



GS-III

VISION IAS

www.visionias.in

GENERAL STUDIES (TEST CODE : 2087)

Name of Candidate	Shohane Tebeerival		
Medium Eng./Hindi	English	Registration Number	995991
Center	Online	Date	28-08-23

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
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:****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. भारत में पशुपालन में महिलाएं किस प्रकार योगदान देती हैं? भारत में पशुधन क्षेत्र में महिलाओं को वर्तमान में किन समस्याओं का सामना करना पड़ रहा है?

How do women contribute to livestock rearing in India? What are the issues currently faced by women in the livestock sector in India? (Answer in 150 words)

10

Livestock sector contributes one-third to agricultural GVA providing employment to 8.8% of population. Women contribution is significant in the sector.

According to oxfam report, 90% of the non-farm work in rural households are done by women. Women contribute towards livestock rearing as feeding the livestock (preparation of saani), taking sanitation care, protection against livestock diseases and milching the animals.

India's livestock sector is dominated by small & marginal farm households, unlike big livestock farms in Europe, Australia where work is mechanised, thus women contribution is more significant in India.

It is also evident from success of cooperatives and SHGs ⇒ Eg: Pashusakhis

Challenges faced

1. Low incomes or compensation as compared to men
2. Lack of bargaining power (they don't own land - only 14% have land ownership)
3. Credit facilities & access is poor
4. Lack Training (extension services poor)
5. Limited knowledge of veterinary diseases
(eg: LSD virus last year)
6. Poor market information

Way Ahead

- Leverage SHGs (2 crore lakhpati dream of PM) & cooperatives
- Provide extension & training services
- Provide credit facilities & access to market

Government schemes like Mahila Aarthik Vikas Sakshikaran are step in right direction

2. वन नेशन वन राशन कार्ड (ONORC) योजना कैसे और किस सीमा तक प्रवासी मजदूरों, शहरी गरीबों और दिहाड़ी मजदूरों के लिए उल्लेखनीय संभावित लाभ प्रदान कर सकती है?

How and to what extent can the One Nation One Ration Card (ONORC) scheme provide significant potential benefits for migrant labourers, urban poor, and daily wagers? (Answer in 150 words) 10

In order to truly deliver the right to food under NFSA 2013, Government has come up with marquee 'one nation one ration card'.

Benefits

- ↳ Provide pan-Indian availability of grains
- ↳ Increase efficiency of service delivery
- ↳ Reduce social security concerns of migrant labourers
- ↳ Leverage technology for better working of scheme
- ↳ Ensure timely delivery of food grains
- ↳ Convergence with other areas of Aashad beneficiary benefits (like JAM)

Challenges that remain

- ↳ Aadhar Card though a successful marquee initiative face challenges like commissioned omission under NfSA
- ↳ If card is lost or damaged (in say natural disaster) it is difficult for poor people to reaccess services
- ↳ Mobile linkage of Aadhar is a challenge for poor (digital inequality)
- ↳ Overall there are leakages in PDS (as noted by Shanta & Sudip Bandopadhyay Committee — eg: ePOS system does not work in areas of poor connectivity)

Thus, the step is right for ONRC but these challenges should be mitigated by proper awareness, more digital education and checking leakages & concerns of PDS, while updating beneficiary list constantly.

3. जलवायु परिवर्तन ने भारत में कृषि उत्पादन और उत्पादकता को कैसे प्रभावित किया है? क्या आपको लगता है कि जलवायु स्मार्ट जल बचत कृषि-प्रौद्योगिकियां समय की मांग बन गई हैं?

How has climate change affected agricultural production and productivity in India? Do you think climate smart water saving agri-technologies have become the need of the hour? (Answer in 150 words) 10

IPCC has given the red warning on climate change if its repercussions across sectors. Food security is most affected -

Eg: Unseasonal rains in October last year destroyed Kharif harvest

Eg: Heat wave in March destroyed Rabi wheat crop during flowering stage

Eg: Monsoon unpredictability (high rainfall in Himachal but low rainfall in Odisha, Chhattisgarh, Telangana) has led to serious concerns on Kharif crops

Eg: Vegetable prices are soaring high due to poor yield in March (repercussions seen now)

IPCC warns loss of 5MMT of food grains with every one degree rise in temperature (Synthesis Report)

climate change $\Rightarrow$ heat waves
land degradation
erratic monsoon
more disasters } affect
food
security

