Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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(To be filled by candidate)

Name of Candidate : Jaswant Malik

NEXT IAS Roll No.: MT23FLTRA027 **Date of Examination :** 27/07/23

Exam Centre : Old Rajinder Nagar ☒ Bhopal ☐ Online ☐

Test Code : _____ **Program :** FLT ☒ FLT+ ☐

MAIN TEST SERIES 2023

(FULL LENGTH TEST-3)

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: MT23FLTRA027, TC003, 28-07-2023 06:48 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: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

MACRO COMMENTS

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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 refers to the tax on profits of the organisation which were not expected in the normal course of business, lottery, gambling etc

Windfall Tax to redistribute wealth

1) Increase fiscal space for government to
   - Expand public health services
   - ↑ Education spending to 6% of GDP
2) Design a UBI like initiate to reduce income inequality.
3) Channelise new revenues into productive long term investments
   (eg) Increase capital expenditure.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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4) less than 1% of population pays tax, need to enhance tax to GDP ratio (from 11% to 15%)

5) welfare spending on access to food, pensions for old etc.

6) Strengthen social security framework for informal workers (>90% of labor force)

Challenges

1) Difficult to asses and calculate
2) Might hurt sentiments of foreign investors
3) Reduces ease of doing Business

Therefore a well thought out strategy is required to mitigate the challenges and exploit the potential of windfall by.

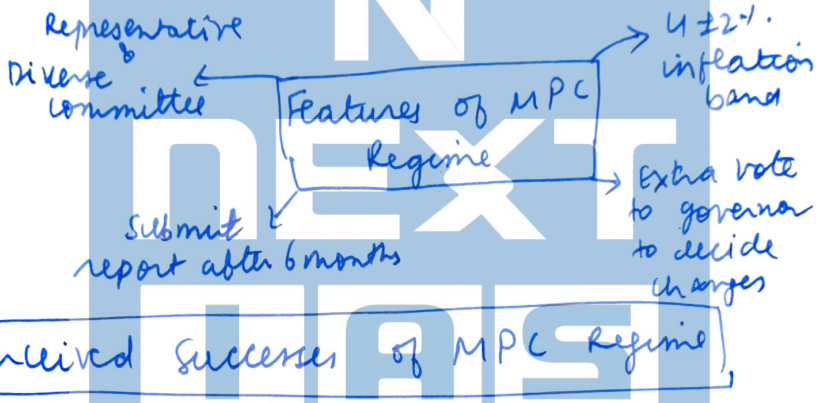
Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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

Candidates must write on this

The Urjit Patel committee recommended the new Monetary Policy Committee (MPC) regime to regulate and control Inflation.



Received Successes of MPC Regime

1) Brought convergence of fiscal policies with monetary policies → As targets are mutually decided by RBI and Government

2) Provide long term stability in policies with 5 year target

3) Adopting a flexible approach.
   ↳ Choosing a range than a

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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absolute number for targetting.

4) Greater transparency and accountability
(eg) RBI to respond in writing if target missed for 2 quarters.

The inflation rate was greater than 6% for most of 2022-23 (FY).

Challenges of Implementation

1) Competing interests (Economic Growth and Monetary Stability)

2) Concentrated nature of inflation [food due to Erratic monsoon]

3) Supply side shocks → Ukraine-Russia war
→ COVID led disruption
beyond control of RBI.

4) Monetary policy becomes ineffective → when interest rates don't changed by Banks.

Inflation is a tax on poor people. Need to maintain it within limits for sustainable economic growth.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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

Candidates s write on this

UN has declared 2023 year as International Year of Millets highlighting its importance in today's world.

Potential of millets

A) Sustainable Agriculture

1) Climate resilient crops (es with and high temperature during heat wave)

2) Yield does not come down due to uneven rainfall.

