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(To be filled by candidate)

Code : TC157

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MTS - RAPID TEST-3 : 2023

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SUBJECT/PAPER
GENERAL STUDIES

Invigilator's Sign. :

[To be filled by the STUDENT]

Student's Queries for the Evaluator (if any write them below)	

[To be filled by the EXAMINER]

Evaluator's response	

(For filling by Examiners only)

Evaluator Code :

Q.No	PgNo.	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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Q.1 अप्रत्याशित कर (विंडफॉल टैक्स) से आप क्या समझते हैं? क्या आपको लगता है कि अप्रत्याशित करों से संपदा का प्रभावी ढंग से पुनर्वितरण हो सकता है और अधिक आर्थिक समानता को बढ़ावा मिल सकता है?

(150 शब्दों में उत्तर दीजिए) 10 अंक

What do you understand by Windfall tax? Do you think that windfall taxes can effectively redistribute wealth and promote greater economic equality?

(Answer in 150 words) 10 Marks

Windfall tax is a tax on profits that arise from sudden windfall gain due to external or unprecedented event.

e.g: Oil prices due to Russia Ukraine war, and subsequent taxation.

Windfall taxes can redistribute wealth and promote economic equality.

① Higher tax income due to excessive profits

↳ Higher revenue, use it for welfare programmes, boost economic equality.

e.g: India windfall tax on petroleum crude.

② Wealth redistribution

↳ redistribute wealth from high profits of companies to those not profited at all.

③ Check inflation

↳ high taxes reduce money supply in economy.

Low inflation beneficial for poor and marginalized

However, windfall tax have negative impacts

① Discourage private investment

↳ reduce capital formation and economic growth.

② High tax on corporates

↳ affect profitability, lead to unemployment,
affect economic equality.

Windfall tax hold effective way for
wealth distributionⁱⁿ equitable way, however
negative externalities should be considered
for maximum benefit of economic equality.

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

The Monetary policy committee is set up under RBI Act, 1934 and is entrusted with fixing the policy rate to keep inflation within the tolerance band of $(4 \pm 2\%)$.

Success of Implementing Inflation targeting

- (1) Stable Inflation rate pre pandemic.
↳ 4.3% as per RBI report
- (2) Improved transparency in monetary policy
- (3) Flexibility in conduct of monetary policy
- (4) Stability in economy, policy making, fiscal policy. e.g.: 8% growth pre pandemic.
- (5) Proved successful in advanced economies,
↳ UK, New Zealand

However, there are various challenges in inflation targeting.

① Impossible trinity (Trilemma)

↳ Cannot pursue independent monetary policy, maintain fixed exchange rate and allow free flow of capital (full capital convertibility).

② Poor monetary policy transmission

(2 to 3 quarters to pass hikes)

③ Post pandemic recovery

↳ loan cuts to boost demand, however global inflation high.

④ Ineffective against supply side inflation

↳ oil imports global geopolitics, Covid hit supply chains

⑤ Skewed focus of RBI on inflation

↳ Neglecting other roles like unemployment, growth etc.

The current retail inflation of 7.45% as on July 2023 indicates the need for a more comprehensive strategy on inflation targeting.

Q.3

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

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

Millets are cereal crops and small seed grasses used for both human consumption and fodder for animals.

They have huge potential in promoting

- Sustainable Agriculture

- ① Millets are dryland crops with very less water requirements.
- ② They help in sequestering carbon and have low methane emissions.
- ③ Help in soil fertility.
- ④ Pest and drought resistant
↳ require lesser use of pesticides, fertilizers.
- ⑤ Used as fodder for animals
↳ Mixed farming, integrated farming boost

Improving Food Security

- ① Rich source of nutrients
↳ Iron, Calcium, Copper, Zinc, potassium,
thus help in hidden hunger, malnutrition.
- ② Adaptable in soil and agroclimatic conditions
↳ crop and dietary diversification.
- ③ Check against non-communicable disease
↳ Gluten free against diabetes, heart disease

However, the adoption of millets has been low due to various factors:

- ① Rice-wheat focus in agriculture
- ② Lack of commercialization and dietary preferences.