Need for climate smart water savings

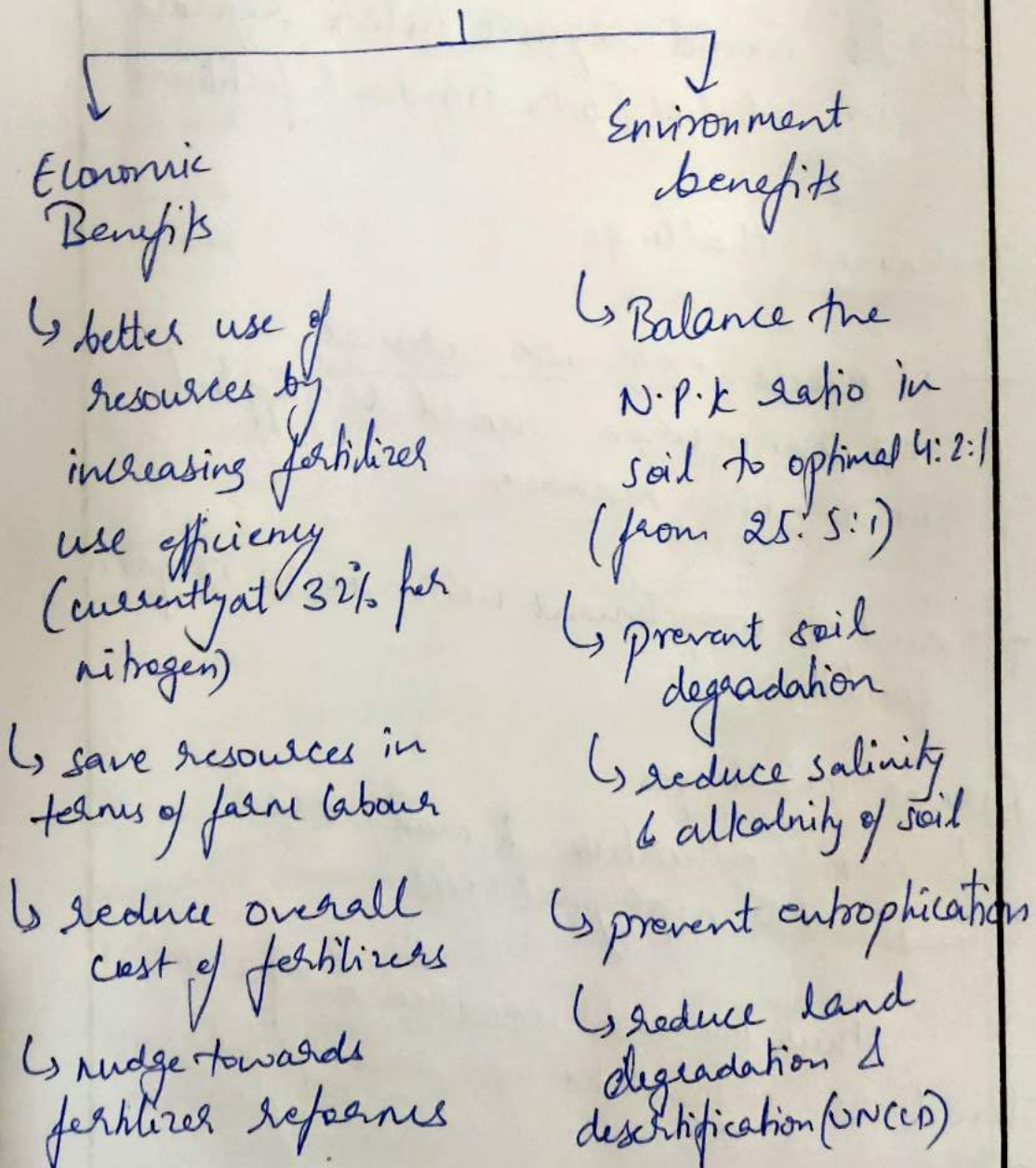
1. More than half of net sown area is under rainfed agriculture
2. Share of tanks & tubewells is very high under irrigation ($\sim 60\%$)
3. water use efficiency & fertilizer use efficiency is low
4. water guzzling crops grown in regions of low rainfall (eg: rice in Punjab)
5. Ground water stress (about 90% of GW used for agriculture)

Thus, climate smart agriculture which include climate smart water savings is need of hour. Agriculture 2.0 Deccan principles can be leveraged as way forward

4. संचारणीय फसल उत्पादन के लिए नैनो-उर्वरकों के आर्थिक और पर्यावरणीय लाभ क्या हैं? भारतीय किसानों द्वारा नैनो-उर्वरकों को अपनाने में आने वाली समस्याओं का उल्लेख कीजिए।

What are the economic and environmental benefits of nanofertilizers for sustainable crop production? State the concerns in the adoption of nanofertilizers by Indian farmers. (Answer in 150 words) 10

Recently, IFFCO released nano-urea which utilizes nano technology for efficient delivery of fertilizers



Concerns

① Institutional

- current urea regime of subsidies provides no incentive to shift to nano urea
- it would require holistic reforms in subsidies (both irrigation & fertilizers)

② Technical challenges

- it needs extension services as nano-urea should be applied in scientific manner
- need to complement with micro-irrigation facilities

③ Farmer challenges

- lack of education & many are small & marginal (86%)

Thus, Kanmorhi committee on fertilizers should be implemented to revamp the sector.

5. देश के सभी हिस्सों में प्राकृतिक गैस के पर्याप्त और समान वितरण की उपलब्धता एक समान आर्थिक एवं सामाजिक प्रगति हासिल करने में कैसे मदद कर सकती है? इस संदर्भ में भारत को किन चुनौतियों का सामना करना पड़ रहा है?

How can the availability of adequate and equitable distribution of natural gas in all parts of the country help in achieving uniform economic and social progress? What challenges India faces in this regard? (Answer in 150 words) 10

Government wants to increase the share the natural gas in energy mix from 6% to 15%. For adequate availability City Gas Distribution Network has been envisaged.

Economic & social progress

- ↳ Gas is cheaper than other fossil fuels
- ↳ It reduces less carbon emissions comparatively and release no toxic pollutants (like sulphur)
- ↳ It can be easily transported (unlike hydrogen)
- ↳ can be made from coal (coal gasification mission aims to produce natural gas ^{using} upto 100 MMT of coal)



Challenges

1. Dependence on imports for natural gas
2. Initiatives like TAPI are still not implemented
3. Indian coal is of poor quality and not suitable for gas production
(Eg: Neyveli lignite sources)
4. Need huge investment in gasification projects & technology transfer
5. It still produces CO₂ equivalent emissions
(unlike green energy like solar, hydro)
6. Need infrastructure for gas supply

Government efforts including asking Iraq for flared gas are welcome. Overall transition to clean needs to be complemented with 50% fossil fuel based energy and nothing is better than natural gas.

