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(To be filled by candidate)

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Registration Number : ..... Date of Examination : .....

Exam Centre : Old Rajinder Nagar ☐ Bhopal ☐ Online ☐

Test - 3

Code : TC705

RCA Batch 2023

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.....

SUBJECT/PAPER
GENERAL STUDIES

Invigilator's Sign. : .....

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[To be filled by the EXAMINER]

Evaluator's response

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Evaluator Code :

Q.No	Pg No.	Maximum Marks	Marks	Total
1	1			
2	3			
3	5			
4	7			
5	9			
6	11			
7	13			
8	15			
9	17			
10	19			
11	21			
12	24			
13	27			
14	30			
15	33			
16	36			
17	39			
18	42			
19	45			
20	48			
Grand Total				

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MACRO COMMENTS

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

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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

when a business entity makes profit due to reasons that are external to it then it is known as windfall gain. taxes on it are known as windfall tax

e.g increased tax on oil products when its global prices went down.

It can address income inequality by redistributing wealth as follows:—

i) It prevents hoarding of profit or profiteering by companies.

ii) by taxing excess profit

It ensures that benefit of price drop reaches

Candidates must not write on this margin

the customers directly → price reduction
or indirectly → by taxation.

(iii) Tax on oil can be used for welfare measures.
→ more than 100% tax rate.

However there are limitations

(i) products like oil is consumed by all equally → high price due to taxes → inflationary

(ii) It may raise overall prices of commodities
(e.g) Agri products → Oil as input in transportation.

(iii) It may over burden middle class (consuming class).

Thus focus should be on to reduce the prices as per the international market.

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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

under the monetary policy framework agreement 2015 the Monetary policy committee (MPC) was established under RBI to target inflation.

Successes of MPC

(i) brought transparency
- ↳ publishes frequent reports
- ↳ minutes of the meetings.

(ii) sole focus on inflation targetting
- ↳ except few months inflation remained in the range of **4 ± 2 %**

(iii) Gave representation to govt in MPC
- ↳ 3 members out of 6 are from govt.

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(iv) It has taken prudent Monetary policy decisions

(e.g) expansionary policy during CovID.

Limitations

(i) 2022-23 financial year → inflation stayed above 6% threshold.

(ii) monetary policy transmission is weak → banks not changing their lending rates.

(iii) Cost of borrowing → remained high.
→ reduced investment.

Way forward

(i) enforcing external benchmarking on banks.

(ii) ensuring inflation stays within 4±2% range.

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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

Millets are coarse grained cereals having high nutritional qualities.

(e.g) Jowar, Bajra, sorghum etc.

Promoting sustainable agriculture

(i) low water requirement.
→ requires 1/3rd water of rice.

(ii) dryland farming → Suitable for it → decreased monsoon dependency.

(iii) overall GHG emission is low compared to rice & wheat.

(iv) can supplement farmer's income and less chances of crop failure.

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Improving food security

(i) will bring dietary diversification

(ii) address shortages during drought in dryland areas like Marathwada.

(iii) Nutritional security → good source of micro nutrients like iron, manganese etc.

(iv) It has low glycemic index
→ can address diabetes, obesity

Challenges

(i) seen as poor mans food

(ii) Commercial farming is low.

(iii) poor branding of millets.

However steps like Millets experience centre, declaring it as Shree anna etc will help address these challenges.

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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 महत्त्व पर प्रकाश डालते हुए, वांछित उद्देश्यों की प्राप्ति में अंतर्निहित बाधाओं पर चर्चा कीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Jal Jeevan Mission has the potential to end the regional disparity in the availability and accessibility of drinking water. Highlighting the significance of the mission, discuss the underlying impediments in achieving the desired objectives.

(Answer in 150 words) 10 Marks

Jal jeevan Mission is the flagship scheme to ensure availability of functional tap waters to all the rural households.

It can address issues of availability and accessibility as follows.

Significance

(i) will provide functional tap connection to all households.

(ii) will construct local water storage systems

(iii) will provide fund for construction maintainance & repair of connections.

(iv) It will reduce burden on women

Candidates must not write on this margin

↳ no travelling long distances to fetch water.

(v) will improve sanitation, use of toilets etc.

Impediments

(i) water availability is challenge in some areas (e.g. Latur region.

(ii) Repairing and maintenance has not been focused much upon.

