RECD
11 AUG 2023

NEXT IAS

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Registration Number : ..... **Date of Examination :** 11/08/23

Exam Centre : Old Rajinder Nagar ☑ Bhopal ☐ Online ☐

Test - 3 **Code : TC073**

MTS IGP Batch 2023

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SUBJECT/PAPER
GENERAL STUDIES

Invigilator's Sign. : .....

(For filling by Examiners only)

Evaluator Code :

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

Signature

MACRO COMMENTS

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2. Write your registration number and other particulars, in the space provided on the cover of QCA Booklet.
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5. If you wish to cancel any work, draw your pen through it or write "Cancelled" across it, otherwise it may be evaluated.
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

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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

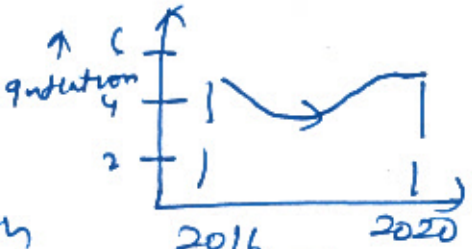
Discuss the perceived successes and challenges of implementing inflation targeting under the new Monetary Policy Committee (MPC) regime. (Answer in 150 words) 10 Marks

Under Inflation Targeting, MPC tries to keep the inflation rate (CPI) within 4 ± 2%. In order to control this rate, only Repo rate can be altered.

Perceived Successes

1) Pre set benchmark assisted in better evaluation of RBI's effectiveness and Government's capability in controlling inflation.

2) Inflation rate for very long period of time stayed within the limit



3) Enabled government to focus better on growth parameters as inflation and growth are contradictory.

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Challenges

i) Monodimensional focus on one parameter for evaluation of effectiveness is not justified eg:- Criticism during covid for increase in inflation.

ii) Make it more as a political tool → Hence Government turns its one controlling inflation not on other parameters eg:- contractionary policy despite low growth rate to control inflation.

iii) No sta. established basis for setting the limit as more often food inflation >10% but CPI is in the limit.

Thus, along with inflation control, focus should be given on targeted growth rate as well → this will help better in achieving $5 trillion dollar economy.

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

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

Millet consists of various coarse grains like Sesamum, Bajra and small grains like Amarnath, all these have multidimensional benefits.

Potential – Promoting Sustainable Agriculture

) Drought Resistant crop → can withstand vagories of weather eg:- Barley in Rajasthan.

) Requires less input (i-p, water, fertilizer)
↳ thus better income of farmers.

) ~~Millet~~ Nitrogen fixation capability thus fertility restoration ~~eg~~ millet crops ~~Sucha~~ ~~Pea~~ having ribosomes in roots.

) Prevents alkalinization and Salinization due to less requirement of fertilizer & water.

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Potential → improving food security

·) High productivity → thus more production
↳ better accessibility.

·) High remuneration to farmers (due to low output & high output) → better capability to purchase food crops.

·) Capability to address hidden hunger eg:→ Aanvrath can address malnutrition among children.

But capacity is limited → Lack of demand
→ Agriculture policy (MSP) favours Paddy and wheat cultivation
→ Poor insurance coverage
→ Lack of Awareness among farmers.

Hence, to address this, government has taken serious steps like declaring millet Srec. Ann. and 2023 - is declared as International Years of millet for awareness.

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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 Scheme of Jal Shakti ministry intends to provide tapped water connection to all rural households by 2024.

Significance of the mission

1) Addres Health burden due to water borne diseases eg → diarrohea by drinking polluted water

2) Reverse ground water table depletion — by providing tap water supply and reducing dependency on handpump and Submersible pumps.

3) Addres malnutrition → as tapped water will have necessary minerals like iron unlike Ro water.

Candidates must not write on this margin

·) Addresses the water crisis problems as 30% of surface water not fit for drinking, 70% population facing issue of access to portable water.

But various impediments in its implementation

·) People don't use tap water and dump back to handpump or ≠ normal pumps
eg :→ in north Bihar villages, dormant taps.

·) Slow implementation due to Resistance from states in providing funds eg :→ only ~60% coverage by 2023.

·) maintenance issues ~~leads to hassle~~ during to pipe bursts etc → Shift to conventional pumps.

Thus, by enabling proper maintenance and timely based fund allocation, problems can be addressed.