3) Reduced input costs → Greater revenue for the farmer

4) Avoids excessive use of chemical fertilizers → long term fertility of soil

5) Reduced usage of water → Helps in water security and groundwater recharge

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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B) **Improving Food Security**

1) Higher Nutritional Content
   Wheat → 7-1. ; Rice → 5-1., Millets → 9-11-1.
   of protein

2) Suitable as a staple cereal for people suffering from celiac (not able to digest wheat protein)

3) Higher micronutrients → Help fight Anemia

4) Resilient to pest attacks, extreme weather events → Consistent production.

The challenges in acquisition under MSP and poor distribution networks prevent full scale adoption.

PM has ~~for~~ termed them 'Shree Anna' and need to be popularised through PDS and mid-day meal scheme.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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 has been started to ensure water security and access to potable water for all by 2024.

Significance of the mission

1) Ensures minimum access of 70 l per capita per day availability of drinking water



2) focusses on augmenting supply
- Rain water harvesting structures
- Revival of traditional water bodies

3) Leverage technology to reach remote areas

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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Challenges in Implementation

1) Geographical location
   - difficult to access and transport water in high slope areas

2) Coordination Issues between local, state and national governments

3) Access to funds remains a challenge and mis-utilization without effective checks

4) Climate change
   - Water supply issues to be erratic monsoon.

Way Forward

- Raising awareness & sensitization
- Rapid afforestation for long term security

The Jal Jeevan mission helps in achieving SDG-6 and improves quality of life of people

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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

The increasing push for Renewable Energy (currently 43%) to increase to 50% by 2030 would require effective Battery energy storage systems

Battery Energy Storage System

1) Chemical batteries to store energy
2) Lithium-Ion batteries used in evehicles
3) It uses metals, minerals to store the produced electricity and allow to use it at a later time

Applications
- Electronic Items like laptop, mobile
- e-vehicles
- Evacuation of solar wind power

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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Revolutionize the Energy Market

1) Reduced dependence on fossil fuels
2) Changing the entire transport network
3) Saving of foreign exchange with reduced oil imports
4) Helps in attaining strategic energy autonomy
5) Helps in achieving Energy security to all

Challenges

1) Chemical pollution
2) Bursting of batteries → Harms physical safety
3) Import of chief raw material (100% Lithium Imports)

Need to invest in Research and Development to build indigenous capacity of battery production

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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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 Mission of ISRO is an attempt to take 3 Indians to space in low earth orbit for 7 days.

Developments in mission

1) 3 phases are designed to first send a humanoid robot to space
2) Crew Recovery capsule tested to ensure safety
3) Use of GSLV-3 satellite launch vehicle.
4) The orbiter and lander of the mission is in final stages of development
5) Fully indigenous effort to send Indians in Space.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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Challenges in the Mission

1) Technical challenges →
   - Development of effective communication network

2) Creating sustainable atmosphere for survival for 7 days!
   - Issues of fuel, food.

The Gaganyaan mission will be a massive leap in the journey of ISRO, and would announce the arrival of India as a major space power.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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

The National Green Hydrogen Mission has made a target to produce 5 million tonnes of Hydrogen and allocated 17000 crores for it

Silver Bullet to tackle climate change

1) Replace 'dirty' fuels like coal in iron and steel Industry → Reduce Emissions

2) Used as a feedstock in fertilizers development.

3) Promote **green - public transport**

(Eg) Petrol Buses → H-CNG Buses

4) Used to store surplus Renewable energy to reduce dependence on fossil fuels.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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Challenges in Mission

1) Hydrogen is a fuel
   - ↳ combustible, odorless → difficult to transport
   - ↳ Need cryogenic containers for storage

2) Technology is nascent for mass production.

3) India currently imports 100% of electrolyzers for production.

4) Reduced private sector participation due to high initial capital.

Way Forward

- ↳ Create International collaboration for R&D
- ↳ Localised production of Electrolyzers (PLI scheme)

The green hydrogen has big potential to decarbonize economy and help us achieve 'Panchamrita' goals.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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 land subsidence incident at Joshimath has exposed the vulnerabilities of development activities in hilly areas.

