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Start time - 9:35am

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GENERAL STUDIES (TEST CODE : 2091)

Name of Candidate	Animesh Verma		
Medium Eng./Hindi	English	Registration Number	1278123
Center	ONLINE	Date	6/9/23

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
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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.

All the Best

1. भारतीय कृषि में जल के अकुशल उपयोग के लिए उत्तरदायी कारण क्या हैं? जल उपयोग दक्षता में सुधार के उपाय सुझाइए। (150 शब्दों में उत्तर दीजिए) 10
- What are the reasons behind the inefficient use of water in Indian agriculture? Suggest measures to improve water use efficiency. (Answer in 150 words) 10

The agriculture sector accounts for about 90% of the total groundwater extraction in India, leading to water use-inefficiency.

Reasons - inefficient use of water:

1. Unmetered agricultural feeders: Niti Aayog in its report on Indian Agriculture, 2023 highlighted power subsidies as one of the main causes.
2. Our dependence on water-intensive crops like rice (high MSP), sugarcane (high FRP), etc.
3. Traditional methods of irrigation: like flood irrigation, etc.
4. Use of HYV seeds, green revolution side-effects. → require more water.

5. Low awareness among farmers about depleting groundwater levels, etc.

Measures needed:

1. Direct cash transfers to farmers & metered power supply for agriculture.
(Niti Aayog report, 2023)
2. Revisit the MSP policy which neglects crop diversification. (Shanta Kumar Committee)
3. Use of micro-irrigation (eg: drip irrigation) - 40% water savings (Ashok Dalwai Committee)
4. Great Implementing schemes like PM-KSY (Krishi Sinchayee Yojana) - per drop more crop, watershed management etc.

Moreover, Soil Health Cards (SHC) can be used to improve food security (SDG-2) & availability of water (SDG-6).

2. भारत में सार्वजनिक वितरण प्रणाली (PDS) के तहत फूड बास्केट में विविधता लाने के सामाजिक, आर्थिक और पर्यावरणीय लाभ क्या हैं? (150 शब्दों में उत्तर दीजिए) 10
What are the social, economic and environmental benefits of diversifying the food basket under the Public Distribution System (PDS) in India? (Answer in 150 words) 10

Many committees like Shanta Kumar Committee have recommended diversifying the food basket under PDS to include millets, pulses, vegetables etc.

Benefits of diversifying food basket:

a) social benefits:

1. Promote better health: address 'hidden hunger' due to micronutrients deficiency.
2. Reduce Increase affordability of food especially for the poor & marginalized
3. Promote local tastes: locally significant crops can be included.

b) economic benefits:

1. Reduce food inflation: currently 27%

eg. tomato > ₹ 200/kg

2. Increase demand and supply match: as more types of food will be included.
3. More income to farmers: as it will lead to procurement of pulses, etc. from the farmers at MSP.
4. Reduce carrying cost of wheat, rice, etc. of FCI which are overflowing.

9) Environmental benefits:

1. Higher crop productivity, higher yields due to crop diversification.
2. Better soil health, higher fertility due to crop rotation (legumes).
3. Reduced use of water. as pulses are not water-intensive.
4. Reduced use of chemical fertilizers, etc. → reduced chemical runoff.

Hence, food basket must be diversified to promote multi-sectoral benefits & increase farmers' income.

3. क्या पशुधन क्षेत्रक को पुनः सक्रिय करना भारत के किसानों की संधारणीय आजीविका और आय में वृद्धि सुनिश्चित करने करने की कुंजी हो सकता है? अपने उत्तर के समर्थन में कारण प्रस्तुत कीजिए। (150 शब्दों में उत्तर दीजिए) 10
- Can re-energising the livestock sector be the key to sustainable livelihood and increasing the income of Indian farmers? Give reasons in support of your answer. (Answer in 150 words) 10

The livestock sector is one of the largest contributors to agricultural GVA as it is growing at about 8% since 2016 (Economic Survey FY23).

Re-energising livestock sector - sustainable livelihood, increase income:

1. Livestock sector acts as a supplementary source of income for the farmers.
2. Promote better resource-use efficiency:
eg: cow-dung, straw, etc. Can be used for manure; crop residue as fodder, etc.
3. Food processing industries depend on milk, meat, etc. → better price realization for farmers.

34. Livestocks act as moving (live banks) - enable credit access to farmers.

5. Rise in cooperative sector - depends on the individual livestock of farmers.

Livestock sector - not key:

1. Disease risks: eg: recentumpy skin disease outbreak - > 1 lakh cattle died in Punjab alone in 2022.

2. Increase input costs: like fodder, vaccination, maintenance, etc.

3. Low demand domestic demand of meat products in India.

Hence, the livestock stock is largely the key to livelihood & increasing farmers income. It can promote higher investments in agriculture leading to food security.

