



VISION IAS

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GENERAL STUDIES (TEST CODE : 1419)

Name of Candidate	SOORAV SINGHA		
Medium Eng./Hindi	ENGLISH	Registration Number	458407
Center	ONLINE	Date	

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

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

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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.

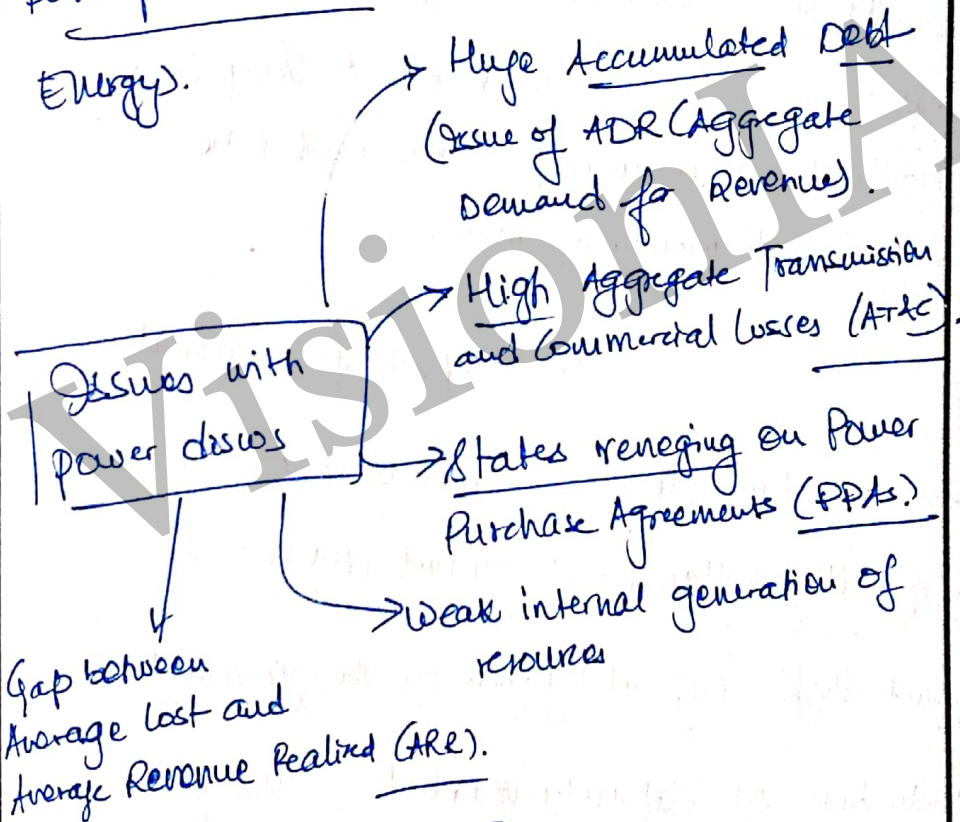
6.

VisionIAS

1. Highlighting the issues associated with power discoms in India, discuss whether privatizing discoms can help in this regard. (150 words) 10

भारत में विद्युत वितरण कंपनियों (डिस्कॉम्स) से जुड़े मुद्दों पर प्रकाश डालते हुए, चर्चा कीजिए कि क्या डिस्कॉम्स के निजीकरण से इस संबंध में सहायता मिल सकती है।

The deteriorating health of power discoms in India hinders our ability to achieve Sustainable Development Goal 7 (Affordable and Clean Energy).



Privatising the Discoms.

Pros

- ↳ Can bring efficiency in operations.
- ↳ Harness good management capacities of private entities.

- ↳ Use of Franchise or Agency model can help to enhance its business in the rural sector.
- ↳ Capital investment as discos are scarce in it

Cons

↳ won't solve the problem of the accumulated debt in a sustainable way.

↳ Problems associated with exit of old business - for this governance processes needs to be simultaneously reformed.

Thus, apart from privatising discos certain other steps must be taken eg use of High Voltage Direct Current (HVDC) to prevent theft, Capital infusion by the government, introduction of Capacity market, use of aerial bundling to reduce AT&C losses and also dedicated finance windows in public and private sector banks.

2. Harnessing Smart Agriculture can potentially be a game-changer for farm productivity in India. Discuss. (150 words) 10
स्मार्ट कृषि का दोहन संभवतः भारत में कृषि उत्पादकता के लिए निर्णायक भिन्न हो सकता है। चर्चा कीजिए।

Smart Agriculture refers to the application of advanced technological tools such as Nano-Technology, Biotechnology, Space Tech, Artificial Intelligence etc to bring about increase in productivity.

Article 48 also directs state to organise agriculture and animal husbandry on modern and scientific lines.

Potential of Smart Agriculture

Increase Farm Productivity

↳ with tools like Precision Agriculture; Carbon nanotubes for enhanced seed emergence.

↳ Sensors and use of machine learning can anticipate various stresses and also recommend suitable fertilizers which need to be incorporated.

↳ Agri mapping through use of remote sensing and GIS based satellite → help in data-driven policy mapping.

