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Registration Number : PTTP221190 Date of Examination : 11 Aug

Exam Centre : Old Rajinder Nagar ☐ Bhopal ☐ Online ☑

Test - 3

Code : TC073

MTS IGP Batch 2023

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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

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6. Handover your QCA Booklet personally to the invigilator before leaving the examination hall.

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 are periods of market dynamics when corporations are taxed when suddenly they make huge amounts of profits. In 2022, Oil and gas companies made such profits

Role of Windfall tax

① Redistributing wealth

↳ The profits made by big corporations can be used to finance welfare schemes like Health, education, etc.

↳ It minimises the inequality caused by big players in the market

↳ It helps the Government to maintain and offset inflation that impact marginalised classes.

② Promote Greater economic equality

↳ provides level playing field to small corporates who lose out to oligopolies.

↳ It makes goods and services affordable.

↳ However it is questionable as windfall tax tend to create an atmosphere of inequality as profits, even though honestly earned are taxed more than others

Thus, there is a debate over windfall tax intention but as long it helps in fulfilling goals of Inclusive development, it is good.

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Q.2 नई मौद्रिक नीति समिति (एमपीसी) व्यवस्था के अंतर्गत मुद्रास्फीति लक्ष्यीकरण को क्रियान्वित करने की कथित सफलताओं और चुनौतियों पर चर्चा कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

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

Inflation targeting mechanism was overhauled under Urjit Patel Committee for a more targeted and scientific approach

Provision & Rules

① Range of inflation ~~6~~ 2-6%

② Quarterly Review of Target

③ Monetary policy committee consisting of RBI & Govt stakeholders

④ Regular report in case of failure to control inflation

Success of inflation Targeting

① Consistent control of inflation within ~~thaired~~ the desired range

② Better coordination of fiscal & monetary policy

③ Enhanced accountability of RBI and Banks.

④ Sustained Economic growth due to controlled inflation.

⑤ Better Transmission of interest rate from banks to consumers.

Challenges under New Inflation Targeting

① Disruptive events like Corona → inflation can't be controlled.

② Globalized economy → inflation linked to US federal Bank policies also.

③ Issues of subsidies, dole out packages and freebies by Govt → makes it difficult to target inflation.

Thus, as a way forward, we need better data collection along with regular and good quality of data about economic indicators for good inflation targetting.

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④ Sustained Economic growth due to controlled inflation.

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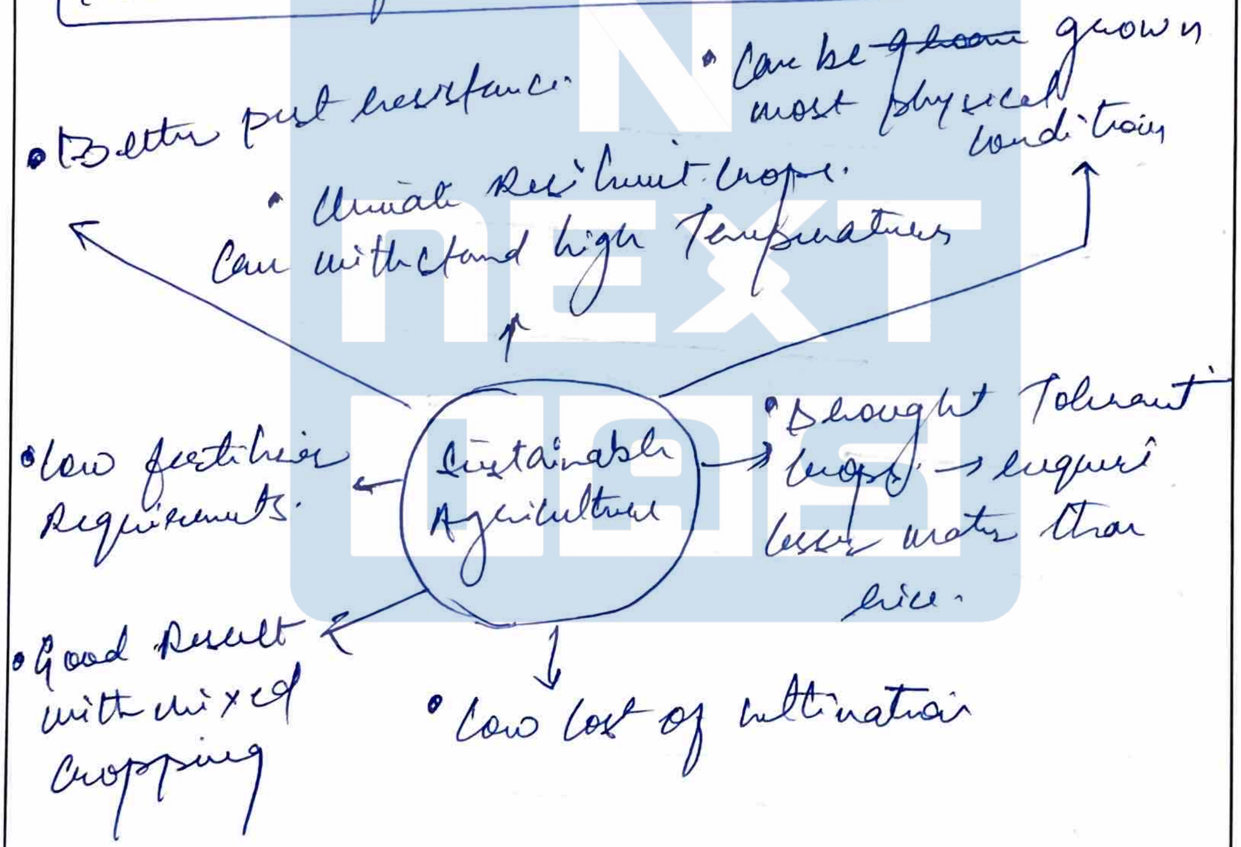
Q.3 भारत में सतत् कृषि को बढ़ावा देने और खाद्य सुरक्षा में सुधार के लिए मोटे अनाज उत्पादन की क्षमता का आकलन कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