4. क्या आप इस बात से सहमत हैं कि आर्थिक सुधार के बाद की अवधि में उच्च आर्थिक संवृद्धि के परिणामस्वरूप संवृद्धि का लाभ हाशिए पर मौजूद वर्गों तक नहीं पहुंच पाया है, जिससे समावेशी विकास चिंता का एक प्रमुख विषय बन गया है? अपने उत्तर का औचित्य सिद्ध कीजिए। (150 शब्दों में उत्तर दीजिए) 10

Do you agree that high economic growth in the post-reform period has not resulted in growth trickling down to the marginalised sections, rendering inclusive growth a major concern? Justify your answer. (Answer in 150 words) 10

The 1991 New Industrial Policy (NIP) introduced LPG (Liberalization, Privatisation & Globalization) reforms to deregulate the Indian economy.

High economic growth in post-reform:

1. Average of 7% - 8% growth post 1991; except 2008, 2020, etc.
2. Very high growth during 2004-10, 2015-18

Not resulted in growth trickling down:

1. High poverty among the marginalized
eg: STs / SCs are the ~~most~~ most poor
(NPI 2021 / poor poverty index).
2. Declining FLFPR: low female labour force participation: 30% in 1990 to ~20%.

In 2019 (World Bank).

3. Poor condition of minorities: Muslims
social indicators are even worse than
SCs/STs — Jachar committee

4. K shaped recovery: post-pandemic;
micro enterprises witness slow growth,
sometimes -ve growth.

Trickled down to marginalized sections

1. 41 crore Indians moved out of
poverty in the last 15 years
(MPI, 2022); Only 16.4% multi-dimensional
ally poor now (55% in 2005).

2. Increasing economic opportunities
for women, SCs/STs. eg: Stand UP
India scheme.

Hence, the post reform period has
resulted in only partial growth
trickling down to the marginalized
sections. Employment generation programmes
like PMEGP, Kanshal Yojana, etc. be implemented

5. राष्ट्रीय स्वच्छ वायु कार्यक्रम (NCAP) के परिणाम का मूल्यांकन कीजिए। मिशन LIFE वायु प्रदूषण के मुद्दे का समाधान करने में NCAP को कैसे पुनर्जीवित कर सकता है? (150 शब्दों में उत्तर दीजिए) 10

Evaluate the outcome of the National Clean Air Programme (NCAP). How can Mission LiFE reinvigorate the NCAP in addressing the issue of air pollution? (Answer in 150 words) 10

The National Clean Air Programme (NCAP) was introduced in 2019 by MoEFCC to reduce PM_{2.5} & PM₁₀ concentrations by 40% by 2026 (revised target) (base year = 2017).

Outcome of NCAP:

1. Reduced PM concentrations in the air. by about 15% (MoEFCC)
2. Cleaner city air: eg: Delhi recorded its cleanest winter air in 2022-23 (SE data).
3. Increased awareness about air ~~poll~~ pollution among the locals.
4. Installation of AQI monitors, equipments in 200+ cities.
5. Integration of air pollution control

in urban planning, town planning
etc.

6. Stricter Emission norms for Industries

Mission LIFE reinvigorate the NCAP:

1. Lifestyle for Environment Mission can promote individual initiatives like use of public transport - metro, bus etc.
2. Promote sustainable / ethical consumerism purchase of products with less damage to environment. eg: use of EVs, high efficiency cars, etc.
3. Collective action: Promote NGOs & CSOs to increase awareness, & air pollution monitoring at the local levels.
4. CSR targets: LIFE can promote companies to fulfil social targets.
Hence Mission LIFE must be adopted by all. It will reduce air pollution and increase climate action (SDG-13)

6. पारिस्थितिक तंत्र पर वनाग्नि के प्रभाव की विवेचना कीजिए। वनाग्नि के खतरे से निपटने में UNEP के फायर रेडी फॉर्मूला के महत्त्व का वर्णन कीजिए। (150 शब्दों में उत्तर दीजिए) 10
- Discuss the impact of wildfires on the ecosystem. Describe the significance of the UNEP's Fire Ready Formula in dealing with the menace of wildfires. (Answer in 150 words) 10

Wildfires refer to the large, spontaneous & uncontrolled outbreak of fire in the wild/ ecosystem. eg: recent wildfires in Greece, Spain, etc.