6. भारत में बढ़ते मानव-वन्यजीव संघर्ष के कारणों की व्याख्या कीजिए। मानव-वन्यजीव संघर्ष को कम करने के लिए सरकार द्वारा किए गए उपायों पर चर्चा कीजिए।

Explain the reasons behind increasing human-wildlife conflict in India. Discuss the measures taken by the Government to mitigate the human-wildlife conflict. (Answer in 150 words)

10

According to a reply in Parliament, there have been more than 2500 deaths of human beings in past few years during several conflicts — with elephants, tigers etc. Consider Tigeress Arni for example. There has also been equivalent deaths of wild animals (eg: electrocution)

Reasons

1. Loss of habitat of animals
2. Rising encroachment of forest areas
3. Loss of indigenous practices that live in harmony with animals (example - Animal whisperers)
4. Rising electrification of forest areas
5. Biodiversity loss and animals coming out for prey
6. Half hearted measures like Elephant corridor not strictly implemented

Measures by Government

1. Creation of national park, wildlife sanctuaries with core zone of no human interference
2. Human-wildlife mitigation action plan
3. Culling of vermin animals under wildlife Protection Act
4. Use of technology by state forest departments (like sending SMS when animal spotted, tracking using GPS)
5. Initiatives by forest department (like in Kerala) for more awareness

Article 51A(g) and 51A(h) makes it our fundamental duty to protect environment and have compassion for animals - this attitude will only help for mitigating this conflict.

7. भारत में बढ़ते शहरीकरण और ध्वनि प्रदूषण के बीच संबंधों पर चर्चा कीजिए। मानव स्वास्थ्य पर ध्वनि प्रदूषण के प्रभावों का वर्णन कीजिए।

Discuss the linkages between growing urbanization and noise pollution in India. Describe the effects of noise pollution on human health. (Answer in 150 words) 10

Urbanization is the process of shift in demography from rural to urban areas marked with corresponding economic, social as well as cultural changes.

With high rise cities, pollution too has increased — air water, soil, even noise pollution.

- more construction activities
 - more vehicles
 - emergence of large stadiums for concerts
 - loud music at cafes, homes
 - loudspeakers use
- creates noise pollution

URBANISATION

Effects on noise pollution

1. very high decibel noise can be fatal and lead to loss of listening capabilities
2. It can create issues in mental health
3. Causes poor concentration
4. Lead to headache, migraine
5. Most harmful to construction workers (thus need noise cancellation devices)
Government has notified Environment

Protection Act measures to mitigate noise pollution. Several state government have taken dedicated measures against loudspeakers (eg: U.P.) and against loud music after 10 PM. They are welcome step.

It should be complemented with social behaviour & change communication

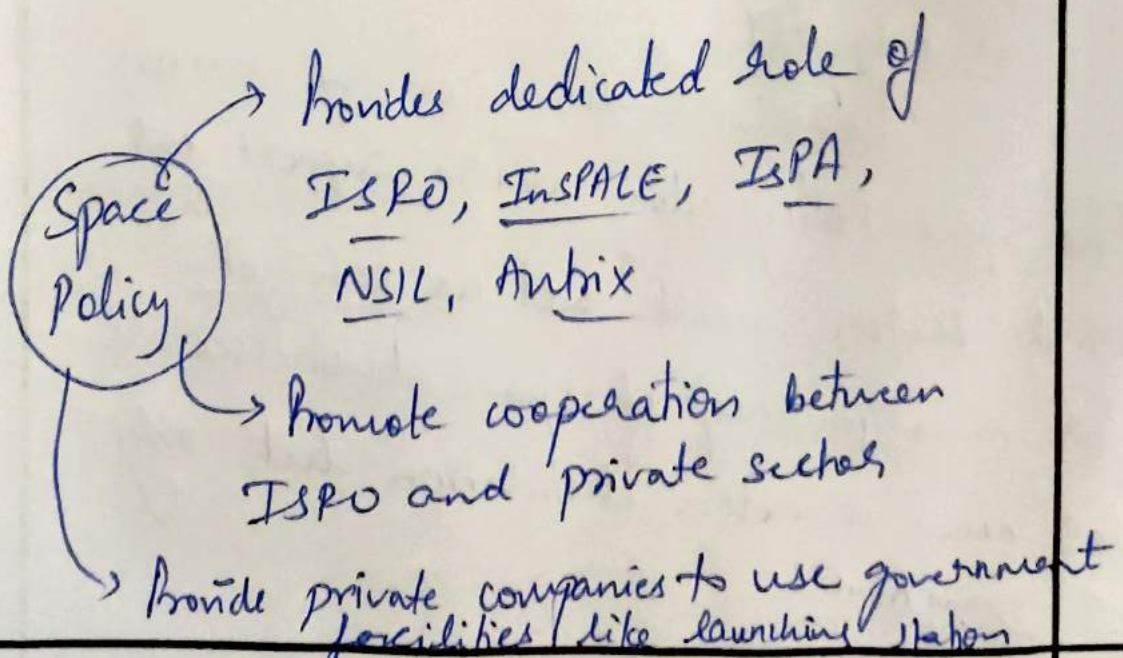
8. भारतीय अंतरिक्ष नीति, 2023 भारत में एक सशक्त, नवाचारी और विश्व स्तर पर प्रतिस्पर्धी अंतरिक्ष पारितंत्र के विकास के लिए एक उत्प्रेरक के रूप में कैसे कार्य कर सकती है?