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

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

Battery Energy Storage System → storing electricity in Battery and using it for later eg:→ Tesla Giga factory. In this, Batteries of Gigawatts power rating are charged from electricity and then later this energy is released as per usage.

Applications

:) In high energy intensive sectors like textile, Steel industry → for continuous supply.

:) In critical operations like hospitals → these ~~batter~~ System can provide continuous electricity eg :- Ventilator and ICU.

:) For Electric vehicle charging infrastructure

~~it becom~~

Candidates must not write on this margin

6) Potential to Revolutionize

- Storage of electricity will reduce curtailing losses eg:- → 20% of produced electricity is curtailed due to lack of timely demand-
- Addresses the intermittent supply issue of renewable energy like Solar etc → thus promote expansion of renewable capacity.
- ~~Ener~~ Ensuring Energy security is imperative for National security just like Petroleum storage
- ~~If~~ Through facilitation of charging infra expansion → adoption of Electric Vehicle will expedite.

But it has issues → Cost intensive
→ Requirements of Lithium
→ Safety issues

~~Thus~~ But considering the potential, Government has provided ₹ 35K Cr budget for this sector in recent Budget

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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 → ISRO wants to send 3 astronauts to low earth orbit for few days and then to bring them back safely.

Developments – so far

- Successfully conducted tests of
  - Pad Abort test
  - Testing of Crew vehicle
  - Collection of Crew module by Indian Navy.
- Work on new launch pad is in progress in Sriharikota
- New dedicated facility of Human Space flight programme has been opened in Chikmanglur Karnataka.
- Training of Crew have been completed with Russia's Assistance.

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Challenges

1) Sustaining life inside the module for few days - as it requires oxygen, ambient pressure conditions → which is to be maintained in outer space.

2) Construction of completely new unit from scratch like new launch pad and new facility → cost and time overrun

3) Criticality of operation → any slight mistake can lead to loss of lives eg:- Apollo 1 blast.

Possible Benefits

- → various new technologies will be invented
- → employment opportunities
- → Reflection of Advancement of country in Science and Tech Sector

will add India to the list of few countries (3) which have sent Astronauts to Space, by conducting all safety tests and proper budgetary allocation. Gaganyaan mission can become pride of India

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 → Hydrogen produced using renewable energy.

$2H_2O \xrightarrow{\text{electrolysis}} 2H_2 + O_2$

Energy for electrolysis → renewable energy like solar or wind.

Target under National Hydrogen mission → 125 GW of Renewable energy → 5 MMT of H_2

Silver bullet in addressing climate change and pollution

1) Substitute the conventional dependency on fossil fuels like petrol

2) H_2 based fuel cell can drive electric mobility mission eg → Nitin Gadkari driving drove hydrogen car for promotion.

3) H_2 fuel can be directly used in IC engines

Candidates must not write on this margin

thus reduction in emissions.

) Use of Green Hydrogen in fertilizer industry will reduce their footprint (due to Natural Gas)

) Abundantly available thus can fulfill increasing energy demand without adding to emissions.

But it has certain challenges

- → Energy intensive production process
- → Storage and Explosion issues (high specific volume and flammability)
- → Lack of ~~various~~ options/ways which H_2 can replace conventional energy ready
- → Very less GH_2 production units

Hence, under National Green Hydrogen mission will address these issues and will lead to gradual adoption of Green Hydrogen.

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

Recently in Joshimath Uttarakhand, land subsidence occured which resulted in cracks in many houses, hotels and other structures. Precedent provides very alarming lessons

Lessons for Disaster Management

1) Strict Adherence to the Building code is necessity eg -> many hotels in the region were illegally constructed.

2) Proper preparedness against such incidences should be done eg -> Authorities were not aware about their plan of Action

3) Requirement of comprehensive study for Calculation of Carrying capacity of the ~~Building~~ region

Candidates must not write on this margin

Lessons for Environmental conservation

- Proper water drainage facility in hilly areas to avoid water seepage led weakening of soil shear strength.
- Heavy Construction activities should be strictly prohibited in the fragile areas like Joshimath, Uttarkashi
- Afforestation drives for controlling water flow and strengthening slope strength
- Promotion of sustainable Tourism to avoid unplanned concretisation of ecologically fragile areas.

