

S. G. J. 17

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Test - 3

Code : TC073

MTS IGP Batch 2023

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SUBJECT/PAPER
GENERAL STUDIES

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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.
3. Write legibly and neatly. Do not write in bad/illegible handwritings.
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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 the tax levied on the excessive profits gained by corporations due to sudden increase in prices of commodities due to certain situations or circumstances. It's a tax on the exuberant profits in a short span.

Ex → Rise in oil prices suddenly due to

Russia Ukraine war.

→ Here windfall taxes were imposed by Govt. of India on oil refineries, who earned huge profits.

The redistribution of wealth through taxation is one of the job of government, and imposing windfall tax is one of the way.

Redistribute wealth & Economic Equality

(i) Huge taxes collected, if used for the welfare of the poor & vulnerable..

(ii) It usually taxes the rich, who gain advantage because of reasons out of their making, this control economic inequality.

(iii) Taxes infused into capital formation & infrastructure has multiplier effect, as every ₹100 into infrastructure has ₹197 returns to economy.

However, there exists no mechanism to directly infuse these windfall taxes into any schemes targeted for vulnerable or poor, so its better use can only ensure redistribution of wealth & greater economic equality, as India is very economically unequal, as per Oxfam report, richest 10% controls 70% of wealth

Q.2 नई मौद्रिक नीति समिति (एमपीसी) व्यवस्था के अंतर्गत मुद्रास्फीति लक्ष्यीकरण को क्रियान्वित करने को 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

The continuous rise in prices of services & commodities is inflation & controlling that inflation is a job assigned to the RBI, which it does through Monetary Policy Committee.

The MPC regime was introduced in 2016, with the formation of Committee having 6 members → 3 from the RBI & 3 appointed by the Central govt. with the aim of controlling inflation in the range of $\pm 4\%$ i.e. 2% to 6%.

Success

(i) MPC has been fairly successful in maintaining inflation below 6%.

(ii) It has used the monetary policy efficiently raising policy rates & carrying out OMOs.

(iii) During several crisis, like COVID-19 & Russia-Ukraine War it had had limited success in controlling inflation.

Challenges

(i) Inflation controlling ^{can} not be just done by monetary policy, other natural factors also impact.

(ii) It has faced challenge in tackling both supply & demand side issues.

(iii) The problems within the bank, w.r.t the NPAs, impacted monetary policies of controlling or increasing credit.

(iv) The internal issues between the RBI & Government views about economy has also impacted its working. $\Rightarrow$ RBI governors disagreements
Ujjit Patel.

However, the MPC ~~one~~ regime since its establishment, has been able to do its job creditably as seen during crisis times.

Q.3

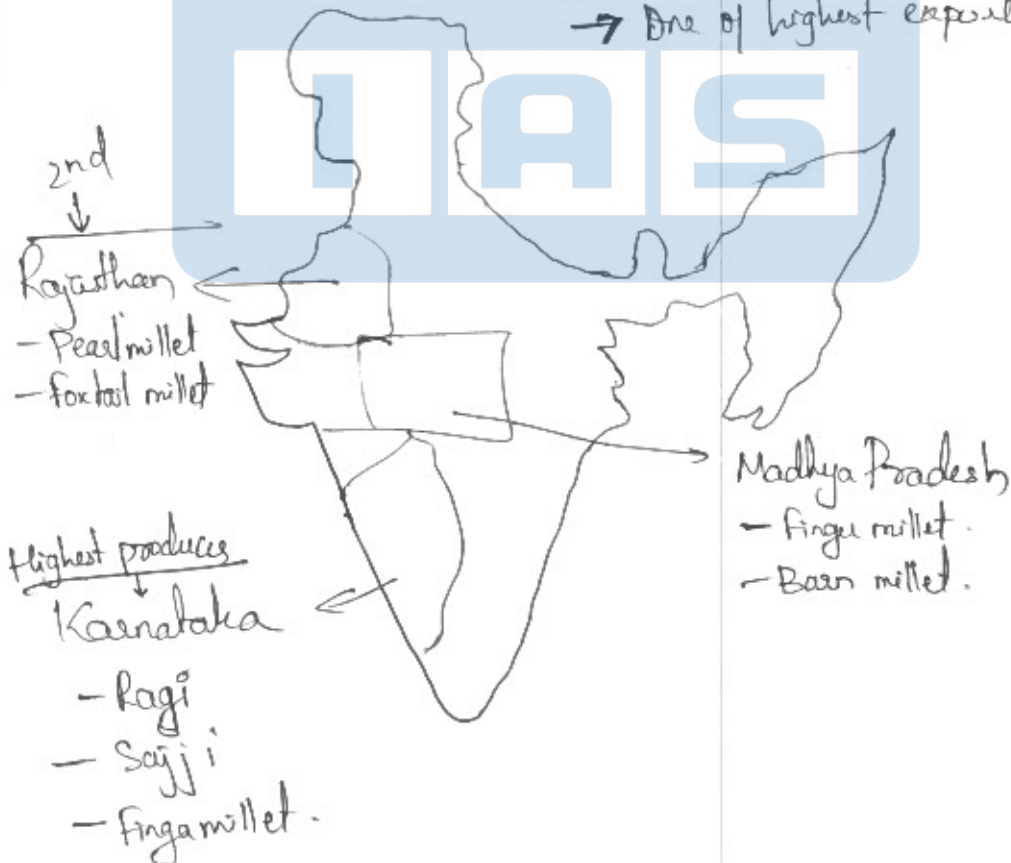
भारत में सतत कृषि को बढ़ावा देने और खाद्य सुरक्षा में सुधार के लिए मोटे अनाज उत्पादन की क्षमता का आकलन कीजिए।
(150 शब्दों में उत्तर दीजिए) 10 अंक

