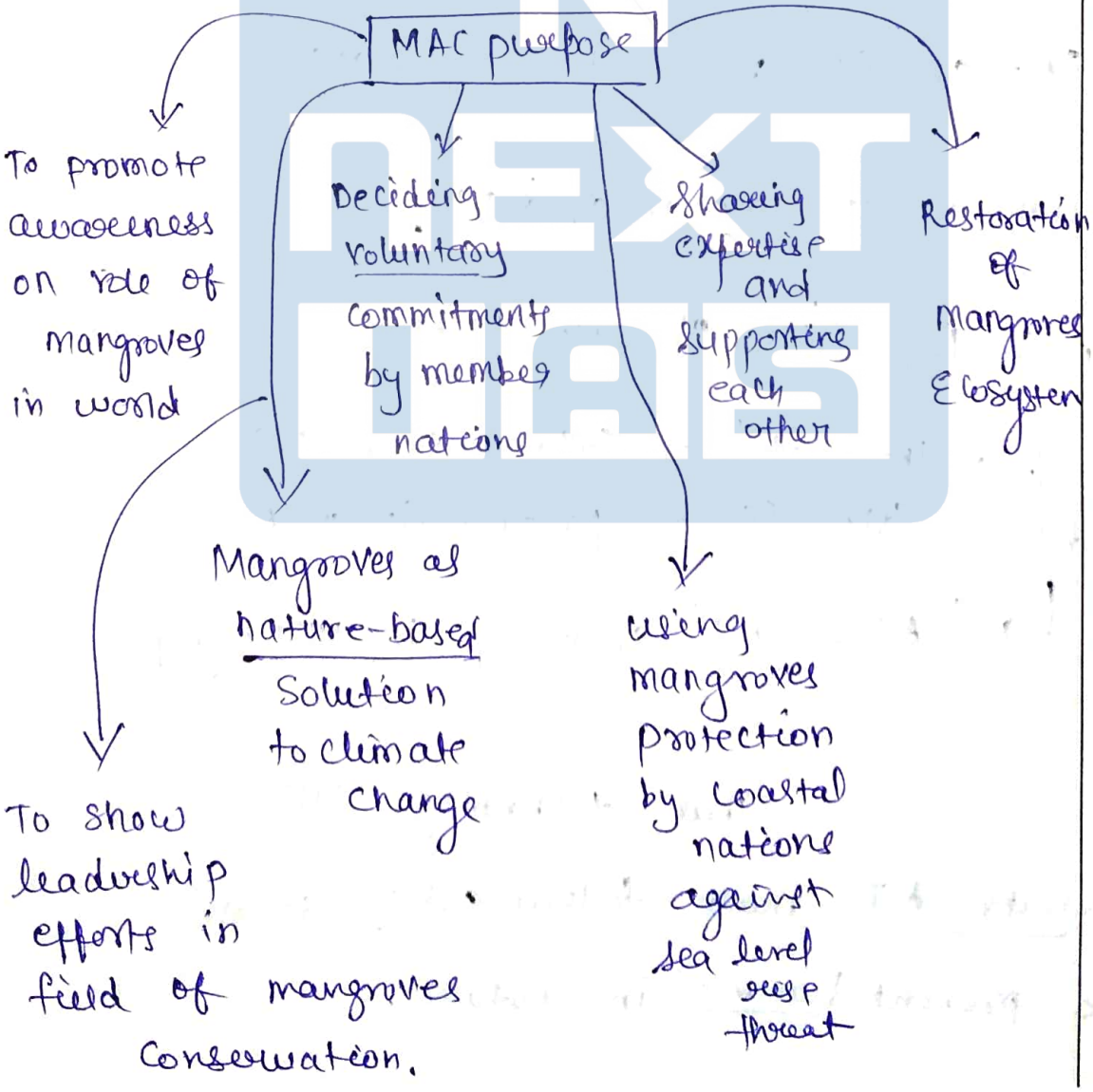
Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

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

Sharm El-Sheikh COP.27 led to the launch of Mangrove Alliance for Climate (MAC) in order to protect the shrinking area of mangroves.



Candidates must no write on this margi

Mangroves → maintaining Coastal Ecology

(I) Mangroves sites are the active breeding grounds for fishes.

Ex: Sunderban mangroves

(II) Act as a natural shock absorbers of natural hazards like tsunami, floods etc.

(III) Replenishing nutrients and trapping of sediments make the area more fertile and enriches biodiversity.