Key lessons

A) Disaster management

1) Change of Approach
- from being reactive (focussing on relief) to proactive (prevention & preparedness)

2) Data based policy making

(eg) Respecting scientific studies (Mishra Committee Report 1976)

3) No one-size fits all approach → learn about the risks and vulnerability of each location

(eg) Joshimath build on landslide debris

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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B) Environment Conservation

1) Exploitation of Natural resources not sustainable

(eg) Ground water extraction & Land subsidence.

2) Heavy projects should not be allowed in eco-sensitive areas

(eg) Tapovan Hydro Electric plant

3) Sustainable human activities → (eg) Eco-Tourism

4) Use of Blasting to cut rocks, change slopes to build roads → need to be rethought.

The Infra projects and developmental activities need to happen taking a long term view. following on scientific evidence and not ignoring risks should be done.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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 Border Security force and State Police of Punjab has caught increased number of trafficked consignments from Pakistani side in last couple of years.

Issue of Khalistan: Still Simmering

1) Weak federal relations with centre

2) Political instability with representatives changing parties → loss of trust.

3) International factor

- NRI's constituency in UK, Canada stoking fire (eg) Khalistan 2020 referendum

4) Stagnant economic growth, high state debt and loss of employment opportunities

5) Feeling of Injustice

(eg) Trials still continuing in 1984 riots cases

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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6) Increased trafficking of drugs and guns to radicalise youth.

Measures to Handle

1) Bridging trust deficit in the public.
   (eg) Clearing central dues of MSP.
2) Economic Revival of State
   (eg) Setting up IT industries
3) Security measures → Border to be managed effectively (CIBMS)
   → Leverage technology (eg) Jamming & shooting down drones)
4) Taking action against separatist groups and sympathisers (eg) Babbar Khalsa)
5) De-Radicalisation of youth
   (eg) learn from operation Pigeon in Kerala

The underlying reason for the simmering is social-economic backwardness and stagnancy. The 3D approach (Dialogue, Deterrence and Development) to be followed.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

Q.10 ड्रोन संचालन में आसानी और साथ ही इसके संचालक की अनामिता, भारत की सीमा सुरक्षा की चुनौतियों में वृद्धि करती है। विस्तारपूर्वक वर्णन कीजिए और सीमावर्ती क्षेत्रों में ड्रोन समस्या से निपटने के लिए सुझाव दीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

The anonymity and ease of drone operation contribute to the challenges of India's border security. Elaborate and give suggestions to tackle the drone problem in border areas.

(Answer in 150 words) 10 Marks

Drones are unmanned aerial vechicle that are remotely operated. They have multifold application from delivery of goods to collecting information.

Drones: Challenge to Border Security

1) Use for reconaissance activity

(eg) Drone used in Jammu blast in Air force station (for surveillance)

2) Used in trafficking of weapons

(eg) Pakistani groups sending automatic weapons in Punjab.

3) Multiple drones when used in a single operation can de-stable border security checks.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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4) Used by Organized Crime Networks for sale of drugs, narcotics.

Suggestions to Tackle

1) Effective Implementation of Civil Aviation UAV flying rules

2) Develop offensive capabilities
   (eg) Iron Dome of Israel

3) Develop high-tech radar technology for early identification

4) Sensitization and awareness among public (eg) Nefarious use of drones.

Drones are part of hybrid warfare strategy deployed by hostile groups. Need to build indegenous capabilities to tackle the problem.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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



Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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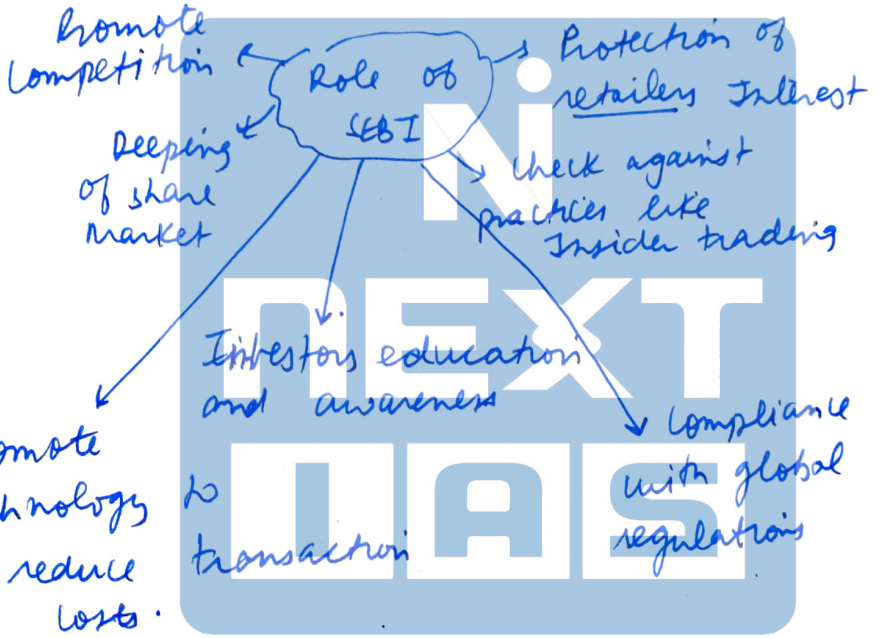
12 भारतीय प्रतिभूति एवं विनिमय बोर्ड (सेबी) शेयर बाजार के नियमन और निवेशकों के हितों की सुरक्षा में महत्त्वपूर्ण भूमिका निभाता है। दिये गए कथन के आलोक में, सेबी के समक्ष आने वाली चुनौतियों पर प्रकाश डालिए और इस संबंध में सुधारों का सुझाव दीजिये।

(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

The SEBI was set up in early 1990s as the regulator of securities market.



Challenges faced by SEBI

1) Weak enforcement mechanisms

(Eg) recent co-location scam at NSE Offic

2) Deepening of share market has not happened

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

(eg) <5% of Indian households invest in shares market.

3) Financial disclosures norms to promote transparency not followed by companies

(eg) BRIGTCOM group case

4) Regulation of foreign capital to manipulate price

(eg) ADANI's share price rise in recent time

5) Appointment of high integrity people at leadership position lacking

(eg) case of Miss Radhakrishnan involved in NSE Co-location Scam.

6) Development of corporate Bonds market.

Reforms @ SEBI

1) Strict criteria for public disclosure of financial documents at the

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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time of listing.

2) Third party audits should happen every quarter to check compliance of fiduciary norms

3) Develop Standard Operating Procedure for appointments with proper background checks

With the current debate on full capital convertibility of rupee, an independent and effective Securities regulator is extremely important for financial stability

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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 contributes 18% to GDP and 46% to the country's labor force. Its

Constraints faced by Indian Agriculture

1) Poor price realization by farmers → low Incomes.
2) Falling and stagnating yield of crops
   (eg) India's Rice yield is 2/3rd of global Average
3) Rising cost of Inputs → ↑ in Debt (50% of Agriculture families)
4) Climate change has brought uncertainties
   (eg) (might reduce farmer's income by 20-25%)
5) **Information Asymmetry** — No organized mechanism to ascertain demand and then decide crops to cultivate.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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6) Effective access to irrigation lacking (eg 52% of cultivable area rainfed)

7) Extensive use of chemical fertilizers → loss of soil fertility
(eg) 'Soil Salinization' in Haryana.

Role of Technology

1) Marketing of Produce
↳ Creation of digital markets (eg E-NAM)
↳ Better price realization
↳ Expansion of consumers.

2) Use of nano-based tech in application of fertilizers → Reduce wastage.
(eg) Nano neem coated urea.

3) Satellite based remote sensing stations data could be used in better risk assessment, growth of insurance → Protects farmer income.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

4) Biotechnology applications to produce climate-resilient, hardy crops.
   (eg) Bt. Cotton

5) Technological application in Irrigation
   (eg) Drip, micro irrigation.

