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GENERAL STUDIES (TEST CODE : 2365)

Name of Candidate	HRITVIK RANJAN		
Medium Eng./Hindi	ENGLISH	Registration Number	1085424
Center		Date	

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
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9	10	
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11	15	
12	15	
13	15	
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16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

- 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)।
- There are **TWENTY** questions printed in **HINDI & ENGLISH**.
इसमें बीस प्रश्न हैं हिन्दी और अंग्रेजी में छपे हैं।
- All questions are compulsory.**
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- 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।
- Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- 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 उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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. प्रभावी एवं न्यायसंगत भूमि सुधारों की अनुपस्थिति ने भारत में गरीबी की निरंतरता में कैसे योगदान दिया है?

How has the absence of effective and equitable land reforms contributed to the persistence of poverty in India? (Answer in 150 words) 10

Land reforms were implemented in post-Independent India to reduce concentration of land with zamindars and enable a land ceiling and land consolidation regime.

But apart from states like Cerala, West Bengal, these reforms were not effective.

Absence of effective land reforms

1) 86% farmers are small and marginal

⇒ less than 2 hectares land

2) 10% land concentrated with 1%

large farmers

3) Use of Right to Property Act to delay

land reforms

This led to land reforms being virtually non-existent in states like Bihar.

Persistent poverty

- 1) Lack of land resources \Rightarrow Forced to undertake landless labour job \Rightarrow low wages
- 2) No investment in capitalist agriculture
 \Rightarrow Agriculture contributes only 17% to GDP.
- 3) Hindered implementation of Swaminathan Committee suggestions to increase agricultural income. Eg- Contract Farming
- 4) Inhibited industrial investment
Eg- Small land parcels in Bihar lead to challenges in acquiring land to set up factory.
- 5) Difficulty in infrastructure development by governments due to land disputes.

Pending land reforms along with conclusive titling and Digitization of records needed. SVAMITVA scheme is a step in right direction.

Q2. यूनिफाइड पेमेंट इंटरफेस (UPI) ने भारत में वित्तीय समावेशन को किस प्रकार बढ़ावा दिया है? टिप्पणी कीजिए।

Comment on how the Unified Payment Interface (UPI) has unleashed financial inclusion in India. (Answer in 150 words) 10

UPI is an initiative of NPCI under RBI to enable cashless payment from one account to other using ICI and mobile phones.

Unleashed financial inclusion

1) Enabled faster transactions

Eg - Real-time IMPS money transfer

2) Eliminated need to visit banks and ATMS for withdraw cash

⇒ Financial inclusion of those living in areas of less banking penetration

3) Reduced dependence on cash

Eg - Cash transactions are only 50% of overall (2023 RBI)

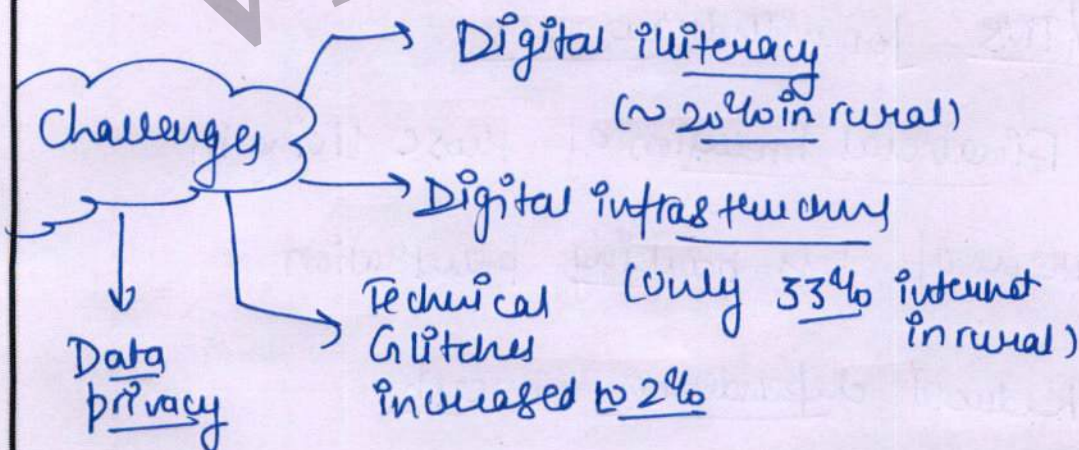
4) Access to multiple payments and settlements services

Eg- Electricity bill payments, metro recharge

5) No charge for transactions \Rightarrow Reduced cost of domestic and cross-border transaction.

6) Promoted opening of bank branches among rural women. Eg- JANDhan account

7) Easier access to government welfare money via UPI. Eg- MGNREGA, PM-KISAN



UPI can revolutionize business ecosystem in India and lead to reduced inequalities (SDG-10).