How can the Indian Space Policy, 2023 act as a catalyst for the development of a robust, innovative and globally competitive space ecosystem in India?
(Answer in 150 words)

10

India has over the past 2 years taken several steps to open the space sector. Indian Space Policy 2023 will act as a guiding light to increase our private sector contribution and create India equivalent of companies like space X.

The success is already evident with launch of first private satellite Vikram-S and subsequent launches like AzadSat (involving 20 girl students).



Significance

- ↳ It will lead to more innovation in space sector by attracting young entrepreneurs
- ↳ It will shift burden of ISRO from trivial satellite launches towards marquee space exploration programmes
- ↳ It will contribute to more technological developments & research & innovation (through spillover effects)
- ↳ Increase contribution of space sector of India in global market (currently at only 2%).

Today, India is on the moon. The space Policy along with support for private sector will act as catalyst for new journey of space businesses. For moon is not a destination but only a springboard.

9. स्पेशल फ्रंटियर फोर्स के अधिदेश पर चर्चा कीजिए। भारत की सुरक्षा सुनिश्चित करने में इसकी क्या उपलब्धियां रही हैं?

Discuss the mandate of the Special Frontier Force. What have been its achievements in ensuring the security of India? (Answer in 150 words) 10

10. समुद्री सुरक्षा सुनिश्चित करना भारत के रणनीतिक और आर्थिक हितों की सुरक्षा का मूलभूत आधार क्यों माना जाता है? इस संदर्भ में समुद्री जलदस्युता रोधी अधिनियम (मेरीटाइम एंटी-पायरेसी एक्ट) का क्या महत्व है?

Why is ensuring maritime security considered the key to safeguarding India's strategic and economic well-being? What is the significance of the Maritime Anti-Piracy Act in this regard? (Answer in 150 words) 10

Maritime domain awareness and maritime security has always been part of governance since ancient ages.

Consider - "Uttaram Yat Samudrasaya" providing sea based definition for Bharat and naval forces of Cholas, Marathas highlighting importance of maritime security

Strategic reasons

- ↳ for free, open & inclusive oceans
- ↳ promote rules based order
- ↳ Energy security
- ↳ freedom of navigation
- ↳ Counter threats like piracy, drug trafficking (Kondla port incident) & terrorism

Economic reasons

- ↳ Blue Economy
- ↳ 90% of trade by volume & 70% by value flow through seas
- ↳ secure sea lanes of communication
- ↳ Provide employment to fishermen, coastal communities
- ↳ Mega cities are on coasts (Mumbai, Kochi, Vizag)

Recently, Parliament passed Anti-Piracy Bill to fulfill our commitments under UNCLOS

- It recognizes crime of piracy and gives power to prosecute
- It calls for extradition provision
- Makes it cognizable offence with strict punishment.

This will help reduce piracy and ensure protection of our merchant navy at traditional piracy hotspots like Somalia, Gulf of Aden.

In this context, India has several initiatives like IPOI, it has signed white shipping Agreements, Colombo Security Security. For more collaboration, PM-5 point framework at UNSC should be implemented.

11. 2023-24 के बजट में सूचीबद्ध सात प्राथमिकता वाले क्षेत्र (सप्तर्षि) कौन-से हैं? उनसे किस प्रकार भारत में समावेशी विकास को बढ़ावा देने की अपेक्षा की गई है?

What are the seven priority areas (the Saptarishis) listed in the Budget of 2023-24? How are they expected to promote inclusive development in India? (Answer in 250 words) 15

Finance Minister with aim of creating Atmanirbhar Bharat under Amrit Kaal has given seven priority areas leveraging ancient ethos of Saptarishis.

① Inclusive development

- ↳ Agriculture
 - ↳ Accelerator fund
 - ↳ Horticulture Program
 - ↳ Fisheries scheme
- ↳ Education
 - ↳ PM SHRI
 - ↳ PACS promotion
 - ↳ Shri-Anne
- ↳ Healthcare
 - ↳ increased budgetary allocation
 - ↳ more nurses, doctors

② Green Growth

- ↳ Green Credit Programme
- ↳ VGF for Better Energy Storage
- ↳ Green Hydrogen Mission
- ↳ PM-PRANAM, HISHTI, Gobardhan

③ Youth Power

- ↳ Unity mall
- ↳ Karshak Vikas Yojana

④ Financial Services

- Mahila Samman Saving Certificate
- Services in GIFT City
- services for old age people

⑤ Reaching last mile

- special scheme for PVTs
- Micro irrigation project in Karnataka

⑥ Infrastructure Connectivity

- 33% increase in capital expenditure (10 lakh crore)
- Highest ever outlay for railways budget (2 lakh crore)

