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GENERAL STUDIES (TEST CODE : 2087)

Name of Candidate	RITIKA RATH	Registration Number	1213334
Medium Eng./Hindi	ENGLISH	Date	03.08.2023
Center	ONLINE		

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.

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All the Best



- Q1. भारत में पशुपालन में महिलाएं किस प्रकार योगदान देती हैं? भारत में पशुधन क्षेत्रक 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
- Q2. वन नेशन वन राशन कार्ड (ONORC) योजना कैसे और किस सीमा तक प्रवासी मजदूरों, शहरी गरीबों और दिहाड़ी मजदूरों के लिए उल्लेखनीय सभावित 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
- Q3. 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
- Q4. मंधारणीय 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
- Q5. 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
- Q6. 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
- Q7. 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



- Q8. भारतीय अंतरिक्ष नीति, 2023 भारत में एक मशक, तवाचारी 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
- Q9. 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
- Q10. 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 गंडी-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
- Q11. 2023-24 के बजट में मूर्चीवद्र सात प्राथमिकता वाले क्षेत्र (सप्तारिषि) कौन-से हैं? उनमें 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
- Q12. 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
- Q13. 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
- Q14. सार्वजनिक वितरण प्रणाली में प्रौद्योगिकी के माध्यम से आधुनिकीकरण और सुधार योजना (SMART-PDS) में भारत हेतु खाद्य सुरक्षा से परे जाते हुए वृहद 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
- Q15. 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



Q16. 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

Q17. रेडियोमेट्रिक डेटिंग कैसे काम करती है? इसमें 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

Q18. 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

Q19. 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

Q20. 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 चुनौतियों प्रस्तुत करता है। निवेचना 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

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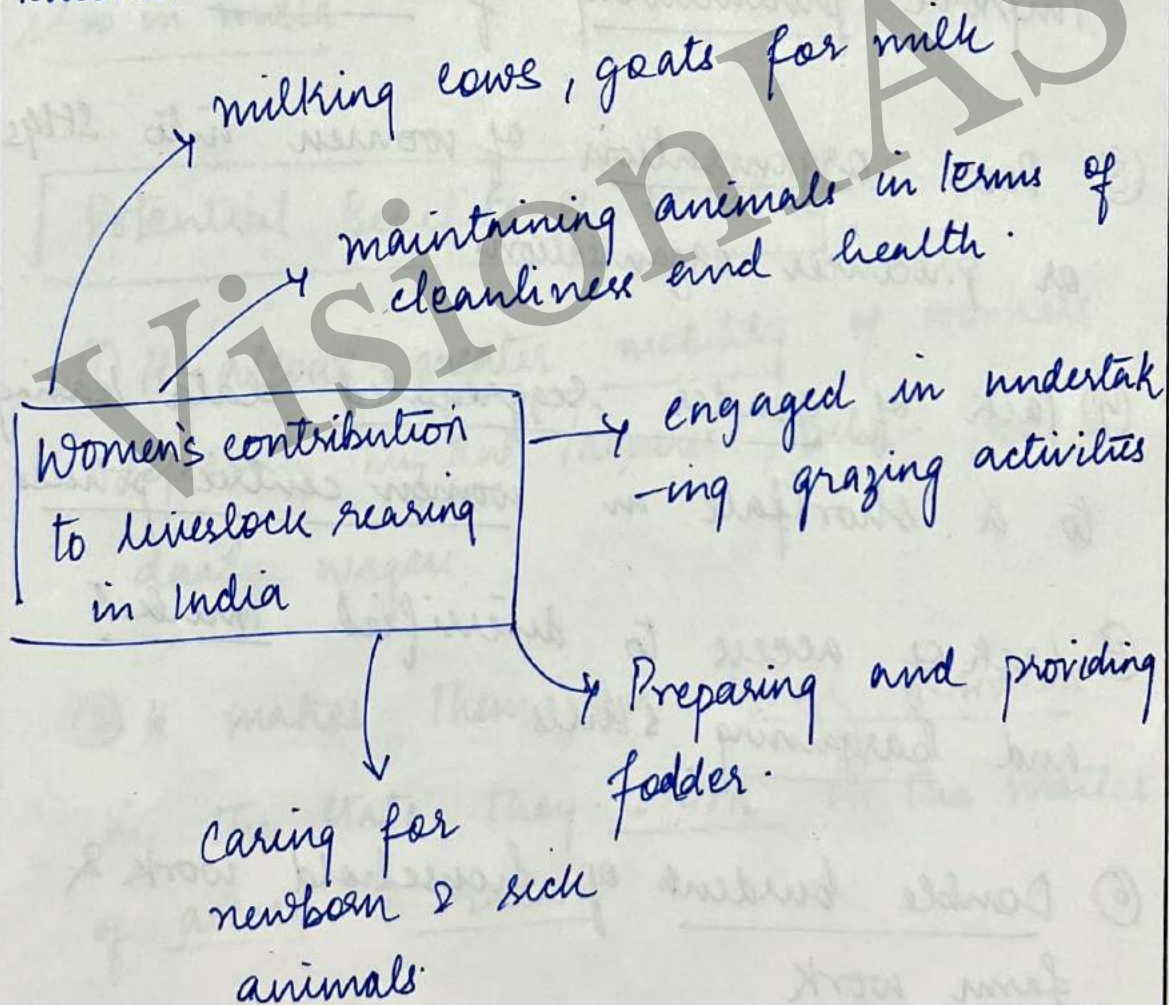
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Ans 1.

About 70% of rural women are engaged in agriculture of which livestock rearing acts as a significant source of supplementary income.



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Issues currently faced by women

- ① lack of access to cheap and affordable credit and insurance.
- ② lack of technical skills required to improve productivity of animals
- ③ Peer organisation of women into SHGs or producer organisations
- ④ lack of gender segregated data leading to a shortfall in women-centric policies
- ⑤ lack of access to diversified market and bargaining skills
- ⑥ Double burden of household work & farm work

These issues require concerted efforts which can empower women in livestock rearing.

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Ans 2.

One Nation One Ration Card (ONORC) aims to make ration cards inter operable i.e. valid across India. This means that a beneficiary can avail grains at any PDS shop in India.

Potential Benefits of ONORC

- ① It allows greater mobility of workers especially migrant labourers, urban poor & daily wagers.
- ② It makes them an equal resident in the state they work in the matter of access to ration.
- ③ It can balance the supply of food grains between states to prevent excess

UPSC

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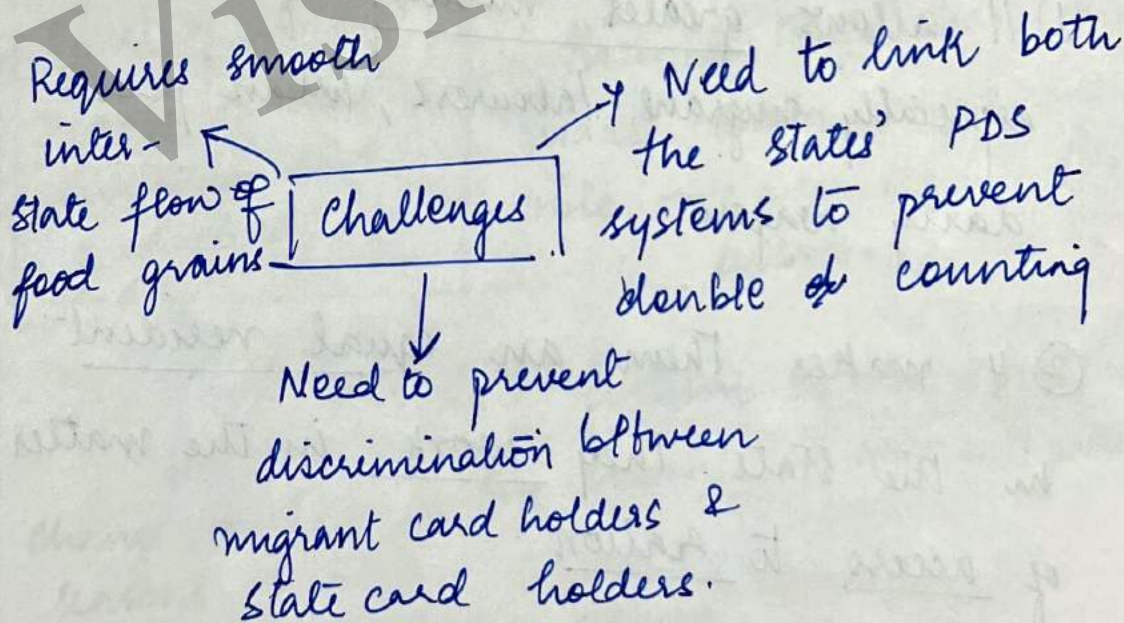
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Supply in one state with high registered ration card holders.