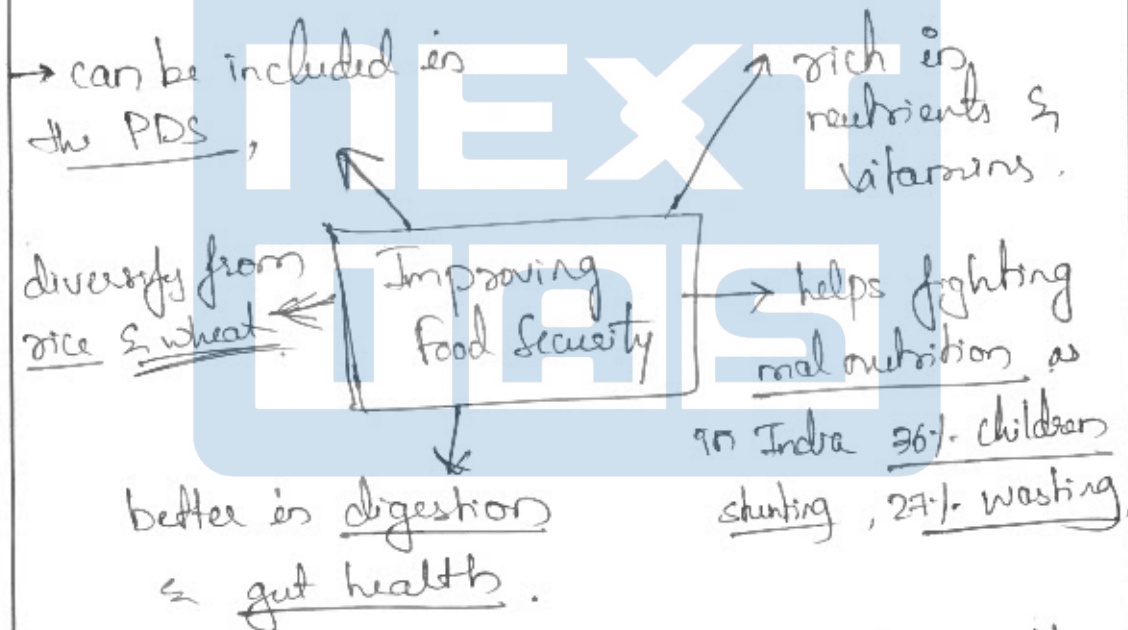
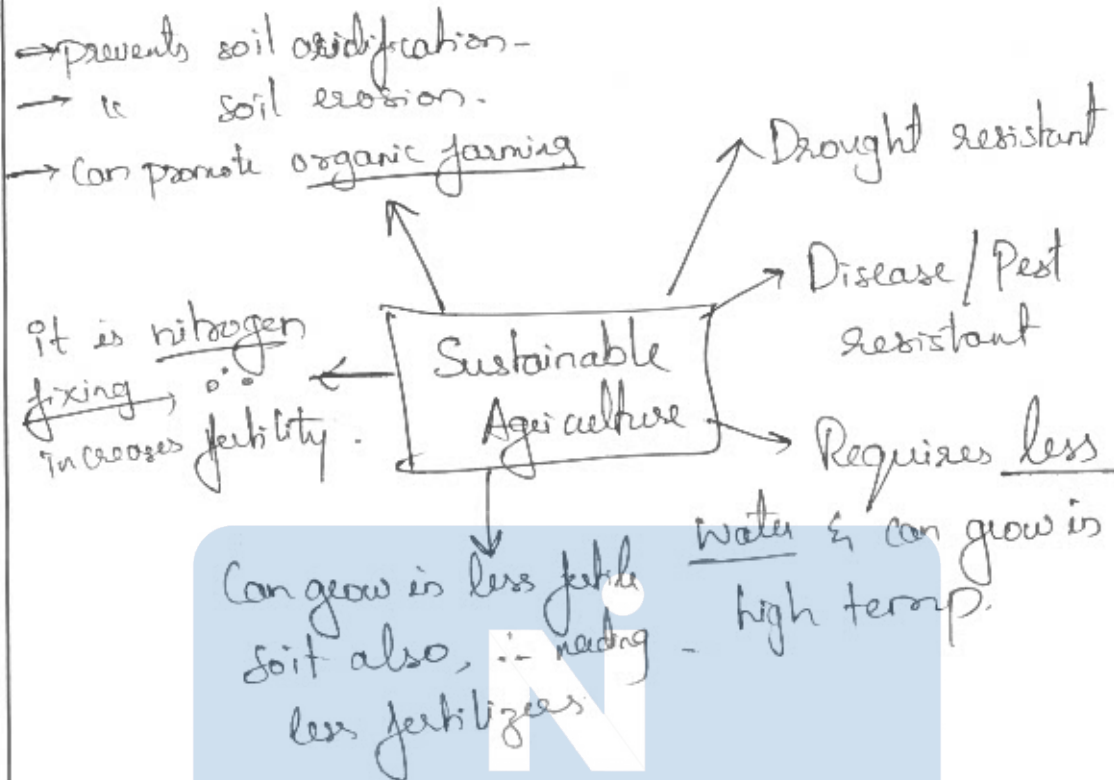
Assess the potential of millet production in promoting sustainable agriculture and improving food security in India.
(Answer in 150 words) 10 Marks

According to the Agricultural Census, India is the highest producer of Millets, and given its benefits, "Sree Anna" a.k.a 'Super food' has a huge potential in promoting sustainable agriculture & improving food security in India.

Potential

According to Agri Census,
→ 30% of global production
→ One of highest exporter.





India hosting G-20 & 2023 being the International year of Millets, this 'See Anna' can be a new gift of India to World, which is suffering from unsustainable agri & malnutrition.

- 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

The Jal Jeevan Mission is a flagship centrally sponsored scheme of Jal Shakti Ministry to provide potable drinking water to every household of minimum 50L per person, with motto of 'Hai Ghar Jal', & 'Nal se Jal'.

Potential to end regional disparity:

(i) Acc. to CoI, water availability is ensured if piped water is available within 30m of your house, this causes accessibility problem, hence 'Hai Ghar Jal' has potential to improve it,

(ii) The regional disparity exists with several water deficient regions both inter-state & intra-state

Ex → The Vidharbha region of Eastern Maharashtra

Significance of Mission:

- (i) Health → potable, clean drinking water ensures good health security
- (ii) Women empowerment → fetching water is usually done by women, who often risk their lives to fetch it.
- (iii) Right to life → Availability of a clean water is part of Art 21. Right to life.
- (iv) Economy & Productivity → Increases women participation in labour force, a healthy productive labour force.