Impact of wildfires on ecosystem:

- Reduce biological diversity:
eg: species like koala were threatened & during Australian Black Summer 2019-20
- Reduce natural habitat for animals, trees, birds, etc. as trees get burnt
- Affects/reduces ecosystem productivity: eg: reduced green carbon.
- Affect micro-organisms: living

in the forests.

Significance of UNEP's Fire Ready Formula:

1. Promote delineation of forests
2. Create forest fire lines - to prevent fire from spreading.
3. Periodic monitoring of forests by agencies.
4. Involving local communities in the management, protection of forests.
5. Create a national level action plan to tackle wildfires.
6. Mapping of hazard zones.
7. Shelters & insurance for the vulnerable population.

UNEP's Fire Ready Formula

must be used by countries like India, Greece, etc. to tackle forest fires & conserve biodiversity.

7. हाल ही में, भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) ने लघु उपग्रह प्रक्षेपण यान (SSLV) नामक अपना नया रॉकेट प्रक्षेपित किया। इसके क्या लाभ हैं? आने वाले वर्षों में SSLVs इसरो के लिए कैसे गेम चेंजर सिद्ध हो सकते हैं? (150 शब्दों में उत्तर दीजिए) 10
- Recently, the Indian Space Research Organization (ISRO) launched its new rocket called Small Satellite Launch Vehicle (SSLV). What are its advantages? How can SSLVs be a game changer for ISRO in the years to come? (Answer in 150 words) 10

ISRO's NSIL (New Space India Ltd.) launched the SSLV (Small & satellite launch vehicle) to send small, micro & nano satellites to the LEO (low earth orbit). (2022)

Advantages of SSLV:

1. Cater to the increasing demand from the private sector for satellite launch.
2. Smaller turn around times
3. Lower operating & maintenance costs.
4. Lower requirement of manpower in setting up SSLV.
5. Versatile: SSLV can carry various

Types of Satellites.

ISLVs → game changer for ISRO.

1. Increase focus ^{on} R&D by ISRO. eg: crucial space missions like Gaganyaan.
2. Increase funding of ISRO due to high profitability of ISLVs
3. Promote increased private sector participation. (in line with Indian Space Policy, 2023)
4. Domestic indigenous launch vehicle development: eg: Recently Agnikul developed a launchpad.
5. Increase share of ISRO in global space market.

Hence, more private start-ups must be encouraged & Indian Space Policy, 2023 must be implemented.

8. बायोपाइरेसी विकासशील विश्व के मौजूदा पारंपरिक ज्ञान के लिए प्रमुख चिंता का कारण क्यों है? भारत सरकार द्वारा मौजूदा पारंपरिक भारतीय ज्ञान की सुरक्षा के लिए क्या कदम उठाए गए हैं? (150 शब्दों में उत्तर दीजिए) 10
- Why is biopiracy a cause of great concern to the existing traditional knowledge of the developing world? What steps have been taken by the government of India for protecting the existing traditional Indian knowledge? (Answer in 150 words) 10

Biopiracy refers to the commercial utilization of traditional knowledge & resources by entities who adequately compensate the local communities.

Biopiracy: Concern to the traditional knowledge of developing world:

1. From weak monitoring & enforcement mechanisms in developing countries like India.
2. Low awareness about their rights among the locals, especially the tribals.
3. Weak IPR laws: in developing countries like India; companies

register their patent on traditional knowledge.

4. Lack of a codified list of traditional knowledges.

Steps taken

1. Signed Nagoya Protocol on Access & Benefit Sharing → to the UN CBD (biological diversity Convention).
2. Biological Diversity Act, 2002:
3 tier mechanism: NBA, JBB & BMC (Biodiversity management Committees) at the local level for monitoring.
3. Forest Rights Act, 2006: to protect resources & traditional knowledge of tribals.
4. PPV & Farmers Rights Act, 2001: protect farmers rights.

Hence, India must create local level awareness & codify all traditional knowledges.

9. असम राइफल्स को पूर्वोत्तर भारत में सीमा प्रबंधन और उग्रवाद से निपटने में किन चुनौतियों का सामना करना पड़ता है? चर्चा कीजिए कि कैसे इन चुनौतियों के समाधान हेतु इस बल के फोकस में बदलाव की आवश्यकता है। (150 शब्दों में उत्तर दीजिए) 10
- What are the challenges faced by the Assam Rifles with regard to border management and tackling of insurgency in North-East India? Discuss how these challenges require a reorientation of the force. (Answer in 150 words) 10

The Assam Rifles are one of the supplementary CAPF (Central Armed Police Forces). They help protect border in the North-East.