With this, inclusion of millets into PDS system as well as improving processing infrastructure will be imperative as we celebrate the International year of Millets 2023.

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 launched in 2019, envisages supply of 55 L of water per person per day to every rural households through functional household tap connection (FHTC).

It has the potential to end regional disparity in water availability

- ① It aims to create a jet andolan for water, making it everyone's right.
- ② Equitable water sharing agenda.

Significance

- ① Ensure functionality of existing systems, water quality, sustainable agri
- ② Use of conserved water, grey water treatment, reuse.

- (3) Local infrastructure for sustainability
↳ Rainwater harvesting, aquifer recharge
- (4) Community based approach
↳ Implementation by Paani Samitis, approved by Gram Sabha.

However, there are various impediments

- (1) Infrastructure challenges
↳ Remote areas, logistical issue (Himalayan States)
- (2) Funding constraints
- (3) Technical expertise at local level difficult
- (4) Capacity building: operation and maintenance of infrastructure
- (5) Water quality
↳ Contamination, poor quality (Arsenic, Uranium pollution)

There is an active need to Enrich and rectify shortcomings through PPP, quality standards and community engagement (Dublin principles) which will pave the way to achieve desired objectives while fulfilling SDG-6.

Q.5 बैटरी ऊर्जा भंडारण प्रणाली (बीईएसएस) से आप क्या समझते हैं? इसके अनुप्रयोगों पर चर्चा कीजिए और यह भारत के ऊर्जा कार्यक्रम में किस प्रकार क्रांतिकारी बदलाव ला सकता है। (150 शब्दों में उत्तर दीजिए) 10 अंक

What do you understand by Battery Energy Storage Systems (BESS)? Discuss its applications and how it can revolutionize the energy program of India. (Answer in 150 words) 10 Marks

Battery Energy Storage Systems (BESS) are infrastructure that store energy using specially developed batteries.

- ① They enable energy from renewable sources like Solar, hydro to be stored for future.
- ② They have low emissions and are geographically flexible in terms of location.

The applications of BESS are mainly

- ① Energy Storage
↳ amidst rising energy demand per capita.
- ② Reduce power outages
↳ Ensure peak energy supply
- ③ Renewable energy utilisation
↳ (3100 GWh)

④ Merchant capacity, buying and selling of power

↳ India Energy exchange (IEX)

⑤ Charging infrastructure of Electric vehicles

Further, it can revolutionize energy program of India

① Ensure Energy security

↳ Sufficient domestic cover, reduce foreign dependency.

② Boost India's Renewable Energy target

↳ 500 GW by 2030 (Panchamrit)

③ Boost electric vehicles program

↳ FAME II Scheme.

④ Fulfill India's global commitments and cooperation

↳ International Solar Alliance, microgrid connection.

⑤ Sustainable and Equitable access to energy

↳ fulfill goals of SDG-7. (Clean energy)

⑥ Boost Innovation

↳ R&D in Lithium Ion batteries.

BESS will go a long way towards transforming Energy sector of India.

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

The Gaganyaan mission of ISRO envisages to send three flights into orbit in which two will be unmanned and one human space flight.

The developments and Challenges in Gaganyaan mission are

① Developments

- ① completion of first phase of training of astronauts.
- ② Training scheduled in Russia with medical and space training

② Challenges in Mission

- ① Technological challenges
 - GSLV-MK-III Launch pad
 - Escape system in space.

② Environmental challenges

- Space with zero gravity, muscle movement
- No atmosphere, acclimatization with artificial atmosphere.
- Risk of solar radiation.

③ Threat from space debris

④ Behavioural, mental simulation due to isolation in space.

⑤ High cost of mission.

However, there are potential benefits for the society

① Boost science and tech R&D

↳ mission instruments, technical needs etc.

