Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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(To be filled by candidate)

Name of Candidate : Vishvjeet Singh Holkar

Roll No. : PTTP220305

Registration Number : NIAS2300018758 **Date of Examination :** 08/08/23

Exam Centre : Old Rajinder Nagar ☐ Bhopal ☐ Online ☐ Yes

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: PTTP220305, TC073, 18-08-2023 01:16 PM

MACRO COMMENTS

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 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: PTTP220305, TC073, 18-08-2023 01:16 PM

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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 refer to tax imposed on corporations due to sudden profit spike occured because of external factors like war or supply chain disruption.

E.g. recent tax on petroleum industry

Windfall tax promote economic equality

(1) Progressive nature of tax as rich are taxed more

(2) Increases government revenue which promotes govt. ability to:

2.1. Provide subsidy to poor sections

E.g. PMGKY

2.2. Promote capital investment which increases public good and infrastructure

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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(3) Protects from inflation due to higher cash flow in market by reducing ~~money~~ say cash in circulation

(4) Promotes funding of social welfare schemes

Limitations of Windfall taxes

(1) Promotes tax unstability regime due to changing tax norms

(2) Reduces investment in future due to uncertinity

(3) Companies pass on added tax to consumer in future ~~Eg~~.

(4) Moreover, these gain provide cushion for future losses

To promote stability and counter inflation and promote economic stability permanent tax regime works efficiently.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM
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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

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Monetary policy committee regimes provides responsibility of inflation targetting on RBI via conducting monetary policy operations.

E.g. changing repo rate.

Successes of MPC

(1) Inflation in control mostly within prescribed 4% ± 2% regime (exception post pandemic era)

(2) Increased market stability by having near constant credit rate (linked with repo rate)

(3) Increased investment due to rising stability

(4) Economic growth: India is fastest growing large economy (IMF)

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(5) Increased foreign reserves with around ~500 billion $ with RBI.

Challenges faced by MPC

(1) Failure to reduce post pandemic inflation (beyond 6%)

(2) Capital flight due to global policy rate change
E.g. U.S. Central Bank loose monetary policy

(3) Escape clause of govt monetisation of Debt.

(4) Increasing current account deficit

(5) Failure to counter growing food inflations.

(6) Lack of target updation as mandated every 5 year.

Inflation and growth are two sides of same coin with where one drives the other.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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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

Millet refers to coarse grains such as Bajra, Jowar & ragi Government recently called Millet as Annashree in Budget.

Millet promoting sustainable agriculture

(1) Reduces water demand as crops are less water intensive

(2) Reduces cost of input as fertilizer and pesticides are less needed and seed are low priced

(3) Promotes soil health as crop rotation reduces nutrition demand from soil

(4) Climate change resilient due to hardy nature and drought resistant.

(5) Promotes income security & to due to mono culture crop failure

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(5) Shorter cultivation period.

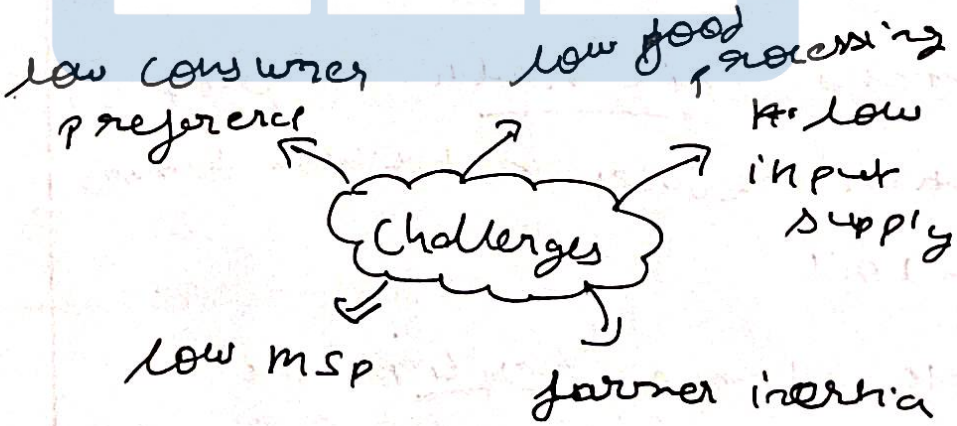
Food security

(1) Diversification of food basket

(2) Provides micronutrition and is gluten free

(3) Longer shelf life prevents spoilage during transport
(Rice → 4 MMT loss in last 4 years)

(4) Promotes regional balance due to ability of all states to cultivate millets sustainably.
Eg. Rajasthan



Millet are a wonder crop

~~promotion~~ promoting climate smart agriculture.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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Q.4 जल जीवन मिशन में पेयजल की उपलब्धता और पेयजल तक पहुँच में क्षेत्रीय विषमता को समाप्त करने का सामर्थ्य है। मिशन के महत्व 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 aims to provide functional tap water to all house-holds by 2024.