Ex -

<u>State A</u>	<u>State B</u>
official Ration card holders = 10 lakh	official Ration card holders = 5 lakh
out migrants to State B = 7 lakh	migrants from State A = 7 lakh
<u>= 3 lakh</u>	<u>= +12 lakh</u>
effective ration card holders	effective ration card holders



ONORC seeks to fulfill the goal of 'One India'.

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Candidate must adhere to the word limit specified in the question.
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Ans 3 -

Climate change has affected agricultural production and productivity as the latter is completely dependent on natural factors like soil, rainfall, pest attacks etc.

Climate change has increased variability of Indian monsoons - affecting irrigation
Certain micro-organisms have gone extinct due to climate change - effect on soil profile.

Effect of climate change on agricultural production and productivity

→ Rise of temperatures has made certain crops infeasible → can lead to food insecurity

→ Soil fertility is also affected by climate & rainfall pattern
Change in seasons is now more unpredictable - making it difficult to sow seeds.

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All this has necessitated the need for climate smart agriculture.

Need of climate smart ^{water saving} Agri-tech

- ① Prevents wastage of water.
- ② Prevents over-extraction of groundwater.
- ③ Important part of Precision agriculture
- ④ Helps reduce dependence on monsoons as less water is required.
- ⑤ Often, fertilizers can be mixed with water — this reduces overuse of fertilizers as well.

Climate smart agriculture is the need of the hour to ensure resilience of agricultural systems.

Candidate must adhere to the word limit specified in the question.
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Ans 4.

Nano fertilizers are ~~not~~ fertilizers which work at the nano scale.

Economic benefits of nanofertilisers

- ① Reduces the quantity of input required for a plant thereby saving money.
- ② Improves productivity thereby leading to greater sales.
- ③ Nano-fertilizers are more targetted than general fertilizers.
- ④ Allows gro higher cropping intensity

Environmental benefits of nanofertilizers

- ① Reduces overuse of fertilizers which reduce soil fertility
- ② Prevents unbalanced use of fertilizers which can deplete soil fertility

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③ Allows personalised / customised fertilizers which can ensure crop sustainability along with environmental sustainability

Concerns

- ① Since it is a new technology it might be expensive.
- ② Accessibility might be a problem.
- ③ Its long-term effects on the environment and users have not been adequately studied.

Efforts should be made to ensure that the effects of nanofertilizers are properly understood before its use.

Ans 5.

Adequate and equitable distribution of natural gas in all parts is essential for the economic progress of a country which also affects its social development.

Availability helping achieve uniform economic & social progress

① Economic sectors like transportation, machinery etc are dependent on natural gas which is integral for development.

② Natural gas being more environment-friendly than diesel will help India achieve its green commitments.

③ It will reduce resource disparity between regions by equitable distribution.

Ex- Western India has more natural gas reserves than eastern India.

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(4) This economic development will lead to better provisioning of social infrastructure like schools, colleges, health centres, hospitals etc.

→ under-utilisation of existing pipelines full capacity

→ lack of availability of pipelines to all households in a region

Challenges faced by India

→ Challenges in the functioning of Natural Gas or Petroleum & Natural Gas Regulatory Board.

↓
lack of adequate funds disbursement and utilisation

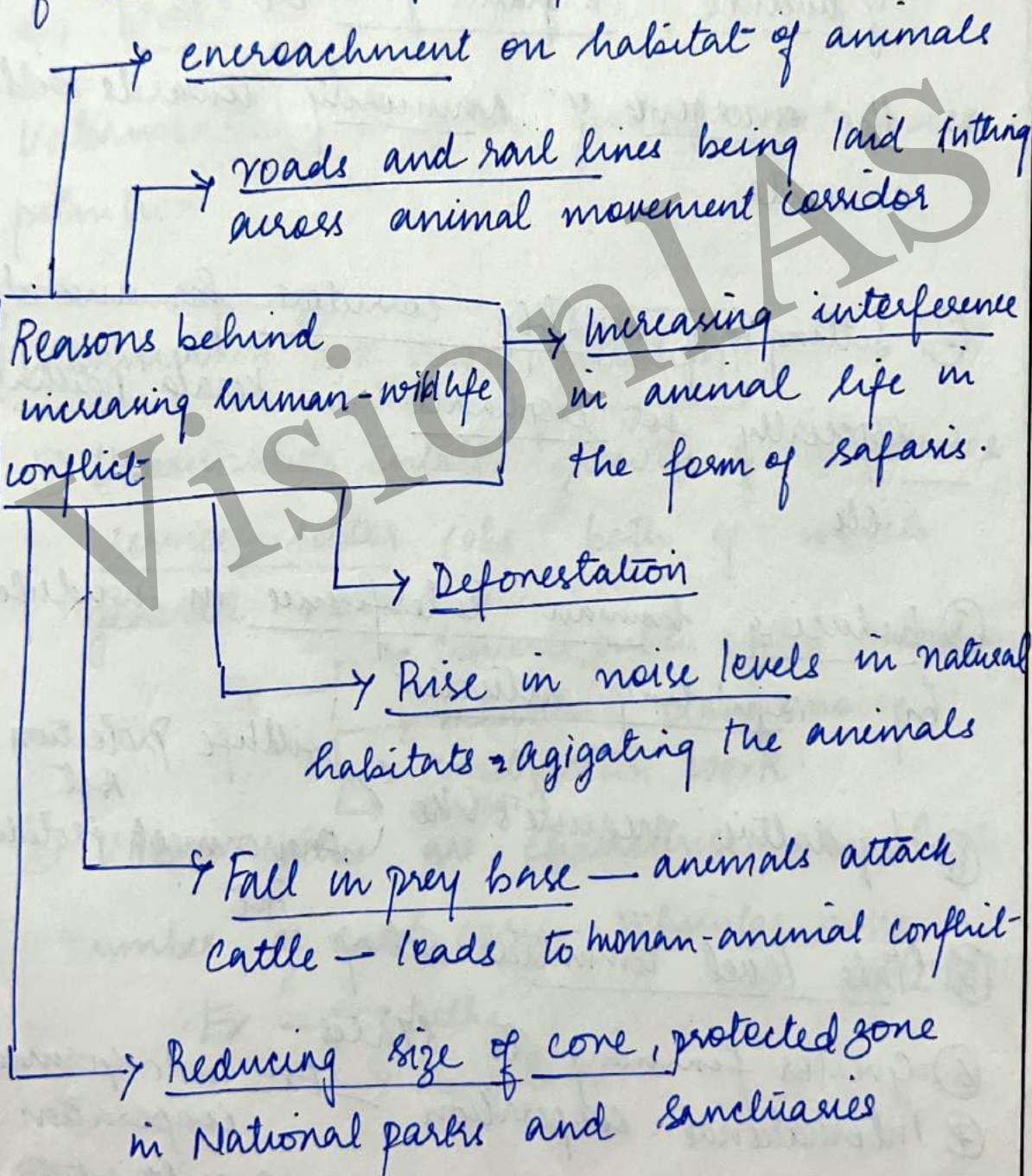
→ Delays in project implementation

It is imperative for India to plug in the loopholes to make Natural Gas available to all.