Challenges faced:

a) border management:

1. Rising Chinese aggr. aggression:
eg: renaming of 11 places in Arunachal Pradesh, (many times).
2. Disputed border (LAC) in the North East (Mac Mohan Line)
3. Poor Porous border: especially along Indo-Myanmar border
4. Low infrastructure: like integrated check posts, etc.

tackling of insurgency:

1. Safe havens of insurgents in Myanmar, etc.
2. Illegal Immigration from Bangladesh, Myanmar, etc.
3. State-sponsored extremism: eg. Maoist links in China, Nepal, etc.
4. Low infrastructure like roads

Reorientation of the force needed:

1. One border one force principle; to prevent overlap with ITBP, etc.
2. Focus on core areas like defence, monitoring, etc.
3. Sublet road construction, social work, etc. to the private sector.
4. Reduce work overburden. (> 10 hours duty/day).

These measures ~~are~~ must be implemented to increase efficiency of the Assam Rifles.

10. अंतरिक्ष में शस्त्र स्थापित करने की होड़ अंतरिक्ष को शस्त्रों के संघर्ष का अगला युद्ध क्षेत्र बनाते हुए जल्द ही उस सीमा को पार कर सकती है जहां से वापस लौटना संभव नहीं होगा। अंतरिक्ष के शस्त्रीकरण के लिए उत्तरदायी संभावित कारण क्या हैं? इसके निहितार्थों पर चर्चा कीजिए। (150 शब्दों में उत्तर दीजिए) 10

The race to put weapons in space may soon pass the point of no return making space the next theatre of arms struggle. What are the possible reasons behind the weaponization of space? Discuss its implications. (Answer in 150 words) 10

Recently many countries have
raced for weaponization of the
space. eg: India's Anti-satellite
test (Shakti)

Reasons behind space weaponization:

1. Deterrent theory: to prevent wars & escalation.
2. Augment defence resources: by including the space sector.
3. Race to be the 1st: to as to dominate the space assets, etc.
4. Increasing R&D, advanced technologies have reduced cost of space weaponization.
5. Protection of Earth from possible

alien invasion.

6. Display soft / hard power & promote one's national interests.

Implications:

1. Increase threat to peace & stability
2. Increasing space debris
↳ increase space mission costs.
3. Lead to disputes regarding space assets, rules regarding space weaponization, etc.
4. Reduce social welfare expenditure due to high spending on space weaponization.
5. Possibly increase neo-colonialism & dominance of countries like US.
The Outer Space Treaty must be amended to prevent weaponization of the space.

11. हाल ही में, जवाहरलाल नेहरू पत्तन (JNP) भारत का पहला 100% लैंडलॉर्ड पोर्ट बन गया है। लैंडलॉर्ड पोर्ट मॉडल से आप क्या समझते हैं? पत्तनों के प्रबंधन में प्रयुक्त विभिन्न मॉडल कौन-से हैं? (250 शब्दों में उत्तर दीजिए) 15

Jawaharlal Nehru Port (JNP) recently became the first 100% Landlord Port of India. What do you understand by the Landlord Port model? What are the different models employed in the management of ports? (Answer in 250 words) 15

Recently, the Jawaharlal Nehru Port (JNP) in Mumbai, became the 1st Landlord Port of India by promoting private sector participation.

Landlord Port model:

1. Ownership remains with the public agency/ government.
2. But the responsibility of handling storage of containers, maintenance of port, etc. lies with the private entity.
3. It is like public agency is the landlord & the private entity is the tenant.
4. Promoted increased investments in

the management of ports.

5. Increases efficiency of container handling & reduce logistics cost

6. Promote greater use of ICT like single online portals (NLP-Marine), digital payments etc.

7. Risk is shared b/w the public & private entity.

Different models in port management:

1. Privatisation of ports: i) the public agency / govt. sells the entire port to the private entity.

ii) ownership, responsibility of handling, managing ports etc lies with the private sector.

iii) higher risk on the private entity

2. Complete government ports (eg: Kochi port : i) where the ownership, control, responsibility of handling & managing ports lies with the government (PSU). ii) higher risk bore by the government
3. Landlord port model: already discussed

Way [Challenges:]

1. Complex PPP contracts. Reduced bidders.
2. Port Delays due to clearances, etc.
3. Low use of ICT.

Way forward:]

1. Promote green ports (in line with Harit Yojana).
 2. Modern port development (Bagarmala)
- Also, increased use of ICT is needed to reduce logistic cost & increase profitability.