6) Use of Acquaponics, vertical farming to increase income.

7) Digital communication technology in Agricultural Extension Services
   (eg) DD Kisan channel.

8) Block chain technology in land assessment, land record updation → easier access to credit

9) Cold chain storage, AI led supply chain integration to reduce post-harvest losses.

The goal of doubling farmers Income could be achieved with massive integration of technology in Agriculture.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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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

India has dubious distinction of largest user of ground water in the world (25%). Irrigation consume 80% of all extracted ground water in India.

Impact of Irrigation on Environment

1) 'Salinization' and 'desertification of soil' due to excessive irigation in Punjab and Haryana.

2) Exploitation of ground water is a major cause of Land Subsidence → destroys biodiversity.

3) Irrigation practices when merged with unsustainable fertilizer use create land pollution, destruction of local flora and fauna.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

4) Unsustainable irrigation enhances risk for drought
(eg) Sugarcane cultivation in Vidarbha.

5) Creation of [dark zones] in Haryana, loss of regenerative capacity of soil to support local ecosystem.

6) Excessive ground water extraction lead to arsenic pollution and contamination.

7) Use of fossil fuels (dieselgenerators) for irrigation ↑ carbon Emissions.

[Measures to Ensure Sustainability]

1) Rationalization of electricity subsidy to prevent indiscriminate tube-well irrigation.

2) Adopt crops in alignment with local weather and ecology.
(eg) Not growing rice in Haryana.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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3) Leverage technologys to reduce water consumption
(eg) Drip / micro Irigation

4) Build and revitalize traditional storage structures for rain water harvesting.
(eg) Rajendra Singh work in Rajasthan.

5) Research and development of efficient seeds that has short cycle and requir less water
(eg) SUVARNA Rice.

6) Sensitization and Awareness among farmess about long term impact.

India with 16% of world population has access to only 4% of fresh water resources. Adopting ~~wide~~ sustainable irigation practices are therefore critical for water security of all.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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 Bhabha and Dr. Vikram Sarabhai are both pioneers in the field of Nuclear energy and space technology in India respectively.

Strategic Benefit from Dr. Bhabha's contributions

1) Laid foundation of India's 3 stage Nuclear power generation programme. to generate clean energy and ensure strategic autonomy.

2) Completion of Triad with Nuclear capabilities in Land, Air and water channels boosted India's security and defensive capabilities.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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3) Cutting edge research in cosmic rays, neutron - electron dynamic movement has pushed research boundaries in fundamental sciences.

4) Institutions build by Dr. Bhabha like BARC, TIFR has allowed creation of several generations of research scholars → help in dream of Becoming 'Vishwa Guru' and 'Knowledge Economy'

Benefits from Dr Sarabhai's contribution

1) Father of 'Indian Space Programme' and creation of ISRO.
2) satellite launch vehicles (GSLV, etc). indigenous developments → Strategic autonomy
3) Use of remote sensing satellite for weather forecasting and building

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

early warning systems.

4) Communication SAT allowed for growth of digital economy and IT sector.

5) Helped setting up 1st Management College (IIM-A) to provide quality education. Celebrated alumni's like Dr Rajan served as RBI governor.

6) pushed boundaries in fundamental science research in spectroscopy, astronomy and rockets.

Both these pioneers created a host of institutions to guide and lead Indian growth story.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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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

The launch of Chat-GPT as a generative language model tool has reflected the limitless possibilities of AI in the lives of humans.

Potential of Generative AI.

1) **Manufacturing** industries could deploy AI enabled 4-D manufacturing to create adaptive and dynamic products.

2) **Social media** companies have deployed AI tools to filter hateful content and maintain peaceful exchange.

3) Development of generative AI based cobots as personal assistants

4) AI with big data analytics could help solve **governance** challenges

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

in social welfare schemes distribution, land-record digitalization.

5) Generative AI based finance models to study several decades of data and come up with a risk-mitigating investment strategy

6) AI application in Mobility with self-driven cars that improve performance with past driving and traffic data

7) Tele-medicine companies deploy generative AI as diagnostic tools for cancer detection.