Q3. भारत की आर्थिक संवृद्धि और अवसंरचना के विकास को सहायता प्रदान करने में विकास वित्त संस्थानों (DFIs) की भूमिका पर चर्चा कीजिए।

Discuss the role of Development Finance Institutions (DFIs) in supporting India's economic growth and infrastructure development. (Answer in 150 words) 10

DFI are domestic and global institutions that provide credit to governments to invest in developmental activities. Eg- IIFCL

Role of DFI in India

(I) Infrastructure development

1) Huge investment needs in infrastructure

Eg- \$1.5T needed to achieve target of \$5T economy

2) Deficiency of funds with government

Eg- Total expenditure is ₹45 Trillion which is less than required.

3) Need of capital investment to have multiplier effect and crowding-in of private investment.

② Economic growth

1) Investment in human capital formation

Eg - Currently, only 1.5% of GDP on health and 4.5% on education

2) Investment from DFIs can mobilize public money to revive economic activities. Eg - Infra creation would lead to development of industrial corridors

3) Create new jobs in secondary sector

4) Promote export activities.

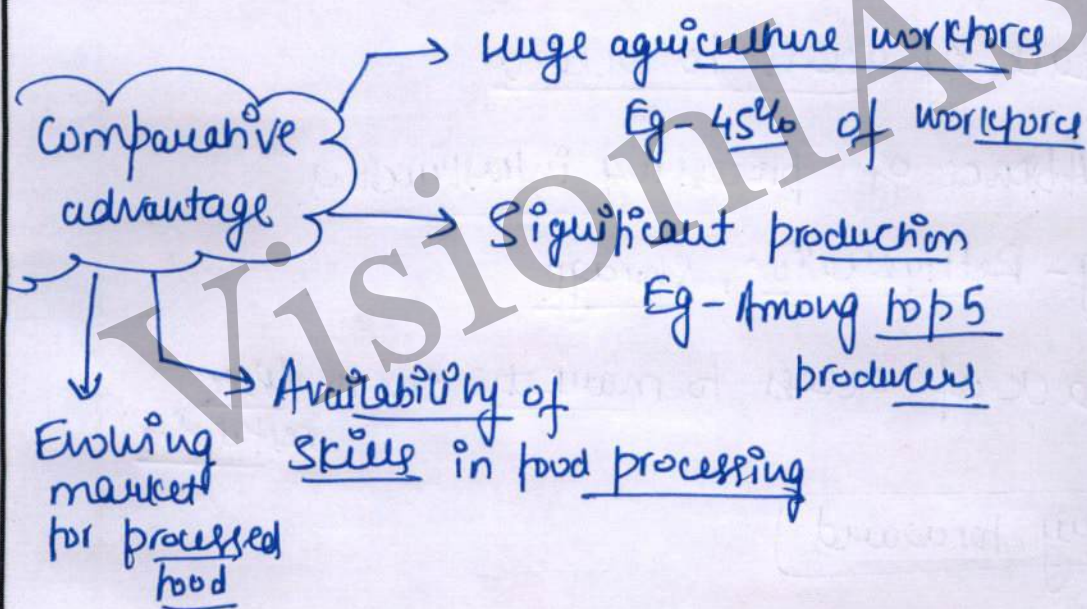
Challenges → High NPA's
→ Red-tapism in project

Government is collaborating with IFCI, NABARD etc DFIs ⇒ Helpful in \$5T economy.

Q4. भारत को खाद्य प्रसंस्करण के क्षेत्र में अपनी तुलनात्मक बढ़त का लाभ उठाकर इस क्षेत्र को वैश्विक ऊर्जागृह में परिवर्तित करने की आवश्यकता है। विवेचना कीजिए।

India needs to leverage its comparative advantage in food processing to transform the sector into a global powerhouse. Discuss. (Answer in 150 words) 10

Food Processing sector is a sunrise sector of Indian economy contributing 12% to manufacturing GVA and 10% to agricultural GVA in 2022.



Need to leverage comparative advantage

1) Reduce glut in agriculture

Eg - 45% workforce \Rightarrow 17% output

2) Increase farmer income. Eg - currently

20% comes from Subsidies

3) Increase share of export

⇒ currently, only 2.5% (15th target)

4) Diversify rural economy

5) Promote Agripreneurship

Challenges

1) Lack of access to credit

2) Absence of processing infrastructure

Eg- Refrigeration, Storage

3) Lack of access to market due to APMC restrictions

Way forward

1) Access to credit. Eg- PSL loans, Mudra loans

2) Skilling in market access. Eg- Use of e-NAM, Contract farming

These recommendations can transform into powerhouse and also double farmer income.

Q5. प्लास्टिक जलवायु परिवर्तन में किस प्रकार योगदान देता है? भारत इस दिशा में कई उपायों को प्रारंभ करने के बावजूद प्लास्टिक प्रदूषण को नियंत्रित करने में सफल क्यों नहीं हुआ है?