Significance of JJM

(1) Provide water supply to everyone of 55 litres per capita.

(2) Promotes safe potable water to everyone

(3) Prevents water Borne Disease like colera

(4) Promotes women empowerment as women are mostly given house hold duty
E.g. water wives in Rajasthan

(5) Promotion of community participation in implementation & monitoring of schemes.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

Impediments of JJM

(1) Low availability of surface & ground water

(2) Low success of earlier missions like R.O. in rural areas

(3) Poor center state coordination

(4) low coverage as of August 2023 (38% → JJM Dashboard)

(5) ~~low~~ high capital expenditure espicially in remote and distant dispersed settlements.

(6) Taps running dry in various parts.

JJM despite impediments can be a game changer in Sustainable development.

Next IAS ID: PTTR220305_TC073, 18-08-2023 01:16 PM

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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 refers to technology of storing energy from various sources and releasing (using) in time of need.

E.g. Inverter Battery (Li-ion)

Applications of BESS

(1) Promotion of Renewable energy by reducing intermittency of solar and wind energy.

(2) Promotion of Electronic vehicles such as Tesla using Li-ion Battery

(3) Provision against power failure

(4) Improving grid efficiency by supply ~~reducing~~ peak load variation such during summers.

(5) Provide energy supply to remote locations and settlements

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

Potential to revolutionize energy program

(1) Provide energy to all and promotion of renewable energy purchase obligations.

(2) ~~Prevent~~ fulfill economic growth via rising economic demand

(3) Fulfill INDC and Parchamik goals.

(4) Reduce cost of energy by optimising grid load and balancing p demand peak & trough

BESS will be key to Environmentally and economically sustainable future.

2.6 इसरो के गगनयान मिशन में हुए विकास और उ
के संभावित लाभ क्या हैं?

Discuss in brief developments and challeng
benefits of the mission for the society?

Gaganyaan aims
in space by
2025.

Developments in

(1) Reusable Re
recently
(2) Training a
Astronauts.
(3) Development
life support
suits and

Challenges to g

(1) Limited budget
NASA and Re
(2) & Development
escape system
(3) Inadequate fa
for astronauts.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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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 aims to send humans in space by INDIA (ISRO) by 2025.

Developments in gaganyaan

(1) Reusable Rocket launch vehicle recently tested (phase I)

(2) Training and selection of Astronauts.

(3) Development of space based life support system, astronaut suits and food in space

Challenges to gaganyaan

(1) Limited budget as compared to NASA and Russia

(2) & Development of crew escape system

(3) Inadequate training facilities for astronauts.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(4) Rising space debris in Low Earth orbit.

(5) Redevelopment of ~~GSLV MK-III~~

Possible benefits

(1) Increased understanding of space & micro gravity experiment.

(2) Promote future space exploration and potential space mining

(3) As stepping stone to future Indian space station

(4) Geopolitical rise in soft power in scientific world. E.g. Partner in Artemis program

(5) Employment generation in space sector

~~(6)~~

Gaganyaan would be new feat in ISRO success.

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Q.7 "जलवायु परिवर्तन और प्रदूषण से निपटने की हमारी खोज में राकता है"। भारत के राष्ट्रीय हरित हाइड्रोजन मिशन के आलो

"Green hydrogen can be the silver bullet in our quest to analyze the statement in light of India's National Green

India recently l Green hydrogen t generate 5 million hydrogen by 2030.

Role of Green hydr Change combat and p

(1) De carbonisation of Chain such as sol

(2) Green feedstock to

(3) Help India reach reducing carbon em

(4) Reduce particulate such as PM 10, PM during coal power

(5) Promotes energy e only by product

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

(150 शब्दों में उत्तर दीजिए) 10 अंक

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

(Answer in 150 words) 10 Marks

India recently launched E National Green hydrogen to promote and generate 5 million metric tons of hydrogen by 2030.

Role of Green hydrogen in Climate change combat and pollution.