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

The millets are renamed as Shree Anna to promote Awareness about millets and improve agricultural sustainability

Potential of Millet production



- Better pest resistance
- Can be ~~grown~~ grown most physical conditions
- Climate Resilient crops. Can withstand high Temperatures
- Drought Tolerant crops → require less water than Rice.
- Low fertilizer Requirements.
- Good Result with mixed cropping
- Low cost of cultivation

Sustainable Agriculture

Thus, the millets can overcome the issue of Ground water depletion, Rising cost of inputs and excess fertilizer use.

Millets & food security

① They are also called Nutri-Cereals.

② High value of Fibers, micro-nutrients

③ Low Glycemic index

④ Can be included into Mid-Day meals

⑤ High energy density & Calorific values

Way Forward.

① Extend implementation of MSP to millets → an MSP PLUS approach.

② Better implementation of PM-AASHA Yojana.

③ Promotion of Paramparagat Krishi Vikas Yojana for millets

Thus the year 2023 has be named by UN as International Year of millets and it can help to fulfil SDG-2 of Zero Hunger

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

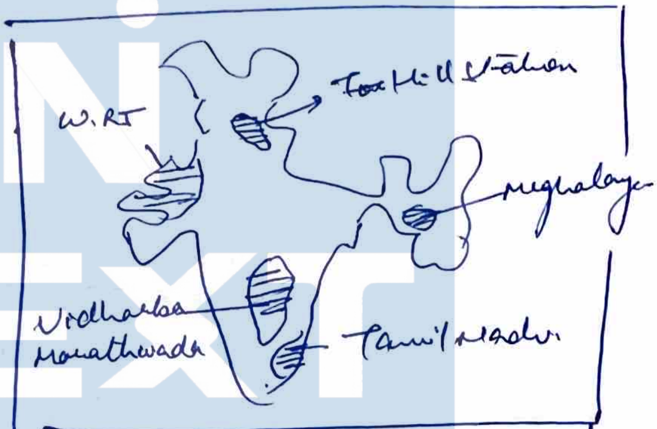
Jal Jeevan Mission is the flagship scheme of Ministry of Jal Shakti to ensure water security

Features of Jal Jeevan Mission:

① Functional Tap House Hold connection

② Treating of Grey water

③ Augmenting water Resources.



Regions of water stress

Potential to end water regional Disparity

① Help in Rainwater Harvesting infrastructure for both urban and rural India → rooftop Rainwater Harvest, Bioswales.

② Help to reuse, recycle water → setting up Wastewater Treatment plants.

Significance of mission.

① Urban areas facing water shortage due to pollution of rivers and depletion of groundwater.

② Disruption in rainfall pattern and lower availability of water.

③ It aims to provide long term security to ever increasing population.

④ It would help to reduce the disease burden due to water borne diseases.

Underlying impediments

① lack of infrastructure in backward areas eg→ Hilly areas.

② One size fits all approach.