How do plastics contribute to climate change? Why has India not been successful at controlling plastic pollution despite initiating several measures? (Answer in 150 words) 10

Plastic generation in India is ~34 lakh (3rd largest)
tonnes per annum (CPCB) which leads to huge
pollution in land and water.

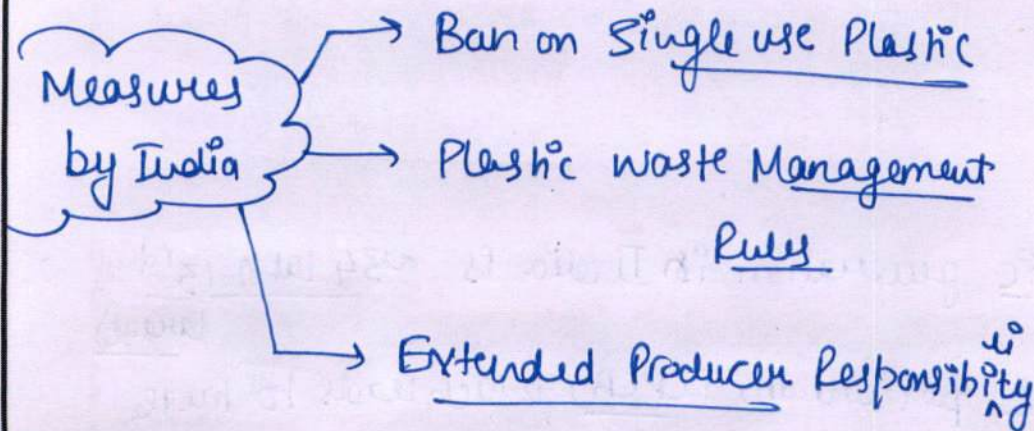
Contribute to climate change

1) Burning of plastic ⇒ Dioxins released
that cause pollution

2) Non biodegradable ⇒ Accumulate in
environment, landfills for centuries

3) Plastic contribute to ~80% of marine
litter ⇒ Reduce capability of oceans to
sequester carbon

4) Plastic production is energy intensive
⇒ GHG emission.



Reasons for limited success

- 1) Lackadaisical enforcement of measures
Eg - Single use plastic manufactured in unorganized sector
- 2) Exemption of 50% plastics from Single use plastic and Plastic waste Rules
- 3) Lack of alternatives to plastic ⇒ Implementation challenges
- 4) Evolving business require plastic. Eg - Grocery delivery apps like Blinkit
- 5) Behavioral challenges ⇒ Non-segregation
Plastic management is crucial to
achieve SDG-13 of climate action.

Q6. भारत में सार्वजनिक स्थलों पर अक्सर होने वाली भगदड़ के कारणों की व्याख्या कीजिए। इस तरह की घटनाओं को कैसे रोका जा सकता है?

Explain the causes of frequent stampedes at public places in India. How can such incidents be prevented? (Answer in 150 words) 10

Causes of stampedes in India

1) Poor urban planning

⇒ Congested roads, narrow lanes

2) Encroachment on public land

3) Lack of civic etiquettes among public

4) Huge population density in urban areas

Eg- 50% population in slums

5) Special occasions like festivals and

concerts ⇒ Increased influx of people.

6) Lack of warning systems and
prior information.

Measures to prevent

1) Creation of wider roads

2) Removal of encroachments

Eg- Anti-encroachment drives in UP

3) Awareness among public

4) Limitations on number of attendees
of a festival, concert.

Q7. ह्यूमनॉइड रोबोट्स के क्षेत्र में हुई नवीनतम प्रगति क्या है? इन रोबोटों के समाज पर पड़ने वाले प्रभावों से जुड़े मुद्दों पर चर्चा कीजिए।

What are the latest advancements in the field of humanoid robots? Discuss the issues surrounding the impact of these robots on society. (Answer in 150 words) 10

Advancements in humanoid robots

1) Applications in medical field

Eg- Sawai Jai Singh hospital in Rajasthan used during COVID

2) Integration of AI and ML to ~~be~~ make robots more efficient

3) Useful in space missions

Eg- Vyom humanoid robot used to test space conditions for Gaganyaan Mission

4) Useful in different fields where human intervention is difficult.

5) used in cleaning of sewerage

Eg- Bandicoot robot in Kerala.

Impact on society

1) Lots of jobs for humans

2) General AI or AGI can lead to
humanoid robots dominating mankind

3) Increased inequality

↳ Countries that can afford will benefit

↳ Others will lack opportunities.

Q8. पुनर्संयोजी डीएनए तकनीक ने जेनेटिक इंजीनियरिंग में किस तरह क्रांति ला दी है? इसके प्रभावों को उदाहरण सहित स्पष्ट कीजिए।

How has recombinant DNA technology revolutionized genetic engineering?
Provide examples to illustrate its impact. (Answer in 150 words) 10

Recombinant DNA technology

1) Cutting DNA strands and modifying
it to include desirable traits

Eg- CART cell therapy

↳ Medical benefits

2) Genetic sequencing

Eg- Genome India Project

3) Vaccine development

Eg- mRNA technology

4) Creating clone babies

5) Diagnosing cancer and other genetic
diseases like rare diseases

6) Use of CRISPR-Cas9 technology
has revolutionized this

7) Creating HYV seeds having
pest & resistance, disease tolerance

Eg- DMH-11 mustard.