↳ Use of Internet of Things so that farm machinery can be remotely operated

↳ will augment human labour and help to make agriculture an entrepreneurial activity.

↳ Global participation like GCSA (Global Coalition on Smart Agriculture) → help in mutual learning.

But India needs to substantially increase public investment in agriculture as recommended by National Commission on Farmers to make Smart Agriculture a new reality.

3. Rather than focusing solely on quantity, inclusive growth concerns itself with the quality of growth. Discuss. (150 words) 10
- केवल परिमाण पर ध्यान केंद्रित करने के बजाय समावेशी विकास, संवृद्धि की गुणवत्ता के साथ भी अपना सरोकार रखता है। चर्चा कीजिए।

Inclusive growth refers to the process and the outcome where every section of the population have participated and benefitted out the development process.

Focus of Inclusive Growth

Quantity of Growth	Quality of Growth
<p>* <u>No. of people lifted out of poverty</u></p> <p>- India lifted 271 M people between 2006-16.</p>	<p>* <u>Whether urban-rural divide in poverty is bridged or not</u></p> <p>- India is among 3 countries where poverty reduction in rural areas outpaced in urban areas.</p>
<p>* <u>Gross Enrolment Ratio in education</u></p> <p>- Girls are in parity with boys at all levels (UNESCO report).</p>	<p>* <u>Whether social divided in development outcomes is bridged or not</u></p>

- * No. of people involved in gainful employment
 - * No. of people with their own houses (PM Awas yojana envisages universal coverage).
 - * Coverage of insurance, internet penetration and financial inclusion
- Still more than 39% of BPL population are Scheduled Tribes
 - More than 40% of OBC children are stunted.
 - * Bridging digital divide between rural-urban and male-female
 - 55:35 is male:female ratio of internet users.
 - * Whether the banking accounts under PMJDY are used or not.

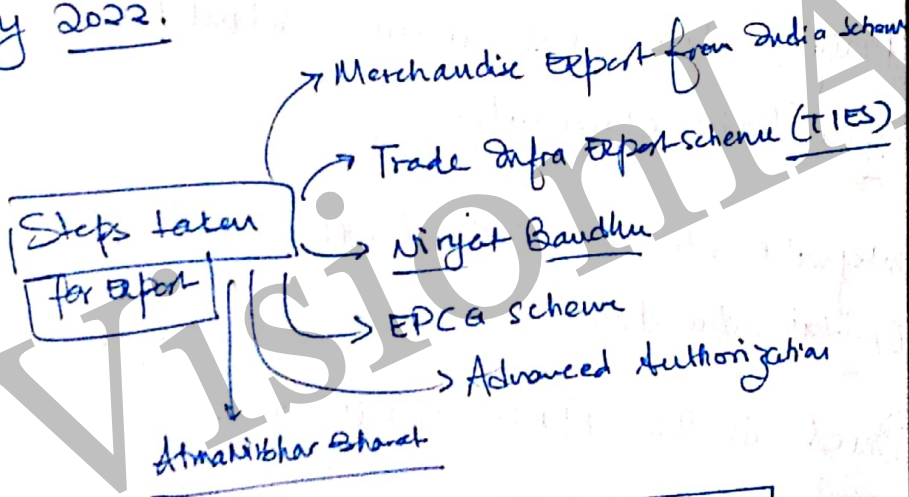
Article 38 and 39 of the Indian Constitution also envisages quality inclusion by directing the state to bridge income inequality and wealth inequality.

4. In the backdrop of Atmanirbhar Bharat, discuss the core areas crucial in export promotion for India to become a manufacturing hub.

(150 words) 10

आत्मनिर्भर भारत की पृष्ठभूमि में, भारत के लिए एक विनिर्माण केंद्र बनने हेतु निर्यात संवर्धन में महत्वपूर्ण मुख्य क्षेत्रों (कोर एरिया) की विवेचना कीजिए।

India targets to increase total exports from the current level of \$314 Billion to \$800 Billion by 2022.



Core Areas crucial in export Promotion

* Ease of Doing Business:- with simpler regulations and business-friendly policies — India ranks 63 in World Bank's EODB index.

* Increase public investment in infrastructure development:- to improve logistical facilities. India ranks 44 in Logistics Development Index.

- * Industrial relations :- setup of labour tribunals for faster resolution of labour disputes.
- * EXIM Bank :- enhance capital base of the exim bank.
- * Trade facilitation :- through pro-active implementation of National trade facilitation Policy. Also increase awareness about the free trade agreements.
- * Integrate into the Regional value chains and Global value chains.
- * Invest in the Market Intelligence.

There is need to implement the recommendations of High Level Advisory Group on Trade under the Commerce Ministry, and also the recommendations of Economic Survey 2018-19 such as integrate MSMEs into Make in India.

5. Arsenic pollution is becoming a severe environmental issue in India. Enumerating its various sources, discuss the consequences and measures to tackle it. (150 words) 10

आर्सेनिक प्रदूषण भारत में एक गंभीर पर्यावरणीय मुद्दा बनता जा रहा है। इसके विभिन्न स्रोतों को सूचीबद्ध करते हुए, इसके परिणामों और इससे निपटने के उपायों पर चर्चा कीजिए।

Arsenic pollution has increased tremendously in the past few decades

Sources of Arsenic Pollution

↳ Industrial wastes are often released untreated.