(IV) They prevent salinity ingress to coastal areas by absorbing excess salt of saline seat water.

Ex: pneumatophores

(V) They help in preserving wetland ecosystem around Coastal areas.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

(VI) sustaining local livelihoods (tribals) by providing fuel, food and fodder
Ex: Bonbibi tribe in sunderban delta.

(VII) They represent the Ecotone area thus a smooth transition and a connectedness between land-water ecosystem.

(VIII) site of carbon sequestration thus act as a natural carbon sink.

(IX) Also reduces the impact of cyclones faced specially in tropical regions.

Thus initiatives like MISTHI for mangroves preservation along with International collaboration like MAC will help in sustainable recovery of Mangroves

Candidates must no write on this margi

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 Infra-structure (CDRI) aims to increase the Infrastructure Capability to deal with disasters.

India's proneness to disaster →
- 40 mn hectares of land (flood prone)
- 8% land to cyclone
- ~70% area susceptible to drought.

CDRI → Robust approach to Disaster Management

(i) International collaboration brings co-ordinated efforts

(ii) Disaster knows no physical boundary of a nation

Ex: Cyclone induced floods in Bangladesh and India

(iii) Rising sea level is a threat to all Island nations like mauritius, Vanatau etc.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

(iv) Augments already structure in form of NDMA and SDMA of India.

(v) To garner attention towards global best practices, and sharing information.

Need for a new Disaster strategy.

(i) Linking such International collaboration with other like minded ones

Ex: Linking CDRI - IRIS partnership.

(ii) Bringing advance technological features from developed nations in terms of satellite data etc.

(iii) To make future investment in green growth

Ex: Build Back Better initiative.

(iv) mobilisation of funds and finances

Candidates must no write on this margi

to focus more on mitigation and adaptation.

(v) tackle new technological disasters

Ex: cyber attack on critical infrastructures like Banks etc.

(vi) New risks like thawing of permafrost in Arctic region.

(vii) Make investment in Early warning system and shelter homes (Preparedness)

(viii) Land subsidence type events seen in Joshimath requires new approach.

These Sendai framework of decentralised disaster management can help along with PM's 10 point action plan to secure lives in future.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

Q.19 महत्त्वपूर्ण 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

Recently, a cyber attack was reported on AIIMS Delhi servers that threatened the data theft and highlighted the vulnerabilities surrounding critical infrastructure.

Key factors

(I) Decentralisation and hybridisation of cyber attacks

Ex: WANNA CRY, PETYA.

(II) Difficulty in tracing the attack makes it more susceptible.

(III) Increasing Digitalisation of economy and internet penetration in Indian society.

Ex: over 70 crore internet subscribes in India.

Candidates must no write on this margi

(iv) Not required to physically present for the attack - enable remote access to hijackers.

(v) Lack of reporting of small cases by industries.

(vi) Dependence on foreign technology and lack of indigenisation.

Impact of these attacks

1. Government → hampers delivery of public goods
   Eg: cyberattack on Maharashtra Electricity grid
   → loss of credibility & trust

2. Defence → cyber espionage and threat of leakage of sensitive information (National security issue)

3. Economy → Digitalisation will face severe backslash.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

↳ Detour Investment by foreigns on Indian economy

④ Social → loss of income / money of the poor
Ex: Jamtara incidents
↓
→ Disruption of services

⑤ Political → surveillance issue
Ex: Pegasus software

Needed Efforts
- → Strengthening institutions like CERT-IN, NCIIPC, NCCC
- → Digital literacy (PM DIKSHA)
- → Cyber dome, cyber kavach type of projects

Thus, proactive approach can prevent cyber attacks and will further secure digital ecosystem in future.