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Q9. जम्मू-कश्मीर में गैर-राज्य अभिकर्ताओं द्वारा अपनाई जाने वाली नवीन एवं उभरती रणनीतियों ने इस क्षेत्र में गंभीर सुरक्षा चुनौतियां उत्पन्न कर दी हैं। विवेचना कीजिए।

New and evolving tactics employed by non-state actors in Jammu and Kashmir have created significant security challenges in the region. Discuss. (Answer in 150 words) 10

After abrogation of Article 370, anti-social elements and non-state actors have launched new tactics to spread terrorism in J&K.

Security challenges due to new tactics

- 1) Use of drones to supply arms and ammunitions
Eg- Recent incidence in Rajouri-Poonch region
- 2) Online radicalization of youth
⇒ lone-wolf attacks
- 3) Shifted focus towards Pin-Panjal region due to less security forces
- 4) Misinformation and disinformation campaigns to spread communal

~~his~~ dis harmony.

5) Use of hybrid and Grey zone warfare

6) Use of hidden underground tunnels

to pass terrorists into India.

Indian Army and government
is also taking steps to counter these tactics

1) De-radicalization campaigns

Eg operation MAA and operation 'Sadbhama'
under 'winning Hearts And Minds'

2) Better border surveillance by sensors, radars

Eg- CIBMS, QIT-Bold

3) Use of GIS to detect underground passages.

4) Border protection systems to combat drones.

A comprehensive security strategy
and Theatrized command for TEIC can be helpful.

Q10.

भारत में उभरती साइबर सुरक्षा चुनौतियों से निपटने के लिए निरंतर नवाचार और दक्षता की आवश्यकता है। इसके मद्देनजर, भारत में साइबरस्पेस की सुरक्षा में CERT-In की भूमिका पर प्रकाश डालिए।

The evolving cybersecurity challenges in India demand constant innovation and agility. In light of this, give out the role of CERT-In in safeguarding cyberspace in India. (Answer in 150 words) 10

India is 10th most prone to cyberattacks in the world due to multiple causes which mandates constant innovation and agility

Evolving cyber challenges

- 1) Cross-border cyber attacks on critical infrastructure. Eg- From China, Pakistan on India's power infrastructure
- 2) Use of cyberspace for warfare ⇒ Hybrid warfare
- 3) Increasing financial frauds
Eg- Phishing, Malware attacks
- 4) ~~too~~ Nascent stage of Data Protection Regime
⇒ PDPA Act
- 5) Data theft . Eg- Aadhar data stolen
↳ Aadhar data attack.

Role of CERT-IN in safeguarding cyberspace

1) Monitoring of cyber space around critical infrastructure

Eg- Cyber Swachhta Kendra

2) Detecting suspicious cyber behaviours

3) Countering incidences of data breaches and data theft

4) Spreading cyber awareness in society

5) Developing resilient cyber infrastructure for government and defence purposes

6) Supporting law enforcement agencies in dealing with cyber crimes.

Eg- CBI Megh Chakra operation.

Strong cyber security is essential for national security and economic development.

Q11. भारत में जल-गहन फसल पद्धति की ओर असमान झुकाव क्यों रहा है? संधारणीय जल-उपयोग फसल पद्धति सुनिश्चित करने के लिए लागू किए जा सकने वाले उपायों पर चर्चा कीजिए।

Why has there been an uneven tilt towards water-intensive cropping pattern in India? Discuss the measures that can be implemented to ensure a sustainable water-use cropping pattern. (Answer in 250 words) 15

India faces adverse groundwater crisis due to tilt towards water-intensive cropping as 90% of extracted groundwater is used for agricultural activities.

Tilt towards water-intensive cropping

1) Government support to water-intensive crops like rice and wheat

Eg - MSP procurement in Punjab, Haryana

2) Power subsidies by state governments

⇒ unsustainable extraction of water

3) FRP regime for sugarcane

⇒ sugarcane cultivation in water-deficient regions like Vidarbha.

4) Lack of skills and awareness required
for diversification

Eg- Pulses require less water, but awareness
is less

5) Absence of high yielding variety seeds
for water-efficient crops

Eg- Millets are water efficient, but there
is no HYV seeds in market

↳ HYV exists for water-intensive rice (IR8).

6) Consumption patterns in India is dominated
by rice and wheat ⇒ More growth of these

Measures needed

1) Rationalization of MSP and FRP regime

Eg- Millets procurement ⇒ Focus of
journey on this water-efficient crop.