② Boost to industries, employment

↳ create 15,000 jobs.

③ Industry, academia collaboration

④ Foster international partnership

↳ space tech missions.

⑤ Inspire and foster scientific temper within India.

Gaganyaan Mission of ISRO will lead India into the elite nations of space powers towards growth of technology domain.

Q.7

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

(150 शब्दों में उत्तर दीजिए) 10 अंक

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

(Answer in 150 words) 10 Marks

Green hydrogen is the production of Hydrogen as a fuel using renewable energy sources such as water, solar, wind.

Green hydrogen can be silver bullet to tackle Climate change and pollution

① Reducing carbon emissions

↳ usage of Renewable sources under Green Hydrogen mission..

② Clean emissions thus reduce particulate emissions of PM 2.5, PM10, CO₂ etc.

③ Decarbonize sectors

↳ Transport, Aviation, heavy industry, fuel cell vehicles, Green Ammonia in agriculture.

④ Diversify Energy basket

↳ Reduce dependency on coal thermal power plants.

⑤ Fulfill International commitments

↳ INDC under Paris climate deal, 2015.

However, India's Green hydrogen mission suffers from various challenges

- ① Higher cost than traditional fossil fuels
- ② Lack of effective infrastructure for large scale production, storage & transport.
- ③ Compatibility of existing systems
↳ changes in vehicles engine for green hydrogen fuel.
- ④ Sustainability
↳ long term cost of hydrogen fuel less than conventional.

Way forward

- ① Regulatory framework and proper roadmap for adoption of Green hydrogen.
- ② Awareness and incentive mechanism.
- ③ Developing infrastructure support.

This will enable for proper effectiveness of National Green hydrogen mission towards mitigating challenges.

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

Recently Joshimath has been declared a landslide subsidence zone due to the sinking of the land and top soil.

In this aspect, the major causes for Joshimath disaster are

Natural

- ① Joshimath in seismic zone V as per MC Mishra committee report
- ② Situated on sand and stone deposit

Anthropogenic

- ① Development projects
↳ NTPC Tapovan projects, weakened local topography
- ② Unplanned urbanization
↳ without topsoil management
- ③ Tourism
↳ weakened load carrying capacity of soil.

④ Water exploitation

↳ Groundwater extraction weakened soil.

The key lessons are

Disaster Management

① Check on unplanned urbanization

② Identifying disaster risks / vulnerability assessment

↳ land slide, top soil management

③ Preparedness and mitigation

↳ Evacuation of people of Joshimath
as per the Sendai framework guidelines

Environmental Conservation

① Environmental Impact Assessment (EIA)

↳ of key projects

② Afforestation drives

↳ check soil erosion, landslide

③ Drainage pattern

↳ recharge of aquifers, groundwater, soil.

There is a need to use technology like Remote Sensing, Doppler radars to further forecast disaster and take timely actions.

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 Khalistan issue refers to a Sikh separatist movement that aims to establish homeland within Punjab.

Recent Radical trends in Punjab

- ① Rise of Amritpal Singh, leader of the radical outfit Waris Punjab de.
- ② Attack of Indian high commission and consulates
 ↳ March 2023 in London, Australia.
- ③ Attack of Hindu temples
 ↳ In Canada by Khalistani supporters.

In the context of these incidents amidst the simmering of Khalistan issue,

The following measures would be helpful

① Enhance security strategy

↳ crackdown of Khalistan networks within Punjab & intelligence, surveillance.

② Aggressive Diplomacy

↳ Ensure security at diplomatic avenues.
→ Counter propaganda on foreign soil.

③ Engage with Sikh Diaspora

④ Economic and Social development in Punjab.

⑤ Enhance Border security

↳ checks on drugs, arms, militancy

⑥ Social media monitoring on Khalistani propaganda.

This holistic set of measures will pave the way to take down the idea of Khalistan once and forever.