(iii) water pollution → (e.g. heavy metal poisoning in Ganga valley.

(iv) Misuse of water & wastage → no user charge

Way forward

(i) promote rain water harvesting.

(ii) using traditional storage systems like Johad, Ahar Pynes.

(iii) Gram Sabhas can put some nominal user charges (Nihir Shah Committee)

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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 systems are large storage infrastructures that can store energy generated from wind, solar etc and then use it afterwards.

(e.g) Solar plants → produces electricity during day

BESS → uses stored energy at night.

Application

(i) energy storage in off grid areas

(ii) usage in solar farms, wind farms to reduce volatility

(iii) use in electric charging stations and in electric vehicles

Candidates must not write on this margin

Q2

It can revolutionise energy program as follows :—

(i) renewable energy → volatility
Can be addressed → will ensure continuous supply.

(ii) Excess energy during peak hours can be stored for future use.
↳ will reduce wastage
↳ increase efficiency.

(iii) Grid connected homes can supply energy back to grids from their rooftop solar panels.

However challenges such as availability of critical minerals like lithium, cadmium, ~~needs~~ import dependence, high cost etc needs to be addressed.

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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

Gaganyan is the ISRO's first manned mission to the space.

developments

(i) it will be launched using GSLV MK III → already done many succesful missions

(ii) ISRO succesfully tested entry vehicle from Sriharikota.

(iii) MOU signed with Russia's ROSCOSMOS for training and technical assistance.

(iv) ISRO is currently testing life support systems on board the Gaganyan.

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Challenges

(i) lack of experience as it is first human spaced flight by India.

(ii) recent failure of chandrayan 2
↳ raised safety concerns.

(iii) lack of ancillary industries in India.
(e.g. manufacturing of space suits.

(iv) High funding requirement of missions

Benefits for society

(i) benefits from research onboard Gaganyan.

(ii) will add to national prestige.

(iii) readiness for future missions to moon, mars.

(iv) technological learnings can be used elsewhere

Candidates must not write on this margin

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 hydrogen produced through electrolysis using energy from green sources (non fossil fuel).

It can help tackle issues of climate change and pollution as follows.

tackling climate change

(i) reduced dependency on fossil fuel
↳ reduced GHG emissions

(ii) decarbonisation of transport sector
(eg) using hydrogen fuel cells

(iii) Industrial hydrogen use can be met with green hydrogen
(e.g) in fertilizer manufacturing

Candidates must not write on this margin

It can tackle pollution as

(i) doesn't release CO_2, PM2.5, PM10 NO_x etc upon combustion.

(ii) water and oxygen released is not harmful.

(iii) will reduce usage of fossil fuels like petrol diesel etc

(iv) Can also be used in place of Air turbine fuels

(v) H-CNG → mixing hydrogen with CNG → reduced emission.

In this Context govt brought National Green hydrogen mission that seeks to increase production capacity of green hydrogen, promoting its use, promoting its storage infrastructure and transport facilities.

Candidates must not write on this margin

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, Uttarakhand was recently in news due to land subsidence - that was witnessed here.

Causes:
- Construction of Tapovan dam by NTPC
- Possible aquifer puncture due to drilling.
- Construction of roads, tunnels
- unplanned expansion.

Key lessons

Disaster management

(i) focusing on prevention is more fruitful than response

(e.g.) less damage if suitable precautions were taken

Candidates must not write on this margin

(ii) importance of vulnerability assessment before large projects.

(iii) timely measures such as rehabilitation and rescue of those at risk saved their lives.

Environmental Conservation

(i) importance of EIA before taking up projects in such sensitive zones.

(ii) disturbing ecologically sensitive zones come at a huge cost.

(e.g) loss of property.

(iii) **Way forward**

(i) avoiding topographical changes

(ii) Mishra Committee → use light materials → wood, mud for construction.

(iii) geological mapping of areas for possible fractures etc before taking up large projects.

Candidates must not write on this margin

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

(150 शब्दों में उत्तर दीजिए) 10 अंक

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

(Answer in 150 words) 10 Marks

Khalistan movement is a seperatist movement that seeks to establish a seperate Sikh homeland

Recent incidents such as protests in Canada, UK, defacing of Indian embassy in UK, Size of new Khalistani leaders in Punjab etc show that the movement is still alive.