2) Optimizing power subsidies

Eg - Can be made more targeted to prevent water exploitation

3) Skilling of farmers. Eg - NAHEP scheme

4) Subsidies for micro-irrigation ↗ Drip
↘ Sprinkler

Eg - PM Kisan Sinchayi Yojana

5) REID to promote water-efficient crops like millet and pulses.

6) Awareness among consumers to create market demand. Eg - Eat Right movement

7) Creation of 'Pani Panchayats' and 'Water-User Associations'.

These measures can reduce fully agricultural practices and lead to 'water-plus' status of India.

Q12.

विकास एजेंडे में जलवायु परिवर्तन संबंधी चिंताओं को प्रमुखता से शामिल करने के लिए बजट प्रक्रिया के साथ जलवायु वित्त को समेकित करने की आवश्यकता है। इस संदर्भ में, भारत में जलवायु बजट की आवश्यकता पर चर्चा कीजिए।

Mainstreaming climate change concerns within the development agenda requires integration of climate finance into the budgeting process. In this light, discuss the need for climate budgeting in India. (Answer in 250 words) 15

Climate budgeting refers to incorporating the financial needs for tackling climate change into annual budgets in order to better mitigate climate hazards.

Integration of climate finance in budgeting

1) Setting climate priorities and making policies based on these priorities.

Eg- National Action Plan for climate change

2) Using tools of budgetary policy making to make funds available for implementing these policies.

Eg- National Adaptation Fund, SIDBI's

Arang Sustainability Fund

3) Climate accounting ⇒ Accounting for negative impact of different budgetary provisions on climate.

⇒ This can be done by EIA

4) Creating tools of evidence generation to ensure climate finance was used for relevant purpose.

Need for climate budgeting

1) Climate change mitigation priorities of government. Eg - Panchamrit

2) Scarcity of funds to achieve mitigation.

Eg - \$10 trillion needed to achieve net zero by 2070 (IPSCA)

3) Lack of climate resilient infrastructure

⇒ Development activities harm climate

- 4) Renewable energy transition requires
high investment
Eg 5wcuw target by 2030
- 5) Budgetary allocation needed to switch to
Alternate Fuels Technology like EV, LNG
- 6) Get information about needs of
different sectors to achieve climate resilience
Eg- Power, transport
- 7) Give financial backing to climate
commitments.

Government must focus on
extra-budgetary climate finance also such
as Sovereign Green Bonds, Green TIRs,
GCF Funds etc.

Q13. भारत में कृषि उपज के भंडारण और विपणन में प्राथमिक कृषि ऋण समितियां (PACS) क्या भूमिका निभाती हैं? हाल ही में प्रारंभ की गई 'सहकारी क्षेत्र में विश्व की सबसे बड़ी अनाज भंडारण योजना' के महत्व पर टिप्पणी कीजिए।

What role do Primary Agricultural Credit Societies (PACS) play in the storage and marketing of agricultural produce in India? Comment on the significance of the recently launched 'World's Largest Grain Storage Plan in Cooperative Sector'.
(Answer in 250 words) 15

PACS are the lowest tier of rural
co-operative banks which is a 3-tier
structure and helps in grassroot
credit and marketing activities



Role in storage and marketing

1) Provide credit to farmers to
access storage facilities

Eg- Cold storage, refrigeration

2) Fund FPOs, SPAC, other farmers

groups in setting up storage facilities
in villages

3) credit to farmers to brand and
market their produce

4) Access to organic certification to
reach wider markets

Eg - NPOP

5) Provide skill training in digital
marketing

World's largest Grain Storage Plan

1) creation of world-class storage
infrastructure

2) leverage Economics of scale from
co-operative sector.

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

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Q14.

भारत में मौजूदा विमान पत्तनों का विस्तार और नए विमान पत्तनों का विकास केवल यात्रा संपर्क में सुधार तक सीमित नहीं है बल्कि यह कहीं अधिक लाभ प्रदान कर सकता है। चर्चा कीजिए।

The expansion of existing airports and the development of new airports in India can provide benefits beyond merely improving travel connectivity. Discuss. (Answer in 250 words)

15

There has been a significant expansion of airport infrastructure in the recent years with number of airports reaching more than 60.

Benefits of airport expansion

① Travel connectivity

1) Creation of new routes for air connectivity. Eg - Connectivity to Andaman

2) New routes in non-metro cities.

Eg - New airport in Noide (Jewar) and Ayodhya

3) Reduction in airport congestion and better traffic management.

⇒ Air travel traffic increased by whims
between 2001 and 2022.

(I) Promotion of tourist places

Eg- Connectivity to Lakshadweep can
improve tourist potential of the islands.