- 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

The potential use of drones in attacks against critical infrastructure and soft targets is a growing concern as drone technology becomes more widespread globally.

Anonymity and Ease of drone operations challenge India's Border Security

- ① Often smaller in size, thus undetected by radars and surveillance tech, anonymity.
- ② Available in different payloads
↳ aid in different operations ^{remotely} controlled.
- ③ Used for smuggling of drugs through Pakistan
↳ Proximity to golden crescent into Punjab
- ④ Smuggling of cross border arms
↳ fuelling militancy in Kashmir.
- ⑤ Surveillance on critical infra
↳ military installations, bases.

e.g: Drone sightings in Punjab, Rajasthan.

(6) Threat of drone based warfare

In this aspect, suggestions to tackle drone problems are

- (1) Drone guidelines 21, by Ministry of civil aviation
↳ Regulation of drones
- (2) National counter rogue drone guidelines 2019
↳ measures to prevent misuse, drone detection, neutralisation
- (3) Integrated Border Security
↳ Drone battalion for surveillance
- (4) Technology training, R&D, indigenous drone production
- (5) Air defence systems
↳ Israel Iron dome, Electronic warfare
- (6) Inter agency coordination
↳ Narcotics, terrorism, maritime border for integrated approach.

With advanced technologies, it is important for a multipronged strategy to counter Drone warfare and secure Indian borders.

- Q.11 विद्युत संशोधन विधेयक, 2022 उपभोक्ताओं, डिस्कॉम के साथ-साथ पर्यावरण के लिए कई लाभ प्रस्तुत करता है। सविस्तार वर्णन कीजिए। साथ ही इसकी कमियों को भी सूचीबद्ध कीजिए और उन्हें दूर करने के लिए कुछ उपायों का भी सुझाव दीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Electricity Amendment Bill, 2022 brings several advantages for consumers, DISCOMs as well as the environment. Elaborate. Also, list out its shortcomings and suggest some measures to overcome them. (Answer in 250 words) 15 Marks

The Electricity Amendment Bill 2022 aims to bring several reforms in the electricity sector to regulate electricity marketing, distribution etc.

It brings several advantages for

- Consumers

① Multiple Discoms in the same area.

↳ choice of suppliers to consumers.

→ efficiency through competition

② Minimum tariff ceilings to avoid predatory pricing.

Discoms

① Ensure timely payment by states.

- (1) Cross subsidy balancing fund
- (2) Can use existing distribution infra of other licenses.

Environment

- (1) Facilitate development of Hydro sector
- (2) Renewable purchase obligation
↳ as per % by central govt.
help in INDC targets
- (3) Penalty in case of Non-compliance with act

However, there are various shortcomings in the Act.

- (1) Federal Issue
↳ center vs States (Central electricity Reg. Commission)
→ Various provisions direct central govt.
- (2) Risk of privatizations of discoms
- (3) Risk of ending of subsidies to the farm sector

④ Huge burden on state exchequer

↳ power purchase contracts

⑤ Lack of clarity on functions and operations of regulators

Measures

① Upgrading the existing infrastructure of grid networks

② Regulation of private discoms

③ Focus on renewable energy infrastructure, initiatives

The Electricity Amendment Bill 2022 is a welcome step towards improving the existing sector however concerns needs to be addressed to ensure 24x7 electricity supply to all citizens.

- Q.12 भारतीय प्रतिभूति एवं विनियम बोर्ड (सेबी) शेयर बाजार के नियमन और निवेशकों के हितों की सुरक्षा में महत्वपूर्ण भूमिका निभाता है। दिये गए कथन के आलोक में, सेबी के समक्ष आने वाली चुनौतियों पर प्रकाश डालिए और इस संबंध में सुधारों का सुझाव दीजिये। (250 शब्दों में उत्तर दीजिए) 15 अंक

Securities and Exchange Board of India (SEBI) plays an important role in the regulation of the share market and safeguarding the interests of investors. In the light of given statement, highlight the challenges faced by the SEBI and suggest reforms in this regard. (Answer in 250 words) 15 Marks

SEBI is a regulatory body established by the Govt. of India to protect the interests of investors and regulate the securities market.