Impediments

- (i) The availability of fresh water source.
- (ii) Implementation challenge → pipes laid down, but water availability missing. [Ex] Vijayapura, Karnataka]
- (iii) The Quality of Water is also an issue.
- (iv) The Center-State disputes in implementation. [Ex] Center & West Bengal.]

The Mission is a very significant & a life changing one, as noted by Bill Gates, that it is bringing in a Silent revolution in Rural India.

- 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 Systems (BESS)

refers to the storage of excessive energy generated through any means into the battery systems.

With the battery revolution from lead acid to Lithium ion, the usage & application of battery has increased and it has become a means of storage of energy.

Applications of BESS:

(i) It provides a way for continuous generation of power that can be stored.

⇒ The Hydro Plants or Wind Mills are put to regenerate energy only when there is demand, hence they are not used to full potential.

(ii) The storage system can help in Electric Vehicles instant charging or battery swapping.

(iii) It can be used in cross border energy transport, inter-connected grids etc.

Revolutionize energy program as -

(i) Helps in increasing the share of renewables to achieve target of 450 GW by 2030.

(ii) It can help in the Green Hydrogen Mission during electrolysis process.

(iii) It can revolutionize the transport sector to EVs.

BESS is a developing system & India's foray into it is the need of the hour & government's recent push for a storage system in Ladakh is a step in right direction.

- 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 India's first human in space flight. ISRO is aiming to send first it's astronauts to space by end of 2024, & it will be using its GSLV MK-III.

Developments:

- (i) ISRO has selected the astronauts and their training is completed in Russia.
- (ii) ISRO has developed the safe landing module & it's being tested.
- (iii) The required knowledge, space suits & know how is gained with help of French.
- (iv) India recently joined Atomic Accord, which will further help in space exploration & human flights.

Challenges :

(i) Not Atmanirbhar, w.r.t technology, training infrastructure, space suits etc.

(ii) The regular post-pone of the mission, highlights the planning & implementation challenges.

(iii) The issue of human life at stake, as the atmospheric re-entry is a tough task.

Possible benefits of the Mission to society -

(i) The experience can help ISRO in further such missions to moon etc.

(ii) The learnings of the mission, helps in further satellite launches.

(iii) Pride of the Nation, to be the 4th country.
→ Emotionally National integration & unity.

(iv) Helps in further space explorations.

The leap of faith taken by ISRO through Gaganyaan should be extended by further increase in ISRO's budget as held by former

ISRO chairman K. Sivan

- 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 refers to the production of hydrogen through electrolysis of water, using the clean renewable energy. It's called Green hydrogen, unlike Blue Hydrogen or Gray hydrogen, as its production don't lead to any further Carbon emissions.

National Green Hydrogen Mission

- (i) outlay of ₹ 60,000 cr
- (ii) aim of generating 100 MT of Green Hydrogen.
- (iii) further R&D into Hydrogen fuel cells.
- (iv) to be the net exporter of Green Hydrogen.

How it can be a silver bullet:

- (i) it involves no or minimal carbon emissions in production of hydrogen.
- (ii) It can replace petrol & diesel ~~car~~ ICEs with the hydrogen fuel cell transport.
- (iii) can help in reducing the GHG emissions.

Critics:

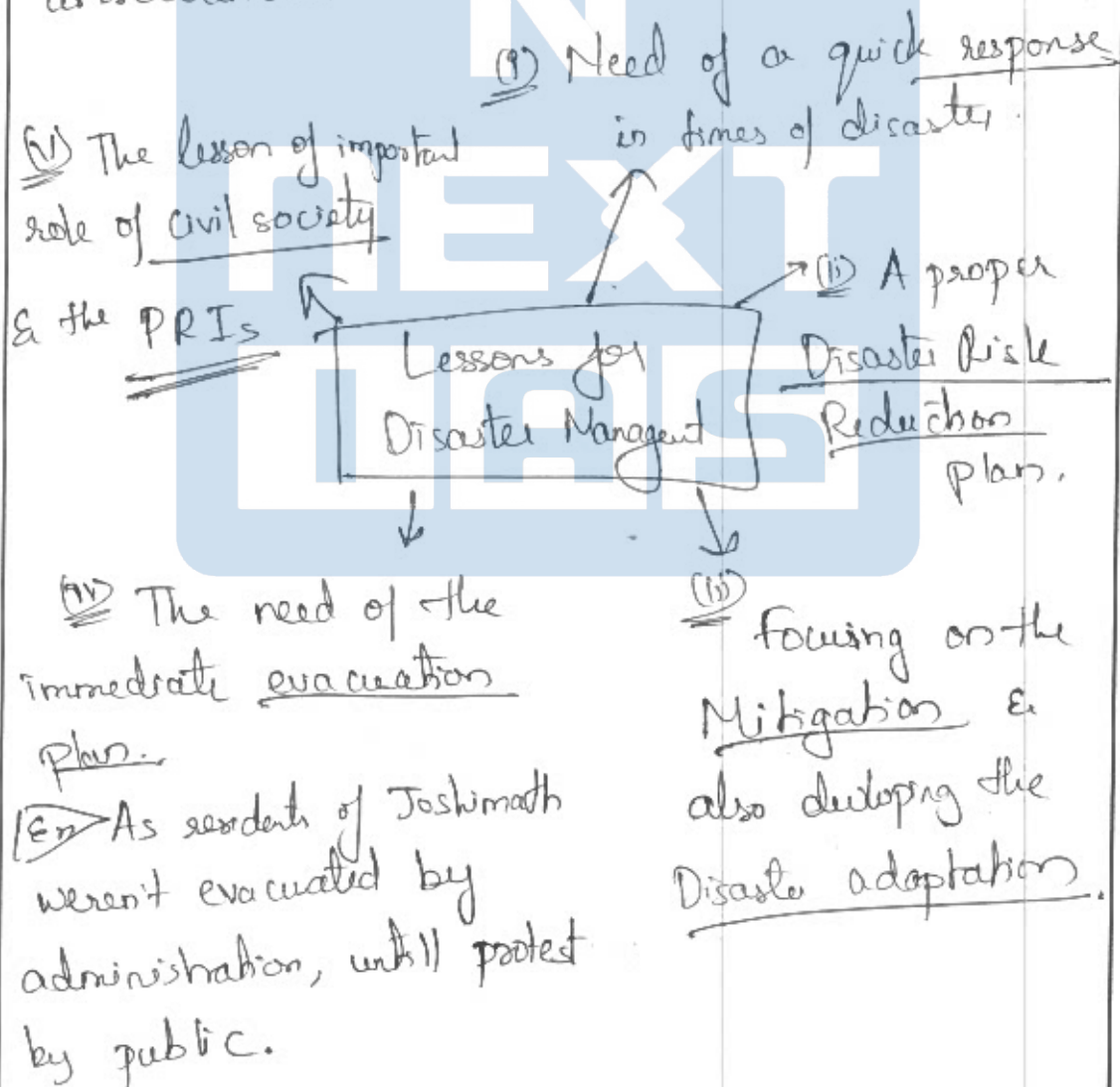
- (i) However, the hydrogen fuel cell technology is still nascent.
- (ii) The safety while using hydrogen, as highly combustible.
- (iii) The cost of production of Green Hydrogen is costlier than Grey Hydrogen, which is used in production of ~~not~~ Natural Gas.
- (iv) The renewable energy requirement not able to be sufficient at this stage only 67 GW. as of 2023.

