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GENERAL STUDIES (TEST CODE : 2369)

Name of Candidate	SRISHTI		
Medium Eng./Hindi	eng	Registration Number	
Center	PATNA	Date	20/9/24

INDEX TABLE			INSTRUCTIONS
Q. No.	Maximum Marks	Marks Obtained	
1	10		1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code). उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
2	10		2. There are TWENTY questions printed in HINDI & ENGLISH . इसमें बीस प्रश्न हैं हिन्दी और अंग्रेजी में छप हैं।
3	10		3. All questions are compulsory. सभी प्रश्न अनिवार्य हैं।
4	10		4. The number of marks carried by a question/part is indicated against it. प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5	10		5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one. प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6	10		6. Word limit in questions, if specified, should be adhered to. प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7	10		7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off. उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उत्तरके अंश को स्पष्ट रूप से काटा जाना चाहिए।
8	10		
9	10		
10	10		
11	15		
12	15		
13	15		
14	15		
15	15		
16	15		
17	15		
18	15		
19	15		
20	15		
Total Marks Obtained:			
Remarks:			
			Is student recommended for One-to-One mentoring?
			Recommended
			Strongly Recommended

16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp. Punjab & Sind Bank), Dr. Mukherjee Nagar, Delhi- 110009

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

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All the Best

Q1. भारत के परिवहन क्षेत्र का ऊर्जा संक्रमण, जो 2070 तक नेट-जीरो उत्सर्जन हेतु भारत की प्रतिबद्धता को पूरा करने के लिए महत्वपूर्ण है, कई बाधाओं का सामना कर रहा है। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

The energy transition of India's transport sector, significant to fulfil India's commitment to net-zero emissions by 2070, faces several hurdles. Discuss. (Answer in 150 words) 10

Transport sector is considered one of hard to abate sectors and has significant CO₂ emission footprint.

Hurdles faced

1) Lack of rapid adoption
Electric vehicles

→ Sales of EVs marked marginal increase in 2023.

2) Poor charging infrastructure
- only in few cities like Delhi, Bangalore.

3) Depends Market Dominance of China

eg → Chinese companies have more than 60% share in EV battery market

Don't write anything in margin (2019 onwards) (2022 onwards)

- 4) Slow progress in Hydrogen fuel cells and engines.
- 6) ~~Limited~~ challenges with E20 adoption - requires change in engine.
- 7) Slow transition to Bharat VI norms
- 8) Poor performance of PAME 1.

Way forward

- 1) Awareness among people
- 2) PPP mode for battery ~~and~~ charging infra.
- 3) Cont Better access to critical minerals
(eg) part of Mineral security partnership
- 4) Support to indigenous companies like - ola EV.
- 5) ~~the~~ subsidizing the purchases

Case study
China! EV market

- high density of charging infra
- lucrative subsidies
- support to indigenous companies

Thus, energy transition for transportation sector can help

Q2.

मत्स्यन सञ्चिटी पर WTO के समझौते में कुछ हानिकारक सञ्चिटियाँ को प्रतिबंधित करने हेतु नियम निर्धारित किए गए हैं। विवेचना कीजिए। भारत के मत्स्यन क्षेत्रक के लिए इस समझौते के क्या निहितार्थ हैं? (उत्तर 150 शब्दों में दीजिए)

WTO's Agreement on Fisheries Subsidies lays out rules for prohibiting certain forms of harmful subsidies. Discuss. What are the implications of the agreement on India's fisheries sector? (Answer in 150 words) 10

WTO Agreement on Fisheries subsidies have been opened for adoption by member countries.

Rules

- 1) Elimination of subsidies for unregulated, unreported & illegal fishing.
- 2) Prohibiting fishing for high of already depleted fish stocks
- 3) withdrawal of subsidies for polluting ships.
- 4) Regulated fishing in high sea.

Implications on Indian Fisheries

- 1) can hamper the livelihood of small & marginal fishermen.
 - heavily dependent upon subsidies.
- 2) Adversely affect the food security of country
 - marine food is a staple diet in coastal regions.
 - ensures nutritional security
 - ↳ OMEGA-3, vitamin E.
- 3) can adversely affect the export potential of India
 - Marine fisheries among top ~~ag~~ food items exported.
- 4) capital intensive transition to greener shipping.

Way Forward

- 1) As requested by India, developing countries should be given more time.
- 2) subsidy withdrawal must be lead by major countries like Japan, USA.
- 3) Principle of CBDR must be upheld.

Q3.