③ lack of water resources in Arid & semi arid areas

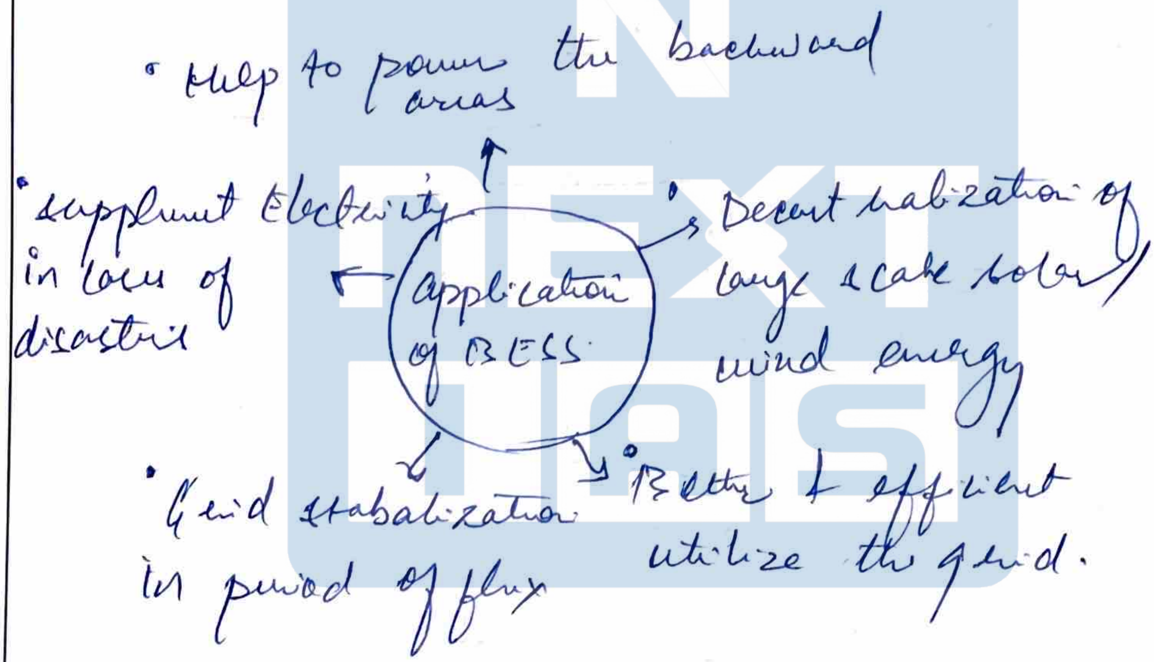
④ 80% of water used by Agriculture.

Thus, in order to cater the need ~~to~~ of 20% population & 17% livestock, urgent water security measures are needed.

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 are large scale infrastructure that can store electricity and release through grid when needed.



application of BESS

- Help to power the backward areas
- Decent stabization of large scale solar/wind energy
- Better & efficient utilize the grid.
- Grid stabalization in period of flux
- supplement Electricity in loss of disastrs

Further application include:-

① Powering electric vehicles and

② Reduce load over DISCOMS.

BESS as revolution in Energy programme.

① It can store the excess energy of different sources.

② It can help to redistribute energy disparity in different regions

(Eg) → Transferring electricity from Rajasthan to Ladakh.

③ It can enable startups and import oriented products.

④ Help to create better grid systems that can withstand increasing demand of electricity.

Limitations
→ ① High cost of infrastructure
→ ② Costly Raw materials - Lithium.
→ ③ Import dependency on China.

Thus, BESS could be a stepping stone towards fulfilling the aims of "Viksit Bharat"

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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 mission to launch a manned spacecraft in space consisting a crew of 3 people in year 2023.

Developments of Gaganyaan mission.

① Training by France and Russia and foreign help in development of Technologies.

② Trial run of unmanned ~~Spacefra~~ spacecraft consisting of a Humanoid robot to assess the impact and collect data.

Challenges to the mission

① Complexity of the mission - first attempt by India.

② Higher risk than usual launches as it involves real Humans

③ Development of a economic viable and practical technology + launch vehicle.

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Possible benefits for the society

① It will create new jobs in field of space

② A sense of pride and national honour in international community.

③ promote more youth towards choosing astronomy and space science as career.

④ Woman crew members could be a symbol of women empowerment.

⑤ The further development of technologies and data collected could be integrated into digital platforms.

Thus, the mission holds high significance for India and entire international community is looking towards India.

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 hydrogen obtained through electrolysis of water whose electricity is supplied by renewable resources like solar & wind.

National Green hydrogen Mission.

① It aims to mobilize investments and create infrastructure for Green Hydrogen

② Creation of storage and production

③ Encourage startups in fields by providing Tax benifits

Green hydrogen as a Silver Bullet

I] Tackle Climate change

↳ Helps to compliment India's Carbon neutrality pledge for 2070.

↳ Reduce emissions to almost Zero.

↳ Currently Energy sector contribute more than 65% emission,

↦ 63% dependence on fossil fuel like coal, diesel, Gas → will help to diversify that.

II] Tackling pollution

① ~~[illegible]~~ Green Hydrogen has only water vapour as byproduct

② lower the concentration of particulate matter, NOx, SOx emission on atmosphere.

③ De-carbonization of transport.