Candidate must adhere to the word limit specified in the question.
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Ans 6.

As urbanisation and developmental activities have grown, there are increasing instances of human-wildlife conflicts in India.



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Measures taken by government

- ① National Board for Wildlife guidelines
including payment of compensation for loss
of livestock, ex gratia grant etc to prevent
the emergence of animosity towards wild
animals
 - ② Setting up of wildlife corridors for animals
especially for elephants in Kerala, Odisha
etc
 - ③ Reducing human interference in wildlife
by regulating activities
 - ④ legislative measures like wildlife Protection Act
Environment Protection Act
 - ⑤ State level committees set up
 - ⑥ Greater financing to States
 - ⑦ International cooperation — Ex- Indo-German
cooperation
- Thus, ensuring pro-active measures & cultivating
empathy is key to reducing human-animal
conflict.

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Ans 7.

It is predicted that 40% of the Indian population would be living in urban areas by 2030.

Urbanisation is often linked with noise pollution

Urbanisation \Leftrightarrow noise pollution

① Urbanisation entails growth of industries & service sector jobs both of which generate noise.

Ex —

- Concerts, public events, weddings
- industrial plant's noise
- construction work.
- ↳ airports

② Urban cities are characterised by high number of cars — vehicular noise pollution

Ex —

- Delhi
- Bengaluru

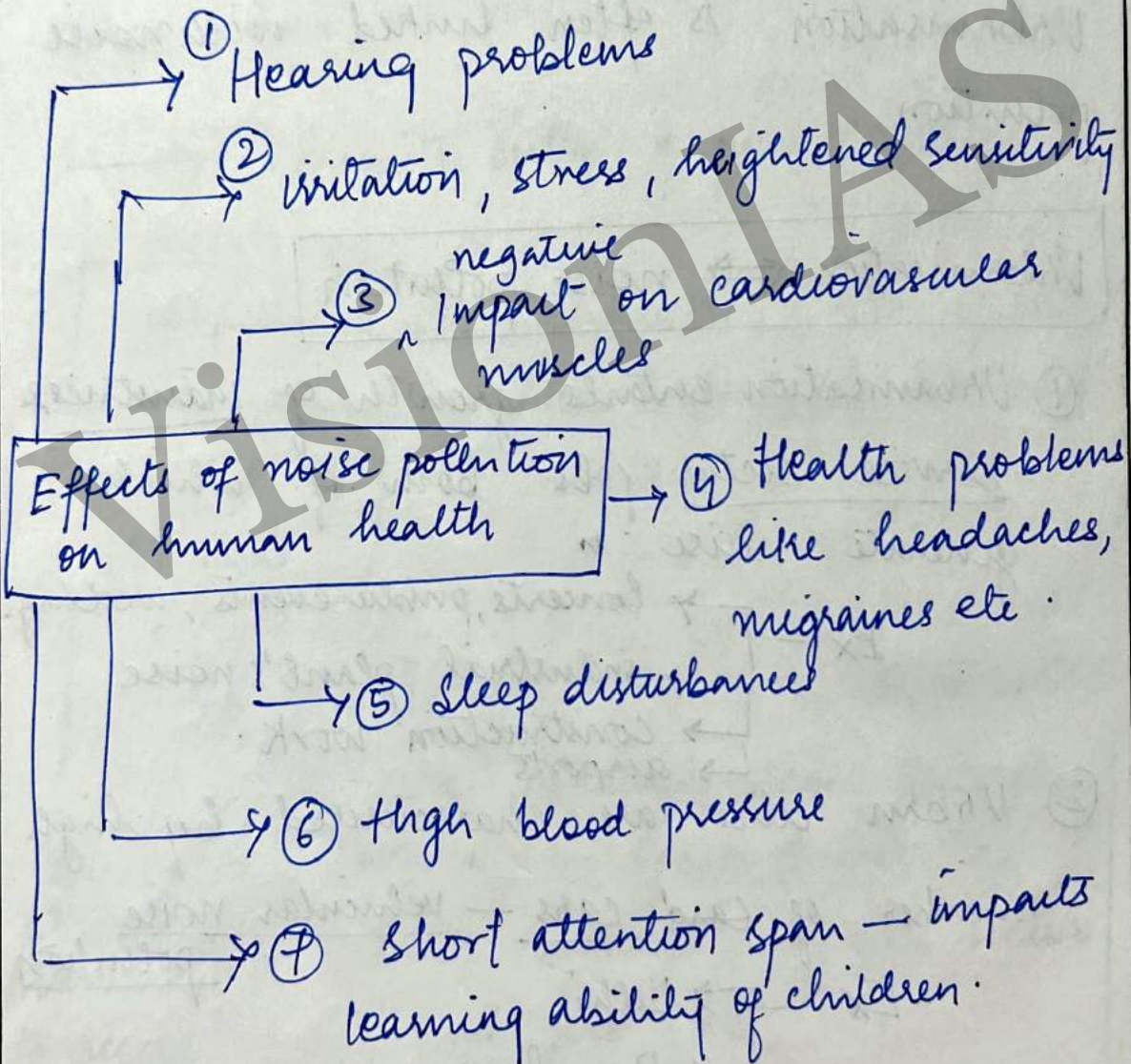
③ Urban cities also have a night economy

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which increases noise pollution.

④ Lack of urban forests to absorb noise.

⑤ Concretisation also increases noise intensity



Thus, steps ^{mustly} taken to tackle noise pollution including setting guidelines on