यद्यपि पीएम-किसान (PM-KISAN) योजना ने अनेक किसानों को लाभ प्रदान किया है, फिर भी इसे कई महत्वपूर्ण चुनौतियों का सामना करना पड़ रहा है। (उत्तर 150 शब्दों में दीजिए)

Although the PM-KISAN Scheme has provided benefits to numerous farmers, it continues to face several significant challenges. Discuss. (Answer in 150 words) 10

PM KISAN scheme involves direct Benefit transfer of a sum of Rs. 6000/- in three installments to beneficiary farmers.

Benefits to Farmers

- 1) Income security
- 2) use of DBT → elimination of leakages
- 3) provides for capital invest-ment in agriculture → increased food security

Challenges

- 1) untentative amount is not inflation indexed.
- negative real return amount realisation by farmers
- 2) Irregular disbursements

eg) was stalled because of
~~the~~ general elections

- 3) Inclusion, exclusion errors,
- 4) Unlited coverage
- 5) Financial inclusion for
Partly further limits the
efficacy.

Way forward

- 1) Adjust must be inflation
Indexed. → increment of
amount must be provided
- 2) Government must aim for
saturation - 98% of farmers
are marginal & small.
- 3) Greater financial inclusion.
- 4) Can extra benefits can be
linked with positive under
takings
- formation of FPOs
- adoption of climate
resistant seeds etc.

Thus, PM KISAN has ensured the
basic minimum income to

Q4.

भारत में पशुपालन को रूपांतरित करने में डिजिटल प्रौद्योगिकी क्या भूमिका निभा सकती है?
(उत्तर 150 शब्दों में दीजिए)

What role can digital technology play in transforming animal husbandry in India?
(Answer in 150 words) 10

Animal husbandry contributes to
4% of GDP and provides
employment to $2/3^{\text{rd}}$ rural
population.

Digital technology can enable
transformation

1) Better breed management

eg) e-pashu haat → helps
contact between farmer &
breeder.

2) use of KISAN to agricultural
extension services

→ better online training
for animal husbandry

→ information dissemination

eg) outbreak of diseases
like cowp lumpy skin
disease

3) Better stock keeping
— use of sensors

- For regulating temperature in poultry.
- 4) Price discovery (eg) use of e-commerce
 - appc like licious → fresh meat
- 3) ~~use~~ use of digital technology in food processing
 - (eg) Automation in AMUL factories
 - better productivity.

Way forward

- 1) Increasing digital literacy
 - 2) Better infra structure development
 - (eg) Bharat net Project
 - 3) Awareness generation.
 - 4) value addition
 - value for farmer
- Thus, digital technology has full potential to help realise the true value of

Case Study

PASHU DID

- SHG (women) in Jharkhand
- trained with basic veterinary course
- use of digital technology for vaccine stock appointment booking

Q5.

भारत का पारंपरिक ज्ञान पर्यावरण संरक्षण हेतु कृषि को संधारणीय बनाने के लिए समाधान प्रस्तुत करता है। उदाहरण सहित स्पष्ट कीजिए। (उत्तर 150 शब्दों में दीजिए)

India's traditional knowledge offers solutions for making agriculture sustainable for environmental conservation. Illustrate with examples. (Answer in 150 words) 10

Traditional knowledge of India can be a guiding light to ensure agricultural sustainability.

Solutions offered

1) adaptation to climatic conditions

eg) Palakkad rice cultivation below sea level in Kerala
- saline environment
- alternated with ~~the~~ shrimp cultivation.

2) conservation of wild races

eg) Pongla khonds of Odisha preserve the wild races of various cereals through unique techniques.
- mixed cultivation.

3) Intercropping practices

eg) uttarakhand → few villages
practice cultivation of
9 varieties of rice at one
time →

- prevents resource competi-
tion
- soil conservation.

4) ~~no~~ paddy → use of bio pesticides
dis :-

eg) In west bengal crabs
are cultivated in paddy
fields.

- control pest
- additional source of food &
income

Way forward1) Recognising such traditional
practices →

- 2) providing support to conserve
the same.
- 3) promoting the wider adoption
of such sustainable practices.

Best practices of past can ensure
better future -

Q6. भारत में आपदा प्रबंधन में मीडिया की भूमिका पर टिप्पणी कीजिए। (उत्तर 150 शब्दों में दीजिए)

Comment on the role of media in disaster management in India. (Answer in 150 words) 10

Media as a source of information - on dissemination contributes significantly to disaster management.

Positive Role

1) Wider communication of early warnings

(eg) use of radio channels, TV, & TH, social media.

2) Wider awareness through adoption of guidelines

- can be communicated.