In this regard, actions should be based on Mishra Committee (1976) & recommendations to prevent further occurrences of land subsidence incident

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

(150 शब्दों में उत्तर दीजिए) 10 अंक

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

(Answer in 150 words) 10 Marks

Recently, Khalistan Sympathisers stormed into Ajnala police station to illegally free one of their leaders reflects the intensity of Khalistan issue.

Simmering Khalistan Issue

- Pro khalistan movements in Canada and UK eg:→ attack on Indian embassy in UK.
- Support of locals intensify the issue eg→ Locals support to Amritpal Singh in evading police.
- Cross Borders Provocation keeps the issue alive (highlighted by Punjab CM)

Causes

→ Vulnerable youth → drug abuse

→ Financial supports from Canada and UK

→ Military training by Pakistan

Candidates must not write on this margin

↳ High Unemployment promotes Radicalization.

Measures

1) ~~Long~~ Short Term
   ↳ nabbing local leaders eg:- Amritpal Singh got caught
   ↳ to suppress fund transfers from foreign → role of IB and R&W becomes important
   ↳ take support for foreign Govt to stop any such movement on their soil
   ↳ De-radicalization through help of religious leaders like Golden temple Mahants

2) Long Term
   ↳ Infrastructural Development in the region
   ↳ Skill training to youth
   ↳ Rehabilitation centres to address drug abuse.

Through these step that menace can be controlled.

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

Recent Attacks by Pakistani Drone on J&K Border Areas on Indian Army reflects the gravity of the problem.

Drone operation → challenge to India's Border security

- Remotely controlled - allows pilot to fly drone from Pakistan side ~~and~~ thus difficult to intercept.
- Easy availability in the market that too at cheaper cost → makes it even more difficult to ~~locate~~ gauge about the pilot or owner of the drone.
- Smaller size - facilitates in easily passing from radars and ~~getting~~ satellite → thus ease of operation.

Candidates must not write on this margin

> Drone Swarmy → when many drones attack simultaneously → interception is near to impossible.

Suggestions

) Lases guided Drone Neutralizer → as developed by Israel should be deployed in the border areas.

) Network Jammers can be installed to prevent remote operations

) Smart Fences ~~Can be~~ → to detect Drones crossing Border

In this regard, Smart fencing Project needs to be completed in all areas of J&K.

Apart from that DRDO has recently developed Laser based drone neutralizing technology which should be deployed in sensitive regions

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

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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

Securities and Exchange Board of India is a Statutory Body under SEBI Act → mandated with functions of regulating financial markets.

SEBI's role in Regulation of market and Safeguarding the interests of investors

→ Watchdog of listed Companies functioning

→ Oversight on Board's performance

→ intervene in case of violation of rules and regulation like - Chanda Kochar ICICI.

→ Maintains fairness of trade in Security Exchange like sensex and Nifty.

Candidates must not write on this margin

But it is struggling with various challenges

) Operational issues

↳ Monitoring Difficulties due to digitalisation of company's operations

↳ Difficulty in preventing instances of insider trading

↳ ~~Difficulty in~~ ~~mount~~ = Excessive workload due ~~to~~ with economic growth.

) Structural challenges

↳ shortages of manpower

↳ multiple regulatory like NBFCs different operations are monitored by different agencies.

↳ Delay in receiving necessary datas from companies.

↳ Limited power with regard to putting sanctions.

Candidates must not write on this margin

4th this regard following steps can be taken

:) Timely filling of vacancies.

:) Merger of PFRDA, NHB and SEBI for better regulatory functions.

:) Lateral entry at top positions for inculcation of specialization in servicing work.

:) More power with regard to sanctioning of business corporations.

Hence, with these ~~follo~~ steps, SEBI will be able to fulfill its regulatory and safeguarding stakeholders interests effectively.

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

Agriculture Sector contributes 50% of Employment and 15% of GDP in the National Economy.

Poor exports (only 1.2% of global Agri Exports) ← Dismal Growth → limited mechanization

Dismal Growth → Stagnant growth (2%)

Dismal Growth → High wastages (92K cr in 2018-19)

Constraints impeding growth & Development

-) Fragmented land holdings (1.15 ha - average farm size)

-) Limited formal Credit accessibility (only 42% Agri loans → formal)

-) Overuse of water and Fertilizers → Salinization and Alkalization of soil → Reduction in Fertility.