इस हार्शिए में केवल प्रश्न संख्या लिखें।
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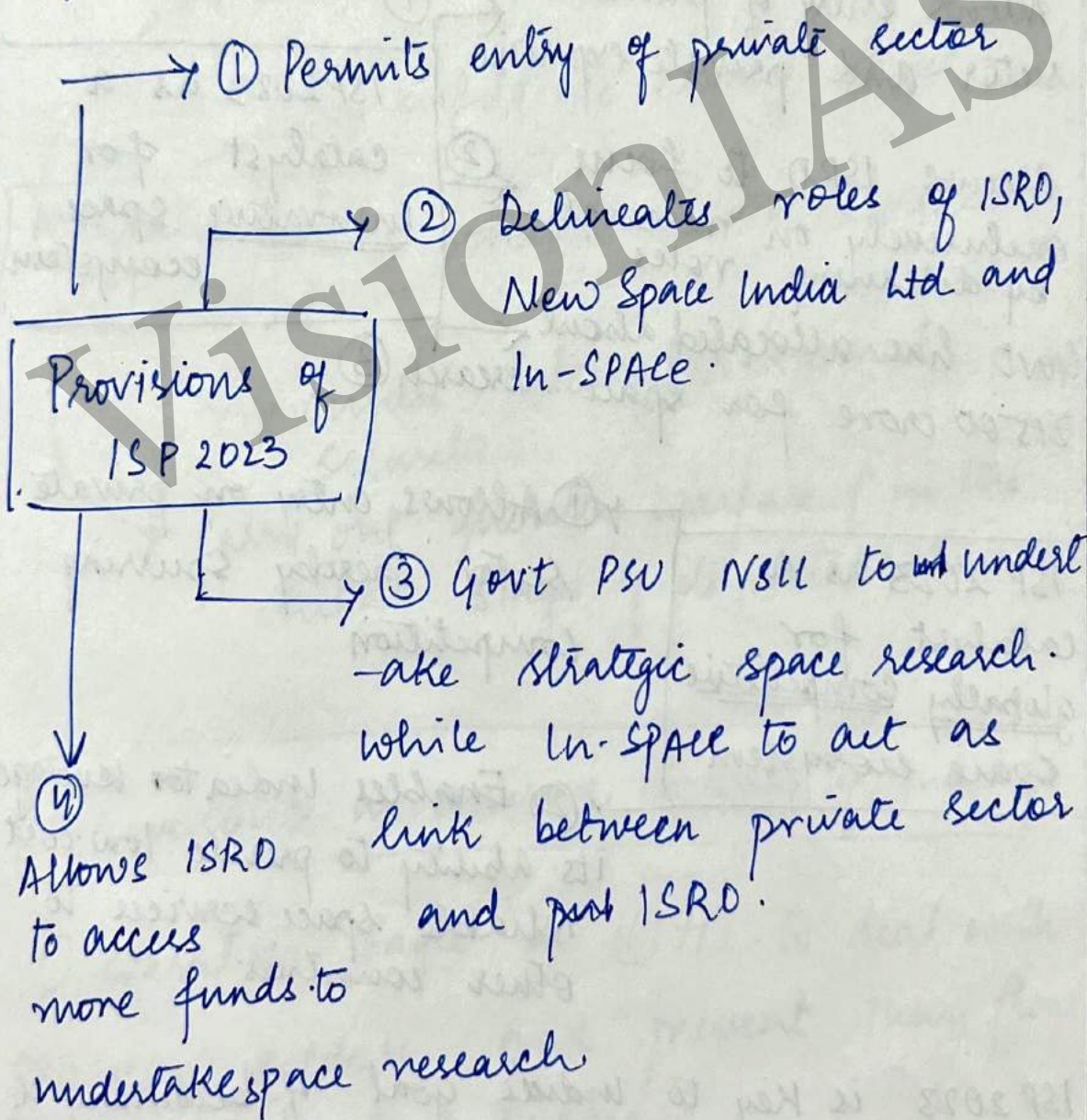
उम्मीदवारों को इस हार्शिए में नहीं लिखना चाहिए।
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UPSC

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Ans 8.

The Indian Space Policy 2023 envisages to develop India's space sector so that India becomes a leading player in the global space arena.



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ISP 2023 as a catalyst for robust space ecosystem

- ① It ensures greater flow of investment for research
- ② Brings in a cooperative & competitive environment.

ISP 2023 as a catalyst for innovative space ecosystem

- ① Allows entry of private sector and private expertise
- ② Allows ISRO to focus exclusively on research by delegating roles
- ③ Govt has allocated about ₹1500 crore for space research

ISP 2023 as a catalyst for globally competitive space ecosystem

- ① Allows entry on private sector thereby spurring competition
- ② Enables India to leverage its ability to provide low-cost reliable space services to other countries

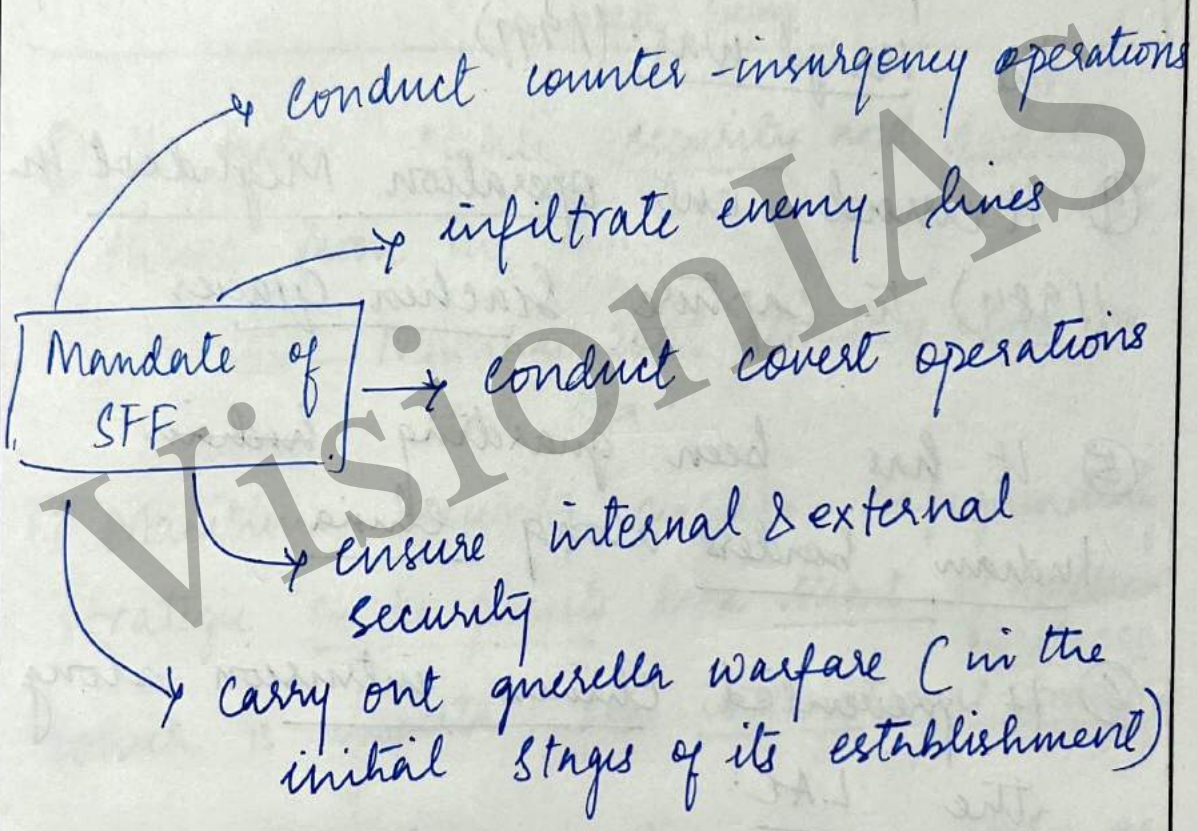
ISP 2023 is key to India's goal of becoming a leader in space research.

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Ans 9.

The Special Frontier Force was set up in India in the aftermath of the 1962 Indo China war.



Achievements in ensuring security of India

① Operation Eagle in (1971) to deal with Pakistani soldiers and prevent them from escaping into Burma.

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- ② Operation Blue Star to flush out Khalist-ani militants from Gurudwara Sahib temple.
- ③ The force has defended India during the Kargil war (1999)
- ④ It carried out operation Meghdoot in (1984) to capture Siachen Glacier.
- ⑤ It has been guarding Indian borders along china
- ⑥ It prevented Chinese intension along the LAC.

Thus, SFF has played a crucial role in India's security and aided the operations of other military forces as well.

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Ans 10. Maritime security is pertinent to safeguard India from external threats.

Maritime Security \Leftrightarrow India's Strategic & Economic well-being

① It helps tackle security and safety threats from the sea.

Ex - Mumbai 2008 attacker came via the sea.

② Maritime security entails safeguarding strategic choke points like Strait of Malacca which is important for international trade.

③ China has been using marine water as an additional theatre/arena of influence.