Limitations
→ ① lack of adequate infrastructure
→ ② High cost of production
→ ③ Need to import fuel cells materials.
→ ④ lack of Indigenous Technology
→ ⑤ Using large scale renewable energy.

Thus, Green Hydrogen mission could help to achieve SDG 13– Climate action and goals of energy security.

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 disaster in Joshimath was due to large scale land slip beneath the town due to which more than 600 houses had to vacated & rehabilitated

Reasons for the Disaster

Natural	Human
① Town situated over debris of previous landslide	① Development without Environment Assessment
② located over seismically active region.	② Underground NTPC digging
	③ Road widening project and slope destabilization

Lessons from Disaster at Joshimath

I] Disaster management

↳ Need of Hazard Zone Vulnerability Assessment

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② Robust disaster evacuation plan

③ Need & significance of adaptation & mitigation measures.

④ Need to integrate GIS &c & remote sensing in planning

II] Environmental Conservation

① Need to pay emphasis to carrying capacity.

② Development need to be according to environment Impact Assessment

③ Need of Afforestation for improving the integrity of region.

④ Must not disturb local hydrological characteristics.

Thus, robust disaster management strategies are required along with environmental consciousness to avoid instances like Joshimath in the future.

Q.9 "पंजाब में हालिया कट्टरपंथी रुझानों से पता चलता है कि खालिस्तान का मुद्दा अभी भी उबल रहा है।" हालिया घटनाक्रम के संबंध में कथन पर चर्चा कीजिए और इससे निपटने के उपाय सुझाएँ।

(150 शब्दों में उत्तर दीजिए) 10 अंक

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

(Answer in 150 words) 10 Marks

The recent violence and emergence of Khalistan sympathisers around cult figures show a trend of continuation of radicalization in Punjab.

Reasons for simmering of issue.

① Presence of sympathizers of the cause of Khalistan - within & outside India (eg) Canada procession of killing of PM.

② Influence of Pakistan to create instability in the region (eg) Online radicalization

③ Financing of sympathizers through Havala Transaction

④ Presence of Narco terrorism and Arms trafficking networks benefiting from narrative.

⑤ Use of social media to radicalize youth & spread fake news (eg) Toolkit case.

Challenges:
- ① Decentralized leadership
- ② Use of advanced Technology eg → VPN, cryptocurrency, drones to deploy weapons.
- ③ Cross jurisdiction of movement of criminals.
- ④ Large number of supporters

Measures to handle it

① Arresting the criminals under UAPA & NSA.

② Expanding intelligence networks through RAW & IB → to act as Nip in the Bud.

③ Cooperating with other countries for extradition

④ Strong social media surveillance for radicalization trend eg → Digital India Ethics Code 2021

⑤ Fact checking agency eg → PIB to counter fake news.

The separatist tendency by Khalistan sympathisers is a National Threat to integrity of India that required a multipronged approach.

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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 flying objects that are of different sizes and can be operated remotely for multiple purposes.

Drones as challenge to India's Border Security

① Anonymity.

↳ Difficulty in identifying the operator → located far away.

↳ Drones can self destruct to erase any digital signature.

② Ease of operation

↳ They can be integrated with smartphone - can be controlled like playing a game.

↳ New Technologies are making drones self operate and easier to handle (eg → Drone swarms.

③ Versatility of Drones.

↳ Drones can be of multiple sizes - from one foot to 5 foot long.

↳ Can operate at high altitude → difficult to spot at night

↳ Can carry payload of more than 70kg.

Suggestions to tackle drone problem.

① Regulation of import and sale of drone.

② Improved radar systems to detect even smallest of drones.

③ Remote disabling weapons like - EMP, catching nets, sonic devices to disrupt from distance.

④ Creating no fly zones around border areas.

Thus, The critical and emerging Technology is invading domain of border security. This calls for reform in Border security Architecture.

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

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Q.12 भारतीय प्रतिभूति एवं विनिमय 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 the capital market regulator that owners the secondary market and regulate flow of capital within economy.

Role of SEBI

① Transparency in financial transaction

② Prevention of scams by monitoring the trends.

③ Regulate ethical practices of investments

④ provide grievance redressal of consumers.

⑤ Create guidelines for standards of financial products

⑥ Investor education through advertisement

⑦ Investigate into allegations by whistleblowers.

Thus ~~ABI~~ SEBI has multitude of responsi~~bilitie~~bilities

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Challenges faced by SEBI

① External factors causing mass withdrawal of investments eg US Fed Tapering

② Evolving nature of frauds. eg Utilization of cryptocurrency for capital transaction.

③ Circulation of Black money.

④ Lack of Transparency by corporates about customer disclosure.

⑤ Lack of Awareness among consumers.

⑥ Data Protection and Privacy → most financial architecture is digital.