12. भारत में कृषि मशीनीकरण को बढ़ावा देने के लिए शुरू की गई कृषि मशीनीकरण पर उप-मिशन (SMAM) योजना के प्रदर्शन का विश्लेषण कीजिए। (250 शब्दों में उत्तर दीजिए) 15
- Analyse the performance of the Sub-Mission on Agricultural Mechanization (SMAM) scheme launched to promote farm mechanization in India. (Answer in 250 words) 15

The Krishannati Kojana (Green Revolution scheme) introduced the SMAM (Sub-Mission on Agricultural Mechanization) to promote use of machinery, technology in the farm sector.

Aims of SMAM:

1. Increase farm mechanization.
2. Increase crop harvest / yields.
3. Increase farmers' income.
4. to Harness ICT, increased R&D.

Performance of SMAM:

1. Increased farm mechanization in India to ~45%. (Economic Survey).
2. Increased use of latest technologies like Kisan drones,

weather apps etc.

3. Tractor industry: India has become the largest tractor market in the world (Economic Survey)
4. Use of shared machinery: eg. setting up of CHCs (Custom Hiring Centres) at the local levels for farm equipments.
5. Integration with ICT: eg. FARMS app - for farm related machinery etc.
6. Increased income of farmers, especially in Punjab, Haryana & west UP
7. Increased Ingr indigenous manufacturing & R&D on farm machinery

Challenges to farm machinery mechanization

1. Fragmentation of land: ~0.5 ha average size (Situation Assessment Survey 2021)

2. High proportion of small & marginal farmers. (770%) - 10th Agricultural Census.
↳ low affordability.
3. High cost of latest machinery like drones, drip irrigation, etc.
4. Low awareness about the benefits of farm mechanizations.
5. low infrastructure: CHCs ~~set~~ not set up in many places.
6. Low private sector investment. <1%.
(MITI Aayog reports 2013)

Way Ahead:

1. Increase sharing: FARMS app, CHCs, etc.
2. Higher R & D & private sector investment.
3. Subsidies for farm inputs.

These measures can promote higher mechanization, better income of farmers & greater productivity.

13. खाद्य प्रसंस्करण क्षेत्रक की अप्रयुक्त क्षमता का दोहन करने और इसके सामने आने वाली चुनौतियों का समाधान करने में डिजिटलीकरण की क्षमता पर चर्चा कीजिए। (250 शब्दों में उत्तर दीजिए) 15
Discuss the potential of digitization in harnessing the untapped potential of the food processing sector and resolving the challenges that it faces.
(Answer in 250 words) 15

The food processing sector is one of the fastest growing agri sectors (8% since 2015 - Economic Survey FY 23) and is one of the largest employers.

Untapped potential of food processing sector:

1. Higher price realization by the farmers.
2. High employment multiplier in FPI (food processing industry).
3. Increase investments in agriculture.
4. Increase food exports (High Level Group of agri- exports, 2018).
5. Development of ancillary industries - due to forward, backward & sideways linkages.

6. Reduce logistics cost.

Potential of digitization:

1. Better logistics: eg: ICCAP (Integrated Cold chain Availability Platform) → Sharing of cold infra.
2. Higher access to market: eg: Big Basket, Amazon Fresh, etc.
3. Reduce leakage: Through digital (UPI) payments, etc.
4. Promote formalization of FPI: Currently > 75% in informal sector.
5. Better raw material availability: eg: use of e-NAM portal
6. Higher info about market: eg: use of AGMARKNET

Challenges of FPI

1. High informalization: 77.5% food processing by informal sector.

2. High cost of logistics: increases input costs
3. Changing tastes of people due to globalization, etc.
4. Low use of ICT, e-commerce, etc.
5. Fluctuating prices of food crops: eg: TDP → frequent fluctuations
6. Low testing & quality certification: (eg: lead in Maggi)

Way ahead:

1. Increase digitization, use of e-commerce
2. Use digital payments, GPS tracking of trucks carrying products
3. Digital skilling of people.

These measures can promote more resilience in the food processing sector & increase exports.

14. भारत में भू-अभिलेखों के आधुनिकीकरण का क्या महत्व है? इस आलोक में राष्ट्रीय जेनेरिक दस्तावेज पंजीकरण प्रणाली (NGDRS) की विशेषताओं का वर्णन कीजिए। (250 शब्दों में उत्तर दीजिए) 15

What is the significance of land record modernization in India? In this light, state the features of the National Generic Document Registration System (NGDRS). (Answer in 250 words) 15

Land record modernization refers to the modern ways of keeping land records through use of DLT. eg: Bhu-Aadhaar, ULPIN, etc.