National Green Hydrogen is a step in right direction to tackle Climate Change, but the inherent problems of cost & safety have to be tackled.

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

The recent floods & landslides along with the subsidence of land in Joshimath is a call for the immediate need of a secure disaster management & environmental conservation.



(vi) Env conservation is mutually beneficial for human, local populations, env, animals, etc.

(vii) Need of Sustainable development.

(iv) Importance of Eco-sensitive zones

Lessons on Environmental Conservation

The roads & tunnels should follow proper Environment Impact Assessment.

(v) Tapovan hydro power project

(vi) Indiscriminate Deforestation lead to landslides.

The major lesson from this disaster of Jashmath is to shift from 3R approach i.e. Relief, Recovery & Reconstruction to the 3 P Approach, i.e. Prevent, Preserve & Proofing.

- 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

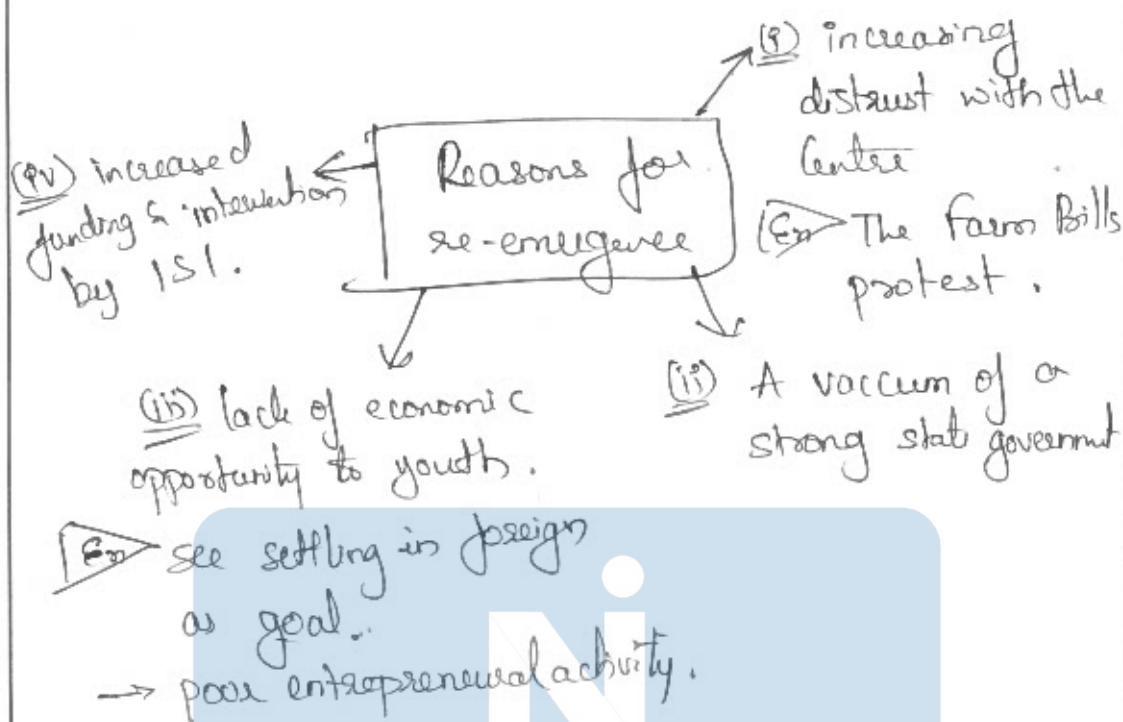
"The recent radical trends in Punjab show that the Khalistan issue is still simmering." Discuss the statement with respect to recent developments and suggest measures to handle it.

(Answer in 150 words) 10 Marks

Khalistan movement is a secessionist movement demanding for an independent Khalistan as a home for Sikhs. This movement dates back to the 1980s & was silent by mid 1990s, but the recent radical events in Punjab shows its re-emergence.

Events highlighting Khalistan issue is still simmering:

- (i) Emergence of a radical leader like Amritpal Singh.
- (ii) Recent attacks on the police station in Ajnal.
- (iii) The assembly & association of radical members supporting Khalistan has increased.
- (iv) Increased outreach to the youth of Punjab, specially through social media.
- (v) The increased funding to these movements through fronts like Sikhs for Justice.



Measures to handle it —

- (i) Outreach to the larger public, civil society & religious leaders.
- (ii) Investing in youth, providing economic opportunity.
- (iii) Internal security, intelligence gathering.
- (iv) Controlling the menace of drugs.
- (v) A co-operative federalism.