Recent developments

(i) arrest of self proclaimed Khalistani leader in India.

(ii) India requested Canada, UK to arrest those who defaced Indian embassy

Candidates must not write on this margin

(iii) Orders social media sites to take down Khalistani propaganda.

Measures to handle it

Hard measures

(i) strengthening police force → modernisation - new arms, equipments.

(ii) Conducting raids, arrests

(iii) ensuring fast conviction of those arrested.

Financial measures

(i) cut financial support → (e.g.) from Pakistan

(ii) prevent money laundering, drug trafficking

Border security

① strengthen to check smuggling of arms across the border.

Centre state relation

① strengthening intelligence sharing

② regular meetings of chief secretary etc.

Thus need of the hour is to nip the resurgence in activities right in its bud.

Candidates must not write on this margin

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 recent incidents of drones dropping arms, money, drugs etc across the border in Punjab Kashmir etc has raised border security concerns.

Anonimity and ease raises challenge

(i) **Anonymity**

↳ difficult to trace its user

↳ difficult to punish those responsible.

↳ lack of evidence is counts against its operation → poor conviction.

(ii) **Ease of usage**

↳ drones are now very cheap.

Candidates must not write on this margin

↳ no formal training needed to fly it.

↳ difficult to detect due to small size by Radars.

↳ Can use drone swarms → difficult to stop all.

Suggestions

(i) implementing drone regulation properly within India.

(ii) using techniques like
- ↳ net capture
- ↳ E-M waves → saves connection with controllers
- ↳ drone guns from Israel.

(iii) Strengthening border security
- ↳ CIBMS, night vision cameras, etc.

Furthermore recommendation of Shekatkar committee towards technology upgradation on Indo-Pak borders should be followed.

Candidates must not write on this margin

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

In light of the poor health of DISCOMs, GENCOMs and lack of private sector participation in distribution govt has brought electricity amendment bill 2022.

~~Advantages of the bill~~

~~Concl~~ Provisions

→ allow private sector participation in distribution

→ Competition → multiple distributers in the same area.

→ provision for regular tariff revision.

→ capping of maximum tariff rates by the government.

Candidates must not write on this margin

Advantages

for consumers

(i) reduced cost due to competition

(ii) increased choice due to multiple distributors

(iii) improved quality, reliability of electricity supply

(iv) faster grievance redressal

for DISCOMs

(i) tariff revision will address financial constraints

(ii) improved profitability due to market driven tariffs.

(iii) Competition with private sector will improve productivity, being professionals in it.

for Environment

(i) Reduced energy wastage as Companies

Candidates must not write on this margin

will focus on energy efficiency to reduce cost.

(ii) shift to green energy (e.g.) cost of solar is now lower than coal.

(iii) reduced ATⅅC losses (currently 21%)

Shortcomings

(i) may lead to increase in cost

(ii) private sector may not service remote areas.

(iii) Government DISCOMs - already over leveraged → may not be able to compete

(iv) federal issue → electricity is in the state list

Measures

(i) establish federal consensus

(ii) Privatisation should be gradual not sudden

(iii) financing DISCOMs to improve their financial health

(e.g.) UDAY scheme

Candidates must not write on this margin

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 in 1999 to regulate the growing financial market after the LPG reforms.

Important role of SEBI

(i) regulates share markets.

(ii) upholds interests of all including small, retail shareholders

(iii) prevents malpractices like insider trading, Dabba trading etc.

(iv) regulates share markets investments from abroad.

(e.g. Participatory certificates Global depository receipts etc.

(v) regulates IPOs, follow on public offerings etc

Candidates must not write on this margin

Challenges faced by SEBI

in regulating

(i) limited capacity → manpower, resources etc → but expanding size of share market.

(ii) rising complexity of corporate frauds makes it challenging.

(e.g) Dabba trading.

(iii) Companies not following norms

(e.g) ensuring independent directors on boards.

often relatives are appointed.

(iv) challenges like insider trading, use of shell companies to inflate stock price → challenging to regulate.

in upholding investors interests

(i) delayed investigation in cases of frauds.

(ii) Lack of transparency → investors

Candidates must not write on this margin

remain in dark.

(iv) poor punishment - conviction of accused

(iv) Nexus of its officials with corporates.

eg: Co location scam

Suggested reforms

(i) Capacity building of SEBI
- ↳ training of staffs.
- ↳ use of technology to catch frauds.