-) Improper and inadequate storage infrastructure

Candidates must not write on this margin

eg:→ Lacer and Plinty method

Role of Technology

) Optimization of input requirements → less input cost eg:→ Penicometer Can limit water use

) Mechanization of Agriculture → Happy Seeder machine → Harvests and plants new crops in one go → Thus better productivity.

) Genetically modified seeds like Bt cotton → more productivity, better drought and pest resistant

) Access to internet and smartphones to farmers → better weather information, Awareness about new methods of farming.

) Reduction of wastages especially perishables through use of irradiation techniques (40% fruits and vegetable wastage)

Candidates must not write on this margin

) Integration of markets through digital platform like eNAM → enables better price discovery → better remuneration

) Enhancing irrigation coverage by installation of Scada ~~by~~ and drip irrigation System (Mihir Shah Committee)

Challenges → High cost of technology
→ fragmented landholding discourage technology adoption
→ High digital illiteracy (72% in rural areas)
→ Accessibility of these technologies due to lack of awareness and limited shops available.

Government can address issues through
- FPO promotion
- Custom hiring methods
- Subsidy over these technologies
- faster execution of projects like PM Krishi Sinchai Yojana.

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 refers the water supply in agricultural fields for crop production.

Various options available are

- Wells.
- Tubewells (60%)
- Canal and Rivers (30%)

Impact of Irrigation

(a) Environment

↳ Salinization of soil due to flooding of fields eg:- Punjab fields

↳ Desertification of soil → due to excessive ground water extraction (29% of soil → degraded in India)

↳ Surface runoff → Pollution of water sources (Eutrophication) → → Nitrogen from field get drained in River by water

Candidates must not write on this margin

↳ Impacts water cycle by expediting evaporation even of groundwater.

(b) Natural Resources

↳ ground water pollution → surplus extraction leads to increase in content of Arsenic and fluoride

↳ Methane emissions → anaerobic decomposition of organics in soil (in flood based irrigation)

↳ weed generation → impacts soil fertility

Measures

) Adoption of Drip Irrigation

↳ less evaporation
↳ less weed formation
↳ less salinization
↳ less water consumption

) Irrigation facilities through canals prevents ground water depletion.

Candidates must not write on this margin

·) Installation of lift Irrigation System for better adoption of canal irrigation.

·) Removal of Electrical subsidy to discourage use of submersible pumps.

·) Installation of Scada system for irrigation coverage maximization (Nitin Shah committee)

·) Promotion to less water intensive crops like millet.

PM Krishi Sinchai Yojana through its various subcomponents intends to promote Drip Irrigation; Lift irrigation and canal irrigation. Further by adhering to recommendation of Hanumantha Rao committee for canal irrigation and Nitin Shah committee for sustainable water use will address the problem

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

~~Do~~ Dr. Homi Jahangir Bhabha and Dr. Vikram Sarabhai led foundation for Science and technology sector in India after Independence.

Strategic Benefits from the contributions of

a) Dr. Homi Jehangir Bhabha
- ↳ led foundation for study of Atomic Energy in India - (crucial for sustainable energy)
- ↳ founded BARC → where Reactor was developed to sustainably capture ~~effect~~ energy from fission reaction → important for energy security.
- ↳ Persuaded Indian PM for development of Atomic Bomb as a necessity for

Candidates must not write on this margin

detering war ~~of~~ (especially 1962 war)

↳ He and his team did the initial work if development of Atomic Bomb.

↳ Supported formulation of first cyclotron centre in India (Kolkata cyclotron centre)

(b) Dr. Vikram Sarabhai

↳ Initially he supported Dr. Bhabha in development of Reactor.

↳ Laid foundation for Space Research Sector in India (INCOSPAR in 1962)

↳ Under his guidance, first sounding socket was launched → establishing might of India in Space Sector.

↳ Later under his leadership, development of Atomic Bomb was done → necessity for ~~nuclear~~ National

Candidates must not write on this margin

security.

↳ founded ~~Indian Institute~~ Physical Research Laboratory in Ahmedabad

→ Imperative for Advancement in Quantum technologies.

Under his leadership, ~~first~~

↳ ~~launched first~~ first communication satellite was launched for Television (→ Telecommunication → critical infrastructure).

Thus, Both these legends made significant contribution in taking India to the list of ~~world~~ leaders in science sector.

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 refers to technology which can perform very high level of ~~task~~ intelligence requiring tasks like ChatGPT providing specific answers to our question by analysing all available data on internet.