Significance of land record modernization:

1. Curb land disputes: eg: a tribal woman was burnt to death in Orissa (MP) (2022).
2. Reduce court pendencies; they can focus on more sensitive cases.
3. Increase access to institutional credit for the poor, due to proper land records.
4. Increase transparency &

- accountability in land records,
↳ curb corruption. eg: Andhra Pradesh used blockchain to expose corruption in land records.
5. Promote greater public trust:
eg: recent Model Conclusive Land Titling Act → Guarantee Ownership.
6. Help detect illegalities: like breaching ceiling limits under the Land Ceiling Act, 1970
↳ land redistribution (social justice)
7. Promote land ownership to the marginalized eg: SCs/STs
8. Enable faster/easier selling/buying mortgaging of land.

Features of NADRS:

1. The Union Budget 2022 announced the NADRS → to standardize land records management.

2. Principle - One Nation, One Registration Software
3. Unique land identification via ULRIN
(land parcel identification number).
4. Online land records. Easier access to land records.
5. Promote inter-state uniformity.
Curb border disputes
6. Easier dispute settlement
regarding land records.

Way Ahead:

1. Increase cooperative federalism.
Promote states to adopt NADR.
2. Increase R&D for indigenous software
3. Digital Skilling eg: BMGDISHA.

These steps can promote land reforms & increase transparency in land records.

15. 'प्रधान मंत्री फसल बीमा योजना' की शुरुआत से ही प्रौद्योगिकी के उपयोग ने इसकी सफलता में महत्वपूर्ण भूमिका निभाई है। चर्चा कीजिए। इस योजना को अधिक किसान-अनुकूल बनाने के लिए और क्या बदलाव किए जा सकते हैं? (250 शब्दों में उत्तर दीजिए) 15

The use of technology has played a key role in the success of the 'Pradhan Mantri Fasal Bima Yojana' since its inception. Discuss. What further changes can be incorporated to make the scheme more farmer-friendly? (Answer in 250 words) 15

The PM FBY (Fasal Bima Yojana) was introduced to increase crop insurance & promote income security for the farmers.

PM-FBY:

1. World's largest crop insurance scheme.
2. To insure against crop losses post harvest.
3. Promote financial inclusion of the farmers.
4. Increase income security of the farmers.

Technology - success of PM-FBY:

1. Online registration of farmers for

PM-FBY.

2. Use of digital payments: direct bank account transfers (PBT) as to farmers in case of claims.
3. Targetting of poor, small farmers: via technology like Aadhaar data, etc.
4. Digital marketing of PMFBY → to expand its coverage.
5. Promoted use of apps like NeGP-A, etc. to increase climate resilience + weather forecasts, etc. to prevent/reduce crop losses.

Challenges:

1. Still, many farmers out of the scheme.
2. Delayed claim processing, late payments, etc.
3. Risk of cyber frauds, privacy.

risks, etc.

4. High revenue burden on the government.

Further changes:

1. Increase coverage by targeting at state & local levels.
2. Use of Increase premiums at sustainable levels to reduce burden on insurance.
3. Use of & Promote more private sector participation - to offer better insurance terms.
4. Use of delays, corruption, etc to improve image of PM-FBY.

These measures can promote greater coverage & food security. Also Panchayats must be urged to promote PM-FBY inclusion.

16. चर्चा कीजिए कि कैसे नवीकरणीय ऊर्जा की ओर ट्रांजिशन भारत में महिलाओं के जीवन को बदलने और उनकी पूर्ण क्षमता को उजागर करने का सामर्थ्य रखता है। (250 शब्दों में उत्तर दीजिए) 15
- Discuss how the transition towards renewable energy has the potential to transform the lives of women in India and unlock their potential. (Answer in 250 words) 15

Renewable Energy (RE) Can not only promote ~~to~~ sustainable development but also help in women empowerment.

Transition towards RE → ~~unlock~~ transform lives of women:

- Promote higher use of clean fuels for cooking. As per NFHS-5, > 60% households still depend on fossil fuels etc. for cooking.
 - ↳ health benefits for the women. (higher life expectancy etc.)
- More productive time for women: eg: no need to go to forests to collect firewood.
- ↳ Financial benefits: decentralized

Solar energy, etc cost lower
than conventional energy. \rightarrow higher
savings.