8) Creative spheres of Art (song writing) and digital education (personalized teaching)

Challenges of AI technology

1) Privacy of data becomes a challenge in hands of profit driven companies.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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2) Loss of Jobs with AI driven automation in all sectors of economy.

3) Bias in Algorithm affects the potential
(eg) face detection AI model identifies Black people as more prone to crime

4) Concentration of power in the hands of state
eg) 'Big-Brother' Chinese surveillance state

5) Possible scenarios of Singularity. when AI led machines start controlling humans (Elon Musk)

Way forward
→ EU regulations on frontier technologs
→ Breaking up Big companies to de-centralise power
→ Social awareness and continous upskilling to mitigate Job losses

AI is a double-edged sword. Need to adapt it to maximise human public good.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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

Mangroves all around the world are facing threats of unplanned construction, pollution from industries and aquaculture, leading to decrease in their area.

Purpose of 'Mangrove Alliance for Climate'

1) Promote international cooperation
   - Exchange of best practices
   - Access to finance to rebuild and afforestation
   - Access to new cultivation technologies

2) Convergence of schemes and initiatives like Mangroves for future (MFF), REDD+, etc.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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3) Generating Awareness about importance of Mangroves in tackling climate change

4)

Importance of Mangroves

1) Protection against cyclones, storms in coastal areas
   (eg) Sundarbans forest during 2003 Tsunami

2) Act as Carbon sink in reducing net-emissions.

3) Provide habitat to protect and nurture biodiversity.
   (eg) Bengal tiger in Sundarbans.

4) Prevent salinity ingress and protects the coastal soil ecology.

5) Livelihood and eco-tourism opportunities for local community.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

6) Medicinal benefits, nutrient uptake and recycle, filtration are other ecological services.

The falling area under mangroves is a cause of concern. The unsustainable ~~farms~~ aquaculture ( ), untreated industrial and agricultural effluents, coastal deforestation due to development activities have to be stopped.

Realising the importance of mangroves, the Govt. of India has announced a new MISHTY scheme for protection and promotion of mangroves.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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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

The Prime minister Mr Modi announced the creation of Coalition for Disaster Resilient Infrastructure (CDRI) to promote international cooperation, exchange of best practices among countries.

CDRI brings Robustness in DM approach

1) the economic damage of disasters (> $100 Bn) in last 20 years in India could be reduced with resilient infra.

2) ~~for~~ Strengthens the preventive and preparedness capability of community thus reduces risk.

$$\text{Disaster Risk} = \frac{\text{Hazard} \times \text{Vulnerability}}{\text{capability}}$$

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

3) In alignment of Sendai Disaster management framework to understand and reduce risk

4) Greater leverage of technology in disaster management

(eg) Earthquake resilient Buildings

Need for New Strategy

1) Reactive and piecemeal approach in current Disaster Management, 2005 Act.

2) Excess focus on relief and recovery than mitigation and prevention.

3) Coordination Issues between local, state and central governments prevent synergy in action.

4) Reliance on old-data models, and low capacity to collect new data

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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through location specific studies.

5) Major disasters like 'lightening' that causes highest mortality (>2300 in 2021) are not even categorised as disasters.

6) Emerging risks like COVID-viral pandemics need new dynamic frameworks to control

7) Reduced participation of civil society and private sector

Way forward

- creation of disaster mitigation fund.
- create collaboration with industry for technical knowledge exchange in design.

The 10 point agenda of PM Modi, with greater local level participation, and special care for marginalized provides guidance for effective action.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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

The Shadow PAD, Chinese ransomware attack attack of Power station units in India have exposed the vulnerabilities of of critical Infrastructure -

- Lack cyber specialists.
- IT Act, 2000
- Cyber Security Measures and Initiatives
  - CERT-In for emergency response
  - Cyber Security Policy 2013
  - Cyber Swachhta Kendras

Need for Stronger measures

1) Risks for India has increased dramatically
   - 760 mn > Internet users
   - poor quality of electronic devices with no security features

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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2) Deployment of Hybrid warfare by hostile nations

(eg) Stuxnet attack by US on Iran Nuclear Plants.