3) Better coordination and information transparency

post disasters

(eg) IAs of UP used whatsapp channel during floods for ~~cont~~

Negative Role

- 1) fake news :- can
eg ~~for~~ fake information about bomb → stampede.
- 2) Inhuman & insensitive coverage of past disasters
eg ~~quest~~ inhuman questions to relatives of Rahasote train accident victims.
- 3) sensationalisation, & politicalisation of disasters.
- 4) wrong information → covid treatment way forward | ~~show~~ suggested on news channels.
- 1) objectivity and accuracy must be maintained.
- 2) curbing fake news.
- 3) ~~use~~ to media people can be used in vigilance committees for relief operations.

Thus, media should be used constructively for better preparedness & relief.

Q7.

औपधि विकास और विनिर्माण के संदर्भ में, प्रौद्योगिकी किस प्रकार भारत के फार्मास्यूटिकल उद्योग को रूपांतरित कर रही है? (उत्तर 150 शब्दों में दीजिए)

How is technology transforming India's pharmaceutical industry in terms of drug development and manufacturing? (Answer in 150 words) 10

Pharmaceutical industries in India have shown rapid advancement which can be furthered through technology adaptati adoptions.

Technology transforming Pharmaceutical Industry

1) Genetic Engineering

- use of r-DNA to produce therapeutic enzymes

eg) Insulin, growth hormones.

2) Bio Similars : Protein analysis

- use of protein analysis have enabled development of Biotech stable bio similar

3) AI and ML

- google's deep mind capable

of Providing stable chemical structure of various compounds

→ accelerate drug discovery and manufacturing.

5) Sensors and IoT :-

- better temperature, humidity regulation in factories & ware house

6) e-commerce

- better reach to patients and customers

eg) o-pharma app.

Way forward

1) Data security :- must be ensured

2) Better IP protection

3) Regulation of technologies used

4) stringent testing before market release.

Thus, use of technologies can help achieve excellence in Pharma sector.

Q8.

कृषि के साथ गौर ऊर्जा को संयोजित करने वाली एग्रीवोल्टाइक प्रणाली किस प्रकार भारतीय कृषि के लिए एक गेम चेंजर मिद्ध हो सकती है? (उत्तर 150 शब्दों में दीजिए)

How can agrivoltaics, which combines solar energy with farming, be a game changer for Indian agriculture? (Answer in 150 words) 10

Agrivoltaics can help achieve the status of the ~~third~~ ^{second} crop to solar energy.

Agrivoltaics : game changer

- 1) Increased energy security for farmers.
- 2) Increased income → selling extra energy to grid.
- 3) Promote technology adoption in agriculture
 - solar powered pumps
 - solar powered warehouses.
- 4) Reduced GHG emission from farming sector.
- 5) solar powered mechanization → increase productivity

Challenges

- 1) competition for land
 - solar panels occupy space
 - reduced space for crops
- 2) High capital intensive.
- 3) Low awareness among farmers.
- 4) Poor maintenance facilities.

Way Forward

- 1) Promotion of schemes like PM KUSUM.
- 2) Innovative design of panels to reduce their land use
- 3) Innovative cropping → intercropping high light sensitive & low light sensitive crops
- 4) Better integration with grids & remuneration to farmers.

Thus, agrivoltaics can help achieve net neutrality in

Q9. क्या केंद्रीय सशस्त्र पुलिस बलों (CAPFs) की संयुक्तता भारत के विभिन्न भागों में शांति की जा रही प्रमुख सुरक्षा चुनौतियों से निपटने में सहायक हो सकती है? (उत्तर 150 शब्दों में दीजिए)

Can jointness of the Central Armed Police forces (CAPFs) help in tackling the major security challenges being faced in various parts of India? (Answer in 150 words) 10

CAPF involves ~~7~~ different agencies under ministry of Home Affairs.

These include - BSF, ISB, ITBP, CISF and, Assam Rifles, NIA, CRPF.

Benefits of Jointness of CAPF

- 1) Better coordination among the various forces.
- 2) universal training guidelines.
- 3) single chain of command
 - better discipline
 - be clarity about the source of command.
- 4) Increase sense of harmony among the forces.

Challenges of Jointness

1) will erode the specialisation and ground-level - a
- ex. eg) ITBP - trained for higher alt elevation operations.

2) Differentiation provides niche areas of operation

eg) USF → Industrial complex
- handles different types of threats.

3) can create leadership challenges

Way forward

1) Modernisation of forces.

2) Infusion of technology use
- UAVs, thermal vision

3) cap Intelligence to tackle drug trafficking, money laundering.

Thus, the ~~is~~ ~~of~~ jointness to CAPP must be guided with detailed analysis of pros & cons.