4. Feminization of agriculture: schemes
like PM-KUSUM \rightarrow solar panels,
pumps etc. can increase revenue
(by selling excess power to
DISCOMS)

5. Promote better use of resources
& sustainable development.

Unlock their potential:

1. Increase economic growth: India's
GDP can increase by 27% (IMF)
2. Promote increased women participation
in STEM (research on RE, etc)
3. Higher women social status
& respect
4. Political empowerment: representation
in panchayats, legislatures, etc.

Challenges to the transition:

1. High dependence of thermal power: eg: 75% electricity generation (CEA report)
2. High cost of capital of RE technologies.
3. Lack of grid synchronization.
4. NO continuous power: eg: solar energy only during day time
5. Low R&D <0.7% of GDP.

Way ahead:

1. Increase R&D to at least 2% (Niti Aayog)
2. Government subsidies: eg: FAME scheme
3. Implement NAPCC (Action Plan on Climate Change), etc.

These measures can promote climate action (SDG-13) & gender equality (SDG-5).

17. जलवायु परिवर्तन भारत द्वारा भुखमरी और कुपोषण दूर करने में सामना की जाने वाली चुनौतियों में कैसे वृद्धि कर रहा है? 2030 तक शून्य भुखमरी प्राप्त करने की भारत की प्रतिबद्धता के संदर्भ में चर्चा कीजिए। (250 शब्दों में उत्तर दीजिए) 15

How does climate change exacerbate the challenges that India faces in eliminating hunger and malnutrition? Discuss in the context of India's commitment to achieve zero hunger by 2030. (Answer in 250 words) 15

The Climate Change (CC) causes decreased crop yields & increases extreme weather that threatens India's hunger programmes.

Climate change - exacerbate challenges that India faces:

1. Decreased crop yields: due to CC (IPCC's 6th AR)
2. Increased disease risks: like malaria, dengue, etc. (Lancet Report on CC & Health, 2022)
3. Increased weather events extremities: like cyclones, ~~landslides~~ landslides, etc.
4. Uncertain monsoons: A simultaneous drought & floods in various

parts.

5. Disrupt supply chains of food, PDS, etc. due to extreme weather.

6. Increased heatwaves ⇒ poor health of the people especially children.

7. Increase poverty (IPCC report)

Challenges India faces in eliminating hunger & malnutrition:

1. Rising population (UNFPA report - most populous country).
2. Lower crop yields.
3. Over-dependence on wheat, rice, etc. Neglect of pulses, millets, etc.
4. High poverty: 16.4% poor (MPI, 2023 report).
5. Social biases: eg: women's health, nutrition are least taken care of.

India's commitment to achieve zero hunger by 2030:

1. Being a signatory to the UN SDGs

(Sustainable Development Goals)
India has pledged to achieve
zero hunger (SDG-2) by 2030.

2. Sub-goals include reducing
food wastages, increasing
crop diversification to address
malnutrition, etc.

Way Ahead:

1. Adopt Conservation Agriculture
(ICAR Committee, 2022)
2. Promote climate resilient crop
varieties, climate smart agriculture,
Integrated Farming System, etc.
3. Implement National Action Plan on CC
4. International collaboration; eg: UNFCCC.

Further, LIFE mission must
be enacted to promote climate
action (SDG-13) & achieve zero
hunger (SDG-2).

18. डिजिटल ट्विन प्रौद्योगिकी से आप क्या समझते हैं? इसे अपनाने के लाभ और चुनौतियां क्या हैं?
(250 शब्दों में उत्तर दीजिए) 15

What do you understand by digital twin technology? What are the benefits and challenges in its adoption? (Answer in 250 words) 15

Digital twin technology refers to the latest AI based technologies which create a digital twin of a real life physical product or a living being. eg: human avatars in meta space;

Digital twin technology:

1. It incorporates all the characteristics of the real life product/person, albeit, in a digital world.
2. It processes vast amounts of data including personal data.
3. It can twin any person, machine, etc & behave like a real person.

5. It is based on AI/ML and requires large data centers to implement.

Benefits of digital twin technology

1. Promote digital simulation of real life complex machinery, etc.
2. Promote R&D, better visualization, etc.
3. Augment resources (including human resources) eg: address manpower shortage by creating digital twins of the same capability, etc.
4. Increase automation & accuracy in manufacturing, etc.
5. Increased efficiency & productivity of digital twins. eg: they do not require 8 hour sleep.
6. Help in increasing economic growth & drive IR 4.0 (Industrial

revolution).

Challenges:

1. High initial cost of capital
2. Potential job losses due to automation, digital twins, etc.
3. Ethical issues: i) Whom to hold accountable in case of any damage due to digital twin?
ii) digital twin might incur bias, racial discrimination, etc.
4. Low trust in technology. Decisions made by AI are like black-boxes
5. Low R&D in digital twin tech.