The problems of Khalistan issues, leading to division of Indian society by Blue Star operation & following Delhi riots are still haunting. Hence any such re-emergence of the movement must be dealt seriously.

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

According to BSF, (Border security force), on an average 18 drones are sighted or captured across the Pakistan border in Punjab area every month. This usage of drone has become a new issue in ensuring border security.

Why drones are used?

(i) It provides anonymity, as no human is involved in trafficking hence can't trace anyone.

(ii) Ease of operation $\Rightarrow$ remotely operated, no risk of getting captured, no risk to human lives.

(iii) Easy & risk free way of trafficking drugs & arms.

(iv) A cheaper alternative for trafficking.

(v) Tough for detection & hence high chances of a successful penetration.

Suggestions to tackle :

(i) Anti-drone technology → to detect & capture drones.

⇒ India recently procured anti-drone tech from Israel.

(ii) The high frequency beamers to destabilise the drones & across control.

(iii) declaration of drone free zones along sensitive areas., so no civilian drones can fly.

(iv) Drones to tackle drones → a surveillance through drones.

(v) Better human resource capacity development & training to tackle new issues & tech.

(vi) Help & involvement of local people & civil society ⇒ formation of Volunteer forces.

Usage of drones across borders is an emerging & imminent issue, which is sure to increase in future, hence a SOP & a proper strategy to tackle is the need of hour.

- 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

The recent Electricity Amendment Bill, 2022 rehauls the existing electricity Bill & brings in the required reforms in the DISCOMs, helping consumers & environment.



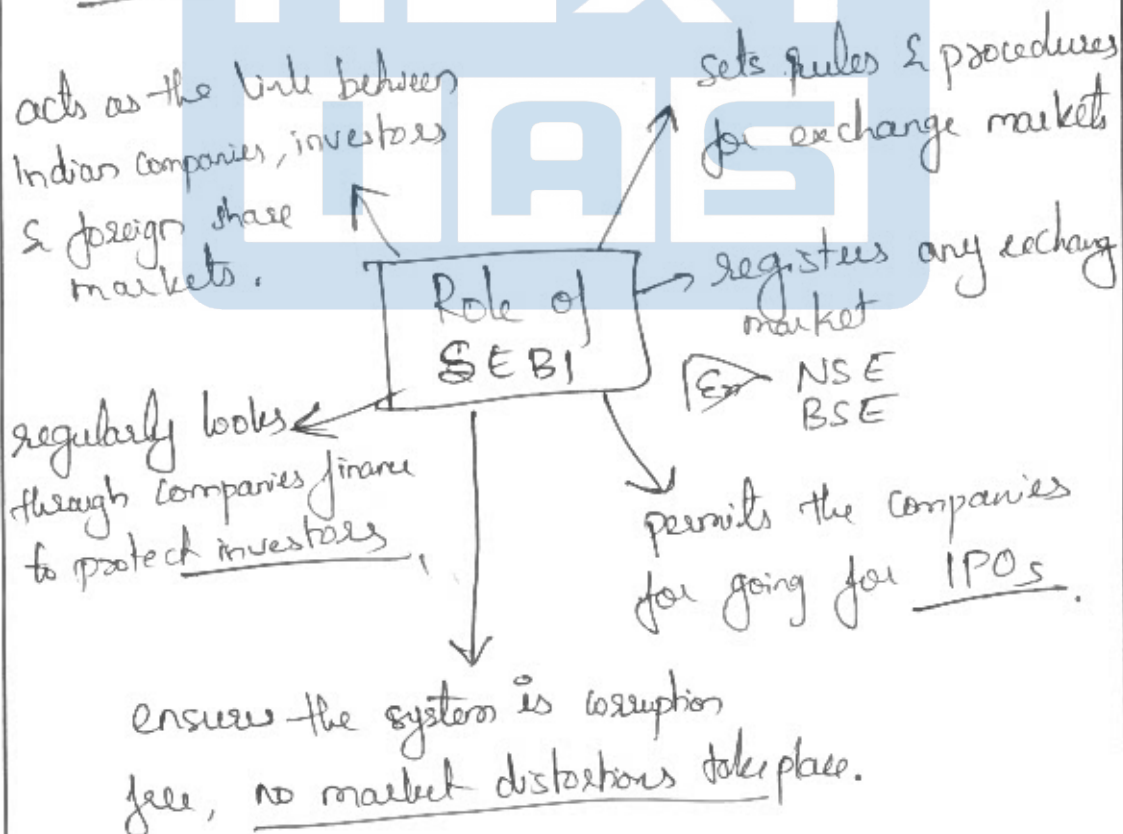


Q.12

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

Securities and Exchange Board of India, (SEBI) is the regulator & facilitator of the share market in India, with role of safeguarding interests of investors. It is a statutory body established under the SEBI Act, 1998.



Challenges faced by SEBI :

(i) is just a regulator & not enforcer, hence lacks power of investigating & enforcing.

(ii) it suffers from problem of behind the curve, late to detect frauds, failing to prevent.

Ex → NSE scam by CEO of NSE. Miss Chatterjee.

(iii) SEBI is overburdened, understaffed & underfunded.

(iv) With the internet boom, high number of retail investors entered market, SEBI fails in protecting them, no market education, or handling capacity.

(v) The failure of SEBI to properly & regularly audit firms & raise red flags

Ex → Recent audit problems & balance sheet issues with Adani groups.

Reforms required:

- (i) provide it its own investigating team & not under ED or CBI for investigating scams.
- (ii) make it a constitutional body, to make it more independent & free of political pressures.
- (iii) Increased capacity development & training of staff.
- (iv) ensuring its working is more transparent & accountable by tabling its reports in Parliament.

SEBI is the backbone of Indian share market, & with Indian economy becoming 3rd largest economy, the share market will also expand & hence having an efficient, resilient & robust SEBI is the need of the hour.

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 is the largest employer with 47% employment, 56% of population's major source of income & contributing 15% to the GDP. India lives in its village, who work in their agricultural fields. Yet it's plagued by several issues.

Constraints impeding growth & development of

Agriculture :

(i) Poor productivity & yield.
 Ex India 250 quintal/hectare Israel 935.