3) No Geographical Barriers, ~~and~~ low cost of launching attack and anonymity have contributed to more than 3000 attacks per day in India.

4) Rapidly evolving technologies make past strategies obsolete

(eg) Quantum-communication, Blockchain

5) Use of cyber applications ~~for~~ by Organized crime networks

(eg) Crypto currency & Dark net used for Narco trafficking

6) Critical Infrastructure sites would increase in number as India grows economically.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

Measures to Mitigate Risk

1) Bring new stronger, dedicated legislation (IT Act is 20 years old)
2) Increased private sector participation
3) Urgently fill vacancies in cyber specialist jobs
4) International collaborations (eg: Budapest Convention)

Cyber security has become paramount and requires a multi-stakeholder approach to attain and preserve it.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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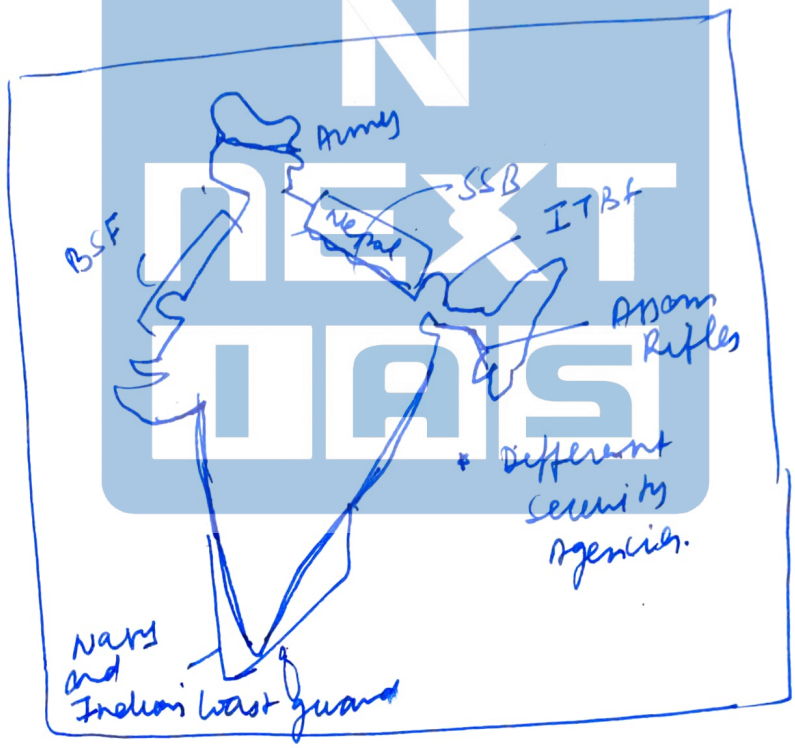
20 सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(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 15,000 km of land border and 7516 km of coastal border with varied terrains creating challenges for effective border management



Improving cooperation and coordination:

1) Standard and uniform operating procedures to be developed

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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2) Single command when multiple agencies are involved (Madhav Godbole committee)
(eg) ARMY, BSF and Assam Rifles on Bangladesh Border.

3) Creation of Theatre Commands to bring synergy in action (Madhukar Gupta committee)
(eg) Maritime theatre Command.

4) Joint training and exercise comps between agencies to enhance cooperation, familiarity and understanding.

5) Unified intelligence capturing database with equal access to all agencies
(eg) NATGRID

6) Secured - Communication technology with encryption for agencies.

Next IAS ID: MT23FLTRA027, TC003, 28-07-2023 06:48 PM

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The recent Galwan incursion and clash by China has highlighted the risks in effective Border management.

Initiatives like CIBMS, BOLD-QIT, to leverage technology plus social and economic development programmes are the way forward.

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