Q10.

ड्रग्स, इंटरनेट और आतंकवाद के बीच संबंध किस प्रकार भारत के लिए एक बड़ी खतरा के रूप में उभरा है? (उत्तर 150 शब्दों में दीजिए)

How has the linkage between drugs, internet, and terrorism emerged as a significant threat for India? (Answer in 150 words) 10

The threat to Indian security has been evolving and has been hastened by the advent of internet and other technologies.

Linkages between drugs, internet & terrorism

1) Drug sale over dark net

→ Al Qaeda involved in drug trafficking

- customer identification over dark net.

2) use of e-commerce for drugs sale

→ use of Amazon by Banglora techie to receive drugs.

3) ~~use~~ use of social media

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- for radicalisation and propoganda spreading
- micro profiling over social media as drug victims.

4) Information exchange

- ~~any~~ encrypted platforms used for information exchange among oaks.
- anonymity and ^{anonymity} pseudo

5) used of VPNs and TOR websites for operations

Way forward

- 1) Use of AI - ML to detect patterns over social media, internet & dark net
- while respecting privacy (Article 21)
- 2) counter campaigns for radical detradicalisation
- 3) Removal of fake news from platforms

PIR flagged Pakistan

Q11.

भारत के अवसंरचना विकास के लिए एक निवेश मॉडल के रूप में सार्वजनिक-निजी भागीदारी (PPP) की भूमिका पर चर्चा कीजिए। PPP अवसंरचना की सभी निष्पादन संबंधी समस्याओं के लिए कारगर क्यों नहीं हैं? (उत्तर 250 शब्दों में दीजिए)

Discuss the role of Public-Private Partnerships (PPP) as an investment model for India's infrastructure development. Why are PPPs not a panacea for all infrastructure-related performance problems? (Answer in 250 words) 15

Public private partnership refers to the mode of investment which involves revenue & investment contributions from government and private institute and the ownership at some point lies with the private sector.

PPP models → BOT (Build operate transfer)
→ BOO (Build operate own)

Role of PPP

- 1) can boost the infrastructure development
- 2) limited fiscal capacity of government → can act as complementary tool
eg) Airport development
- 3) Brings in technology

eg) Japan's Bullet train technology

- 4) Best managerial practice
 - eg) Just in time, Kaizen
- 5) Efficiency & effectiveness
- 6) Helps rationalise tariffs with-
out much public resistance
- 7) Quality service delivery
 - eg) Railway station redevelopment
- 8) can help with Brown field monetization → National Infrastructure Pipeline.

Limitations! Not a panacea

- 1) Excess focus on cost sharing
- 2) conflicting motives
 - Government
 - ↓
 - Inclusive service
 - Private sector
 - ↓
 - Profit maxl. motivation
- 3) complex legal contracts →
room for disputes.
- 4) Higher cost for public service

→ can render it inaccessible to larger part

5) NOT suitable for smaller infra development (eg) building schools, hospitals.

6) Delays in land acquisitions, Environment clearance → cost overruns.

⇒ wrong capitalism

Way forward

Kelkar committee recommendation

1) Focus must be on service delivery

2) Adequate recognition and sharing of risk.

3) Room for private player to renegotiate

4) Use of viability cap fund.

5) Provisions for dispute resolution

6) Plug & Play model (EIS)

Thus, PPP model ~~is~~ if well planned and executed with transparency and accountability can help enhance ~~boost~~ enhance logistics cost for

Q12.

भारत में सुभेद्य वर्गों के लिए खाद्य सुरक्षा सुनिश्चित करने में 'एक राष्ट्र-एक राशन कार्ड' योजना की भूमिका पर प्रकाश डालिए। इस योजना को सफल बनाने के लिए किन बाधाओं को दूर किया जाना अनिवार्य है? (उत्तर 250 शब्दों में दीजिए)

Bring out the role of the 'One Nation-One Ration Card' scheme in ensuring food security for vulnerable sections in India. What obstacles must be overcome to make the scheme a success? (Answer in 250 words)

15

One Nation one Ration card was
 • Introduced ~~to~~^{as} wake up call
 Post covid induced migrant
crisis.

Role in ensuring food security

- 1) Flexibility enables the holders of the card to collect ration from any fair price shop
 (eg) migrant of Bihar → FPS of Mumbai
- 2) Reduces out of pocket expenditure on food for migrants
- 3) Promotes better mobility on search of better income → better food security
- 4) Ensures optimum labour availability for intensive

agricultural areas like
Punjab, Haryana → cheap labour
→ better productivity → better
national food security.