Ex - String of pearls theory

Significance of Maritime Anti-Piracy Act

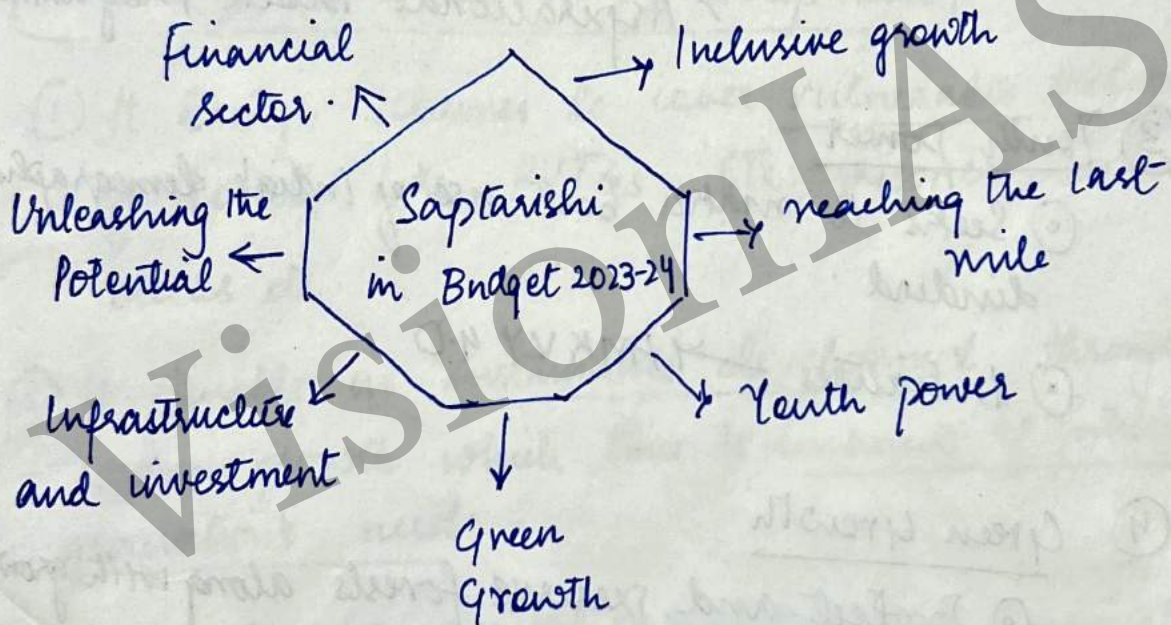
- ① It is the first legislation in India on Maritime security
- ② It focuses on preserving Maritime security especially sites like Gulf of Aden which is crucial for India's access to Africa, Middle East & Europe
- ③ It fulfills the conditions and vision set out by United Nations Conventions on the Law of the Seas (UNCLOS)
- ④ It regulates India's activities in the high seas.
- ⑤ It envisages a strict action against piracy with life ~~or~~ imprisonment & death as punishment in certain cases.

Thus, maritime security is key for India's vision of an open and free maritime domain.

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Ans 11.

Budget 2023-24 envisages the next 25 years till 2047 as the "Amrit Kaal" for India. To achieve the same, it has identified 7 priority areas -



① Inclusive Growth / Development

② This envisages growth of all sectors of the ~~eco~~ economy and of all sections of society

③ Initiatives → Agriculture Accelerator Fund

→ Public Digital Infrastructure
→ PM Matsya Sampada Yojana
→ Sickle cell anaemia elimination

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② Reaching the last mile

① Seeks to ensure that the govt reaches the most vulnerable sections

② Initiatives → PVTG Development Scheme
→ Eklavya Residential School
→ Aspirational Block Programme

③ Youth power

① Seeks to make best use of India's demographic dividend.

② Initiatives → PMKVY 4.0

④ Green Growth

① Protect and preserve forests along with growth

② Initiatives → MSHTI
→ Green Hydrogen Mission
→ GOBARDHAN Scheme

⑤ Infrastructure and investment

① Bring in greater investment in India from govt.

② Initiatives → High capital expenditure
→ Urban Infrastructure Development Fund

⑥ Unleashing The Potential → mission Karmayogi

→ Make AI in India and for India

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⑦ Financial sector

- ① Includes initiatives like → Revamped
Credit Guarantee
Scheme
Mahila Samman
Bachat Praman Patra

How it promotes inclusive development

- ① It brings schemes to cover vulnerable sections
of society like PVTGs, STs, prisoners, backward
blocks etc.
- ② It builds in sustainable development through
green growth which thus is inclusive of future
generation's needs
- ③ By increasing capital expenditure and financial
sector reforms, it seeks to improve macro-
economic situation & growth potential of India

Thus, Budget 2023-24 lays the roadmap for
fulfilling the goal of India@100 which
seeks to make India a developed country.

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Ans 12.

Blockchain is a new-age technology which ensures storage of data in a safe, secure and encrypted manner.

Blockchain technology & its pivotal role in digitalisation of land records

⊙ It can help secure the data from tampering

⊙ Blockchain technology enables storage of a large amount of data.

Data on land records in India is diverse and can be effectively stored using blockchain technology.

⊙ Additionally, data on land records in India is sometimes conflicting — blockchain technology assigns a unique key for every new block added and hence can

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prevent dubious records.

- ① Blockchain Technology can also be effective in maintaining privacy of the landholders.
- ② Blockchain technology can also reduce land related conflicts which arise due to ambiguity on ownership. This would further promote digitisation of land records.
- ③ The technology can also prevent illegal selling and occupation of land which further benefits the digitisation drive.

However, the technology also poses certain

Challenges

- ① Blockchain by its very nature is a decentralised system — this raises concerns on how much control the government can have over such sensi-
tive data and its use.

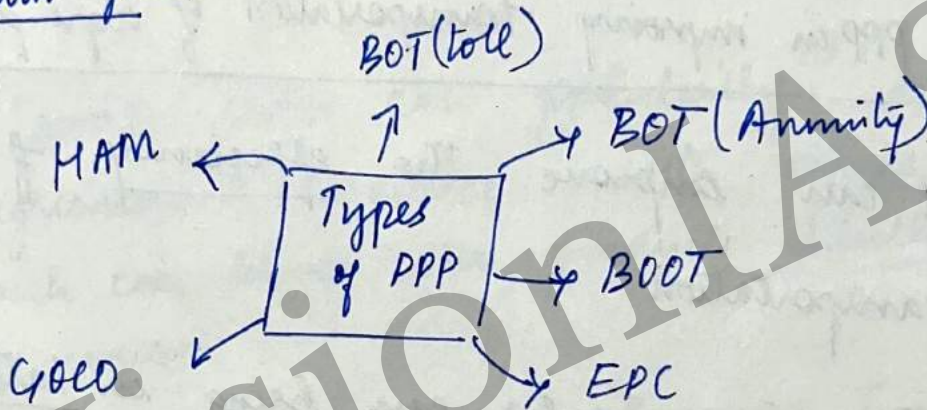
- ① It requires basic to intermediate digital literacy to understand the system which may make it inaccessible to many Indians.
- ② It is difficult to assign accountability in case of a data breach.
- ③ India needs to develop appropriate data protection rules to regulate the use of blockchain technology.
- ④ The potential impact of using blockchain technology in digitalisation of land records on national security have to be studied.

Thus, though Blockchain Technology has potential to transform land recording system in India, it needs to be implemented with adequate caution and research.

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Ans 13.

Public-Private Partnership refers to an arrangement wherein the government and a private firm work together on a common project to achieve a certain goal.



Role of PPP in improving storage of agricultural produce

- ① It can bring in new technologies through the private sector which can optimize the storage system
- ② It can augment the storage infrastructure in India which is low compared to the required level.

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③ It would help reduce food wastage prevalent in the current storage system of FCI.

Role of PPP in improving transportation of agri produce

① It can improve the efficiency of transportation.

② The private sector can bring in latest transporting vehicles available to ensure fast and bulk transportation.

③ Green technologies like hydrogen fuelled vehicles can be developed with private expertise which will reduce carbon footprint.

④ It will also reduce budgetary expenditure on transportation and this money can be

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used in other welfare schemes.