⑦ Technological developments / Ease of living

- AI CoE
- lab grown diamond
- vivad se vishwas

Inclusive development

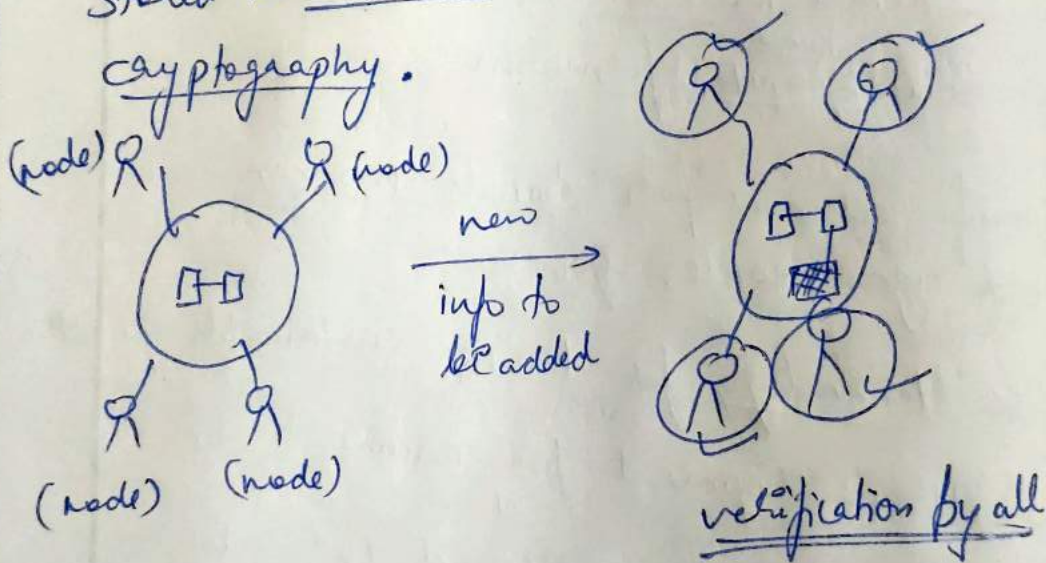
1. Capital expenditure will crowd-in private sector and create multiplier effects and provide equity (Eg:- Gram Sadak Yojana)
2. led to increase in total government expenditure in education and healthcare for social ^{human} capital formation
3. specific schemes for tribals, women, old age people, youth
4. Use technology for driving sustainable growth
5. Skill development programme
6. MSMEs credit increased through Revamped credit distribution schemes
7. Promotion of cooperatives to support small & marginal farmers

All this while pursuing fiscal consolidation is a remarkable feat setting agenda for India becoming developed in Amrit Kaal.

12. ब्लॉकचेन तकनीक भारत में भूमि रिकॉर्ड के डिजिटलीकरण की दिशा में कैसे महत्वपूर्ण भूमिका निभा सकती है?

How can blockchain technology play a pivotal role towards digitization of land records in India? (Answer in 250 words) 15

Blockchain technology refers to a decentralized technical way of consolidating and verifying information stored in blocks and locked through cryptography.



It has several use cases ranging from business to governance. It can be a game changer to digitize our land records under ULPIN and land record modernization programme (Bhoo-Aadhar).

Significance

Thus blockchain can help transition from presumptive land titling to conclusive land titling

Principles

① Certain principle

Use of Blockchain

→ Through blockchain, there will be verification of all records, thus fulfilling certain principle

② Mirror principle

→ Any change in records will reflect in all nodes

③ Title Insurance

→ It can provide insurance & guarantee of all record and cannot be hacked

④ True depiction of record

→ It will provide actual depiction of record (through either proof of work or proof of stake)

It will reduce disputes in land records & provide easy updation in real time

Road Ahead

Currently our land records are marred by challenges like legacy court cases, oral deeds, physical data across multiple departments that are not interoperable.

Blockchain can solve all these issue but it requires massive investment in resources, technology and energy (huge electricity requirement).

It also needs training of ground level workers in municipality and state government (land is in list II) for long-term success.

NITI Aayog should thus produce a consultation paper with states to help transition our current efforts like SWAMITVA to blockchain.

13. सार्वजनिक-निजी भागीदारी (PPPs) भारत में कृषि उपज के भंडारण, परिवहन और विपणन को बेहतर बनाने में कितनी सहायक हो सकती है?

How far can public-private partnerships (PPPs) help in improving the storage, transportation, and marketing of agricultural produce in India?
(Answer in 250 words)

15

Worldbank defines PPP as partnership that considers sharing of risks, benefits, investments and resources.

Agriculture is facing many challenges as noted by several committees from Swaminathan to Shanta to Abhe Dalwai and all have recommended ~~from~~ more private participation in one way or other across agri value chain

Storage

Challenges

↳ Lack of adequate storage facilities (only 47% out of 312 MMT production)

↳ Skewed cold storage network in Northern states

PPP role

→ Bring in resources for storage infrastructure

→ Provide best-in-class services using automated system

Challenges

- grain gets destroyed due to lack of safe storage
- poor price availability

Solution by PPP

- provide negotiable warehouse receipt system
- use VGF, Concession models

Transportation

Challenges

- lack of forward linkages
- misuse by traders (cartelization)
- in many states density of APMC is low, thus farm to market distance is very large

Solution (PPP)

- invest in road network (BOT, HAM, VGF)
- provide tractors at cheaper rates
- private procurement at door step can reduce transportation cost

Marketing

Challenges

- ↳ lack of market information leading to cobweb phenomena
- ↳ skewed presence of Mandis
(APMCs are very few considering 6 lakh villages)
- ↳ lack of modern facilities leading huge losses

Solutions

- ↳ private stockist scheme
- ↳ contract farming will shift to demand based agriculture
- ↳ investment in mandi infrastructure (like electronic weighing scales)
- ↳ Agri Tech farmers can use Agri Stack for better information
- ↳ Krishi Udan for better market access

With withdrawal of farm laws, the state government should push for these PPP measures as per their local requirements.