Potential → Push the boundaries of innovation

) Facilitation in research work by processing all related research paper and providing conclusive information in notime which otherwise could have taken huge time.

) Better visualization of simulation models

eg → Virtual Reality technology in space sector.

⇒

Candidates must not write on this margin

:) Raising the productivity → eg:→ various AI tools can develop customized website within minutes.

:) By processing the available information in more nuanced way and by eliminating the chances of human error. → ~~thus~~

But it also raises Social challenges

:) Plagiarism in research works → as well have counter effect.

:) Social crimes in virtual world eg:→ pornography on metaverse.

:) Widen the technological accessibility gap due to high digital illiteracy

:) might lead to reducing the productivity of human resource → as these AI tools will do work on their behalf → leading to learning poverty.

Candidates must not write on this margin

·) Various ethical questions are being raised like ~~tool~~ ~~of~~ if AI tool does discrimination on social factors → then how to get grievance redressed.

In this regard, following steps can be taken such as:-

↳ Ethical guidelines that AI tools should always adhere to.

↳ Rules and regulations for virtual world like metaverse.

↳ Awareness generation for its rational uses

Hence, these steps will enable maximization of benefits of Generative AI.

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 at COP27.

↳ ~~Protocol~~ ~~Non-Governmental~~ Alliance having representation from countries → NGOs and experts with an aim to Conserve mangroves to mitigate and adapt against the effect of climate change.

Purpose

-) To encourage and nudge countries to take steps towards mangroves conservation.

-) to create Awareness ~~against~~ towards importance of mangroves.

-) to facilitate research in the field of conservation of mangroves.

-) For channelising funds to needy for

Candidates must not write on this margin

Mangrove conservation.

- to holds Countries Accountable on ~~their~~ mangrove protection parameters.

Importance of mangroves

- Stability of Shore → through controlling flow of river enabling sediment deposition eg:→ Ganga river → Sundarban Delta.
- Prevent erosion of shore by neutralizing wave impacts eg:→ Bhitarkanika in odisha.
- Supports biodiversity which is imperative for coastal ecology eg:→ Sundarities in sundarbans.
- Prevents ocean pollution by filtering pollutants coming from rivers or surface runoffs.
- Shields coastal community from

Candidates must not write on this margin

cyclones and Tsunamis eg:- Bhitarkanika in odisha cyclones.

≠ Despite importance → facing threat due to

↳ Expansion of coastal megacities eg:- Bullet train through Kadir canal mangrove forest in Mumbai

↳ Deforestation of mangrove trees for commercial purposes eg:- Sundari tree for furniture.

↳ conversion into paddy fields eg:- mangroves in Kerala.

↳ ~~Disruption~~ Destruction due to cyclones

~~eg:-~~

Hence, targeted government efforts is needs time. Indian Government through MSMTI Programme → has given impetus towards mangroves conservation

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 was conceptualized by India in G20 summit under which aim is to share best practices, and technologies necessary for Disaster management

CDRI can bring more robustness to the Disaster management in India

.) By bringing best practices for disaster preparedness from the globe eg :→ Japan's Strategy in handling earthquake

) Streamline existing efforts. thus more effectiveness - as state's action will be motivated from centre's ~~act~~ policies

Candidates must not write on this margin

·) Facilitation in fund transfers → imperative for upgrading infrastructure to become more disaster resilient.

·) Enable sharing of latest technologies to address the ~~disas~~ Disaster impacts like sensors to better forecasts.

Need for new strategies is justified

·) Increase in frequency of natural hazards eg:→ cyclones frequency in Bay of Bengal.

·) High Population enhances the vulnerability

·) High poverty limits the capability for preparedness against any natural disaster eg:→ North Bihar during floods.

·) States limited capability due to shortage of funds and obsolete

Candidates must not write on this margin

technologies.

) Due to vast varying topographies, India is highly vulnerable to all types of natural disaster like cyclones, heat waves, earthquakes etc.

Thus, to address the vulnerability

↳ Focus should be given on scientific study of areas for figuring out their carrying capacity (Mishra Committee (1976))

↳ Focus towards Adaptation like Drought tolerant crops like millet

↳ Promotion of Retrofitting of existing infrastructure to make it more resilient

Further, by adhering to recommendations of Yokohama and Sendai framework better resilience can be developed.