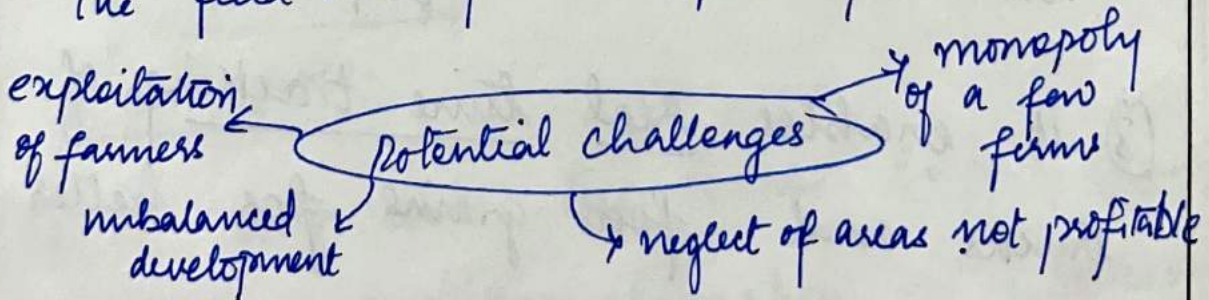
Role of PPP in improving marketing of agri. produce

① It will result in a ^{greater} innovation and creativity in marketing sector.

② Private sector can potentially link the agricultural produce with online websites which can deliver the products directly to consumers

Ex - integration with Bigbasket, Jiomart, Swiggy mart etc.

③ It will reduce pressure of the farmers if private sector players buy the produce from the field directly at a fair price.



Thus, PPP ~~isn't~~ can be gamechanger in the agricultural market if its challenges are addressed.

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Ans 14.

SMART-PDS is a step towards greater digitisation of governance. It integrates Information and Communication Technologies (ICT) in the existing PDS to improve its efficiency and effectiveness.

Transformative potential ^{for} ~~beyond~~ food security

- ① It ensures greater efficiency in food delivery system
- ② It reduces leakages in the transport-ation and distribution of food grains
- ③ It enables real time tracking of trucks and food grains for better management.

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④ It improves accessibility to food along with greater portability

Ex- with one nation one ration card scheme, the beneficiary can now access food grains from PDS shops across the country.

⑤ It prevents black marketing & illegal hoarding of food grains

Transformative potential beyond food security

① It is a step towards greater use of technology and the concept of e-governance.

② It augments the entire supply chain leading to transformation in upstream and downstream chains

Ex - suppliers & consumers.

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③ It helps in promoting data-backed and evidence-driven planning as it create huge amounts of data which can not only improve PDS but aid other schemes as well

④ SMART-PDS also ushers in greater transparency and accountability in governance.

⑤ It promotes inter-state cooperation.

Time, SMART-PDS not only helps India achieve the objectives of National Food security Act and SDG-2 (No Hunger)

but also acts as an example for other initiatives of the government.

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Ans 15.

Marine heat waves refers to abnormally high oceanic temperatures as compared to the normal average.

Marine heatwaves impact marine ecosystems and related systems as well.

Causes of marine heatwaves

- ① Global warming results in higher oceanic temperatures
- ② Variation of solar radiation due to earth's rotation and revolution as well as its axial tilt
- ③ Water pollution especially the release of water used in thermal power plants and nuclear reactors which is hot and released into the water

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bodies without treatment or cooling

④ Disruption of global ocean meridional
overturning
circulation which can halt the ~~the~~
natural distribution of oceanic heat.

⑤ Another cause is the weakening of atmos
pheric winds which reduce flow of water
between different regions of earth. This,
however, is usually minor but contributing
factor.

⑥ Disruption of oceanic currents.

WAYS IN WHICH MARINE HEATWAVES AFFECT MARINE ECOSYSTEMS

① They lead to coral bleaching, which
affects the diversity of marine living in
coral colonies.

② Some animals use temperature as cues for

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mating and foraging activities.

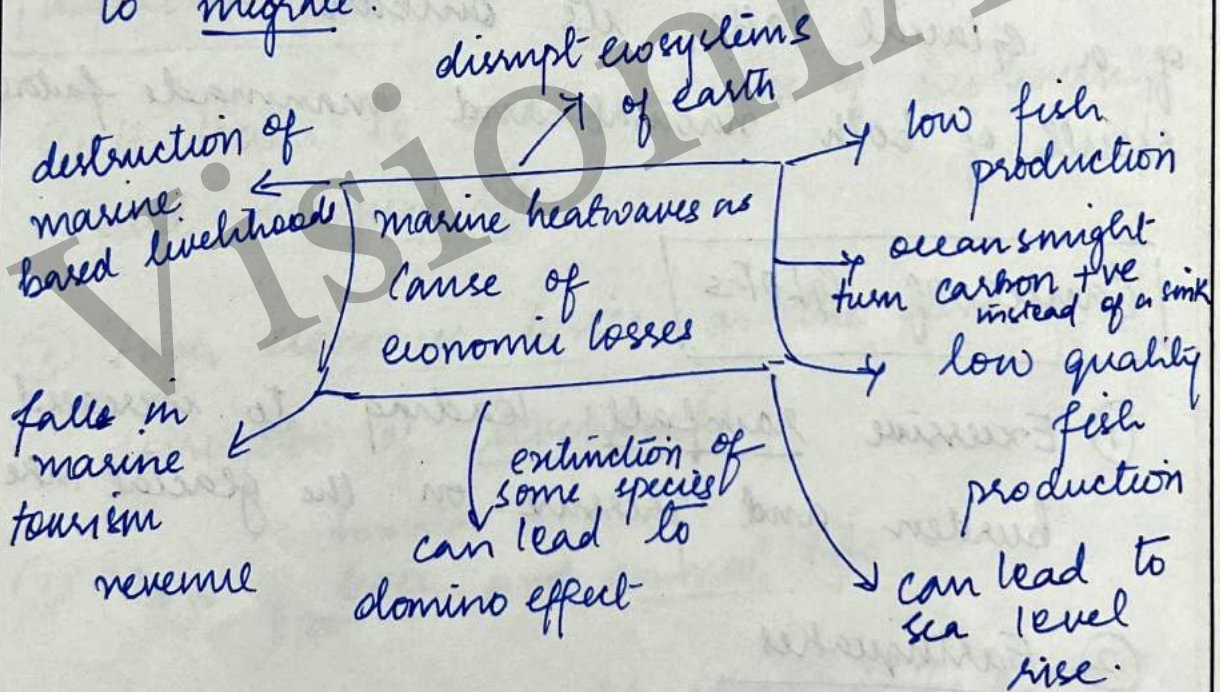
Ex - certain turtle species' eggs hatch differently based on temperature.

if temperature $\leq 27.7^\circ\text{C}$ \rightarrow hatchlings male

if temperature $> 27.7^\circ\text{C}$ \rightarrow hatchlings female

Water Temperature rise can skew sex ratio

③ Some species will die while others might have to migrate.



Thus, anthropogenic cause of marine heatwaves must be regulated and tackled so as to achieve SDG-14 (life under water)

Ans 16.

Glacial lake Outburst Floods (GLOFs) are floods caused due to bursting of a glacial lake (lake formed as a result of movement of glacier) usually due to dam break.

While ~~man~~ natural causes cause the formation of a Glacial lake, its outburst can be a result of both natural and manmade factors.