(1) Decarbonisation of energy supply Chain such as solar energy storage

(2) Green feedstock to industries

(3) Help India reach Net zero by reducing carbon emissions

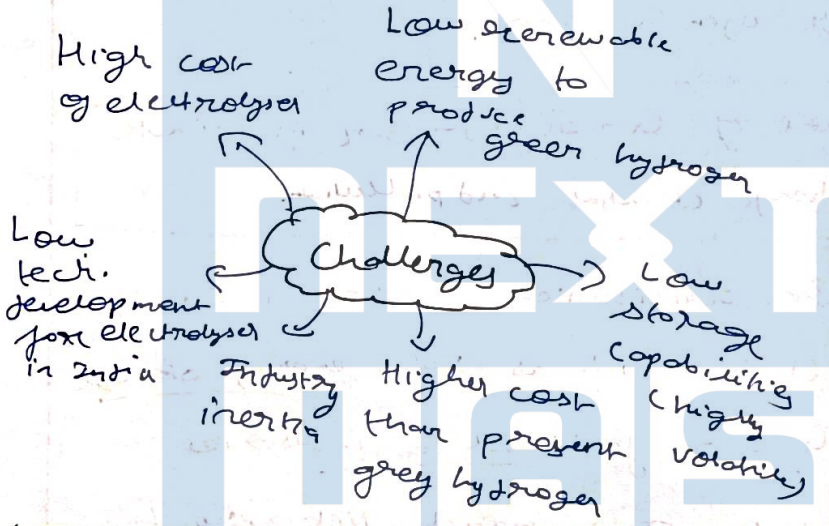
(4) Reduce particulate pollution such as PM 10, PM 2.5 emitting during coal power generation

(5) Promotes energy efficiency as only by product is water.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(6) Energy density reduces storage and transport related carbon foot print.

(7) Reduce emission of other pollutants like NOx, SOx, etc.



Hydrogen can help reach the goal of Panchamrit for India.

Q.8 हाल ही में जोशीमठ, उत्तराखंड में आई आपदा के के लिए मुख्य सबक क्या हैं?

What are the key lessons for disaster manag region, in light of the recent disaster in Joshim

Joshimath rec land susistance.

Key lessons

(1) Development reports.
E.g. M.C. M land stability

(2) Focus on sust development in zones

(3) Construction a code of BIS

(4) Provision of facility like

(5) Proper evacu distribution a of restoration

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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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

Joshimath recently witnessed land subsistance.

Key lessons of Disaster ~~mgmt~~ management

(1) Development based on scientific reports.
E.g. M.C. Mishra committee about land stability was ignored

(2) Focus on sustainable infrastructure development in ecologically sensitive zone

(3) Construction as per Building code of BIS

(4) Provision of adequate rehabilitation facility like shelter, food, etc.

(5) Proper evaluation of ground situation and formulation of restoration plan.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

Key lesson environmental conservation

1/ Reduced deforestation for infrastructure

2/ Sustainable tourism as pointed by ~~Gopra~~ Chopra committee which focus on carrying capacity of ecosystem

3/ focus on ~~one~~ unified approach with centrality of flora and fauna.

4/ Proper conduct of Environmental impact assessment to reduce environmental damage

5/ Promotion of local community engagement in Development.

Sustainable development calls for ecologically sound & economically feasible development.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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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

Kalisthan refers to demand for a seperate punjabi nation.

Simmering trends of Khalistan

(1) Role of foreign funding by NRIs from U.K. & U.S. in instability generation in punjab.

(2) Rise of Radical leaders like Deep Sandhu

(3) Attempt to take down Indian flag of Embassy in U.K.

(4) Mob-violence eg to free prisoner from police station in Punjab.

(5) Rise of religious fundamentalism and communism by using perceived relative deprivation and social media.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

Measures to reduce Khalistan Protest

(1) De radicalisation of youth by giving gainful employment.

(2) Banning organisation & people involved ~~in~~ under UAPA.

(3) Proponents of Khalistan related violence to be prosecuted by diplomatic ~~channel use~~. Channel use on foreign soil.

(4) Check funding under FEMA Act

(5) Promotion of Sikh culture heritage to reduce ~~sikh~~ perceived relative deprivation.

(6) Check cross border infiltration by border check post & fencing.

Radicalisation is challenge to democratic nations.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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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 refers to Unmanned aerial vehicles. (UAV)

Challenges of Drone

(1) Hard to detect with present radar system due to small size

(2) Non capture of the criminal due to anonymity.

(3) Shooting down with missiles is cost ineffective

(4) low for cost of drones provide scope for poorly funded operations as well. E.g. small time narcotics smuggling.

(5) Can be used to smuggle weapons counterfeit currency, etc.

(6) Espionage of Border security infrastructure.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

To tackle Drone issue

(1) Use of cyber capability to Jam remote control (Soft kill)

(2) Use of automatic assault rifle to destroy drone (Hard kill)

(3) International collobration to combat drone usage to formulate S.O.P. & liability of parties

(4) Declaration of no fly zones in sensitive areas

(5) Increasing Research to improve RADAR technology to detect drones more efficiently.