Candidates must no write on this margi

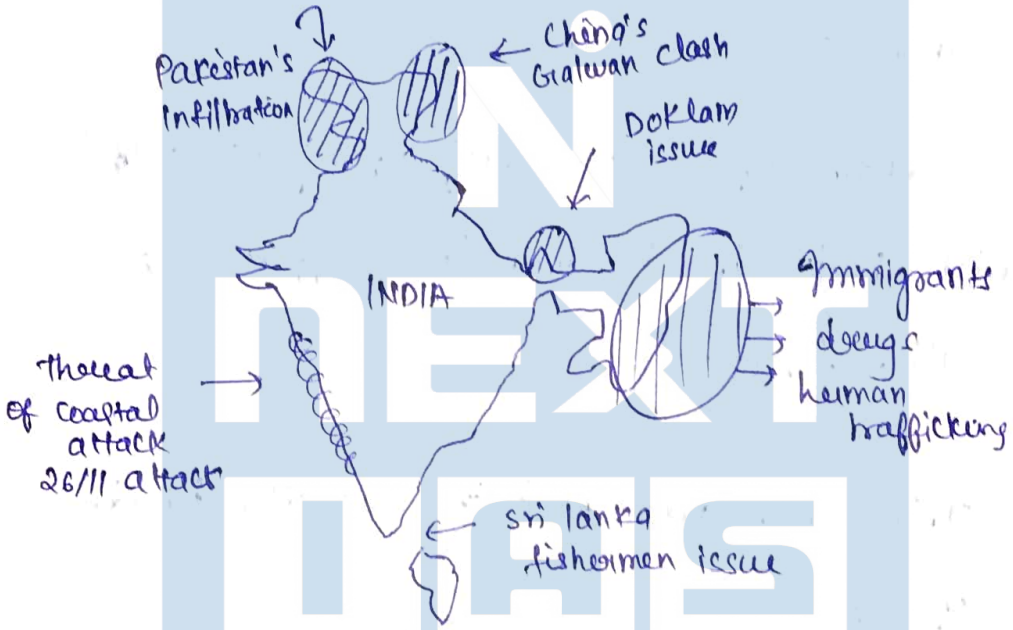
Q.20 सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(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

with India having long 7517 KM coastline, border security becomes crucial be it coastal or territorial.



Terrestrial borders + coastal borders

① creating integrated theatre command as suggested by Kargil Review committee due to changing nature of hybrid attacks.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

(2) Sharing of Intelligence across a common platform will help in prediction of terror attacks.

Ex: NATGRID platform.

(3) Technological adoption by agencies can further result in better co-operation and co-ordination.

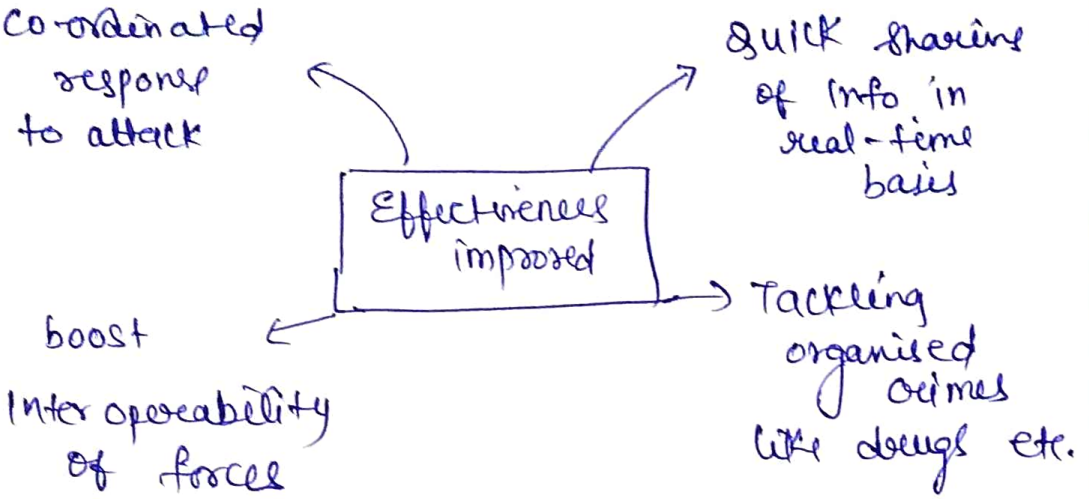
(4) creation of CDS (Chief of Defence Staff) will help in harmonising efforts of all forces.

(5) This will also help in Capacity building of forces.

Ex: skilling w.r.t. Done usage by forces.

(6) Removes duplication efforts and can utilise limited resources, manpower to enhance security.

Candidates must no write on this margi



In terms of <u>Efficiency</u>, logistics cost can be reduced and this will lead to ↓ operational cost.

∴ Conducting <u>tri-service exercises</u> and more cohesion will help India to face adversity along borders.

It will help India to secure its borders in its full capacity.

Next IAS ID: PTTP220258, TC073, 13-08-2023 11:22 PM

Candidates must no write on this margi

Space for Rough Work