↳ Heavy extraction of groundwater enriches heavy metal by providing suitable oxidizing condition. — such as Arsenic and Uranium.

↳ Natural sources such as volcanic eruption also contributes to heavy metal pollution.

Consequences of Arsenic

↳ Contamination of soil and groundwater.

↳ Health Outcomes and diseases. such as Itai-Itai, disease.

Measures to tackle it.

↳ Strict regulation of ~~just~~ industrial wastes and mandate to properly treat them.

↳ Groundwater recharge and Groundwater extraction fee.

↳ Piped water must be monitored strictly.

↳ Collaboration between state and central government to effectively tackle it.

Arise pollution levels
Our ability to achieve SDG 3 (Good Health) and SDG 15 (Life on land).

6. The Green Term Ahead Market (GTAM) can invigorate the renewable energy sector in India. Evaluate. (150 words) 10
 ग्रीन टर्म अहेड मार्केट (GTAM) भारत में नवीकरणीय ऊर्जा क्षेत्रक को सुदृढ बना सकता है।
 मूल्यांकन कीजिए।

India targets to achieve Renewable Energy Capacity of 175 GW by 2022 and 450 GW by 2030.

For this, Green Term Ahead Market (GTAM) can prove to be a potential game changer.

Potential

- Create a nationwide market in RE
- Develop future trading in RE
- Develop Capacity market in the future as recommended by PIIT day.

GTAM is a good step towards harnessing SDG Goal 7 and achieve energy security for the country.

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7. In context of the increasing importance of technology for disaster management, throw some light on the application of GIS and Remote Sensing in disaster management with specific examples from India.

(150 words) 10

आपदा प्रबंधन के लिए प्रौद्योगिकी के बढ़ते महत्व के संदर्भ में, भारत से विशिष्ट उदाहरणों को प्रस्तुत करते हुए आपदा प्रबंधन में जी.आई.एम. और सुदूर संवेदन के अनुप्रयोग पर कुछ प्रकाश डालिए।

Use of advanced technology is of paramount importance in dealing with the future disasters

Application GIS and Remote Sensing

↳ Flood Warning Systems

eg. C-Flood in Chennai

↳ monitor water levels and river flows and give insights into the future trajectory of the flood.

↳ Tsunami Warning Systems

↳ through study of near-shore and bathymetric data.

eg. Indian Tsunami Early Warning System (ITEWS)

↳ Monitoring of Drought

↳ through data related to moisture content
in the soil and other related sensors.

↳ Weather Forecast technology used by IMD
also pivotal in anticipation any possible
disasters.

India must invest
heavily in increasing its Disaster Resilience
through use of technology.

8. The CRISPR/Cas9 genetic scissors have revolutionized the genome editing technique with applications in various areas. Discuss. (150 words) 10
क्रिस्पर/केस9 (CRISPR/Cas9) आनुवंशिक कैंची द्वारा विभिन्न क्षेत्रों में अनुप्रयोगों के साथ जीनोम मंपादन तकनीक में क्रांतिकारी परिवर्तन का मंचार किया गया है। चर्चा कीजिए।

CRISPR refers to Regularly Interpaced Short Palindromic Repeats.

→ Genomic scissors which can edit certain parts of the DNA and genes.

CRISPR/Cas9 → Genomes can be cut out, inserted or inserted to introduce certain traits in them.

Applications

↳ Cure for several genetic diseases such as Haemophilia etc which occur because of certain genetic mutations.

↳ Personalised healthcare - design of person-specific drugs and procedures as different genetic makeup reacts differently to different drug.

↳ Development of Drugs and Vaccines in a
short span

↳ Development of High yielding variety seeds
resistant to pests and diseases and other
stresses - key to ensure future food security

However there are

Several ethical issues involved in the

technology such as development of

designer babies, develop bio-weapons for

future warfare and information asymmetry

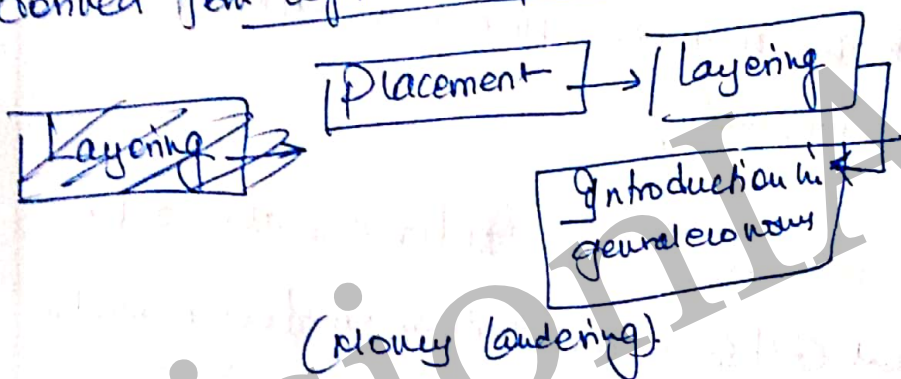
between scientists and general community

about the possible ill-effects of CRISPR-CAS 9

9. Bring out the role played by Financial Action Task Force in tackling the menace of money laundering. (150 words) 10

धन-शोधन के खतरे से निपटने में वित्तीय कार्रवाई कार्य बल द्वारा निभाई गई भूमिका को स्पष्ट कीजिए।

Money laundering refers to illicit channeling of black money so that it appear to be derived from legitimate processes.