Drones open new possibilities as well as challenges for the modern world.

Q.11 विद्युत संशोधन विधेयक, 2022 उपभोक्ताओं, डिस्कॉम व
सविस्तार वर्णन कीजिए। साथ ही इसकी कमियों को
का भी सुझाव दीजिए।

Electricity Amendment Bill, 2022 brings several
environment. Elaborate. Also, list out its shortcom

Electricity Am
aims to amend
Act, 2003.

Advantages to con

(1) Choice to cons
multiple dis com

(2) Stability in
with no sudden

(3) Improving qu
& reducing po

(4) Stability in
prevent grid fa

Advantage to DIS C

(1) Prevents predato
by defining ma
minimum tariff

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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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 Amendement bill aims to amend electricity Act, 2003.

Advantages to consumers

(1) Choice to consumer by providing multiple discom tariff

(2) Stability in ~~tariff~~ regime with no sudden spike

(3) Improving quality of supply & reducing power cuts.

(4) Stability in load dispatch to prevent grid failure

Advantage to DISCOM

(1) Prevents predatory pricing by defining maximum & minimum tariff.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(2) Promotion of entry & competition of multiple discoms.

(3) Timely revision of ~~tariff~~ tariff

(4) Establishment of cross subsidy Balancing fund.

Advantage to Environment

(1) Renewable energy purchase Obligation.

(2) ~~Use~~ Use of grid connectivity by ~~of~~ schemes like KUSUM (Solar pumps)

Shortcomings of the Bill

(1) Poor financial health of existing discoms

(2) Federal political issue ~~to~~ due to electricity being concurrent subject.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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(3) No clarity over sharing of ~~Dr~~ ~~Dt~~ Network among various DISCOMS as physical infrastructure is common

(4) ~~F~~ Conflict of ~~Lic~~ licensing among CERC & SERC

~~F~~ Electricity demand of India is poised to raise at 6-7% as per IEA. Revision in electricity norms are much needed to improve efficiency.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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 statutory body under SEBI Act, 1992

Role of SEBI

(1) Promotes regulation & conduct of stock market operation smoothly

(2) Prevents insider trading and use of provide fair level playing field

(3) Provides for regulation of Exchanges, traders and brokers.

(4) Dematerialisation of shares leads to solve duplication issues

(5) Provides for increased retail investor by simplying market into caps Eg. small cap, medium cap, etc.

(6) Prevent large scale scams like Harshad Mehta scam

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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Challenges faced by SEBI

(1) Rise of unregulated markets E.g. Dabba trading.

(2) Insider trading despite norms against it.

(3) Technology rise such as use of crypto currency and other blockchain based technology.

(4) Manipulation of algo trading by cyber attacks to manipulate stock market.

(5) Inadequate implementation of norms by SEBI officials.

(6) Lack of staff and expertise to handle the modern trading market.

P.T.O.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

To Suggested reforms

(1) Increased R & D Expenditure to Cob & secure stock market servers

(2) Higher level of cyber security of stock exchange

(3) Fulfill the vacancy in SEBI

(4) Hire outside expertise in case of skill shortage

(5) Training of existing staff

(6) Strict implementation of SEBI regulation on insider trading

(7) Govt. to take against irregularity stock market by making acts such as prevention of money laundering Act, Black money & Imposition of tax Act.

Stock exchange is life blood of Market capitalisation.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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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 provides for 16% of GDP and provides employment to around 50% of workforce.

Constraints in Agriculture growth

(1) small Land size & fragmentation prevents economy of scale (~ 1.18 hectare avg. average size)

(2) low public investment in agriculture infrastructure

(3) inadequate market linkage along with higher cost. (E.g. APMC Act restricts market)

(4) Poor credit availability

(5) Low productivity of farm lands

(6) High cost of inputs despite government subsidy.

(E.g. seed & post fertilizers

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(6) Low mechanisation of around 35 to 40%

(7) Decreasing soil fertility, falling water table, and Climate change induced rainfall pattern change

(8) Poor supply chain.

Role of technology in overcoming constraints.

(1) Use of Biotechnology to produce higher productivity seeds
E.g. GM crops.

(2) Use of nano technology to reduce cost & increase efficiency of fertilizer & pesticides
E.g. Nano Urea.

(3) Use of smart nano sensors to detect soil moisture & and plant growth

(4) Dissimination of agriculture information using

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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(5) Levering ICT to have e-markets (Eg. E-NAM) ~~and~~

(6) Using Agri stack which can increase extension of agriculture service and credit.