⑦ Rising cases of cyber attacks on India's critical infrastructure

Reforms for SEBI

①. Need to reduce the burden of multiple responsibilities → delegate to other bodies.

② Autonomy to board of SEBI and chairman → fixing security of Tenure.

③ Enhancing cybersecurity architecture + coordination with CERT-IN and NCIIPC.

④ Data protection and privacy mechanisms.

⑤ Integration of AI & ML to detect in advance the issues of scams

Thus, SEBI needs to constantly reform in light of rapidly evolving capital market environment.

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

Indian Agriculture while employing 55% of population, contributes only 18% to GDP. which is lesser than other two sectors of economy.

Major Constraints in Agricultural Growth

① Market Constraints

① Skewed MSP regime towards Rice + wheat

② Lack of promotion to millets and pulses

③ Cartelization & inefficiency of APMC

④ Lack of digitization and National integration of Market

⑤ Open ended procurement → distorts prices and private crowding out effect.

② Faulty Agricultural Practices
- ① Monoculture of rice and wheat
- ② Flood irrigation → low water use efficiency.
- ③ Diesel subsidy → over extraction of Ground water → deepening of bore wells.
- ④ Excessive use of fertilizer & pesticides.

eg
- Normal - NPK = 4:2:1
- Used - 8/7 : 4/3 : 1

③ Environmental Issues
- ① Soil Salinization
- ② Nitrate Contamination
- ③ Run off of chemicals
- ④ Deforestation
- ⑤ Pest attacks & emergence of super bugs

Role of Technology in overcoming constraints

① Drip Irrigation → water use efficiency of 90%.

② GIS and remote sensing data → determine productivity of crops and level of moisture

③ Fertilizer → Use of liquid nano urea.

④ Integrated pest management → use nano-pesticides that minimize harm to the plant.

⑤ Use of drones for spraying pesticides.

⑥ Mobile/smart phones for weather forecasting

⑦ Soil sensors to detect the level of pH, nutrition, moisture in soil and the plant.

Thus, through these measures, there is a hope that agriculture could get modernized and improve its contribution to GDP.

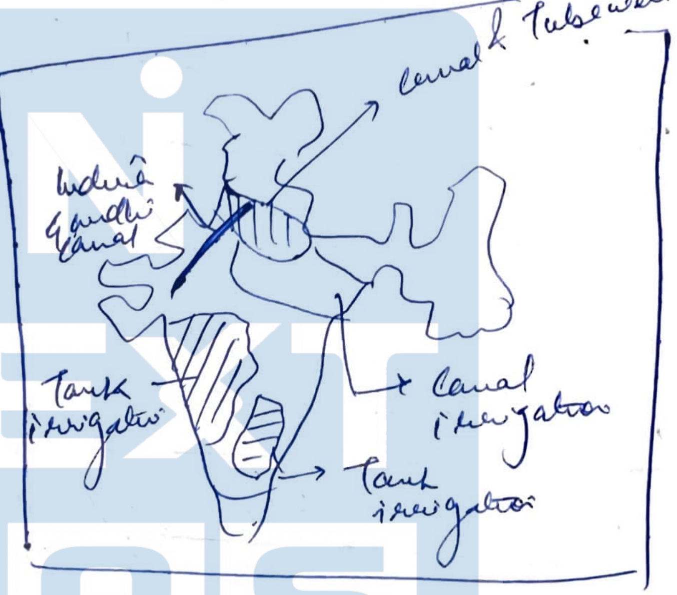
Q.14 पर्यावरण एवं प्राकृतिक संसाधनों पर सिंचाई के प्रभाव का मूल्यांकन कीजिए, और कृषि में सिंचाई पद्धतियों की संधारणीयता और समता सुनिश्चित करने के लिए उपाय सुझाएँ। (250 शब्दों में उत्तर दीजिए) 15 अंक

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 is the artificial application of water to supplement its growth & protect it from rainfall deficit.

Impact of Irrigation



① Environment.

↳ Canal irrigation: –

a) Destruction of useful forest & deforestation

b) Cuts through large agricultural area.

c) Indira Gandhi Canal → soil salinization around it.

↳ Dams & HEPs – Submergence of large area of forests, issues of floods due to untimely rains, mismanagement of dams. (eg) → 2018 kerala floods.

↦ Tubewell irrigation

a) Over exploitation of Groundwater - lowering of water table.

eg → in Punjab, Table lowered by 70ft since 1950s.

↦ Flood irrigation

a) Evaporative losses and soil salinization

b) Soil erosion due to washing away of top soil layer.

② Natural Resource.

↦ Habitat loss and fragmentation due to Canal irrigation

↦ Negative impact on river regime.

↦ Deforestation & High carbon emission.