Challenges & obstacles

- 1) Limited ~~adoy~~ implementation
- not implemented in all
states and UTs.
- 2) Lack of digitalisation of Ration
cards → denial of service
- 3) Exclusion Inclusion error
→ legitimate beneficiaries
denied the service.
- 4) Even where in the states where
implemented ~~coverage~~ coverage
at limited FPS.
→ reduced accessibility
- 5) Corruption and divergence
of stocks to black market.

ways to overcome

- 1) End to end digitization of FPS (wadwa committee)

case study
ATM for ration food delivery
- government tried as pilot project
- reduces corruption
- reduces queue
- 2) Biometric identification system integrated with the Ration cards
 - reduce duplications
- 3) universal implementation
 - all states
 - all FPS
- 4) Reduced documentation requirements for obtaining ONORC.
- 5) online provision of online facility for tracking application and status tracking
- 6) corporate redressal

Thus, ONORC can help achieve inclusive development & SDG 1, 2 (Zero poverty, Zero hunger).

Q13.

उत्पादन में जुड़ी प्रोत्साहन (PLI) योजना की केंद्रीय भूमिका को देखते हुए आकलन कीजिए कि क्या एक नई औद्योगिक नीति की आवश्यकता है। (उत्तर 250 शब्दों में दीजिए)

Assess whether a new industrial policy is required given the central role of the Production Linked Incentive (PLI) scheme. (Answer in 250 words) 15

PLI scheme has become the core government policy for boosting ~~a~~ manufacturing sector. as evident with the recent launch of PLI 2.0

Key Ideas of PLI

- 1) targeted sectors → semiconductor, white goods
- 2) incentives based on incremental production and sale

Benefits of PLI

- 1) Have boosted manufacturing sector
(eg) Increased exports of mobile (Apple company)
- 2) attracted FDI. → record FDI in manufacturing sector
- 3) created helped capture market global market.
(eg) 2023 exports reached 70 billion \$

- 4) Inclusion of MIME sector
- 5) Targeted toward green energy transition (eg) solar panel manufacturing included
- 6) creation of agglomerate industry
(eg) ~~set~~ display screen manufacturing

However, PLI faces certain challenges

- 1) Lack of synergy between different ministries
- different methods of identification of sales for different ministries
- 2) Increased imports → limited indigenisation
(eg) imports of display electronic chip, display from china increased in 2023.
- 3) Limited carpet syndrome
- ease of doing business only

For large corporates.

- 4) Limited success with MSMEs.
→ less investments realised.
- 5) less focus of labour intensive sectors (eg) ~~textile~~, footwear.

Thus, the need for new industrial policy

- 1) infrastructural development
→ increased reduction of
logistical cost currently 13%
of GDP
 - 2) Impetus to MSMEs.
→ easy credit, land accessibility
technology transfer.
 - 3) equitable focus on labour intensive industries along with
creating high value manufacturing
 - 4) Reduced compliance
 - 5) overarching framework for
sales realisation
 - 6) ~~the~~ export led manufacturing
- Thus, industrial policy apt for
unique Indian needs ~~of~~ of MSMEs

Don't
any
me
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कृप
या

Q14.

भारत में परिवहन के वैकल्पिक माधन के रूप में अंतर्देशीय जलमार्ग से जुड़ी संभावनाओं और चुनौतियों पर चर्चा कीजिए। (उत्तर 250 शब्दों में दीजिए)

Discuss the prospects and challenges associated with inland waterways as an alternative mode of transportation in India. (Answer in 250 words) 15

Inland waterways contribute to just 2% of all the transportation

Prospects of Inland waterways

- 1) large perennial rivers like Ganga, Brahmaputra
- 2) Cheaper mode of transportation
→ cheaper than roadways.
- 3) More environment friendly
→ Red less GHG emission.
→ can help achieve green transportation sector.
- 4) can provide connectivity to major industrial hubs
(eg) Amritsar, Kolkata, Lucknow → NWH-1.
- 5) Help reduce the logistics cost → current 13% of GDP
→ desired 7-8% of GDP.

- 6) can help create ~~to~~ new
job opportunities
→ ship building
→ harbour building.

Challenges.

- 1) Fluctuations in water level
especially in peninsular region
→ many fracts become un
navigable during summers.
- 2) capital intensive
→ requires adequate depth
→ dredging of river
sedimentation
→ huge sediment deposition
in rivers - kosi, Brahmaputra.
- 3) NOT suitable for services
requiring quick transportation
eg) perishable agricultural
products → milk, fruits
vegetables.