(ii) Lack of mechanisation.

(iii) Increasing soil acidification, because of excessive use of fertilizers

Ex NPK ratio - India avg 7:3:1
 Ideal $\rightarrow$ 4:2:1

(v) poor Agri marketing, poor forward & backward linkages.

(vi) Need of market reforms - APMCs.

(vi) poor food processing & value addition -

Ex India $\rightarrow 15\%$ USA $\rightarrow 95\%$ China $\rightarrow 90\%$.

(vii) Lack of economy of scale due to fragmented land holding.

Most of these problems w.r.t agriculture can be solved with use of technology -

(i) Poor productivity & Yield
 $\rightarrow$ tech of High Yielding variety,
Tissue culture, etc.

(ii) Increased mechanisation $\rightarrow$ tractors,
Drones,
Harvesters etc.

(iii) Soil health can help in improved decision making on fertilizers. Ex Soil Health cards.
 $\rightarrow$ crop suitable.

(iv) Agri Marketing Ex e-NAM, an
online electronic integrated Pan India market
 $\rightarrow$ better price discovery &

(v) Use of technology in precision farming,
Micro-Irrigation. [Ex] sprinklers,
deep irrigation

→ Krishi Sinchayee Yojana.

(vi) Use of drones for fertilizer sprinkling

(vii) food processing & value addition through
linking with corporates.

[Ex] ITC's e-choupal.

(viii) Even better livestock management through
animal health detector belts.

(ix) New ways of agriculture through tech

[Ex] Aquaculture, Acquaponics, Hydroponics

(x) Economy of scale → by pooling land by FPOs
tech → use of LPS mapping.

Hence, technology has immense potential in
revolutionising Indian agriculture & helping us
achieve the doubling of farmers income.

- 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 providing of water to the crops in the agricultural field. It is an important ~~ste~~ process in agri, which ensures the proper growth & nutritional requirements are met of the crops.

According to Jal Shakti Ministry, 80% of groundwater extracted is used for agriculture, & the increasing reduction of ground water table in Punjab & Haryana shows the negative impact of irrigation on the environment & natural resources.

Following are the impact on environment & natural resources —

- (i) ~~decreasing~~ decreasing ground water table, strain on water resources.

(ii) increasing soil acidification & acidification

→ loss of soil fertility due to excess irrigation
with excess fertilizers.

(iii) increasing soil salinity.

(iv) leaching of harmful chemical into water
aquifers. [Ex] Arsenic in Northern Karnataka

(v) leads to soil erosion by flood irrigation.

(vi) increased heating & methane emission,
due to long standing water in paddy fields

Measures to ensure sustainability & equity -

(i) to adopt micro irrigation.

[Ex] Drip irrigation, sprinkler.

Concept of "Per drop, more crop".

(ii) to take up precision farming, to ensure use
of precise amount of resources so that it is
sustainable.

(iii) adopt practices like 'Mulching', to
prevent evaporative losses.

- (v) take up Direct Seed Tilling in paddy cultivation, as it consumes less water.
- (vi) Water & electricity should not be completely free for agri, as it leads to irresponsible use.
- (vii) Learning from international best agri practices
→ Israel use only 2000 liters water for 1 kg of wheat.
- (viii) Equity can be ensured by provision of irrigation facilities to drought prone regions.
→ River linking projects
Kaleshwaram Project, Telangana.
- India indirectly exports lakhs of litres of water in terms of food grains, instead a value addition through food processing can be explored. With water becoming a scarce resource, it's efficient & judicious use is the need of the hour.

- 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 the epitome of scientific mind. They had made an immense contribution to the scientific field & community & have laid a strong foundation of scientific temp in a just independent India.

Contributions of Dr. Homi Jehangir Bhabha:

- (i) he is called as the Father of Indian Atomic program.
- (ii) contributed in developing of India's first Heavy water reactor plant.
- (iii) he helped in establishing the Indian Institute of Science & the current Bhabha Atomic Research Center

- (iv) He helped India to get Russian help in setting first Nuclear ~~therm~~ power plant.
- (v) He developed the Indian 3 stage nuclear energy program.
- (vi) He also was involved in the discussion of development of the Atomic bomb.

Contributions of Dr. Vikram Sarabhai:

- (i) He is said to be the Father of Indian Space program.
- (ii) He laid the efforts in creation of Indian space agency i.e. ISRO.
- (iii) He gave immense contribution in developing India's first rocket - Pothvi.
- (iv) He contributed in developing India's first launching site at Thumba, Kerala.
- (v) He contributed in ~~B~~ developing of India's 1st satellite Aryabhata.

(vi) it was his efforts that brought Indian television & telecast to life.

(vii) he was instrumental in setting up Sahebhai Research Foundation

(viii) he also helped in setting up IIM-Ahmedabad.

It was the works of both Bhabha & Sahebhai, that had laid a strong foundation to the Indian scientific community. And the virtue of their contributions that India is currently a nuclear armed state & has one of the most successful space agency in world.

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 Artificial Intelligence, refers to the variant of AI where the machine intelligence is able to generate responses & be able to converse with the human subjects. It can generate conversations, essays, poems, speeches, texts, songs, images etc.

Ex) ChatGPT, Bard-AI, Image AI, etc.

According to a recent report by OpenAI, Generative AI has been accomplished to imitate >95% of human intelligence w.r.t the cognitive skills of writing, drawings, learning etc.

Generative AI holds the potential to push the boundaries of innovation in several fields—

- (i) It can generate AI images of its own creation based on textual description.
- (ii) It can create its own songs given the situation.
- (iii) It can create new tunes of music for a given lyrics.
- (iv) It can write a storyline for a movie.
- (v) It can write short stories or novels etc.
- (vi) It can also help in scientific researches, pattern recognition, pattern prediction etc.
- (vii) The Generative AI, can also help in analysing of data & framing the findings

However, its societal impact raises several substantial challenges —

- (i) Unemployment → job losses, as certain trivial jobs are now automated.
- (ii) deep fakes → issues of frauds, forgery etc.
- (iii) Lack of creative & cognitive skills may creep in humans, as job taken up by AI.
- (iv) the impact on education & skills, as students use GPT for projects, exams etc.
- (v) The biased nature of GPT can create polarisation, spreading misinformation & increasing societal divides.