Causes of GLOFs

- ① Excessive rainfall leading to increased burden and pressure on the glacial lake
- ② Earthquakes
- ③ Cloudbursts precipitating a GLOF.
- ④ landslide causing a fall / slip of the

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underlying structure

- ⑤ lack of repairing of dams → operation failure
- ⑥ Dams built without consideration of the surrounding ecosystem
- ⑦ Structurally weak dams → design failure

Impact of GLOF

- ① It leads to immense loss of biodiversity and ecological life.
- ② High economic losses in the form of disruption of livelihoods
- ③ Loss of ^{human} lives and animal life
- ④ loss of developmental gains in the form of infrastructure
- ⑤ loss of culture and society as well as historic monuments
- ⑥ Trauma and psychological stress along with

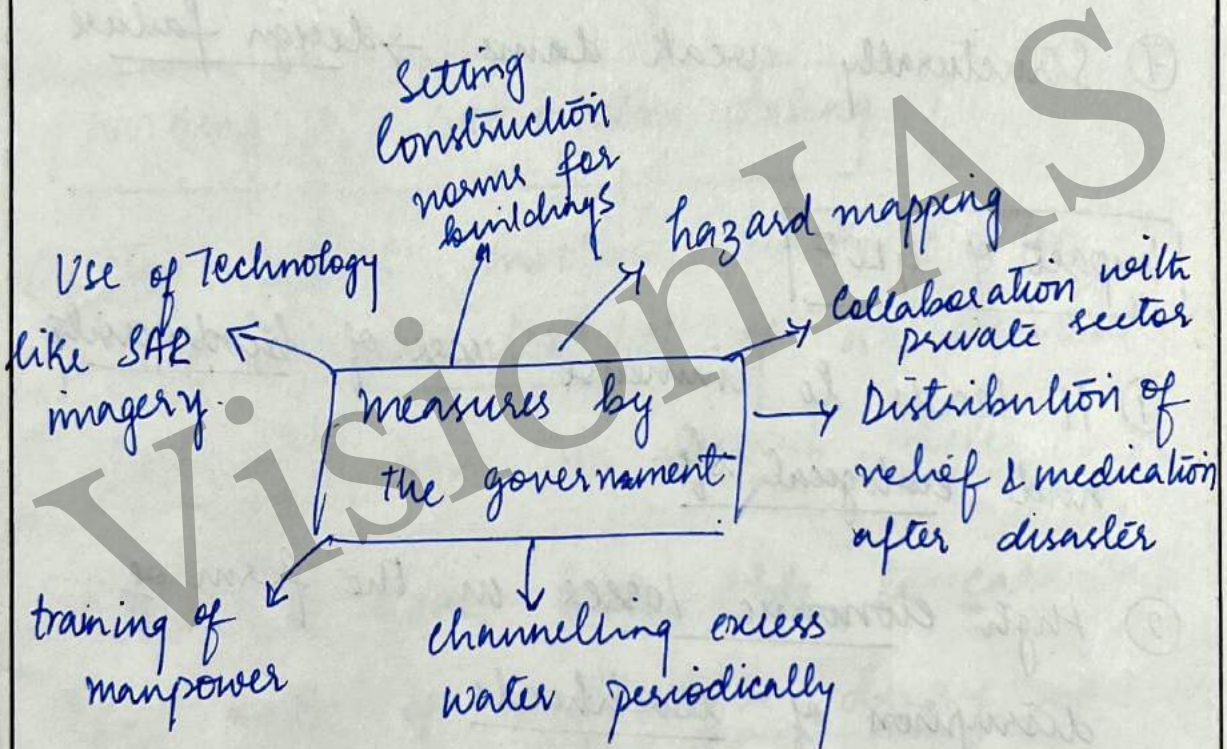
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other mental health problems.

⑦ Public health crisis → rise in water borne diseases.

⑧ It can cause internal migration which may lead to inter-state tensions.



Thus, the government aims to reduce the anthropogenic causes of QLOFs while preparing to respond to soo naturally-caused QLOFs.

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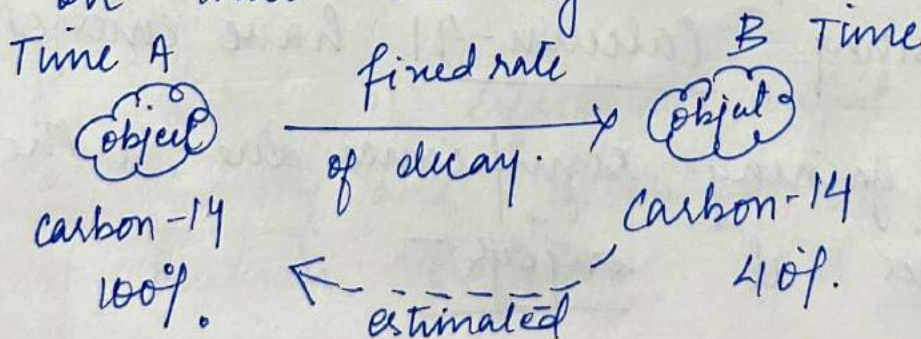
Ans 17.

Radiometric dating refers to a technology used to estimate the life of rocks or other objects containing carbon-14.

Working of radiometric dating

① The method involves tracking the level or concentration of an element, Carbon-14, in the desired object.

② Scientists have been able to calculate the rate of radioactive decay observed in an compound Carbon-14 and based on that the age is estimated.



Based on concentration of carbon-14 in stage

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B & the knowledge on rate of decay, The period/stage A can be estimated.

→ It can only be used for compounds containing carbon 14

→ It is based only an estimation of the decay rate - not confirmed

Limitations of radiometric dating

→ Different methods of estimation give different results -

→ It can be sometimes confused with another element.

In the recent past, new technologies namely using Calcium-41 have emerged

This is gaining significance due to the advantages it enjoys -

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→ Calcium-41 is more readily & widely available

→ It presents more accurate results which are also more consistent

Advantages of calcium-41

→ It can help in dating objects from a further period in history.

→ It can help track natural movements / events.

Ex - Glacier movement affects the level of Calcium 41 in the underlying soil.

Radiometric is especially useful in studying the history and establish the chronology of human civilisation and evolution

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Ans 18:

E-pharmacy refers to delivery of medicines and other healthcare products via an online intermediary.

It gained momentum during COVID-19 when there were restrictions on movement.

However, there are growing concerns over e-pharmacy.

Concerns over e-pharmacy

① lack of any quality check on the products sold by the companies / online websites

② lack of government regulations on the sector to ensure safe and best practices.

③ lack of adequate data protection laws which hold the firms accountable for

misuse or breach of data.

④ There are concerns that this might allow unregulated and unsupervised sale of drugs without a medical prescription.

⑤ Lack of accessibility in rural areas where there is a higher demand for medication.

⑥ concerns over the conditions of workers or delivery agents employed including their service conditions.

Measures to resolve dichotomy

① Bring in regulations and rules to check quality of drugs sold.

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② Bring in rules to ensure safe working conditions for delivery agents

③ Expand access to vulnerable sections of the society

Ex — government could partner with a firm to start its own online service.

④ Bring in sector specific data protection laws.

⑤ Conduct spot checks on e-pharmacy storage units to ensure quality check.

Good health and well-being (SDG-3) is intrinsically linked with sufficient supply and easy accessibility to healthcare products of good quality.

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Ans 19.

Left wing Extremism (LWE) aims to overthrow democratic state structures & institutions through violence and mass mobilisation.

India saw a decline of ~~by~~ about 77% in LWE-related incidents and 85% reduction in LWE-related deaths in 2021 as compared to 2010.

Factors which contributed to the ~~and~~ decline

① SAMADHAN strategy of the government to deal with LWE-extremism which includes Smart leadership, Aggressive strategy, Motivation and Training, Actionable intelligence, Dashboard based KPIs, Harnessing Technology, Action plan for each theatre and no access to financing.

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- ② Government schemes for skill development like ROSHNI.
- ③ Better employment opportunities
- ④ Use of anti-naxal forces like ^{cobra (Odisha)}
↳ Greyhounds (Andhra Pradesh)
- ⑤ Developmental programmes like Aspirational District Programme.
- ⑥ Countering naxal propaganda through use of media
- ⑦ Relief and Rehabilitation Policies to bring naxalites into mainstreams through renunciation of violence

End of LWE?