Measures to ensure sustainability & equity

① Using drip irrigation → 90% water use efficiency and fertigation.

② Traditional Rainwater Harvesting method to replenish Ground water eg → Baoli

③ Dryland agriculture – using millets, pulses and oilseeds in semi arid areas instead of rice and wheat

④ Conservation Agriculture → No Tillage, crop residue management, mulching, drip sowing methods.

⑤ Watershed development strategies – to preserve water from an ecosystem's approach.

⑥ Community participation/ Pani Panchayats in managing river irrigation infrastructure.

Thus, for better water utilization outcomes, Mihir Shah Committee recommendations for fulfilment of Agricultural Prosperity.

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

The current position of India as one of the leader in space Technology and advancement in nuclear development has been contribution of visionaries.

Benefits from Contribution of

① Dr. Homi Jehangir Bhabha:

→ He had the vision of investing in nuclear energy early on as it was the future.

→ ~~India partnered with Russia to~~ India invested in developing its own nuclear Technology and conducted ~~1st~~ 2nd Nuclear Test Smiling Buddha in 1998 in Pokhran → declared itself nuclear state.

↦ strategic advantage.

① India among few Countries with nuclear weapons.

② High level of deterrence from neighbouring hostile states.

③ Helped to initiate process of energy security

④ Gave India bargaining power and ability to hold the ground

eg → India declined Non Proliferation Treaty
↳ Special treatment despite not part of NSG.

② Dr. Vikram Ambalal Sarabhai.

↦ promoted foundational space Technology research despite being short on resources.

↦ Helped to conduct 1st space launch — a sounding rocket Aryabhatta to magnetic equator.

↦ Development of indigenous space Technology → Only One of few countries in the world.

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↳ Strategic Advantage :-

① Space cooperation → Launching of foreign satellites on Indian launch vehicles.

② Low cost launch vehicles - PSLV, SSLV, GSLV compared to NASA.

③ Ability to launch own space missions → NAVIC, Gaganyaan, Chandrayaan, etc.

④ Multiple satellite launches like RISAT, Geosat, Comsat, etc that provided India ~~space~~ spatial Awareness and it helped in border management.

⑤ Development of Offensive capacities → Mission shakti - Anti satellite Missiles.

Thus, these two contributions made India's reputation and credibility rise and gave India key advantage in South Asia Region.

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 refers to the next evolution in field of AI where it is Capable of producing original and creative content mimicking human imagination.

Potential of Generative AI in Future

① Improving the pace of Industrialization → further Automation

② Discovery of new formula of drugs based upon new designs to tackle untreatable diseases.

③ It could help content creators, Lawyers, Journalists and artists to generate new forms of Art.

④ It could help develop new models of Education and tackle challenges of Illiteracy

⑤ It could further boost e-Governance initiative by making it immersive.

Challenges over Society

① It could lead to creating of digital Have nots.

② Algorithms could lead to racial bias and profiling

③ It could lead to large scale unemployment due to its dynamism.

④ Increased complexity of cyber attacks on people - cyber stalking & bullying.

Ⓘ AI on social media could further worsen the issue of Echo Chamber

⑥ Challenges in fixing accountability of machine.

⑦ Issues in fixing jurisdiction as AI product programmed by different countries.

Way Forward

In order to minimize the negative impacts several steps could be taken.

① policy formulation with different stakeholders of society participation.

② fixing the accountability and jurisdiction of AI operations

③ Putting adequate safeguards and check and balance to check racial biasness.

④ programming AI to be inclusive and based on principles of constitutional morality.

Several global initiatives like Responsible AI for social Empowerment & GPAI are being taken to promote a productive use of AI for society.

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

Mangroove Alliance for climate change refers to the pledge by these countries to protect and promote the conservation of mangrooves as a climate change mitigation step.

Purpose of Mangroove Alliance.

① Conservation, restoration, expansion of mangroove areas.

② promote its awareness among global tropical communities

③ Set ~~Th~~ Voluntary targets to fulfil

④ Sharing of the best practices and assisting each other.

Given large scale deforestation and alarming reports by IPCC AR6, Mangrooves holds high significance

Importance of mangroves in maintaing Coastal Ecology.

① They have high capacity of Carbon sequestration → reduction of emissions.

② They help to tackle water pollution by absorbing heavy metals.

③ They stabalize the soil and prevent soil erosion.

④ They are breeding ground for marine biodiversity and especially fishes.

⑤ They often act as ecotones and significant pool of Genetic diversity.

⑥ They help to stabalize the coastline from the inundation and disaster like cyclones and Tsunami's.

⑦ Promotion to Blue Economy & Tourism.

Thus mangroves have vast areas of Ecosystem services.

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Need of promoting mangroves

① Vulnerability of coastal communities to extreme weather events like cyclones.