Generative AI is a double edged sword, which has to be regulated efficiently & along with it increase skills of the youth, so as to adapt to be with Generative AI, as it is here to stay.

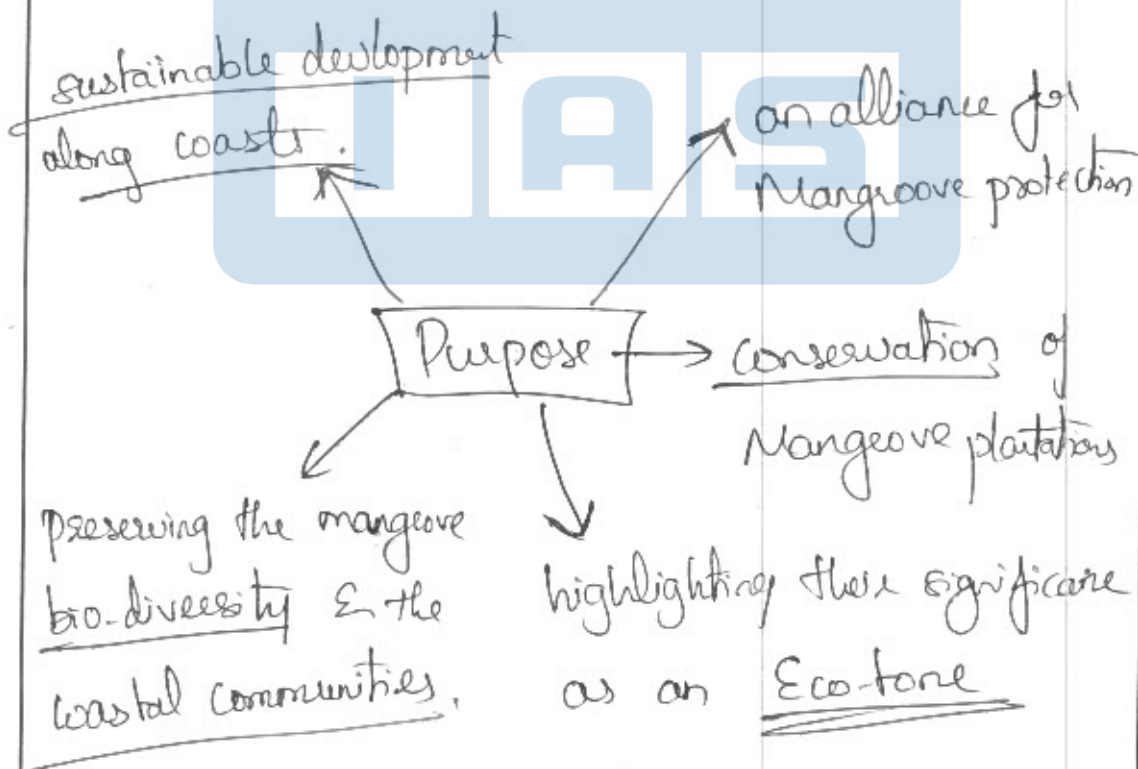
Q.17 नवंबर 2022 में मिस्र में COP27 संयुक्त राष्ट्र जलवायु परिवर्तन सम्मेलन में लॉन्च किये गए "जलवायु के लिए मैंग्रोव गठबंधन" के उद्देश्य को स्पष्ट कीजिए। उष्णकटिबंधीय देशों की तटीय पारिस्थितिकी को बनाए रखने में मैंग्रोव के महत्व पर विस्तार से प्रकाश डालिए।

(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

The COP27 of UNFCCC, held in Sharm el Sheikh, Egypt, proposed "Mangrove Alliance for Climate" with the lead role of India, with the purpose of highlighting the importance of Mangroves in protecting & sustaining the coastal ecosystem.