(II) Revive local economies

Eg- Airport at Ayodhya is expected to
revive economic activities and make it
hub of religious tourism

(III) Agricultural benefits

Eg- Under Krishī Udan, faster transport
of perishable agriculture and horticulture
products

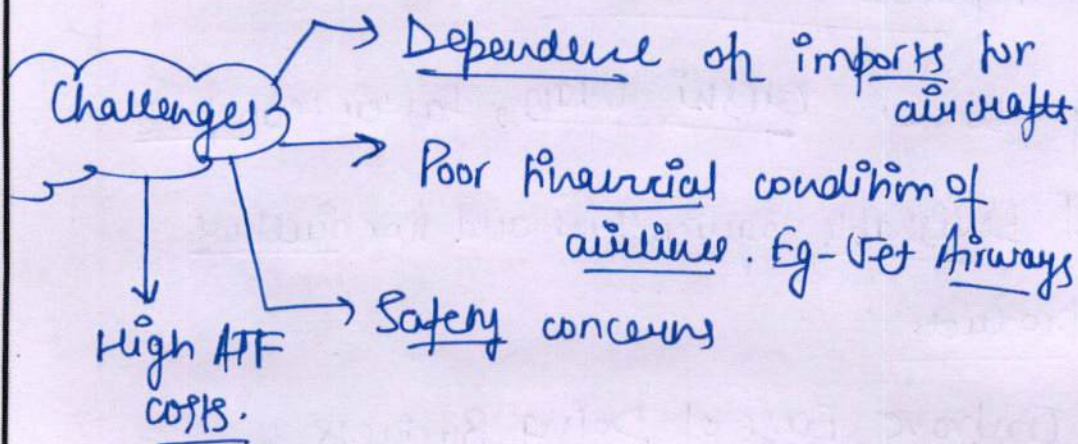
(IV) Improve Ease of Doing Business by
fasting domestic and international travel.

⑥ Increase the modal share of freight transport by airway

Eg - Currently 80% dominated by road and railway

⑦ Create new business opportunities at airports. Eg - shops, restaurants

⑧ Increase airied activities
Eg - Maintenance and Repair activities,
domestic manufacturing of aircrafts etc.



Q15.

भारत अपने ऊर्जा क्षेत्रक में महत्वपूर्ण परिवर्तन लाने के अंतिम पड़ाव पर है और देश की ऊर्जा क्षमता में पर्याप्त वृद्धि करने के लिए तैयार है। इस परिवर्तन को संधारणीय और समावेशी बनाने के लिए क्या आवश्यक है?

India is on the cusp of a significant transformation in its energy sector and is set to substantially augment the country's energy capacity. What makes this transformation sustainable and inclusive? (Answer in 250 words) 15

Under the Panchamrit commitments, India is targeting to increase the renewable energy capacity from current 195GW to 500GW by 2030, which indicates significant energy sector transition.

Status of India's energy capacity

- 1) India's total power consumption is ~500GW, which is mainly dependent on coal (~50%)
- 2) 195GW (~43%) is from renewable and 203GW (~45%) is from non-fossil sources
- 3) Due to high population demand and

development needs, India's energy demand
is increasing at one of the fastest
growing rates

4) India is substantially increasing

energy capacity

Coal based Thermal
Power plants

Focus on Renewables

Governance
policies

India Energy Plan 2023

MBED scheme to better
manage distribution

Sustainable and inclusive transformation

① Sustainability

1) Expansion of renewable energy capacity

Eg - India is 4th largest in renewable
capacity

2) Focus on alternate fuels

Eg - Natural gas share in energy mix
targeted at 15% by 2030.

3) REED on new energy technology

Eg- Hydrogen fuel cell, Green Ammonia

4) Reduction in import dependency

Eg- Ethanol blending program \rightarrow Reduce
crude dependencies

① Inclusivity

1) Access to clean energy for underprivileged

Eg- Ujjwala Yojana

2) Infrastructure creation for better access
to energy for all. Eg CGD network

3) Reducing AT&C losses. Eg- Smart metering

Challenges like heavy coal
dependence, infrastructure and financial
constraints needs to be dealt with in order
to achieve net zero by 2070 through energy
transformation.

Q16.

जलवायु परिवर्तन पर संयुक्त राष्ट्र अंतर-सरकारी पैनल (IPCC) ने अपनी हालिया रिपोर्ट में इस बात पर बल दिया है कि नेट नेगेटिव CO₂ एमिशन के लक्ष्य की प्राप्ति के लिए कार्बन डाइऑक्साइड रिमूवल (CDR) आवश्यक है। CDR क्या है? CDR प्राप्त करने के विभिन्न तरीकों का वर्णन कीजिए और इससे संबंधित चुनौतियों की विवेचना कीजिए।

The UN Intergovernmental Panel on Climate Change (IPCC) in its recent report emphasizes that carbon dioxide removal (CDR) will be necessary to achieve net negative CO₂ emissions. What is CDR? Describe the different methods to attain CDR and discuss the associated challenges. (Answer in 250 words) 15

CO₂ removal refers to carbon capture and storage or 'Carbon sequestration', i.e. capturing carbon dioxide from environment and storing it in different sinks.