② Reduction in fisheries due to ocean acidification and migration polewards

③ Change in local weather conditions due to large scale deforestation

④ Increasing water pollution leading to creation of Hypoxic zones.

Way Forward

① Community participation in protection & maintenance of mangroves.

② Spread of Awareness among local coastal population

③ Research & Development towards developing new mangrove varieties.

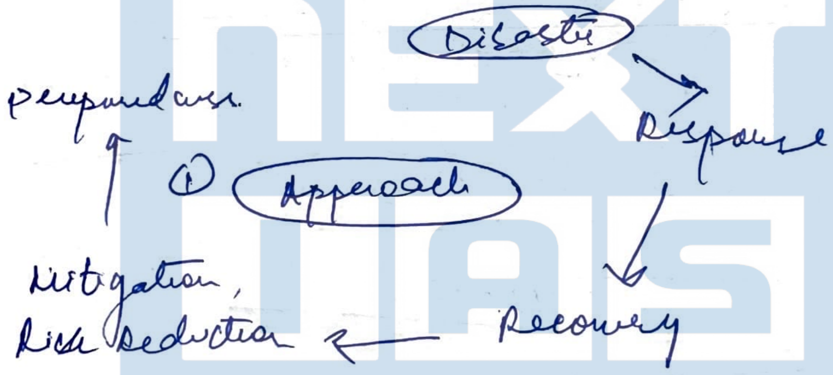
Thus, keeping its significance in mind, Govt also launched MISHTHI programme in Budget for mangrove protection

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

CDRI was launched by India in 2019 at UN Climate Action Summit to create global partnership of all stakeholders in Disaster planning & mitigation.

Current Disaster management in India



② Legal Framework - Disaster Management Act, 2006 sets up policies, institutions and guidelines.

③ Institutional Framework.

National Disaster Management Authority → under PM → NDRF
↓

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↓

State Disaster Management Authority → under CM
└ SDRF

↓

District Disaster Management Authority → under DM.
└ DDRF

Incorporation of CDRI in India's framework

Benefits :-

① protection of Buildings, key public infrastructure like Telecommunication, Transit system and power system & designing them to withstand the impact of disasters.

② It reduces the cost of mitigation and recovery from disaster

③ It helps to reduce the mortality rate and injuries to people.

④ It allows for continuation and sustainance of the infrastructure.

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Need of a new strategy to tackle disasters.

① Increasing frequency and intensity of disasters eg→ supercyclones.

② impact very high on infrastructure eg→ Joshimath land subsidence.

③ Increasing density of people in disaster prone areas.

④ Emergence of critical infrastructure which helps in national growth → it gets compromised.

⑤ Increasing cost of disaster Recovery & planning.

Thus, in order to adapt to disasters, the cooperation of global communities, data collection and innovation in approach could be a good way forward for future.

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

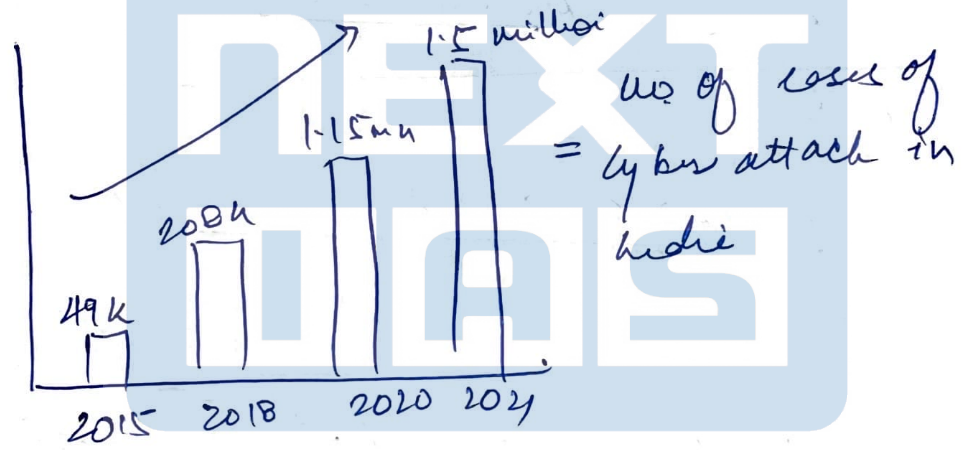
The recent rise in ransomware attacks targeting critical infrastructure and major corporations has highlighted the urgent need for stronger cybersecurity measures and policies. Discussing the key factors contributing to this trend, analyze the impact of these attacks on various sectors.

(Answer in 250 words) 15 Marks

Ransomware are types of cybercrime tools that deny the access of information in exchange for ransom.

Recent Rising Trend.

①



② Instances of targeting of Critical Infrastructure.