More than 2-5% of world GDP is laundered globally annually.

Role played by FATF

↳ Platform where like-minded countries can collaborate towards this cross-country issue.

↳ Through several tools such as Black list, Grey list etc. FATF encourages countries to adapt effective national policies towards tackling money-laundering.

eg Pakistan has been placed in the Grey
list

↳ Sharing of information, awareness and
technical knowwithal among various
stakeholders.

↳ Raise awareness among international
community,

India has also taken
several steps to curb money laundering such as

Prevention of
Money Laundering
Act (PMLA 2002)

Benami Pro
Transactions
Act

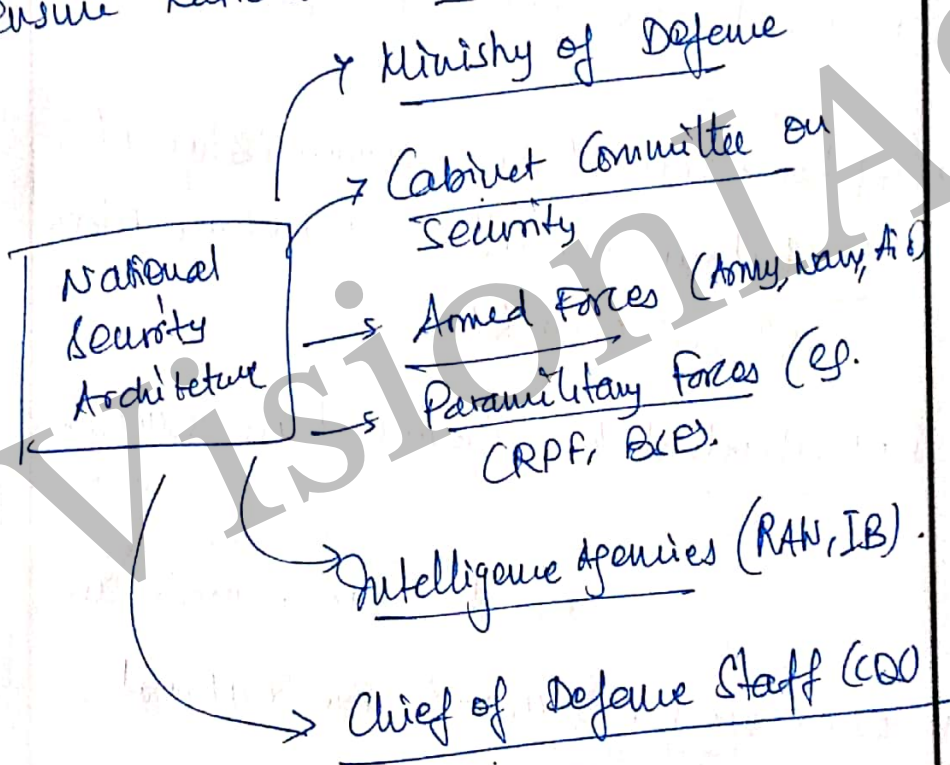
NBFC
Act

Enforcement
Directorate

India must play a proactive role in international
efforts to tackle ML such in Asia-Pacific
Group, ~~RATS~~ RATS of SCO etc.

10. Discuss the recent reforms that have been undertaken in the National Security Architecture of India. (150 words) 10
 भारत की राष्ट्रीय सुरक्षा संरचना में हाल ही में किए गए सुधारों की विवेचना कीजिए।

Regular and far-sighted reform in National Security Architecture is sure-way to ensure National Security.



Recent reforms undertaken

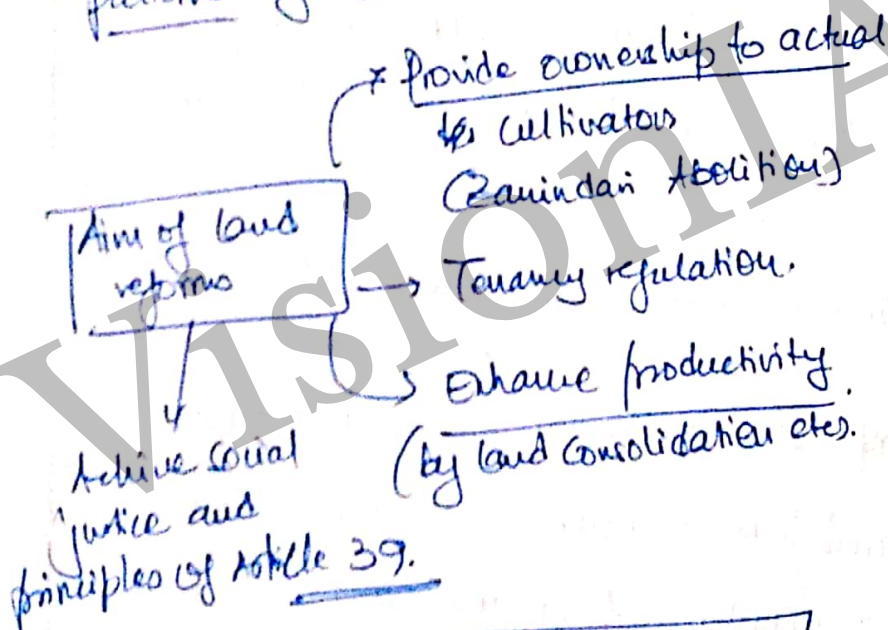
↳ Formation of the post of CDS - to bring about greater synergy between civil bureaucracy and military personnel.