- ① Though the red corridor has significantly reduced from about 94 districts to 44 districts

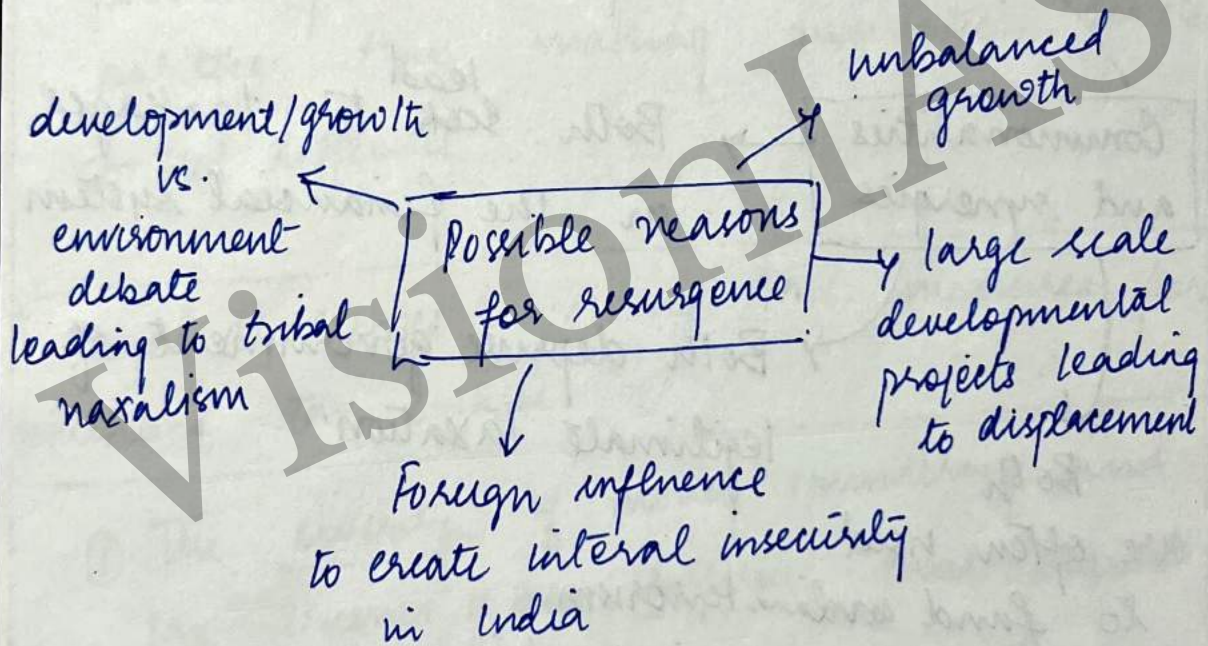
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there is always a chance of resurgence.

⊙ The government must be prepared to deal with resurgence heavily.

⊙ Deeply entrenching democratic ethos is a way of reducing the problem of resurgence.

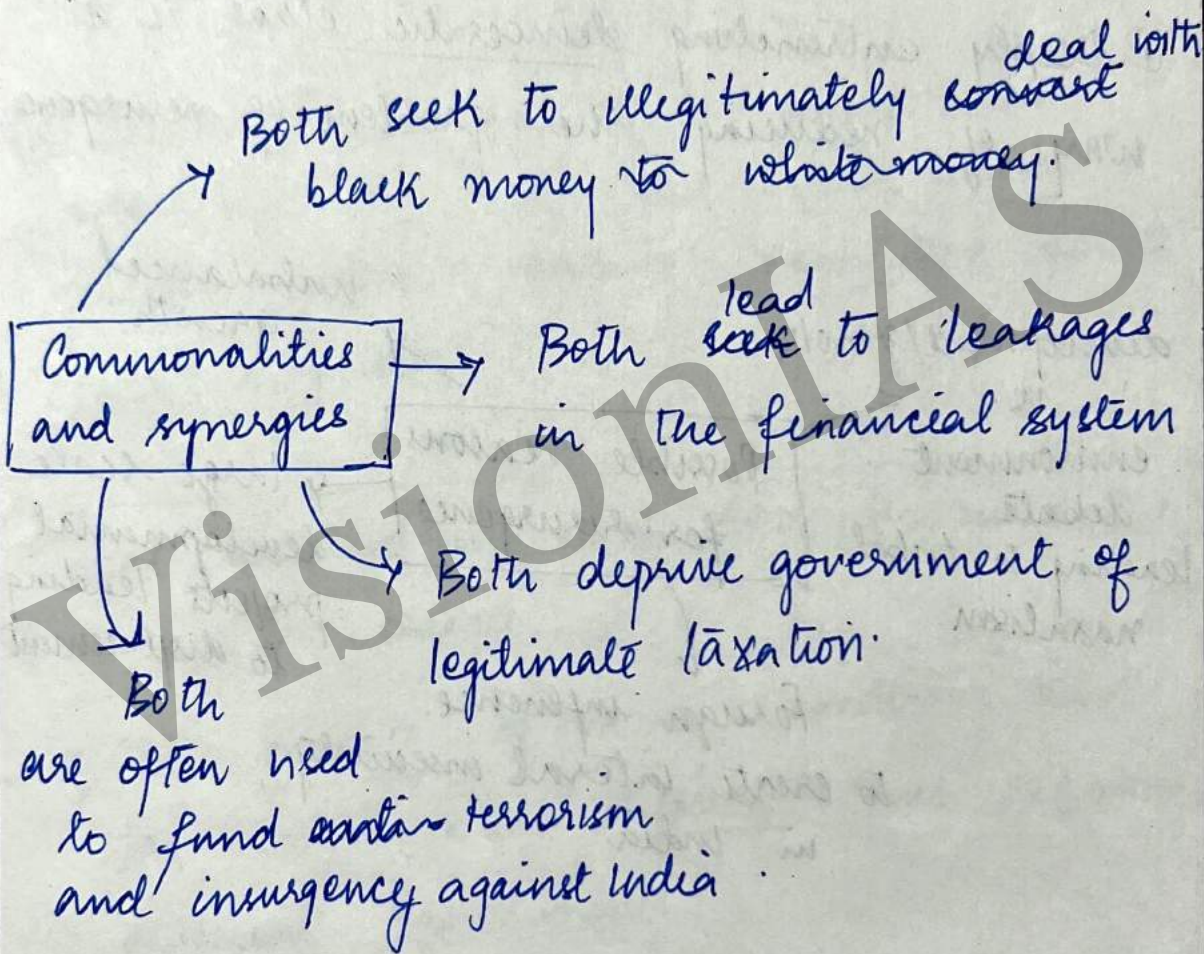


Thus, even if there is a reduction in LWE violence, India must be prepared to deal with violence LWE resurgence and fight against a policy which uses terror & violence to delegitimise democratic state structures.

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Ans 20.

Money laundering and tax crimes are often intimately linked in fueling each other.



Political challenges in using AML measures for tackling tax crimes

① Some tax crimes do not warrant are not linked to terror financing and in such

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Cases, the individuals practicing tax crimes might be using the money for funding certain political parties or outfits making independent decision making difficult

② Money made out of tax crimes can potentially be used for vote-bank politics. Thus making regulation for its control difficult

Legal challenges in using AML measures for tackling tax crimes

① The severity of money laundering and tax crimes is ~~also~~ different thus requiring different punishments.

② All proceeds out of ~~money~~ tax crimes are not laundered. In such cases, AML measures would not be applicable.

Ex - Tax evasion need not result in money laundering.

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Operational challenges in using AML measures
for tackling tax crimes

- ① Money laundering rackets usually are international in nature while tax crimes are usually confined domestically.
- ② Proceeds of tax crimes are usually used within the country causing artificial demand — this requires different strategies to deal with the situation than AML measures.

Thus, while it is crucial to recognise the link between money laundering and tax crime and take coordinated strategies, it is also essential to factor in nuances specific to tax crimes.