(7) Use of Artificial intelligence to run simulations to improve agriculture policy and supply chains.

(8) Increase shelf life via biotechnology

(9) Use of custom hiring centers (based on ICT) to improve mechanisation

(10) Use of Blockchain to improve supply chain registry

(11) Use of advancement in ~~cryo~~ cryogenics to improve ~~cold~~ cold value chain.

Agriculture is essential for ~~growth~~. for growth & must be made sustainable

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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 cover in India stands at 48% of cropped area.

Impact of irrigation on environment

(1) Depletion of groundwater (or) which leads to land subsidence.

(2) It also reduce water supply to trees as root cannot tap moisture

(2) Salinisation of soil due to flood irrigation after evaporation of water

(3) Eutrophication of water bodies due to water runoff with fertilizers

(4) Change in flow of rivers

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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due to contractio construction of dams

(5) Dams further lead to deforestation and loss of biodiversity due to submergence

(6) Impact rainfall patterns due to mass evaporation & cloud formation

(7) Air pollution due to evaporation of volatile fertilizer & pesticide along with water.

Measures to promote Sustainability & equity

(1) Ashok Dalwani Committee recommended use of Micro irrigation to reduce water consumption

(2) Use of Drought resistant and less water intensive crops like millets.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(3) Promotion & making micro irrigation technology economically viable
E.g. PM Krishi Sichai Yojana.

(4) ~~Redu~~ disincentivise extensive use of ~~irrig~~ water. Eg. Free Electricity.

(5) Use of organic farming to increase soil moisture holding capacity

(6) Use of river dams to reduce impact on Submergence of land.

(7) Mulching of farm to reduce evaporation.

(8) Disincentivise water intensive crops via policy like MSP.

Water is the ~~#~~ limiting factor in growth of not only agriculture but also human civilisation.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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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

Indian progress in scientific field can be attributed to ~~scientific~~ se efforts of scientific legends.

Contributions of Dr. Homi Bhabha

(1) Establishment of Atomic energy commission
(2) Establishing BARC (Bhabha Atomic research center)
(3) Formulation of Nuclear Power Program (3 stage)
(4) Blue print for Uranium & Thorium extraction.
(5) Nuclear power plant set up.

Strategic benefits to India

(1) Provided ~~source~~ sustainable source of power (nuclear energy)
(2) Provided Direction to nuclear program (currently we are using fast ~~fast~~ breeder

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

reaction)

(3) Help in Boosting Atomic ~~research~~ research

(4) India becoming Nuclear power due to early research

(5) Respectful representation at IAEA.

(6) Future key ~~sufficiency~~ sufficiency due to high thorium reserves (Monazite sand)

Contributions of Vikram ~~Sarabhai~~ Sarabhai

- Establish INCOSPAR which later became ISRO
- Setup of Rocket launching station
- ~~Launching~~ Development of INSAT Satellites
- Launch of Aryabhata (first Indian satellite

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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Strategic Benefits

(1) Use of satellites for various purpose like communication, navigation (NAVIC) and military purpose

(2) Development of Anti-satellite missile based on space technology.

(3) Sustainable Rocket Launching by SSLV

(4) Use of remote sensing technology. Eg. New lithium reserves in J & K.

(5) Diplomatic ties due to success of ISRO. Eg. Artemis Accord.

India is leading nation in nuclear & space technology.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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 can produce various type of content.

Eg. Chat gpt.

Potential to push boundaries of innovation

(1) Promotion of efficient methods of Education and user paced learning.

(2) P. Development of Health care bots which can prescribe medicine, assist research, and diagnose diseases.

(3) Provide rich information to farmers of new & efficient cropping methods.

(4) Take over repitative and low value addition works.

Eg. Clerical

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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(5) Simplify works and make those widely accessible.
E.g. Job of Graphic designers.

(6) Generation of Art :
Eg. Using music data - forming new song.

(7) Automation of industry

(8) Automation of vehicles & efficient road safe & management.

(9) Preventive policing

Societal impact

(1) Job losses due to replacement of worker. Eg. ~~Gig~~ Drayman low skill.

(2) Use for unsolicited purpose
E.g. Porn generation (recent telegram bot case)

(3) ~~Ub~~ Bias in data based on on records. It is not efficient for non-whites (Recent Facial recognition failure case)

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(4) Privacy breach as huge personal data is fed & profiling is done
Eg. Customised Ads

(5) Cyber ~~security~~ security threat due to nature of technology

(6) Use for deep fakes to ~~make~~ make fake news

(7)

RAISE (Responsible AI for social empowerment)

Way forward

Regulations like recently done by China

Reskilling of workforce

Effective implementation of data Protection Act.