- ↳ Removal of redundant units such as Military Farm.
- ↳ Introduction of the concept of Integrated Battle Groups (IBGs) - for swift deployment of armed forces in a conflict scenario.
- ↳ Implementation of the recommendations of Shekatkar Committee on Defence Reform eg. GOCO model.
- ↳ FDI liberalised to 74% in defence manufacturing.

Defence - India needs an overarching master document on National Security Strategy to provide a vision which guides us into the future of National Security.

11. Bring out the key hurdles that are being faced in accomplishing land reforms in India. Also, discuss the advantages which can be reaped by accomplishing them in contemporary times. (250 words) 15
- भारत में भूमि सुधारों को पूरा करने में सामना की जा रही प्रमुख बाधाओं को स्पष्ट कीजिए। साथ ही, समकालीन समय में इन्हें पूरा करने से होने वाले लाभों की भी विवेचना कीजिए।

Land reforms refers to the process of organising agrarian relations and ownership patterns of land resources.



Hurdles faced by Land Reforms.

- * Lack of political enthusiasm among the state governments (land is a tabu subject)
- * Resistance by powerful landed aristocracy (also landholder - politician - bureaucrats nexus).

- * Loopholes misused by the landed classes
- eg. registration of land in the name of family and relatives to escape Ceiling law.
- * Absence of a properly updated and accessible land records system.
- * Absence of leasing market in many states
→ > 25 million hectares of land lies fallow.

Advantages from Land Reforms

- * Proper functioning of Contract Farming and Land leasing markets → increase farm productivity and enhance social mobility.
- * Reduce distress among farmers - investment is hampered due to lack of ownership in land.
- * Consolidation of landholding → enhance productivity (avg size is 1.08 ha in India)

- * Credit can be channelised to tenants and cultivators in a more targeted manner.
- * Achieve social justice and lift the remaining 369M out of poverty in a more inclusive manner.

Govt has taken several steps towards land reforms such as National Digital India Land Records Modernisation Programme; Use of Bhuvan (ISRO) for Ground truthing, Model Land Ceiling Act by T. Haque Committee.

12. India needs to accord more significance to nutritional security than food security. Comment. In this context, suggest a framework that should be adopted by the government to achieve nutritional self-reliance.

(250 words) 15

भारत को खाद्य सुरक्षा की तुलना में पोषण सुरक्षा को अधिक महत्व देने की आवश्यकता है। टिप्पणी कीजिए। इस संदर्भ में, वह रूपरेखा भी बताइए जिसे सरकार द्वारा पोषण संबंधी आत्मनिर्भरता प्राप्त करने के लिए अपनाया जाना चाहिए।

Recently, India was ranked 91 in the Global Hunger Index..

Food Security

- * Focuses primarily on Calorie intake of food.
- * Absence of food security leads to issue of hunger

Nutritional Security

- * Focuses on nutritional quality of food intake
- * Absence leads to malnutrition and hidden hunger.

Status of Hunger and malnutrition in India.

- * According to FAO report, more than 14.5% of people are undernourished.
- * More than 80% adults suffer from hidden hunger - i.e. lack of adequate micro- and macro-nutrients.

* 53.1% of women in reproductive age are anaemic.

Need to give more significance to nutritional security.

↳ Essential for long-term good health and well-being.

↳ Boost immunity and reduce the ~~out of pocket~~ burden on curative healthcare.

↳ Sustainably harness demographic dividend.

↳ Reduce the prevalence of stunting, wasting, anaemia and Infant Mortality Rate.

Framework to achieve nutritional self-reliance

* Promote Agricultural Diversity! - Need to move away from staple grains to more nutrient rich diets such as millet.

* Development of agro-regional belts for production of horticultural crops.

— Pushan Atlas is a right step.

* Fortification and Biofortification of food
 ↳ In line with Copenhagen Consensus.
 ↳ Introduce it in PDS scheme also.

* Reorient subsidy pattern and incentive
farmers to move away from monocultural
practices.

* Invest in infrastructure and warehousing / cold
storage facilities and also invest in food
processing.

In the spirit of Article
17 and SDG 2 (Zero Hunger), India has taken
 several proactive steps such as National
Nutrition Mission; Poshan Atlas, Fortification
of foods such as Iodised Salt (+E) etc. to
 achieve greater nutritional security.