It plays an important role in regulation of share market.

- ① Reviews the stock market, operations,
↳ Recently led to T+1 settlement cycle.
- ② Regulation of stock market intermediaries
↳ merchant bankers, portfolio managers etc.
- ③ Regulation of venture funds, investment schemes : Real Estate Investment trusts (REITs)
- ④ Prohibit illegal practices
↳ Insider trading, steps after Harshad Mehta Scam.
→ Promotes corporate governance.

⑤ Investigates into alleged irregularities

- ↳ Recent Adani FPO issue over Hindenburg report.
- NSE co-allocation scam

However, there are various challenges faced by SEBI

① Limited Resources

- ↳ Delay in proceedings

② Complex Regulatory framework

- ↳ legal delays that slow enforcement

③ Failure to act on time against violation

- ↳ IL & FS crisis

④ Cybersecurity threats

- ↳ attack on NSE servers

⑤ Poor investor awareness and security market literacy

- ↳ e.g: Chit fund, Ponzi schemes.

Within this aspect, reforms are needed in SEBI

① Strengthen surveillance and enforcement mechanism

② Usage of technology like AI, ML to increase efficiency

↳ Recently RBI increased usage of AI.

③ Investors protection awareness and financial literacy

④ Develop a vibrant corporate security market

⑤ International collaboration for expertise

↳ with Intl. organization of securities commission.

It is important for SEBI to take a more proactive role in detecting and preventing financial irregularities to ensure a healthy financial security in India.

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 plays a vital role in contribution to the growth of Indian economy.

- ① It employs 55% of the population and contributes to 17% of total GDP.
- ② It accounts for 18% of the total GVA
- ③ Agriculture grew at 3.9% in 2022 at backdrop of COVID-19

highlighting its importance in economy.

However, agriculture sector is plagued by several constraints

Input Side

- ① Fragmented Landholdings

(86% farmers less than 2 hect : Agri Census 2015)

- ② Credit availability

↳ 40% farmer dependent on informal moneylenders.

③ High Input costs.

- Low seed replacement rate (6%).
- costly mechanized elements
- high labour costs, fertilizer costs.

④ Instability

- 60% area rainfed, climate change monsoon affect.
- affects yield of crops.

⑤ Cropping pattern

- Rice-wheat domination
- poor soil fertility, falling groundwater level.

Output Side

① Poor market Linkages

- oppressive APMC acts

② poor price realisation

- 6% farmers benefit MSP (Shanta Kumar Committee)

③ Lack of infra

- warehouses, cold storage, transportation.

④ Increasing Agri NPA

- affects profitability, 60,000 crore (RBI report)

⑤ Faulty export policies

In this Aspect, technology can help in

① Biotechnology : pest, climate resistance,

- increased yield, quality, low input needs
- in livestock : Insemination program.

NEXT IAS

e.g: Bt cotton, DMH Mustard.

② Use of AI, drones etc.

→ Improve soil health, spray pesticides, moisture content, improve yield.

③ Precision farming

↳ Drip irrigation, Nano urea, fertigation.

④ Use of advanced techniques

↳ Hydroponics, aquaponics, biofloc farming
Increased yields

⑤ Use of online markets

↳ e-NAM to improve market linkage, integrate pan India agri supply chain

⑥ Use of fintechs for enhanced credit access.

⑦ usage of land modernization tech to improve landpooling and increase productivity.

However, the inculcation of technology has to be judicious considering the literacy, skill, financial constraints. Further, this will enable the agri sector to boost the farmers income as per vision of Delwai committee.

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 supply of water to crops for agricultural production.

Irrigation has had multi level impact on environment and Natural resources.