AI is a pandora's box for ~~just~~ future development.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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

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

Mangrove refer to salt water tolerant tree species which are found in tropical & sub tropical coastal areas.

E.g. Sunderbans.

Purpose of Mangrove Alliance for Climate

(1) Increased Research & development for mangrove conservation

(2) Eduction & awareness about importance of mangroves

(3) Increasing funding for mangrove conservation

(4) Promotion of Civil society ore engagement including experts in conservation efforts.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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(5) Restoration & conservation of mangroves

Importance of mangrove in maintenance of coastal ecology

(1) Provide biosheild against disasters.
Eg. Cyclones cyclones in West Bengal.

(2) Provides for sedimentation of balance of soil.

(3) Filter heavy metals from water

(4) Plays active role in water cycle, carbon cycle, etc.

(5) Acts as carbon stock and store huge amount of carbon.

(6) Provide food to coastal communities
Eg. Rice cultivation.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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(7) Provides habitat to bio diversity such fauna. and protects them from climate change effects.

(8) Prevents coastal soil erosion due to binding by roots.

(9) Prevents sea water intrusion

(10) Provides for rich fishing grounds to sustain local community.

(11) Helps in percolation of rain water and recharge ground water.

Mangroves can be conserved by effective community participation as being done in 24 Parganas District of West Bengal.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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 infrastructure was established by India & France to promote effective disaster management.

CDRI brings Robustness in Disaster management approach

(1) Improves Research & Development in Disaster resilience of structures

(2) Increases funding for development and retrofitting of old infrastructure

(3) Effective engagement from of civil society including leading experts.

(4) Global cooperation in ~~disaster~~ disaster mitigation efforts.

4.1. promote knowledge exchange

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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4. Promote best practice adoption globally.

5. Improve availability for data related to disaster resilience

6. ~~Upsi~~ Upgrading the current infrastructure & make them disaster proof.

7. ~~Focused~~ focused approach to disaster ~~relief~~ resilience

8. Reduce ~~the~~ loss and damage of economic & social infrastructure

9. Promote quick & resilient recovery.

Need for a New strategy

1. Failure of previous approach such as 2004 Tsunami, 2013 Uttrakhand floods.

2. Rising ~~disasters~~ disaster ~~frequency~~ frequency & intensity due to climate change E.g. cyclones

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(3) Cross border nature of disasters calls for improved coordination

(4) Aging of current infrastructure E.g. Dams in India are more than 100 year old.

(5) Less focus on mitigation & more on recovery

(6) Current lax implementation of Building code
Eg. Joshimath case

(7) Protection of marginalised sections as they are worst sufferer of disaster.

CDRI provides for global proactive approach to combat disasters.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

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Q14 महत्वपूर्ण बुनियादी ढाँचे (क्रिटिकल इंफ्रास्ट्रक्चर) और प्रमुख निगमों को लक्षित करने वाले रैंसमवेयर हमलों में हुई हालिया वृद्धि ने मजबूत साइबर सुरक्षा उपायों और नीतियों की तत्काल आवश्यकता पर प्रकाश डाला है। इस प्रवृत्ति में योगदान देने वाले प्रमुख कारकों पर चर्चा करते हुए, विभिन्न क्षेत्रों पर इन हमलों के प्रभाव का विश्लेषण कीजिए।

(250 शब्दों में उत्तर दीजिए) 15 अंक

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

(Answer in 250 words) 15 Marks

~~Recently~~ Recently AIIMS server was hacked for ransom.

~~Ransomware tools the~~

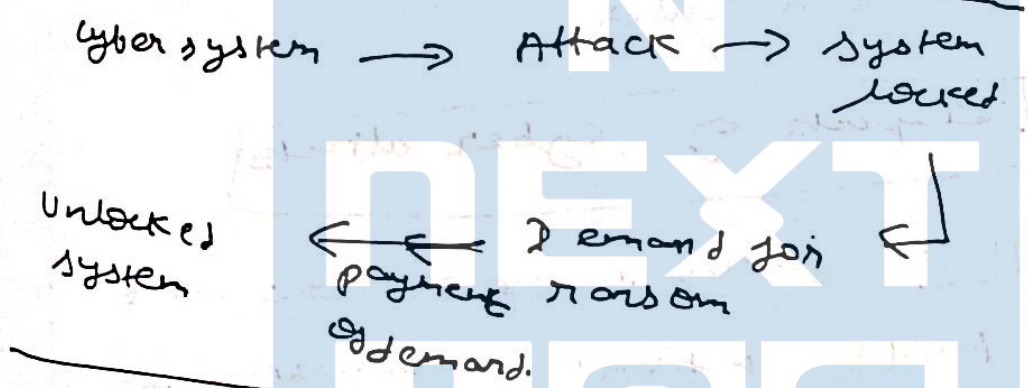


Fig. Ransomware

Key factors behind rise

(1) Rising use of cyber servers ~~for~~ by industry

(2) Rising capabilities of criminals with new ~~tech~~ technology

(3) Anonymity provided by VPN & Cryptocurrency.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

(4) Poor & cyber security of industrial sectors.