VISION IAS™

4) Biodiversity threat

- can create fragmentations in natural habitat
- dangerous for vulnerable species like - orangutan dolphins

5) the potential to pollute river

→ fuel spills in water.

way forward

- | | |
|---|---|
| 1) Proper analysis of cost-benefit ratio for such projects. | case study |
| 2) creation of industrial zones across water highways | USA inland waterway system of 5 great lakes
→ reduced cost of production
→ industrial hub |
| 3) promoting green shipping → use of CNG, green hydrogen in the ships | |

4) Eco centricity :- Minimising the damage to biodiversity

Thus, ~~the~~ inland water ways has great potential to boost the infrastructure

Q15.

भारत में किसानों की आय बढ़ाने, कृषि निर्यात को बढ़ावा देने तथा ग्रामीण अर्थव्यवस्था को मजबूत करने में कृषि सहकारी समितियों की भूमिका पर चर्चा कीजिए। (उत्तर 250 शब्दों में दीजिए)

Discuss the role played by agricultural cooperatives in enhancing farmers' income, promoting agricultural exports, and strengthening the rural economy in India. (Answer in 250 words) 15

Agricultural cooperatives boost the whole of government approach and significantly complements the role of government as service provider to the last mile.

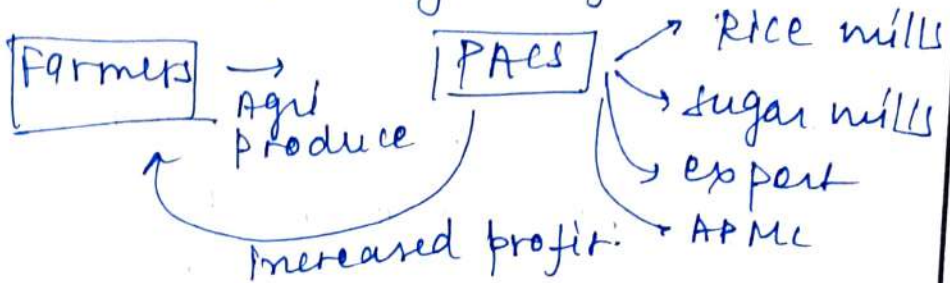
Role in enhancing Farmers' Income

1) Reduced cost of inputs
 (eg) National cooperative for seeds → cheaper, high quality seeds to farmers.

2) Access to cheaper capital
 - short term, long term loans to farmers at reasonable interest
 - helps break free the cycle of indebtedness

(eg) PACS.

3) Better price realisation through enhanced bargaining power.



4

Promoting Agricultural exports

1) Better capability to discover and exploit foreign markets

eg) National cooperative for exports → Maharashtra onion

→ Dubai malls

→ increased income

2) Help achieve the required sanitary and phytosanitary requirements.

eg) Alphonso mango rejected by USA.

3) Better pack provide for food processing and better packaging & marketing → ↑ exports.

- Strengthening rural economy
- 1) capital investment for agricul
ture [eg] IFFCO → Nano urea
→ nano DAP.
 - 2) Agricultural infra creation
[eg] Food storage scheme of
government → storage
facility creation by PAEs
 - 3) Can create boost Mechanism
tion → rental service.
- # Way forward
- 1) Better regulation and governance
of cooperatives
- reduced politicisation
 - 2) computerisation of PAEs.
(Budget 2023-24)
 - 3) skill development for cooperative
members
 - 4) Allowing wider source of finance
mobilisation → use of bonds,
equity etc
 - 5) Transparency & accountability
- Thus, cooperatives like AMUL have
set the example for the efficiency

Q16.

देश के राष्ट्रीय पशु के संरक्षण में 'प्रोजेक्ट टाइगर' की सफलता पर टिप्पणी कीजिए। परियोजना के तहत बाघों के समग्र संरक्षण के लिए और क्या कदम उठाए जाने की आवश्यकता है? (उत्तर 250 शब्दों में दीजिए)

Comment on the success of 'Project Tiger' in protecting the national animal of the country. What further steps are needed for holistic conservation of tigers under the project? (Answer in 250 words)

15

Project Tiger recently completed 50 years since initiation and the success is reflected in 3000+ tiger population in the country.

Success of Project Tiger

- 1) Achieved 2x target of Petersburg agreement well ahead of time.
- 2) 27 of 55 Tiger reserves are CAITIS certified.
- 3) Innovative monitoring policies (eg) stripes, use of UAVs.
- 4) Increased number of total Tiger reserves → reached 55.
- 5) Reduction in instances of

poaching.

6) Have enabled use of Tiger as keystone species for the holistic development of ecosystem and conservation.