① Increased agricultural productivity

↳ cultivation of water intensive crops. Rice, Wheat

② Mitigation of droughts

↳ Aquifer recharge, soil moisture enrichment

③ Combat Desertification

↳ Reclaim degraded land to make them arable.

e.g: Indira Gandhi Canal in Rajasthan.

However, irrigation has many negative impacts on Environment and Natural Resources.

NEXT IAS

Candidates
write on this① Exploitation of groundwater

- over extraction → water table lowered in Punjab
↳ virtual water export (ES 21)
- contamination with Arsenic, Uranium.
(found in Bihar)

② Waterlogging and Salinization

- ↳ accumulation of salts on soil

③ Excessive Irrigation → soil erosion

- ④ Irrigation runoff → fertilizer, pesticides, runoff. → Eutrophication
↳ threaten local biodiversity

⑤ Large scale Irrigation projects → Dams:

- ↳ environmental issues, change in river course, flooding, sediment deposition etc.

In this aspect, there are needs for measures for sustainability in Irrigation

① Integrated Watershed management

- ↳ Rainwater harvesting, aquifer recharge

② Use of technology

- ↳ Micro irrigation, drip irrigation, sprinkler irrigation

fertilization, international practices like Israel.

③ Mihir Shah committee → recommended institutions for capacity building of water professionals, usage of grey water in irrigation.

④ Implementation of schemes

- Accelerated Irrigation benefits program
- Krishi Sinchai Yojana
- Per drop more crop.

⑤ Adopting Best practices

↳ Mission Kakatiya of Telangana.

⑥ Participatory approach

↳ with civil society for soil and water conservation.

Sustainable Irrigation is the key to ensure sustainable agriculture and ensure resilience of envt. and Natural resources.

NEXT IAS

Candidate
write on!

Q.15 परमाणु ऊर्जा और अंतरिक्ष प्रौद्योगिकी के क्षेत्र में क्रमशः डॉ. होमी जहाँगीर भाभा और डॉ. विक्रम अंबालाल साराभाई के योगदान से भारत को रणनीतिक रूप से किस प्रकार लाभ हुआ? (250 शब्दों में उत्तर दीजिए) 15 अंक

How India benefitted strategically from the contributions of Dr. Homi Jehangir Bhabha and Dr. Vikram Ambalal Sarabhai in the fields of atomic energy and space technology respectively? (Answer in 250 words) 15 Marks

Dr. Homi Jehangir Bhabha and Dr. Vikram Sarabhai were instrumental in formation of India's future in astronomy and nuclear physics (space) (atomic) and were the key architects of modern Indian facilities.

Dr Homi Bhabha in Atomic Energy

- ① Worked with PM Nehru to establish the Atomic Energy Commission (AEC)
- ② Appointed as the first chairman of the (AEC).
- ③ Led to the development of BARC (Bhabha Atomic Research center)
- ④ Led to India's three stage nuclear programme using Thorium as fuel.

Vikram Sarabhai in Space Technology

- ① Led to the foundation of INCOSPAR which was renamed as ISRO in 1969.
- ② founded the Physical research lab in Ahmedabad.
- ③ He collaborated with Homi Bhabha as founding members of ISRO
- ④ Dr Sarabhai was also involved in launch of India's first satellite.

India benefitted strategically through

- ① Self sufficiency in Nuclear technology
↳ operation Smiling Buddha.
- ② Nuclear weapons as defence mechanism in current geopolitics.
↳ Pakistan, China: Nuclear powered.
- ③ Success of ISRO as one of world's best
↳ Involved in space research, Mangalyaan
→ few countries with advanced technology.

The Recent launch of Chandrayaan-3 reaffirms the invaluable contribution of two great scientists:

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 are AI systems capable of generating content in form of image, text, audio, video. e.g: DALL-E, ChatGPT

In this context, they have the potential to push boundaries of innovation

① Creative expression

↳ Stories, poems, music generation
Art forms (DALL-E)

② Innovation in science and technology

↳ Complex solutions, in field of health, drug discovery, space technology, robotics.