Methods of CDR

↳ Green carbon sequestration

> Planting trees that can sequester carbon by photosynthesis

> Also in the form of 'soil organic carbon'

Eg- India's Paris NDC is to create

Forest carbon sink of 2.5-3 Billion tonne
capacity

2) Blue carbon sequestration

- > Carbon stored in water bodies like oceans,
seas
- > In water, sediments in oceans and
bodies of plants and animals
- > Blue carbon is the biggest sink overall
Eg- Blue Carbon Initiative

3) Geological sequestration

- > Carbon stored in rock pores, aquifers
and in form of mineral carbonates
- > Capturing in empty oil wells \Rightarrow Increased
oil recovery.

These methods can help remove
CO₂ from atmosphere and achieve net negative
CO₂ emission.

Challenges

1) Deforestation due to development needs

Eg- less than 25% of India is under
forest cover (ISFR 2023)

2) land degradation ⇒ Reducing capacity
to hold carbon Eg - 36% land degraded
in India (ISFR)

3) Biodiversity loss and pollution in oceans
⇒ Reduced blue carbon

4) Lack of focus on geological sequestration

5) climate change ⇒ Arctic ice melt ⇒ Release of CH₄
Government initiatives like

Green India Mission, NAPCC, Green

credit ⇒ Steps in right direction

Q17.

भारत बाढ़ से संबंधित खतरों के प्रति संवेदनशील क्यों है? उपयुक्त उदाहरण प्रस्तुत करते हुए भारत के विभिन्न भागों में बाढ़ से संबंधित आपदाओं के लिए उत्तरदायी कारणों का विश्लेषण कीजिए।

What makes India vulnerable to flood-related hazards? Giving suitable examples, analyse the causes for flood-related disasters in various parts of India. (Answer in 250 words) 15

According to NDMA, ~50% of Indian rivers are prone to regular floods, impacting large number of people and geographies.

Vulnerability of India to flood hazards

1) Lack of infrastructure to mitigate flood hazards.

Eg - Embankments, Levees

2) High population density living in floodplains

Eg - Teraï region in Indo-Gangetic plains

3) Lack of awareness and disaster management training.

4) Changing climate leading to change in

Spatial and temporal distribution of monsoon

Eg - Delayed onset and withdrawal of rains.

Causes for flood disasters in India

1) South India

> Concretization of green belts for road and infrastructure construction \Rightarrow Unplanned urbanization

Eg - Chennai flash floods

2) Western India

> Poor drainage systems and siltation in cities like Mumbai

> High tides in Arabian Sea coincide with monsoon \Rightarrow Floods

3) Central India

> Physiographic reasons \Rightarrow Hard rocks

of peninsula prevent water to percolate \Rightarrow floods

4) Eastern India

- > Reclamation of terai floodplains in UP
- > Uncertain monsoon rains in Ganga river

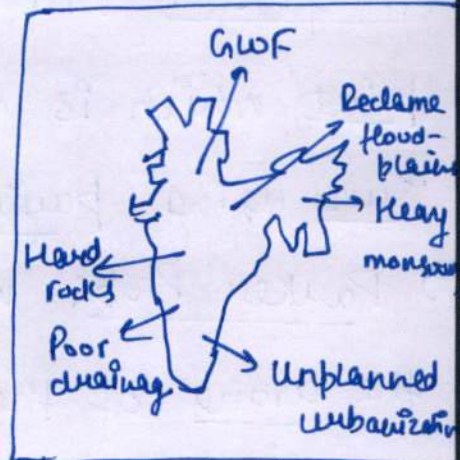
5) North-East India

- > Heavy rainfall during monsoon
 - \hookrightarrow Mawsynram in Meghalaya

6) North East India

- > Glacial lake outburst floods due to climate change. Eg - Chamoli, Uttarakhand

7) Apart from these, high population density, mismanagement of surface water are also common reasons.



Hazard zonation, Early warning system, proper dams and embankments can help manage floods better.

Q18. ISRO का आदित्य-L1 मिशन तथा NASA का पार्कर सोलर प्रोब सूर्य के अपने अध्ययन के संदर्भ में किस प्रकार भिन्न हैं?

How do ISRO's Aditya-L1 mission and NASA's Parker Solar Probe differ in their study of the sun? (Answer in 250 words) 15

ISRO recently launched Aditya L-I mission to study the sun from Lagrange point 1.

NASA also has Parker Solar Probe Mission to study the sun.

Comparison of Aditya L-I and Parker

1) Aditya L-I will study sun from L-I point which is ~148 million km from sun using payloads.

⇒ Parker Probe will pass through the corona of the sun to study sun more closely.