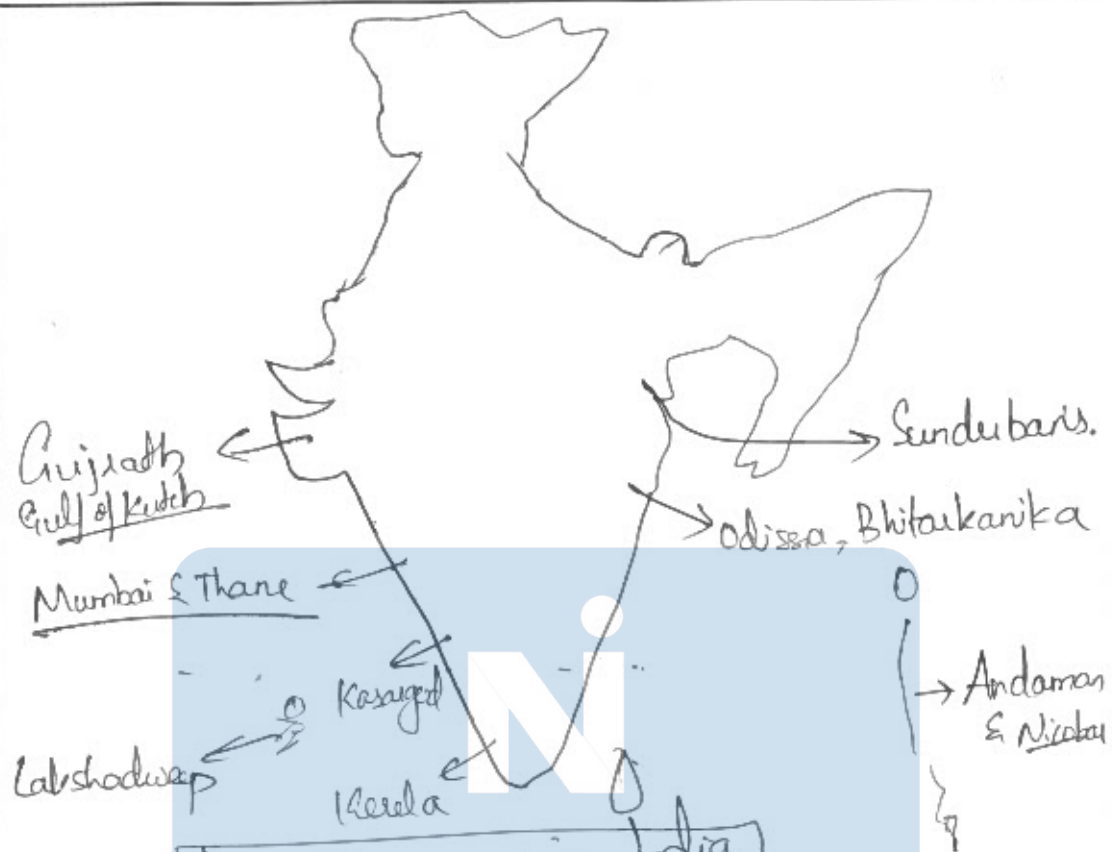


Fig: Mangroves in India

Importance of mangroves in maintaining the coastal ecology of tropical nations -

- (i) protects from tropical cyclones, acts as shock absorbers.
- (ii) protects the coastal communities from sea storm surges or rising sea levels.
- (iii) prevents the salination of coastal alluvial soil & ^{fresh} water inlets

- (iv) it stops the excessive coastal erosion.
- (v) controls the loss of sediments to the sea, that comes along the rivers.
- (vi) it protects & shelters a wide bio-diversity in mangrove plantations.
- (vii) they provide more oxygen.

Mangroves form an important eco-tone, along the coasts. They provide several ecological services, hence their protection & conservation becomes very important.

The MISTRI scheme in Budget 2022 is a step in right direction.

- 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 is a India led initiative, which tries to bring the international best practices, knowledge & technology for designing a holistic disaster management.

The disaster management in India is overlooked by the Disaster Management Act, 2005, which provides a 3 tier structure at National, State & district level, through the Disaster Management Authorities..

The overall planning, guidance, & enacting of disaster management comes under the control of Ministry of Home Affairs..

However, the formation of CDRI, helps India in tackling a major drawback in India's disaster management strategy i.e. a resilient infrastructure.

Need for a New strategy -

- (i) India's disaster management focuses more on post-disaster management, than a pre-disaster preparation.
- (ii) there exists no proper infrastructure safety audits, hence resilient infrastructure aren't built.
- (iii) Even the critical infrastructure like dams, bridges, hospitals etc lack the resilient structures.
- (iv) 68% of India is prone to earthquakes, yet no earthquake resilient building codes are implemented.

Q) India's disaster management focuses on rescue, recovery & reconstruction rather on prevention & proofing.

Hence, there is a need of a more scientific & resilient approach towards disaster management, where international best practices can be adopted, & NCDRI can provide a great platform for such.

NEXT
IAS

- Q.19 महत्वपूर्ण बुनियादी ढाँचे (क्रिटिकल इन्फ्रास्ट्रक्चर) और प्रमुख निगमों को लक्षित करने वाले रैसमवेयर 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

Ransomware attacks refers to the unauthorised access to an equipment & control of the equipment or information, which is demanded to be returned for a ransom.

According to Ernst & Young's 'Global Information Safety Report', India is the 3rd largest cyber attacked country & the 7th most vulnerable.

There has been a recent rise in attacks on critical infrastructure & major corporations -

- Red Echo attack of power grid of Mumbai
- recently information of COWIN platform was leaked on dark web
- the employee information of 12,000 employees of Zomato was leaked.

To prevent such attacks there is an urgent need for stronger cybersecurity measures & policies. However followings are the key factors contributing to increasing attacks —

(i) increased internet penetration & use of internet

— India 2nd highest smart phones
2nd u internet subscribers.

(ii) increased use of cyberspace for execution of policies of Govt, public service delivery.

Ex) Digital India, Aadhar, JAM, e-NAM etc.

(iii) use of sub-standard, risky electronic devices

(iv) Delay or hesitation by corporations to reveal the vulnerability or initial attacks.

(v) Lack of regular cyber safety audits

(vi) Import dependency on most electronic chips

(vii) poor digital education on cyber attacks, phishing etc.

* Impact of these attacks on various sectors -

Govt → National Security, risk of critical infrastructure.

financial sector → attack on banking system,
loss of people's money, banking frauds

Defence sector → cyber war, cyber terrorism,
cyber espionage, leaking of strategic secrets.

Health sector → health data leaked, harms the
right to privacy, may lead to social exclusion
[⇒ HIV positive.]

Corporate sector → may lose IPRs, strategic edges,
technology.

India loses around \$47 Bn every year
for ransomware. Hence with increasing
digitisation of Govt & economy there is a
need of a stronger cybersecurity strategy &
joining 'Budapest Convention on Cybercrime' can
be a way forward.

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 has a long land border with 7 countries and a 7500 km coastal line. Ensuring the border security along them becomes a very important & tough task which requires co-operation & co-ordination between different agencies bordering different borders.

India-Pakistan Border	Border Security Force
India-China Border	ITBP
India-Bhutan-Nepal	Sashastha Seema Bal (SSB)
India-Bangladesh	→ BSF
India-Myanmar	→ Assam Rifles
India Coast	→ Indian Coast Guard & Indian Navy

Since, various sections of the borders are managed by different agencies, there is a need of a better cooperation & coordination among them & to see border management as an integrated approach because - lack of cooperation leads to -

- (i) lack of responsibility & accountability
- (ii) shifting of responsibility.
- (iii) may lead to infiltration, trafficking.

How co-operation & co-ordination be instilled?

- (i) An integrated approach, with a common command centre
- (ii) a real time data dissemination so that decision making becomes inter-connected.
- (iii) all agencies to be under singular ministry
 - Ex: Assam Rifles → Home Ministry
 - BSF → Defence Ministry

(iv) joint exercises by agencies so as to understand the working mechanism

With an increasingly aggressive China & an unstable Pakistan & growing migration of refugees & disturbance in North East, a robust border management becomes very important. Hence a more coordinated border management is required.

Space for Rough Work

Candidates must not
write on this margin