(ii) prevention of stock manipulation by influencers on social media
- ↳ needs a policy.

(iii) faster & prompt investigation in cases of alleged fraud.

Empowered SEBI is essential for health of India's financial market and becoming $5 trillion economy.

Candidates must not write on this margin

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 to 18% to India's GDP, provides employment to 45% of labour force and is a backbone of rural economy

Contribution

↳ supports ancillary industries

eg textile, leather, food processing

↳ Creates demand in rural India

↳ Animal husbandary → 4% of GDP

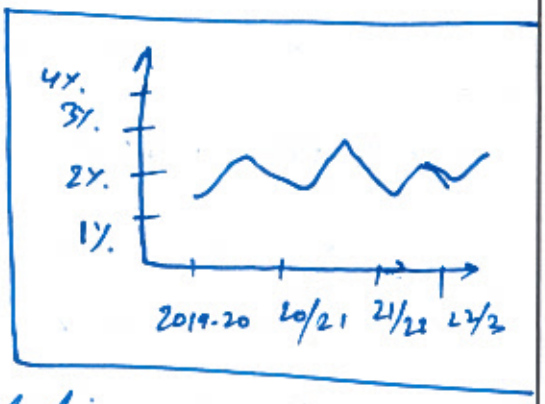
↳ employment to women

↳ 16% of income of farming households.

However it is faced with several constraints that limits its growth.

Candidates must not write on this margin

Constraints



(i) slow growth rate

(ii) fragmented landholdings
86% own less than 2 hectares.

(iii) lack of mechanisation
only 40% as per FICCI
china – 60%. USA – 90%.

(iv) cobweb phenomenon → sowing crops based on this years price

(v) Indebtedness → 51% of rural households

(vi) high water intensiveness → water use efficiency only 40% (NITI)
→ leads to virtual water trade

Technology can help as

(i) Remote sensing → GIS, satellite imagery, Drone technology (Swamitva) etc can help in land assessment, weather prediction etc.

Candidates must not write on this margin

(ii) Seed quality enhancement using genetic engineering, transgenics, HYV seeds.
↳ improved productivity, decreased crop failures, pest resistance etc.

(iii) Artificial intelligence, machine learning can help with precision farming reduce input requirements → cost saving.

(iv) Farm mechanisation such as threshers, happy seeder etc can reduce cost of labour → improved productivity

(v) Micro irrigation technologies such as sprinkler, drip irrigation can enhance water use efficiency.

(v) Market info through AGMARKNET, e-NAM & thus various schemes like Sub mission on farm mechanisation, Custom hiring Centre, e-chaupal, M-KISAN etc can help realise the goal of doubling farmers income.

Candidates must not write on this margin

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 controlled application of water to the fields to ensure the water needs of plants and crops are fulfilled.

Impact of irrigation on the environment

(i) Surface runoffs leads to pollution of water bodies → Eutrophication

(ii) flood irrigation of rice fields → release of methane (CH_4).

(iii) flooding of field also leads to loss of micro biodiversity in the soil.

(iv) diversion of water from rivers
↳ reduced ecological flow of rivers → impacts riverine biodiversity.

Candidates must not write on this margin

(v) leads to bioaccumulation of chemicals —
(eg) DDT, DAP → relased into water bodies.

Impact on natural resources

(i) leads to Groundwater depletion
↳ 253 billion cubic metre withdrawn each year in India
↳ 85% of groundwater used in Agri

(ii) virtual water export from India
(eg) each kg of rice → 2000 litres of water.

(iii) soil erosion due to runoffs.
↳ loss of fertile top soil.

Suggested measures

Sustainability

(i) using rain water harvesting
(ii) following agro climatic zones
(eg) Punjab water stressed not suitable for rice.

Candidates must not write on this margin

(iii) increasing water use efficiency
↳ micro irrigation < drip / sprinkler
↳ ensuring user charges

(iv) using sustainable techniques
(eg) System of rice intensification

(v) for sustainable irrigation practices
(eg) levelling → reduced runoff
Mulching → increased retention
scheduling → avoiding during hot day.

Equity

(i) increasing access (eg) PM Krishi Sinchai yojana → har khet ko pani

(ii) limiting electricity subsidy to small & marginal farmers.

(iii) Micro irrigation fund → help small farmers ~~buy~~ install sprinklers etc.