13. Private investments are key for India to move into a high growth trajectory. Discuss. Also highlight the steps taken by the government in recent times to address the fall in private investments. (250 words) 15

निजी निवेश भारत के लिए उच्च मंदवृद्धि पथ पर आगे बढ़ने हेतु महत्वपूर्ण हैं। चर्चा कीजिए। साथ ही, निजी निवेश में गिरावट को दूर करने के लिए हाल के दिनों में सरकार द्वारा उठाए गए कदमों को भी रेखांकित कीजिए।

A robust and proactive private participation and investment is necessary in order to achieve \$5 trillion economy by 2025.

Need for Private Investment

↳ Limited resources available with the public exchequer.

↳ Imperative to investment by public for welfare tasks such as poverty reduction to achieve social justice.

↳ Bring about greater efficiency and irbony in infrastructural development.

↳ Decrease the Incremental Capital to output ratio — to increase productivity levels.

Steps Taken by the government in recent times

↳ Foreign Direct Investment (FDI) liberalised
across various sectors such as Coal mining,
defence (74%) and other key areas.

↳ Various reforms to enhance ease of Doing
Business in India.

↳ easier registration through single
SPICe form.

↳ Handholding of investors to sail them
through regulatory hurdles.

↳ Investment in infrastructure to ease
the logistical constraints.

↳ eg. National Infrastructure Pipeline.

↳ Easier port and cargo clearance, eg
ICE-DASH portal.

Moreover a dedicated PPP
law, PPP adjudication etc are required
as suggested by Vijay Kelkar Committee.

VisionIAS

14. India's geographical diversity and varied levels of development across regions necessitate a targeted region specific action plan to ensure a minimum acceptable level of prosperity. Elaborate. (250 words) 15
- भारत की भौगोलिक विविधता और विभिन्न क्षेत्रों में विकास के भिन्न-भिन्न स्तर समृद्धि के एक न्यूनतम स्वीकार्य स्तर को सुनिश्चित करने के लिए एक लक्षित क्षेत्र विशिष्ट कार्य योजना को आवश्यक बनाते हैं। मविस्तार वर्णन कीजिए।

India is a land of great diversity and the approach of development needs to be equally diverse.

The Constitution of India also envisages this facet by incorporating in itself asymmetric federalism among its features.

Region-specific Action Plan

* North East states and 8 sister

↳ Forested and pristine lands.

↳ Gateway to South-East Asia.

↳ Issue of insurgency.

Approach needed

↳ Promotion of eco-tourism.

↳ Infrastructure Dev/ Connectivity Project.

* BIMARU states

↳ low in various parameters of social development

↳ issue of poverty.

Approach

↳ Human Resource Development

↳ Focus on Gainful Employment.

* North Indian states of J&K

↳ issue of separatism, unsettled border.

Approach

↳ focus on border population

↳ Build a culture of tolerance and national integration.

* Island Territories

↳ Geographical Isolation

↳ low resources.

Approach

↳ Develop as tourist destination

↳ Food processing industries.

↳ Development as Military bases

* Peninsula and South Indian states.

↳ High literacy and general prosperity.

Approach

↳ Development of specific underdeveloped regions such as Marathwada, parts of Telangana etc.

* Western States.

Approach

↳ Industrial promotion

↳ Thrust on manufacturing as there are well developed sea ports.

A basic level of development must be ensured in all the regions in the spirit of SDG 10 (Reduced inequalities) and our Constitutional ethos

15. Empowering the farmers by ensuring barrier-free trade in the agriculture produce is critical in doubling their incomes. Enumerating the existing bottlenecks, discuss how the recent legislations can help in overcoming them. (250 words) 15

कृषि उपज का निर्बाध व्यापार सुनिश्चित करके किमानों का सशक्तीकरण करना उनकी आय दोगुनी करने में महत्वपूर्ण है। वर्तमान बाधाओं का उल्लेख करते हुए, चर्चा कीजिए कि इन पर नियंत्रण पाने में हालिया अधिनियम कैसे सहायता कर सकते हैं।

India aims to double farmers' income by
2022.

Barrier Free Trade is instrumental

- * Bridge gaps in timely price discovery
- * To ensure remuneration returns and revenue realisation
- * Integrated agri-logistics essential for smooth transfer of products particularly perishable (Atul K. Delwadi Committee had stressed on this point).
- * Remove the issue of middle-man and ~~the~~ cartelisation in the APMC market
- * Make crop choices based on market conditions and demand.

Existing Bottlenecks.

- * APMC laws in the states. - mandates selling of products in a particular market
- * Issue of middlemen ~~reduces the~~ increases the gap between farm gate price and price paid by consumers.
- * Reduce post harvest losses and ensure good prices.

Government has brought in Farm laws to ensure barrier free trade.

- ↳ Freedom to sell products depending on farmers' choices.
- ↳ Bridge the asymmetry between consumer price and farm gate price.

Besides recommutation of
National Commission on Farmers is needed
to be implemented to make agriculture a
sustainable business.