③ film and production

↳ generation of computer graphics, imagery

④ Design

↳ fashion industry, interior design, company advertisements.

⑤ Productivity and Governance

↳ Drafting legal documents (recently in Delhi HC)

However, their societal impact raises various challenges

① Rise of deepfakes

↳ misinformation, fake news, blackmailing

② Cyber security threats

↳ phishing, identity theft

③ Faulty training

↳ reinforces social biases in training
→ prejudice against women, gender norms.

④ Potential misuse

↳ MBA in US copied HW from GPT.

⑤ Intellectual property

↳ issue of copyright

→ Artists protested after DALL-E art forms

Within this aspect, the need of measures for regulation

- ① Regulatory frameworks in place
 - ↳ Niti Aayog AI strategy
 - ↳ Asilomar AI principles.
- ② Industry collaboration
 - ↳ code of conduct, standardization
- ③ Research and Development
 - ↳ proper training, measures against cyber threats
- ④ Global collaboration
 - ↳ GPAI (India founding member)
- ⑤ Focus on AI literacy, awareness

Effective multistakeholder approach will foster the way to harness generative AI's capabilities for welfare of 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

The 'Mangrove Alliance for Climate' was launched in COP 27 UN Climate change conference to foster and lead the way for conservation of mangroves.

Purpose of Mangrove Alliance for Climate

- ① Spread awareness on importance of mangrove forests in fight against Climate change
- ② Foster international collaboration on conservation of mangroves.
- ③ Share best practices and expertise.

The Importance of Mangroves are

- ① Act as imp. role in coastal ecosystem
 - Conducive habitat : Nutrient cycle, biodiversity, ecosystem stability.

+ Shade and shelter, act as breeding ground

② Act as a carbon sink

↳ help in sequestering atmospheric carbon.

③ Prevent soil erosion

↳ by tidal and sea waves in coastal areas

④ Act as buffer against storm surges

↳ 2004 Indian Ocean tsunami: mangroves acted as resistance in A&N Islands.

However, mangroves have been facing threats due to

① commercial exploitation of coastal areas

② Shrimp farming

↳ caused huge losses of mangrove forests

③ Climate change

↳ sea level and sea temp level rise affected mangrove ecosystem

④ Shifting coastlines, coastal erosion, storms have led to habitat destruction.

NEXT IAS

Candidates may
write on this

Within this aspect and the formation of Mangrove Alliance for climate,

Further action is needed in form of

- ① Mangrove Afforestation
↳ using CAMPA funds
- ② MISHITI Scheme (Budget 23)
- ③ Active community involvement
↳ protection of coastal ecology.

This will enable the 'Global Mangrove Alliance for Climate' to fulfill its purpose.

- 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 Coalition for Disaster Resilient Infrastructure was launched by PM Modi at UN Summit in 2021.

It envisages to foster innovation in infrastructure resilience.

The need for a new Strategy to tackle Disasters is justified based on

① Vulnerability to Multiple Hazards

- ↳ Floods (12% of India at risk, Ganga Brahmaputra plain)
- Earthquake (seismically active zone)
- Cyclones (long coastline vulnerability)

② Increasing frequency and intensity

- ↳ Cyclone Biparjoy ..
- Earthquakes in Delhi
- Cloudburst, landslides in Himachal.

③ Increased Urbanization and Population

↳ Increased vulnerability

④ Huge Economic Impact

↳ damage to infrastructure,

-) loss of livelihood

→ Recent loss in Himachal (1000 billion ₹)

⑤ Holistic proactive approach

→ as per mandate of Sendai framework
on disaster risk mitigation and preparedness.

Within this aspect, CDRP will bring more
robustness to Disaster Management

① Improved designs, process, standardization
of infra construction

② Risk identification

↳ Risk mapping to minimize damage from risk

③ International cooperation

↳ Sharing of best practices, capacity
building

→ cyclone shelters, Odisha.