2) Aditya L-I has objectives of

↳ Studying solar wind from Sun

↳ Impact of solar wind on Earth systems

↳ Nuclear fusion on Sun

⇒ Parker Probe is trying to understand
the origin of Sun

3) Aditya L-1 will use 7 payloads

↳ VELC

↳ Solar

↳ SUIT

↳ HELIX

↳ PAPA

which are observation payloads and
analyse payloads

⇒ Parker probe does not have payloads,
it will collect information about Sun
closely and transmit to Earth.

Both missions have capability
to increase our understanding of processes
on Sun, its origin that can help in

protection from solar winds and also
generate nuclear fusion energy.

VisionIAS

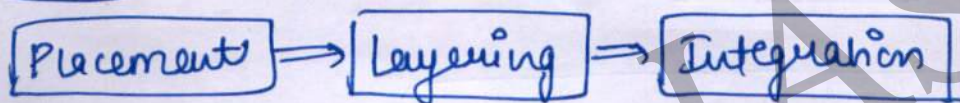
Q19.

भारत की अर्थव्यवस्था और राष्ट्रीय सुरक्षा पर धन शोधन (मनी लॉन्ड्रिंग) के हानिकारक प्रभावों को रेखांकित कीजिए। इस समस्या से निपटने में सामना की जाने वाली चुनौतियों पर चर्चा कीजिए।

Bring out the detrimental impact of money laundering on the economy and national security of India. Discuss the challenges faced in countering this menace.
(Answer in 250 words) 15

Money laundering refers to disguising the origins of money procured through illegal means such that its origins cannot be traced.

Process



Impact on economy

1) Exit of capital from country

⇒ ~ \$10 Billion tax evaded from India
per year by money laundering

2) Impact on government resources

Eg- Deprives government of tax revenues

↳ 12% of GDP
only

- Resources spent on countering money
laundering (ED etc).

3) Round tripping of black money via
P-notes \Rightarrow volatile capital makes
economy unstable

4) Use of cryptocurrency in money
laundering \Rightarrow unregulated parallel
financial system

Impact on national security

1) Use of laundered money for organized
crime. Eg - Smuggling, Narcotics

2) Use in terror activities

3) Deprives government of resources that
can be spent on defense and law
enforcement.

Hence, Supreme Court has
observed that money laundering is as heinous
as terrorism.

Challenges in countering

- (I) Digital technology used in money laundering.
 - 1) Cryptocurrency ⇒ Difficult to detect
 - 2) Use of dark web ⇒ Hawala networks operate on dark web anonymously
- (II) Complex layering of transactions through shell companies
- (III) Use of BEPS mechanism to launder money to foreign jurisdictions like Nauru
- (IV) Lack of new age skills among law enforcement. Eg - Dark web knowledge
- (V) Lack of international governance mechanism to counter money laundering.

PMIA and Special Serious Fraud Investigation office by government and FATF globally are steps in right direction.

Q20.

वैश्विक मंच पर अपनी प्रतिष्ठा को बढ़ाने के लिए रक्षा निर्यात भारत के लिए एक रणनीतिक अनिवार्यता है। विवेचना कीजिए। रक्षा निर्यात को बढ़ावा देने के लिए सरकार द्वारा कौन-से उपाय अपनाए गए हैं।

Defence exports are a strategic imperative for India to enhance its stature on the global stage. Discuss. What are the measures adopted by the government to bolster defence exports? (Answer in 250 words) 15

Currently, India exports ~\$2.5B worth defence equipment with target of \$5B by 2030.

Strategic imperative for India

1) Status of 'Net Security Provider'

→ Under SAGAR and BIMSTEC charter

2) Emerge as a reliable defence partner
that can provide hi-tech defence

Eg- Sale of Brahmos to Philippines

3) Counter belligerence of China by
partnering with like-minded countries

Eg- Partnership with ASEAN to counter
China's 1 dash line and String of Pearls.

- 4) Increase geopolitical clout that can help at global forums. Eg- UNSC membership
- 5) Achieve self-reliance in defence sector
 ⇒ Target of export would promote defence indigenization and modernization
- 6) Source of revenue for government
 Eg - Proceeds of export can be used to increase defence budget (~1.97%)
- 7) Ensure peace, security and freedom of navigation in Indian Ocean Region
- 8) Defence exports can help strike intelligent deals with other countries. Eg - COMCASA, GSMDA.

Measures by government

- 1) Push for defence indigenization and modernization
 Eg - Defence Acquisition Procedure 2020.

- 2) Increased budget on defense R&D
Eg - 25% defense budget for R&D
- 3) Participation in DefExpo
⇒ Showcase India's defense capability
- 4) Encouraging private sector participation
Eg - IDEX scheme
- 5) Collaborating with partners for research
and Technology sharing
Eg - Russia S-400, Israel Barak Missile
- 6) Creation of Defense Modernization Fund
under Public Accounts of India
- 7) Corporatization of Ordnance Factory Board
Challenges like lack of funds,
technology adaptability and private sector
dis-interest needs to be dealt with to
achieve Atmanirbhatta in defense.