VisionIAS

16. The reasons for recurring floods in the regions of Eastern India such as Bihar and Assam go far beyond their topography. Discuss. Also, suggest measures to control this menace. (250 words) 15
- बिहार और असम जैसे पूर्वी भारत के क्षेत्रों में बार-बार आने वाली बाढ़ के लिए केवल उनकी स्थलाकृति उत्तरदायी नहीं हैं। चर्चा कीजिए। साथ ही, इस खतरे को नियंत्रण में लाने के उपायों का भी मुझाव दीजिए।

India is the 2nd most vulnerable country in terms of flooding. More than 40 million hectares (~12%) of landmass is prone to flooding in India.

Reasons for Recurring Flood in Eastern India.

- ↳ Frequent course-shifting of rivers
 - ↳ excessive siltation of alluvial rivers.
- ↳ Heavy monsoonal rainfall - more than $\frac{2}{3}$ of rainfall received during monsoon months.
- ↳ Sand mining :- decreases the carrying capacity of the rivers → more flood.

↳ Encroachment on flood plains - increasing human settlements in levees.

↳ Plastic pollution and other wastes reduces the natural drainage of the river.

↳ Human activities such as religious congregations, submergence of idols → concretisation of river.

Measures needed to control the menace

* Draft a comprehensive River Regulation Zone Act to regulate human activities in the sensitive region.

* Scientific planning to install structural measures such as dams, etc. to sustainably use the flood water.

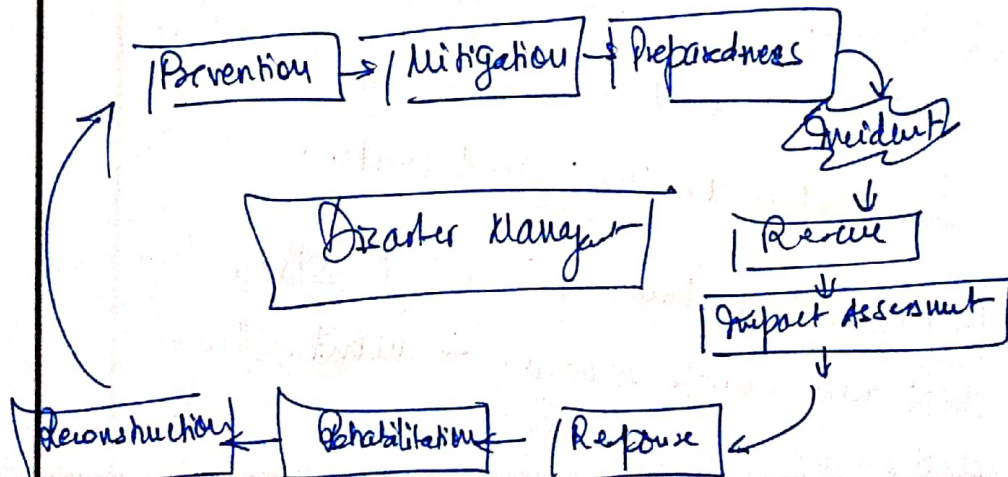
* Regulate sand mining - use of space-tech and remote sensing to monitor the activities.

* Appoint a legal guardian in each riverine districts - accord legal status to rivers. Such as Kosi in Bihar and Brahmaputra in Assam.

* Implement NDMA guidelines which recommends various structural, non-structural, technological means to handle riverine flooding.

* Stakeholder awareness and a culture of preparedness as recommended by JC Paul Committee.

National Policy on Disaster Management recommends DM as a continuous process:



17. How can 5G technology potentially bring about a digital revolution in India? Identify the challenges in adoption of 5G technology in India.

(250 words) 15

5G प्रौद्योगिकी संभावित रूप से भारत में एक डिजिटल क्रांति कैसे ला सकती है? भारत में 5जी प्रौद्योगिकी को अपनाने में आने वाली चुनौतियों की पहचान कीजिए।

5G or 5th generation technology is an advancement in data transfer and telecommunication technology.

<u>5G</u>	<u>4G</u>
* High data transfer speed	- Low speed
* <u>Low latency.</u>	- <u>High latency.</u>
* Optical fibre-based technology.	

Potential to bring about Digital Revolution

- * Makes Internet of Things a reality - through seamless connection between several physical components

- * Pivotal tool for telemedicine and telesurgery — bridges the gaps in doctoral availability
- * Reach the remotest and farthest corner — for universal digital inclusion.
- * Online generation and transmission of education content becomes faster and clickable



Challenges in India.

- * Investment Deficit — 5G requires overhaul of existing telecommunication infrastructure such as mobile towers etc.
- * Costly Spectrum Policy in India
- * ~~Data~~ Deteriorating health of Telecom Service Providers (TSP) and limited private investment to overhaul & Commission Architecture.

- * Deep Dependency on Critical 5G Equipment is high — eg. issue of Huawei in 5G for India.
- * High frequency of 5G makes it ~~scarp~~ susceptible to physical blockage.

Greater public investment and greater PPP's will be instrumental in adoption of 5G in India.