(5) lack of updates in cyber sec. security protocol procedure & system

(6) lack of digital literacy of people in general and staff in particular.

(2) Impacts of cyber attacks

(1) Halt critical operations like AIIMS patient numbering and nuclear power plant operations

(2) ~~loss~~ loss of Business productivity

(3) loss of investor confidence in nations capability to counter cyber attack

(4) Threat of targeting critical information infrastructure like payment system.

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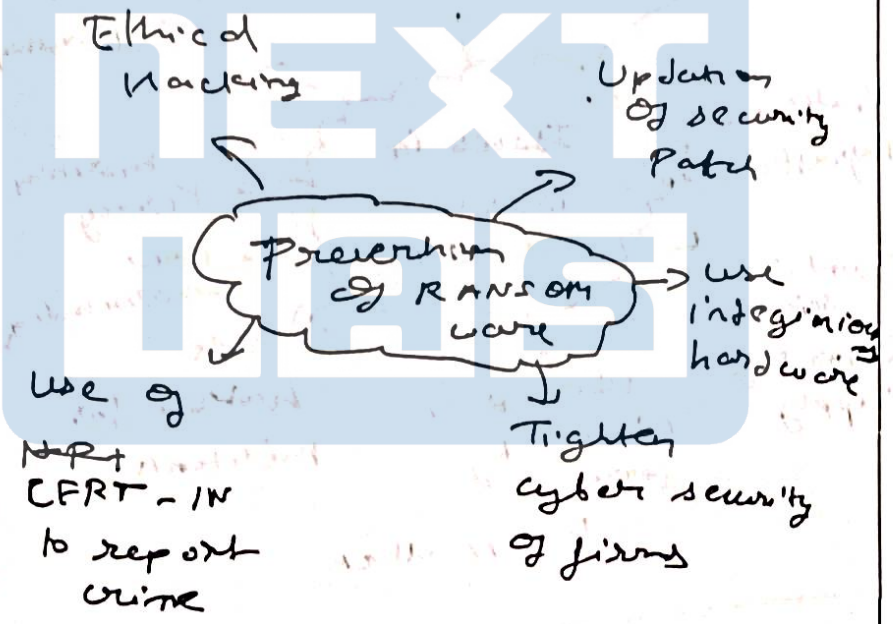
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(5) low ~~consumer~~ consumer confidence ~~to~~ to ~~delay~~ delay policy adoption like digital India.

(6) Espionage of critical & personal data.

(7) ~~Double~~ increase illigitimate cyber crimes due to ~~the~~ quick ransom money.



Cyber world is the future of ~~the~~ frontiers of economy & hence must be protected.