Further steps for holistic tiger conservation

1) Better management of tiger population

↳ overcrowding in few Tiger reserves like Bandhaugharh → increased conflicts between tigers for area.

2) Genetic diversity must be maintained

↳ Inbreeding in himalayan TR → melanistic tigers → increased vulnerability to any infection.

3) Increased capacity and capability of the forest rangers.

- overburdened
- use of night vision, UAVs

4) Better technology for monitoring and counting.

eg) use of AI with for image processing

5) Better Handling animal-human conflict

→ early detection of intrusion in human areas.

6) Respect for the rights of tribals

eg) ~~But~~ Baigas (PVTs) → ~~to~~ displaced out of Achanakmar amarkantak TR.

- Forest right Act, 2002 must be implemented
- using tribes for better management of tiger reserves.

Thus, protecting tigers has ensured holistic conservation of ecosystems

Q17.

यद्यपि बंगाल की खाड़ी से मटे तटवर्ती राज्यों ने आपदा तैयारी के संबंध में महत्वपूर्ण प्रगति की है, फिर भी उनकी प्रभावशीलता सीमित रही है। विवेचना कीजिए। (उत्तर 250 शब्दों में दीजिए)

While the littoral states of the Bay of Bengal have made significant strides in their disaster preparedness, their efficacy has been limited. Discuss. (Answer in 250 words) 15

The contrast in the ~~vulnerability~~ human casualties caused by super cyclone of 1999 and recent cyclone Fani are is testimonial to the significant strides in the disaster preparedness of littoral states of Bay of Bengal.

significant strides in preparedness

1) wide networks of cyclone shelters.

2) large sumt involvement of pnos in training people and awareness creation about different disasters.

(eg) MS Swaminathan Foundation.

3) well developed early warning system → increased

efficiency of IMD for predicting cyclone landfalls & directions.

4) Efficient use of communication channels for ~~a~~ during disasters

eg) TV channels, Radio stations & TH etc

However, the efficacy has been limited

1) Mostly reliant upon ~~evacuation~~ evacuation

2) Poor enforcement of building codes

eg) BIS building code for coastal region → multiple sloping of roofs → not followed

3) violation of CRZ norms

→ rapid construction in CRZ II, III: ~~a~~ reported

4) uncontrolled coastal sand mining → coastal erosion

in Bengal Fastest (MoEFCC)

5) Poor investment in developing
Bio Shields. - mangroves,
coastal forest destruction

6) uneven awareness and preparedness for different disasters

↳ Storm surges not well
handled
- coastal floodings are frequent

Way forward

1) Holistic understanding of
different types of disaster
→ awareness & training

2) Enforcing building codes &
retrofitting of lifeline infra
→ hospital, bridges.

3) Development of sea walls,
sand dune breaks.

4) Development of Bio Shields
→ coastal vegetation

These steps can help achieve
the motto of Sendai Framework

Q18. संयुक्त राष्ट्र ने वर्ष 2025 को क्वांटम विज्ञान और प्रौद्योगिकी का अंतर्राष्ट्रीय वर्ष घोषित किया है। वर्तमान में, सामान्य तौर पर उपयोग की जाने वाली कौन-सी प्रौद्योगिकियां क्वांटम मैकेनिक्स की समझ पर आधारित हैं? क्वांटम विज्ञान और प्रौद्योगिकी के क्षेत्र में भारत द्वारा क्या कदम उठाए जा रहे हैं? (उत्तर 250 शब्दों में दीजिए)

The United Nations proclaimed 2025 as the International Year of Quantum Science and Technology. Which technologies in common use today are based on the understanding of quantum mechanics? What are the steps being taken by India in the field of quantum science and technology? (Answer in 250 words) 15

Quantum technology refers to the process ~~as~~ which work on the principles of quantum mechanics.

Features → Entanglement
→ Superposition
→ Coherence

Technologies based on quantum mechanics

1) Atomic clocks

- helps keep time calculation precise
- used in international space station
- used ~~gt~~ by ~~at~~ the coms

2) MRI scans

- treat the water molecules in ~~brain~~ ^{body} as atoms and

works on their spin and state properties.

3) Quantum Dots

- used in digital displays
- base on the size of dots
different wavelengths absorbed
- the atoms in dot act as single atoms → follow quantum principles.

4) Electron Telescopes

- help achieve atomic level magnification
- works on photon and atom interaction guided by quantum mechanics

Steps taken by India

1) National mission on quantum technology

Aim! - to build 1000 qubits by 2028.

2) Development of Quantum

Key distribution & encrypted message to communication

eg) ~~was~~ land based communi quantum, encrypted communication demonstrated by IIT-Delhi & ~~IAE~~ others.