14. सार्वजनिक वितरण प्रणाली में प्रौद्योगिकी के माध्यम से आधुनिकीकरण और सुधार योजना (SMART-PDS) में भारत हेतु खाद्य सुरक्षा से परे जाते हुए वृहद् परिवर्तनकारी क्षमता विद्यमान है। विवेचना कीजिए।

The Scheme for Modernization and Reforms through Technology in Public Distribution System (SMART-PDS) has transformative potential beyond food security for India. Discuss. (Answer in 250 words)

15

India has a massive food security programme under Public Distribution System catering to 80 crore people as right to food (NFSA 2013)

Technology reforms

- ↳ National Food Security Index
- ↳ Aadhar linkage of Ration Card
- ↳ One Nation One Ration Card for migrant workers
- ↳ Digitization of supply chain (end-to-end computerisation)
- ↳ ePOS system in Fair Price Shops
- ↳ Use of GPS for monitoring truck movement
- ↳ DBT pilot programme in A&N islands

Transformative potential

- ↳ Leverage technology for transparency and accountability
- ↳ Reduce inefficiency in system
(Shanter committee noted more than 40% leakages in PDS)
- ↳ Better delivery of services especially for migrants (thereby creating a social security net)
- ↳ Reduce corruption in fair-price shops
- ↳ Centralized monitoring
- ↳ Competitive & cooperative federalism
(Eg: NFSI Index)
- ↳ Better transportation methods using data rather than first-in-first-out surdimentary methods

These efforts are welcome, however there are some challenges as noted by Sudip Bandopadhyay Committee:-

- ① ePOS system is not working efficiently in rural areas due to poor internet availability
- ② There are commission and omission errors in Aadhar linkages
- ③ End-to-end computerization is successful only in few states (like Chhattisgarh)

Therefore SMART-PDS is not sufficient there should be holistic digital inclusion measures (like PMGDISHA) with revamp of digital and physical infrastructure in rural areas.

15. समुद्री हीटवेव की उत्पत्ति के लिए उत्तरदायी कारणों की व्याख्या कीजिए। उन तरीकों पर चर्चा कीजिए जिनसे वे समुद्री पारितंत्र को प्रभावित कर सकती हैं और आर्थिक नुकसान पहुंचा सकती हैं।
Explain the causes behind the occurrence of marine heat waves. Discuss the ways in which they can affect the marine ecosystems and cause economic losses. (Answer in 250 words)

15

Marine heat waves refer to condition of rise in ocean temperature upto depths of 300m for upto two-to-three consecutive days.

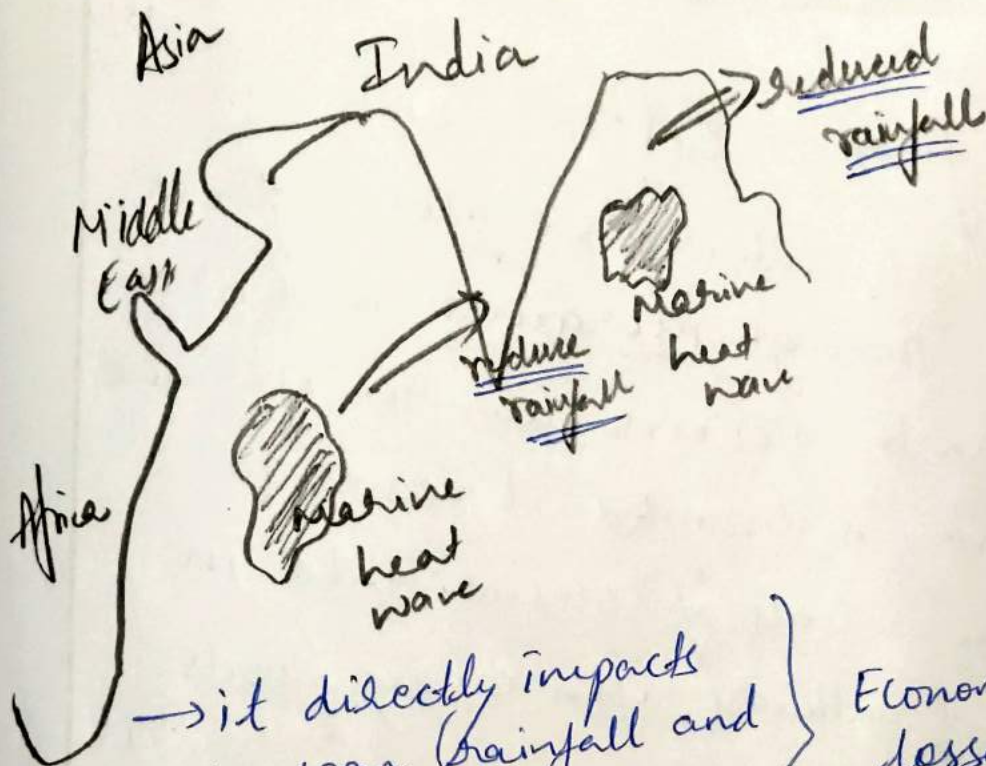
Causes

1. Rising ocean temperature (due to global warming)
2. Heat currents in ocean surface
3. Phenomena like El-Nino
4. Increase in maritime trade
5. Rise in ocean pollution and marine pollution
6. Destruction of nature based solutions (NBS) that regulate oceans like corals

Effect on marine ecosystem

- ↳ lead to biodiversity loss
- ↳ Reinforce deadly trio of ocean warming, deoxygenation and acidification
- ↳ lead to coral destruction (as they are sensitive to temperature change)
- ↳ Effect fisheries sector (& aquaculture)
- ↳ lead to rise in ocean level and cause sinking of small island and developing countries
- ↳ significantly impact coastal communities

Impact on monsoon



- it directly impacts monsoon rainfall and thus affect agriculture in rainfed area
 - loss of fisheries & aquaculture
 - loss of eco-tourism
 - biodiversity loss & loss of green gdp
- Economic losses

Thus, there should be collaborated efforts against rising ocean temperature.