- ④ Integration of disaster management policies in governance.
- ⑤ Usage of affordable finance and technology
- ⑥ Set up Regulatory Institutions

However, mitigation plan requires a more integrated approach through:

- ① Multi stakeholder participatory approach
↳ community engagement, civil society, NDRF etc.
- ② Contingency plans and SOP on disasters
↳ National Disaster Plan 2019

This will pave the way for successful approach towards Disaster Risk Reduction (DRR) and for a more resilient infrastructure.

NEXT IAS

Candidates must
write on this side

- Q.19 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

Ransomware is a malicious software that blocks access to a computer system until a ransom is paid.

As per recent reports, ransomware attacks have increased by over 50% during last year.

Key factors contributing to this trend

- ① Increased Digital space
↳ this increased vulnerabilities
- ② usage of advanced sophisticated techniques
- ③ Importance of Data online
↳ sensitive, personal data stored on online servers
- ④ Increasing usage of cryptocurrencies
↳ transactions difficult to track,
thus used in illegal transactions.

Impact of Attack on various sectors

① Healthcare

↳ Recent AIIIMS attack,
personal health record data at risk.

② Critical infrastructure

↳ cyberattack at Kudankulam Nuclear
power plant.
→ Attack of energy grids / Energy security

③ National Security

↳ Govt websites, data, information protection,
critical systems.

④ Financial Security

→ online attack, stealing of personal data
→ credit card details on darkweb.
→ Wannacry attack on Banks

Measures to deal with Ransomware attack

① National cybersecurity Strategy 2020

↳ Holistic implementation

② Effective guidelines, regulations

↳ cybersecurity directives by Cest-In
→ contingency plans on National Information
Security.

NEXT IAS

Candidates must
write on this margin③ Operation on Indigenous systems (Gulshan Rai committee)

↳ Recently Defence ministry shifted to Maya OS.

④ Healthy cyber practices

- ↳ focus on cyber awareness, literacy
- Recommendations of NCIIPC:
- Cyber Swatshit Bharat Yojana.

⑤ International cooperation

- ↳ cyber diplomacy
- Sharing best practices as most attacks are cross border attacks.

Holistic and multipronged strategy is needed to effectively counter the threat of ransomware attacks.

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

(250 शब्दों में उत्तर दीजिए) 15 अंक

In the context of border security, how can cooperation and coordination between different security agencies be improved to ensure effective and efficient management of coastal and terrestrial borders?

(Answer in 250 words) 15 Marks

India has a long border of 15000 km on land and 7500 km of maritime border with varied areas of conflict and geographical porosity.

Within such long border there are various challenges



- ① Militancy : Pakistan
- ② organized crime, smuggling
: Nepal
- ③ Drugs smuggling
↳ proximity to golden crescent, golden triangle
- ④ Insurgency : Northeast
- ⑤ Cattle smuggling and illegal migration
↳ Bangladesh border.
- ⑥ Maritime piracy and terrorism

However, there is a lack of effective coordination between different security agencies

- ① Lack of standard operating procedure.
- ② Lack of clarity on roles
 - ↳ North east: Assam rifles, BSF issue of jurisdiction, friction.
- ③ Non uniform standards
 - ↳ Indo - China border ^{manned} at some places by ITBP, other places by BSF.
- ④ Federal issue
 - ↳ Recently 50km control of BSF along Indo - Pakistan Border in Punjab.
- ⑤ Maritime Border
 - ↳ Patrolling by states, lack of coordination.
- ⑥ Non-effective implementation of NATGRID intelligence

In this aspect, coordination can be improved by

- ① A coherent National Security Strategy
- ② Inculcation of integrated theatre commands for single point operation.

- ③ One border one principle force principle
- ④ Usage of technology for increased surveillance with increased coordination amongst different agencies.
→ Real time information sharing
- ⑤ Comprehensive collaboration between interstate police and coast guards for maritime borders.

Interagency cooperation is essential to ensure holistic and efficient management of National Borders.