↳ Attack on Kudankulam Nuclear Power plant,

↳ Attack on AIIMS database & stealing details of patients

→ Power outage in Mumbai, 2020

↳ Petya attack in JNPT port.

Key factors for rising cyber crimes

① Remoteness of location and anonymity by using VPNs.

② Diffused network of cyber criminals.

③ Low cost of mounting attacks.

④ Lack of intelligence and cooperation ~~in~~ among countries.

⑤ Rapidly ~~evolu~~ evolving cyber space due to AI, 6G, dark web & cryptos.

Impact on various sectors.

① Health sector - leak of patients record → delay & denial of Healthcare

② Defence sector - leak of classified weapon details in hands of enemy

③ Communication sector - Interception of calls of high profile personalities (Ex) Pegasus.

④ ~~Dis~~ Power sector - Disruption of power grids and halt of economy.

Measures Needed

① Increased fund allocation and R&D in cyber security

② National Data Protection law & Policy

③ Cyber Command creation as 5th theatre of war

④ Public private participation in capacity building of Cyber security.

⑤ Utilization of AI & Generative AI, 6G, machine learning to tackle the crimes.

Thus, evolution in ~~Cyp~~ Cyber protection architecture is needed & a good framework could be 4D approach - Detect, deter, destroy and document.

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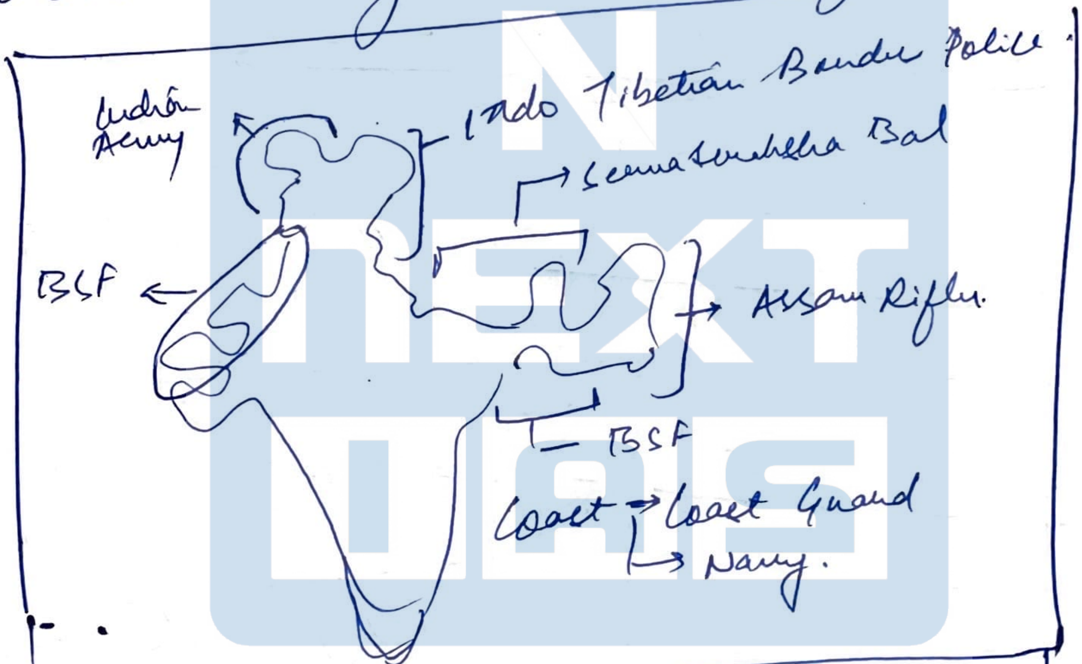
Q.20 सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(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 8 other countries surrounding it along with 15,000 km of Territorial and 7,500 of marine border, making border management a challenging task.



Border security Agencies

Need of coordination & cooperation between agencies.

① Evolving nature of infilterations

eg → 26/11 attacks infiltrated along the creek

② Use of drones, UARV, submarines by offenders.

③ Coordinated plan of attacks by land & sea border.

Methods of improving coordination

① Management of coastal borders.

↦ improved intelligence framework to tackle attacks.

↦ Data sharing network among different agencies

↦ Military exercises to im among security agencies.

↳ Coordination & partnership with other maritime powers to exchange best practices.

↦ sharing evolving modus operandi of offenders & investing in new surveillance Technologies.

② Management of Terrestrial border.

- ↦ Integrated Command Theatres
- ↦ Setting up position of Chief of Defence Staff.
- ↦ Upgradation of Technologies.
- ↦ Integrated communication networks.
- ↦ Using Comprehensive, Integrated Border management system.
- ↦ Sharing of intelligence input eg: NATGRID

In order of a strong national & regional growth, a strong framework of border security is absolutely necessary that keeps pace with evolving nature of challenges.

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