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM

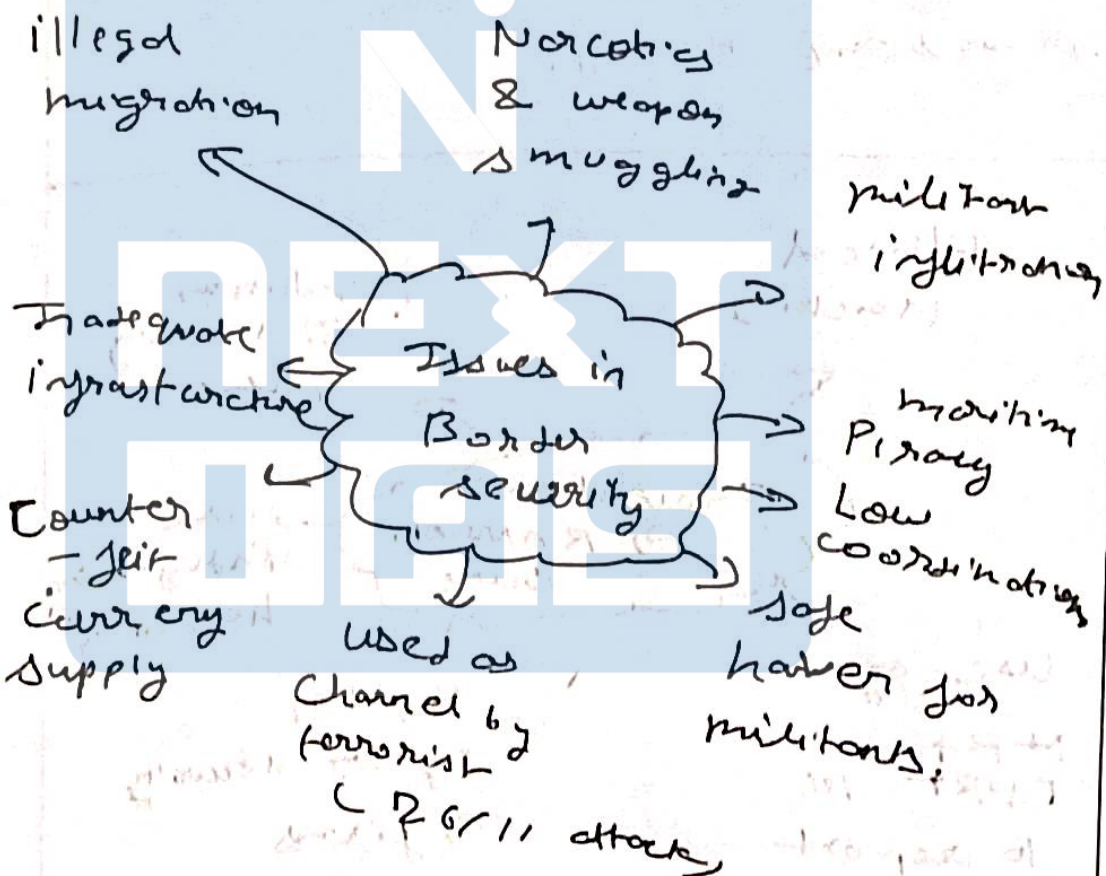
Q.20 सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(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 15,200 km of Land border & 7500 km of ~~a~~ maritime border.



~~Role of effective & efficient~~

Role of coordination & cooperation in effective & efficient borders management

Next IAS ID: PTTP220305, TC073, 18-08-2023 01:16 PM
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(1) Intelligence sharing among local police and paramilitary forces.

(2) Leveraging local police to keep check on illegal immigrants.

(3) Promotion of Joint operations to counter narcotics.

(4) Use of coordinated policy to counter sea piracy by Navy & Coast guard. as they have different Jurisdiction and capability.

(5) Clarity on handling Jurisdiction and lack of interservice conflict. Eg. regarding recent Jurisdiction of BSF to 100 km of adjacent to adjacent to Border)

(6) Infrastructure development

With help of Border road organisation, port development agencies & paramilitary provide security to

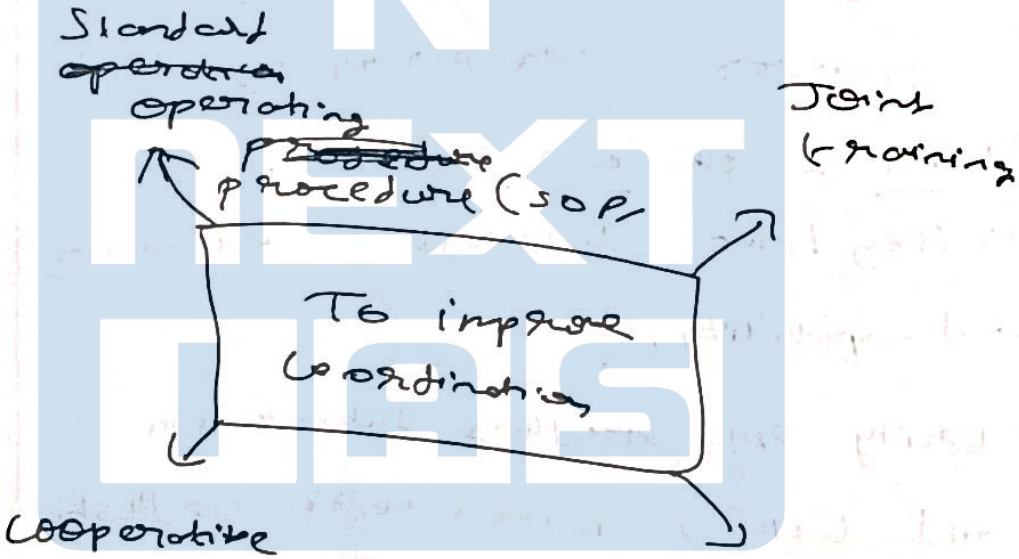
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these agencies.

(7) Infrastructure sharing with other services to reduce short ~~fall~~ term fiscal deficit

E.g. Checkposts

(8) ~~Role~~



Or "Strong fence is the greatest defence"