MARPOL Convention, UN-ocean summit are light measures for international consensus

along with local adaptation measures

16. ग्लेशियल लेक आउटबर्स्ट फ्लड (GLOFs) के कारणों और प्रभाव की व्याख्या कीजिए। इस संदर्भ में सरकार द्वारा कौन-से उपाय किए गए हैं?

Explain the causes and impact of Glacial Lake Outburst Floods (GLOFs). What are the measures taken by the government in this context? (Answer in 250 words) 15

When glaciers retreat, water in them gets contained in form of glacial lakes through moraines and other sediments. However when the moraine boundary is disrupted it leads to sudden release of glacial lake in form of outburst often causing floods.

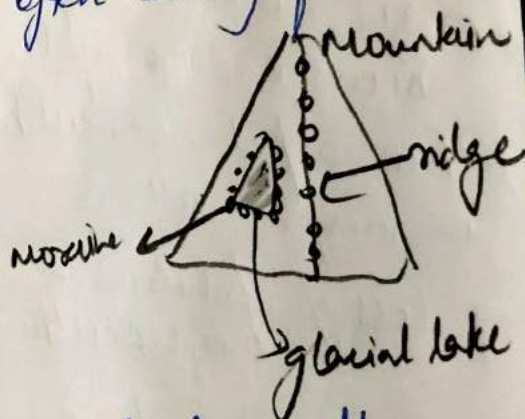
Causes

① Natural causes

↳ Earthquakes in tectonically active Himalayas

↳ Landslides

↳ Very high level rainfall lead to weathering & erosion of moraine



② Human related causes

- ↳ Encroachment of land
- ↳ Unscientific construction measures like vertical slope cutting
- ↳ Deforestation
- ↳ Road widening
- ↳ Concretization
- ↳ Altering natural course of rivers & glaciers movement

Impact

- ↳ cause floods
- ↳ cause landslides
- ↳ destruction of life & property
- ↳ disruption of critical infrastructure
- ↳ impact agriculture & local economy
- ↳ affect tourism potential

Government measures

1. Study conducted to map glacial lakes in Himalayas by LiDAR
2. NDMA guidelines for disaster risk reduction
3. State government measures that protect against floods, landslides
4. NDRF, SDRF for rescue, relief, recovery operations

While GLOF is a natural phenomenon but human factors have exacerbated the impact. It thus needs a whole of society approach to mitigate the impact and better adapt to such situations (diversifying local knowledge).

17. रेडियोमेट्रिक डेटिंग कैसे काम करती है? इससे जुड़ी सीमाएं क्या हैं? रेडियोमेट्रिक डेटिंग में कैल्शियम-41 का उपयोग करने के संभावित लाभ क्या हैं?

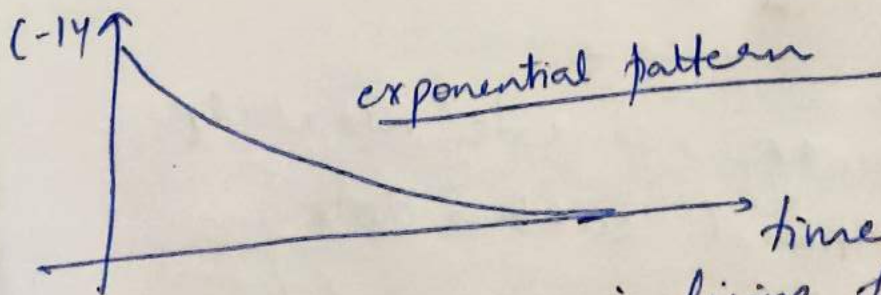
How does radiometric dating work? What are the limitations associated with it? What are the potential advantages of using Calcium-41 in radiometric dating? (Answer in 250 words)

15

Radiometric dating refers to use of half-life principle of radioactive substance for measuring ~~life~~ age of substance.

Consider, carbon-14 which is an isotope of C-12, means that it has more neutrons (8 neutrons vs ideally 6 neutrons in C-12). These neutrons are not stable and cause radioactive decay.

This decay follows exponential decline known as half life.



when a substance is living the decay is not there but after its death

The decay begins leading to decline in ^{14}C & ^{12}C concentration which can be used to measure half-life.

Limitations

- ↳ Provides only approximate age and not accurate
- ↳ May cause destruction of monument or structure
- ↳ Expensive technology
- ↳ Limited availability of human resource in India
- ↳ Dependent on half-life

Advantages of Ca-41

- ↳ Provides more accurate measures than traditional carbon dating
- ↳ Relatively easier process

↳ calcium 41 has better technical parameters like half-life duration, thus making it more suitable

Radio metry has become an important tool by archaeologists and history students for assessing the heritage. It can also be used in crime and forensics.

Recent order of Allahabad High Court ordering carbon dating shows the reliance of technology & use for preservation of our heritage structures.

18. सरकार द्वारा डिजिटल स्वास्थ्य पर बल दिए जाने के बावजूद भारत में ई-फार्मसी के संदर्भ में चिंता क्यों बढ़ रही है? इस द्वंद्व के समाधान के लिए क्या उपाय किए जाने चाहिए?