Lastly valuing water in monetary terms is the first step to safeguard its

Candidates must not write on this margin

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 was an atomic scientists who played key role in India's nuclear program.

Vikram Sarabhai played key role in India's space program.

Bhabha

→ established Bhabha atomic centre
→ establishe CSIR → research centres.
→ Came to India on Nehru's request to lead India's nuclear Pogoan.
→ gave 3 Stage nuclear Pogoan
— identified ability of Thorium

Candidates must not write on this margin

in light of lack of uranium in India

Sarabhai

(i) established INCOSPAR.

(ii) oversaw India's first launch of Rohini satellite

(iii) Sarabhai space centre named after him.

(iv) also helped with India's missile program.

Benefit to India

(i) India conducted first test in 1970s → Smiling Buddha.

(ii) Second in 1998 → Pokhran II

(iii) became nuclear powered

(iv) gradually became acceptable nuclear power (e.g. Civil nuclear deal with USA.

Candidates must not write on this margin

(i) In space ISRO → now commercially most efficient.

(ii) now launch satellites of other countries.

(iii) cheapest mission to Mars (450 M)

(iv) slated to send first manned mission (Gaganyaan.

Candidates must not write on this margin

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 is the new AI application that creates texts, images, songs and even videos based on specific commands of its user.

(e.g) Chat GPT, Google's Bard.
DALL-E by open AI.

It's potential

(i) can automate redundent tasks such as responding to emails

(ii) Educational revolution
↳ Can answer questions promptly
↳ find mistakes in codes, mathem atical solutions etc.

(iii) use in law enforcement
↳ Can generate images of crime scene of accused based on Prompts

Candidates must not write on this margin

(iv) use in Healthcare

↳ can find solutions in molecular biology.

(e.g) a generative AI found a solution related to protein synthesis.

(v) Can reduce human effort, enhance workplace productivity etc.

(vi) use in film making

(e.g) an NYT documentary replaced an actor with AI generated images.

However it has huge social repurcussions

Challenges

(i) job losses as AI can do tasks that required human for nearly free of cost.

(e.g) Content writing

(ii) Deep fakes → difficult to distinguish
↳ can spread fake news, hysteria

Candidates must not write on this margin

and panic.
↳ also used in pornography

(iii) deepening digital divides
↳ companies having access to generative AI will grow faster.
↳ people with knowhow → better growth.

(iv) Educational loss
↳ students using AI for homeworks.
↳ cheating in exams.

way forward

(i) bring global regulations to regulate AI destructive potential.

(ii) Democratising its access → govt should develop its own.

(iii) prevent misuse of personal data for training of AI

(iv) limiting biases prevalent in data
e.g. racial bias, gender biases etc.

Candidates must not write on this margin

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 Alliance for climate was launched at Sharm El Sheikh Conference (COP27) with an aim of preserving the mangroves.

Its purpose

(i) protecting mangroves by regulating and restricting activities that threaten it

(ii) building global cooperation of Countries having mangroves

(iii) It recognises the key role mangroves play in Climate regulation and how its loss can lead to worsening of Climate change.

Candidates must not write on this margin

(iv) to stress the impact of sea level rise on mangroves.

Importance of mangroves

(i) Provides habitat for several species of fishes, molluscs and animals (e.g.) Bengal tiger.

(ii) rich biodiversity → mangroves are ecotones → transitional zones ~~between~~ between land and ocean → biodiversity from both.

(iii) regulation → prevents sea water ingress,
↳ acts as storm breaker (reduces impact of storm ~~sto~~ surges).

(iii) Kidneys of the world → they help in removing pollutants from rivers before they go into oceans.

(iv) disaster management → act as natural barriers against cyclones in tropical regions

Candidates must not write on this margin

(v) Mangroves provide forest products for coastal communities.

(vi) rich fishing ground for fishermen

(vii) provides rich source of timbers

eg Sundari trees in Sundarbans

Way forward

(i) mapping of all mangroves in the coastal region.

(ii) regulatory activities such as lumbering, tourism etc in the region.

(iii) regulation of deforestation for expansion of settlements.