3) Aim to develop satellite based QKD encrypted communication.

4) ~~A~~ government formed National Foundation Research with 50,000 crore corpus → for research.

5) India - USA partnership under ICET → involves quantum technology.

Way Forward

1) comprehensive framework to shift government sensitive data to quantum encryption

eg) USA → quantum readiness Act

2) More funds for R&D

3) collaboration with MNCs like Google → developed Sycamore

Q19.

प्रमुख संस्थागत और नीतिगत परिवर्तनों ने भारत में रक्षा के स्वदेशीकरण, घरेलू पूंजी मुद्रा (Domestic Capital Procurement) और रक्षा संबंधी निर्यात को बढ़ावा दिया है। इस संबंध में सरकार द्वारा अपनाए गए उपायों और अभी भी विद्यमान मुद्दों पर चर्चा कीजिए। (उत्तर 250 शब्दों में दीजिए।)

Key institutional and policy changes have spurred defence indigenisation, domestic capital procurement and defence exports in India. Discuss the measures adopted by the Government in this respect and the issues that still persist.
(Answer in 250 words) 15

Indian defense export saw
32% rise in 2023-24

This has been enabled by key
governmental measures

Institutional changes

- 1) creation of dedicated fund
- 2) Regular conduction of exhibitions
— DefExpo
- 3) Post of CDS → Strategic guidance
- 4) Defense export promotion cells.
- 4) Policy changes

1) Positive indigenisation with
for domestic development

2) Technology transfer clause
in various defense deals,
eg) Rafale jets

3) Collaborations with other countries and companies for domestic manufacturing

eg) development of Jet engines in India.

4) FPI Policy liberalised

- 100% automatic FPI route in many sectors.

5) creation of Defense Production Industrial Zones

6) Proactive Diplomacy

eg) shifted coast guard ship to Vietnam

7) Diversification of export baskets

eg) Missiles, light weight fighter aircraft

- scope for customisation
- long term sourcing policies.

Don't write anything in this margin

Don't write anything in this margin
(इस भाग में कुछ ना लिखें)

- 7) provisions for overhaul of PSUs - DRDO, ordnance factory
 → committee setup to look into DRDO functioning

way ahead

- 1) Encouraging private sector for uptaking manufacturing
 - currently very limited presence.
- 2) collaboration with different countries for tech transfer
 eg Russia, USA, France
- 3) Increased investment in R&D.
- 4) ensuring ease of doing business
 → reducing procedural compliances.

Thus, sustained efforts and continued political will essential to capture global defence market.

Q20.

गैरकानूनी गतिविधियों के प्रति भारत के तटों की सुभेद्यता राष्ट्रीय सुरक्षा के लिए गंभीर खतरा उत्पन्न करती है। तटीय सुरक्षा के लिए मौजूदा सुरक्षा प्रणाली पर चर्चा कीजिए। (उत्तर 250 शब्दों में दीजिए)

The vulnerability of India's coasts to unlawful activities poses significant threats to national security. Discuss the current security system in place for coastal security. (Answer in 250 words)

15

The infiltration of terrorists of 26/11 Mumbai attack through sea route highlights the vulnerability of India's coast

unlawful activities → Threat to national security

1) Piracy :

- Increased activity in Arabian sea encouraged by Houthi's action.

2) Human trafficking, Drug trafficking

- established syndicates.

3) threats of cyber attacks.

4) Increasing footprints of China in the Indian ocean region

eg) Humbantota & Colombo ports

- 5) ~~use~~ Unregulated fishing
in Indian territory →
use of trollers → threat to
Food security

Current security system

- 1) Indian Navy :- responsible
for security in EEZ
- upto 200 nautical miles
- 2) Coast guards :-
- responsible for security ~~for~~
upto ~~200~~ 24 nm.
- 3) Marine police
- coast
- territorial water
- 4) voluntary guards
- trained fisherman
- 5) IFC (^{Information} ~~International~~ ^{Customs} centre)
- "helps increase Marine
Domain awareness."

- 6) Nuclear triad
- Induction of INS Arighat,
INS Arighat in Navy.
- 7) Sea vigil :- exercise for
collaboration between
Navy & coastal guards.

Way forward

- 1) Increased capacity of security forces
- Insufficient number of
boats with coastal guards
- 2) Better collaboration with
neighbouring countries
↳ Colombo conclave
- 3) Intelligence gathering &
cooperation with like
minded countries
→ ocean Earth observation
satellites
→ Data intelligence sharing
with USA.
- 4) Infrastructure building for
coastal area.

Thus, securing the coasts are