Why is there a growing concern over e-pharmacy in India despite the government's push for digital health? What measures are needed to resolve this dichotomy? (Answer in 250 words) 15

e-Pharmacy refers to online shops (online commerce) of pharmacy. For example - Tata 1mg App, Procto App, Apollo App. They can deliver medicines at doorstep at more affordable rates.

Digital health push

In techade, government is pushing digital for increasing access of healthcare. For example, e-Sanjeevani mission (more than 10 crore consultations),

National Digital Health Mission, Tele-MANAS, Cowin for vaccines.

Through people can access quality healthcare services at affordable rates on a single click.

TePharmacy challenges

Despite the benefits like reduced cost, fast delivery, accessibility in remote areas, single click delivery given the nascent stage and absence of regulation there are issues like :-

- ↳ Lack of license for selling prescription drugs
- ↳ Used for selling hard drugs (like painkillers) on fake prescriptions causing drug addiction (Eg: in Kashmir as noted by Indian Express investigation)
- ↳ Contributing to Anti-microbial resistance (AMR) as red-line scheduled drugs are now easily available
- ↳ Non-competitive policies like deep discounts, hostile acquisitions causing disruption to physical stores

Measures needed

1. Bring in legislation for soft-touch regulations
2. Strengthen anti-competitive tracking regime (through CCI)
3. Bring in Digital Competition Bill to regulate startups (Jayant Sinha Committee)
4. Frequent checks on e-pharmacy companies against selling hard drugs
5. More awareness among consumers against AMR

e-pharmacy is a good step for digital health mission, now there is need to risk based framework for ex-ante regulation.

19. भारत में वामपंथी उग्रवाद (LWE) में हुई कमी में किन कारकों ने योगदान दिया है? क्या आपको लगता है कि यह कमी निकट भविष्य में LWE की समस्या के संभावित अंत का संकेत देती है?

What factors have contributed to the decline of Left Wing Extremism (LWE) in India? Do you think this decline signifies the likely end of the LWE problem in the near future? (Answer in 250 words) 15

According to Ministry of Home Affairs, incidents of LWE (left wing extremism) have reduced by 70% in past 10 years and number of districts affected by it reduced from 200 (at its peak) to about 40 districts.

Factors

① Security initiatives-

1. Dedicated state government measures like Andhra Pradesh COBRA battalion, Grey Hounds
2. Creation of National Plan of Action subsuming measures for effective security forces
3. Modernization of security forces like CAPF with more funds

4. Surrender-won Rehabilitation measures

④ Development initiatives

1. Aspirational districts programme
2. Rights based approach (like FRA, PESA rules)
3. Specific measures for telecom connectivity (state led BSNL)
4. District administrators programme like Think-Bastar, creation of hospital in Bijapur (Tamboli Ayyaj), boosting local economy (like poultry procurement by Army in Bihar)

Current trends

While it has declined there have been sporadic incidents like recent killing of our security forces in Sukma. Mines are still trapped and ideological support in hotbeds like Bastar exists.

Further, the extremist don't want state led development (as it is evident from destruction of physical infrastructure) but want to create own parallel governance mechanism by force (longaoo courts).

To end this problem, there needs to holistic measures :-

- (i) coordination between state & central agencies
- (ii) dedicated security forces with more intelligence inputs
- (iii) creation of actionable timeline & plans at chief secretary level
- (iv) continued development efforts to get support of local people

This also requires support from media to build a narrative against taxation and any sympathy for Moist ideology.

20. मनी लॉन्ड्रिंग और कर अपराधों के बीच समानताएं तथा तालमेल होने के बावजूद, कर अपराधों से निपटने के लिए एंटी-मनी लॉन्ड्रिंग (AML) उपायों का प्रयोग राजनीतिक, कानूनी एवं साथ ही परिचालन संबंधी चुनौतियां प्रस्तुत करता है। विवेचना कीजिए।

Despite commonalities and synergies between money laundering and tax crimes, leveraging anti-money laundering (AML) measures for tackling tax crimes presents political, legal as well as operational challenges. Discuss. (Answer in 250 words) 15

Prevention of Money Laundering Act (PMLA) defines money laundering as process of concealment of proceeds of crimes and projecting it as untainted property.

While tax evasion and not paying tax on wealth generated through ethical & legal means (eg: too jobs but reporting only one) ^{① (Base Erosion & Profit Shifting)} is not covered under PMLA (as it is not a scheduled or predicate offence) but the linkages are same to conceal the money and make black money white.

① Placement

→ same tools like hawala network, cash transfers, smuggling of money,

using tax havens, shell companies are used

② Layering — it refers to create a complex web to make it difficult to trace money to original source (with globalization and cryptocurrencies it is applicable to both ML and tax-crime)

③ Integration — finally black money & money laundered is projected as untainted

Thus, channels of placement, layering, integration are same, as motivation of hiding from law enforcement agencies is the same.

Political challenges

- ↳ criminalization of politics
(ADR data of 40% MPs with criminal cases)
- ↳ use of black money in elections

Legal challenges

- ↳ Difficult to enforce country laws beyond territorial jurisdiction
- ↳ challenges in extradition
- ↳ Lack of data sharing regulations with ^{some countries}
- ↳ Multiple agencies working independently

Operational challenges

- ↳ Presence of tax havens (Paradise papers)
- ↳ Difficult to find shell companies on foreign soil
- ↳ Lack of coordination among agencies (CBI, ED, Police forces, IB, STIO)
- ↳ Globalized economy & banking system
- ↳ Proliferation of technologies like crypto networks, dark web

Thus, there is need for strengthening international collaboration. Measures like FATF should thus be further strengthened & efforts like OECD twin tax be implemented.