Hence, there is a need to create ethical / code of conduct for use of digital twins to minimize harm. Also R&D must be increased to at least 2% (Niti Aayog).

19. आतंकवाद के वित्तपोषण पर अंकुश लगाने हेतु किए गए अनेक प्रयासों के बावजूद अंतर्राष्ट्रीय समुदाय के लिए यह एक मुख्य चुनौती बना हुआ है। चर्चा कीजिए। (250 शब्दों में उत्तर दीजिए) 15
Terrorism financing continues to remain a major challenge for the international community despite several efforts to curb it. Discuss. (Answer in 250 words) 15

Terrorism financing has spread from conventional to modern ways, using ICT, to escape legal checks. (Global Terrorism Index, 2023)

Terrorism financing - major challenge.

1. Cross-border nature: Sometimes state sponsored terrorism (eg: Pakistan (ISI))
2. Use of latest ICT: eg: dark web to fund terrorism.
3. Overlap with organized crimes: eg: narco terrorism;
4. Cyber terrorism: Cyberattacks, ransomware, etc. to fund terrorism.

5. Crowdfunding platforms on social media. (NIA reports 2022)
6. Use of Cryptos; other money laundering channels like hawala transactions.
7. Lack of global cooperation: eg: Opposition by China recently to list down terrorists in UNSC meeting.
8. Safe havens in banks: some countries banks have strict privacy rules.
9. Lack of a standardized definition of ~~terror~~ terrorist & terrorism financing.

Several efforts to curb it:

1. FATF (Financial Action Task Force)
 - i) global standards on AML/CFT
 - ii) 'grey list' & 'black list'
2. No more Money For Terror (NMFT) Conference: hosted by India in 2022

3. Delhi Declaration, 2022 under UNSC Counter Terrorism Committee.
4. SCO-RATS (Regional Anti-Terrorist Structure) → common standards to curb terrorism financing.
5. Vienna Convention : to combat ML (money laundering).
6. Curbing organized crimes, UNCTOC, 2000 (Convention on Transnational Organized Crime).
7. Basel Committee's Principles for banks to strengthen audits & tackle terrorist financial.
8. National level efforts: i) NIA
ii) FID (intelligence unit) iii) NATGRID
iv) FEMA Act, 1999 v) PMLA, 2002
Hence, global forums like UN must be used and a Comprehensive Convention against terror terrorism must be formulated.

20. कृत्रिम बुद्धिमत्ता (AI) में होने वाली प्रगति से राष्ट्रीय सुरक्षा के दृष्टिकोण से अवसरों के साथ-साथ चुनौतियों में भी वृद्धि होगी। भारत के संदर्भ में चर्चा कीजिए। (250 शब्दों में उत्तर दीजिए) 15
- Advances in artificial intelligence (AI) will progressively multiply the opportunities as well as challenges from the national security perspective. Discuss in the context of India. (Answer in 250 words) 15

Advances in AI have provided multi-sectoral benefits & challenges including the ~~national~~ national security perspective.

Advances in AI: multiply opportunities:

1. Use of autonomous drones for defence purposes. eg: US MQ-9-B Reaper drones.
2. Comprehensive missile defence system: eg: S-400 missiles use AI to counter aerial threats.
3. Promote mapping of hazard zones via AI software along boundary & internal geography of a country.
4. Promote increased conviction rates.

- better investigation of crimes like terrorism, organized crime, etc.
5. Skilling of manpower like defence personnel via AI based systems.
 6. Better R&D & innovation in latest technologies including defence systems with the help of AI.
 7. AI can initiate automation of security systems. (24x7 monitoring)
 8. Curb drug cartels, illegal trafficking, etc.
 9. Identify illegal immigration to & from India. 10. Protect cyberspace by AI.
- [Challenges:]
1. Risk of AI in hands of the terrorists → use of greater weapons. eg: terrorists used FIED laden drones to bomb TAF Station in Jammu, 2021.

2. Increase effective manpower of terrorists, etc. due to AI assistants
3. Threat of more powerful cyberattacks driven by AI.
4. Better planning, recruitment & execution of terrorist acts.
5. Risk of leakage of sensitive data possessed by AI. might affect critical information infrastructure.
6. Anonymous, automatic nature of AI. → Harder to track criminals.

Hence, more expenditure is needed in AI (R&D) to enhance resilience. Further indigenous manufacturing & localized data centres are needed to improve national security. (Article 51A).