Candidates must not write on this margin

Q.18 आपदा प्रतिरोधी बुनियादी ढाँचे के लिए गठबंधन का गठन भारत में आपदा प्रबंधन दृष्टिकोण को और अधिक मजबूती प्रदान करता है। टिप्पणी कीजिए। भारत में आपदाओं से निपटने के लिए एक नई रणनीति की आवश्यकता के औचित्य सिद्ध कीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

The Formation of the Coalition for Disaster Resilient Infrastructure brings more robustness to the Disaster Management approach in India. Comment and justify the need for a new strategy to tackle Disasters in India. (Answer in 250 words) 15 Marks

Coalition for disaster resilient infrastructure (CDRI) was established by India. to promote cooperation in building disaster resilient infra.

It brings more robustness as

(i) promotes international cooperation earlier it was absent-

(ii) Countries can learn from each other's technical know-hows and best practices

eg japan's earthquake resistant infra structures.

(iii) It focuses on preparedness rather than on response only

↳ in line with Sendai framework

Candidates must not write on this margin

(iv) It envisages importance of retrofitting of old structures

(e.g) seismic strengthening of infrastructure and buildings.

(v) It seeks to channelise funds towards developing disaster resilient infrastructures.

It can supplement Sendai's approach

(i) By reducing disaster vulnerability by having robust infrastructure

(ii) Can reduce loss of life and property as building collapse etc is leading cause of death.

(iii) resilient infrastructure will reduce the cost of disaster response and prevent overburdening of NDRF, SDRF etc.

Candidates must not write on this margin

In this light- there's a need for new strategy :—

(i) focus should be on preparedness to reduce vulnerability.

(ii) hazard mapping to understand disaster risks region wise and the need for resilient infrastructures that are appropriate

(eg) cyclone resilient infrastructure in odisha
Earthquake resistant infrastructure in Kutchh.

(iii) focus on man made disasters such as urban fires

(eg) retrofitting fire suppression measures.

Therefore CORI should become a guiding light in India's disaster management.

Candidates must not write on this margin

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

Recently there has been sharp increase in ransomware attack on India.

e.g AIIMs server was hacked

Ransomware

when a hacker secures access to private files and demands ransom to release it.

e.g Wanna Cry.

These attacks have highlighted urgent needs of strong measures :—

1. increased attack on critical infrastructure

e.g Kudankulam nuclear power Plant

Candidates must not write on this margin

(ii) they can impact access to key services

eg AIIMS attack led to long delays in checkup.

(iii) Can disrupt public utility

eg Metro services, Train services

(iv) Endanger national security

eg alleged cyberhacking e Balasore accident.

Factors

(i) Digital India → increased presence on internet

(ii) Anonymity on cyberspace → less fear of law enforcement.

(iii) Cyber espionage → use by state actors eg honey trapping by ISI → of DRDO scientist

Candidates must not write on this margin

(iv) Cyber warfare → countries can escape legal responsibility

(eg) alleged china hand behind Kudankulam attacks.

Impact

(i) Healthcare → disruption of service and loss of lives (eg AIIMS)

(ii) Energy sector → may lead to nuclear hazards (eg Kudankulam.

(iii) Power distribution → can shutdown grids → loss economic loss.

(iv) Impacts Ease of doing business

Thus steps like IgC, NCIIPC, CERT-IN along with Cyber swatchta Kendras, etc are steps in right direction.

Candidates must not write on this margin

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

Border security challenges

(i) Trafficking → arms, drugs, cattle
↙ ↓
Pakistan Bangladesh

(ii) infiltration (eg) Pakistan.

(iv) Drone delivery of arms, money to extremists

(v) free movement regime (eg) India - Myanmar.

Cooperation can help as

(i) integrated nature of threat

(eg) Pakistan → land infiltration (Pathankot)
Coastal → Mumbai (26/11)

Candidates must not write on this margin

(ii) Linear strategy → threat from both china and Pakistan
→ requires coordination between BSF and ITBP

(iii) learning from experiences and technical knowledge of each other.
eg learning from BSF on stopping infiltration.

(iv) coordination with state police due to overlap with internal and external security threat.
eg Kashmir

(v) drugs trafficking using both land and coastal routes
eg operation Samudra Gupta largest drug bust.

Candidates must not write on this margin

(vi) Interface between organised crime and terrorism

(eg) money laundering → funds for terrorism.

↳ ED and NIA cooperation can be helpful.

NEXT IAS

Candidates must not write on this margin

Space for Rough Work

NEXT IAS