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

Owing to digitalization of government services, need of cyber security becomes very important. India ranks 12 in Cyber Vulnerability Index.

Rise in ransomware attacks due to

:) Dependence on foreign firms for ~~Chip~~ Semiconductor chips eg:→ mumbai Power Plant attack.

:) Poor digital illiteracy of users :→ AIIMS server hacked due to virus insertion from Pendrives of users.

:) Advancement in technology of hacking eg:→ Pegasus for whatsapp chat leaks.

:) External state sponsored cyber hacking

Candidates must not write on this margin

eg:→ China's role in Mumbai Power Plant hacking.

Impact of these attacks

- Paralyzed functioning of critical infrastructure can derail economy eg:→ interruption of metro services in Delhi
- Violation of Privacy rights of the citizen eg:→ Cambridge Analytica data leak
- National Security issue → eg:→ hacking of Kudankulam power plant → could have led to nuclear disaster.
- Financial cyber frauds leading to crucial money loss of users eg:→ Jamtara Scam.
- Blackmail Government for getting personal gains eg:. Demand of 200 cr Ransom in AIIMS Server hack.

Candidates must not write on this margin

) Various Government policies, confidential data, important security installations are managed online → this cyber threat could have detrimental impact
eg:→ Iran's entire nuclear programme was shut off

Need for stronger cybersecurity measures & policies becomes important → for securing data
→ protecting critical infra.
→ ensuring continuity of key government services
→ for protection of hard-earned money

Government has taken many steps in this regard → National cyber policy 2013
→ Cyber Suraksha - Bharat initiatives
→ National critical infrastructure protection centre
→ Atmanirbharta in semiconductor manufacturing.

Further, comprehensive & upgraded National cyber policy based on Kargil Committee recommendation & multi-sectors involving groups

Candidates must not write on this margin

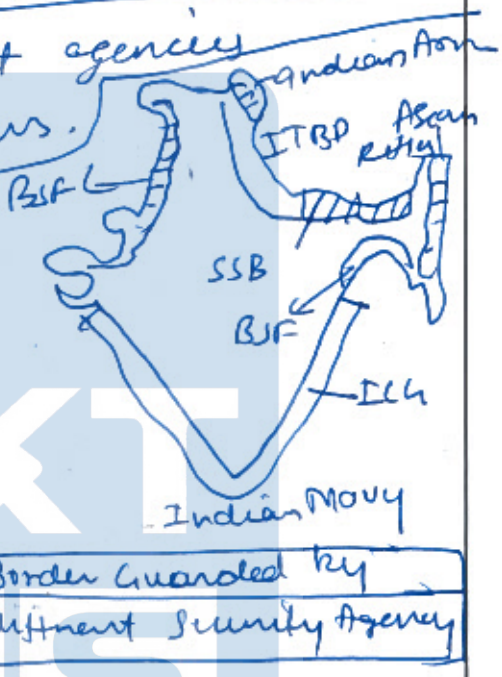
Q.20 सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(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

Volatile Neighbourhood like China, Pakistan, makes robust border security imperative. But different agencies controlling different Borders.



Border Guarded by different Security Agency

- Steps to improve cooperation and coordination between Security Agencies

↳ Cooperation through Joint exercises like Indian Army and ITBP can conduct drills on Indo-China Border.

↳ Cooperation through attachment programmes during training → to develop contacts and harmonise

Candidates must not write on this margin

↳ Coordination → by merging top level control into one unit. currently ~~Assam~~ Gurdian Army, Gurdian Navy is under Defence ministry and other central Armed forces are under Home ministry.

↳ Constitution of theatre commands on line of military → having members from both Para military and military

↳ Top level Posts should be from military (recommended by P. Chidambaram committee) → it will facilitate both cordination & cooperation between Para military and military.

↳ Tiered security Architecture even in land borders like ~~as~~ already in coastal areas

↳ Independent CTIs of Coast Guard for better training in this regard.

Candidates must not write on this margin

↳ Merger of all para-military into one single para military unit can be done.

↳ Timely promotion and Adequate grievance and ~~for~~ bring good work culture thus - better harmonie.

Considering high degree of threat from both State and non State Actors, urgent need for ~~substant~~ reforms are necessary. In this regard recommendations of Kaoli committee and Chidambaram committee become imperative.

Candidates must not write on this margin

Space for Rough Work

NEXT IAS