18. Besides computing, quantum technology has potential applications in various areas. Discuss. What are the challenges which lie ahead for effective utilization of quantum technology? (250 words) 15
- संगणना के अतिरिक्त, क्वांटम प्रौद्योगिकी के विभिन्न क्षेत्रों में संभाव्य अनुप्रयोग हैं। चर्चा कीजिए। क्वांटम प्रौद्योगिकी के प्रभावी उपयोग के समक्ष आने वाली चुनौतियां क्या हैं?

Quantum Technology refers to the use of quantum mechanics (or which harnesses the properties of smallest of atoms) and use qubits for computing and other purposes.

Recently, Google's Sycamore is touted as the world's first quantum computer.

Applications of quantum technology

↳ Superfast computation - even faster than current fastest supercomputer.

↳ Use in secure transmission of information

- enhanced cybersecurity

- application in other areas of cryptology

↳ Application in Mine Detection

- eg. use of SQUIDS (Quantum Interference Devices)

↳ Use in energy generation

↳ artificial leaves producing oxygen
based on quantum technology.

- Quantum dot.

↳ Space Technology and research of the
cosmos.

Challenges that lie ahead

↳ Many of the applications are still in research stage.

↳ Commercial introduction can be quite
expensive of several quantum products.

↳ Quantum research ready Human Resources
are in short supply — many scientists

Prefer more safe and established disciplines

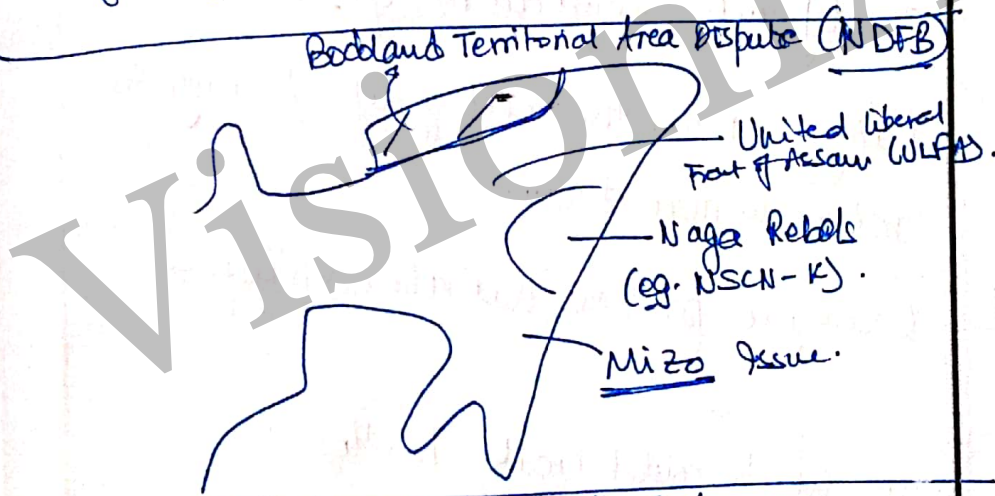
↳ Issue of funding by national governments
and international collaborations.

India must be proactive
in leveraging the potential of quantum
technology by investing in R&D, training
and devise a strategy into the future of
Quantum.

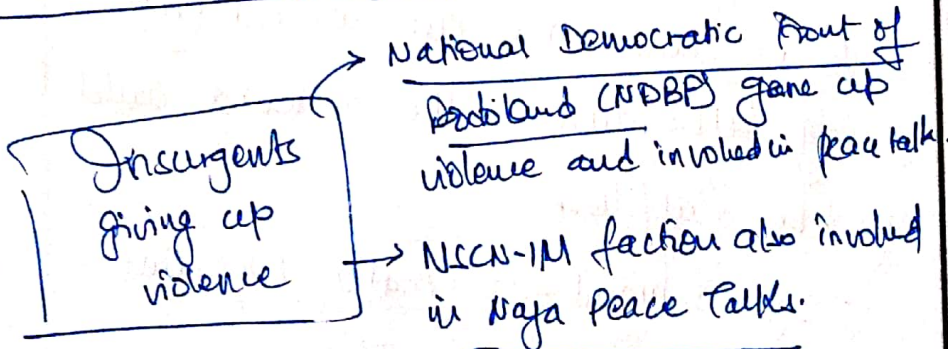
19. While most insurgent groups in North-East India have given up violence and are engaged in peace talks with the government, a number of issues could create hurdles in the future. Discuss. (250 words) 15

जहाँ पूर्वोत्तर भारत में अधिकांश विद्रोही गुटों ने हिंसा छोड़ दी है और सरकार के साथ शांति वार्ता में संलग्न हैं, वहीं अनेक ऐसे मुद्दे हैं जो अविष्य में बाधाएं उत्पन्न कर सकते हैं। चर्चा कीजिए।

North-East India faces the immense challenge of insurgency movements which has also impacted its developmental outcomes greatly.



Insurgency in North East



Reasons for going up violence

↳ Clampdown on the insurgent groups
- also contribution by foreign countries
eg. Operation Sunrise by Myanmar,
Operation All clear by China.

↳ Source of financing curtailed

↳ Loss of support among locals due to
development carried out by GoI.

↳ Fatigue among the rebel groups & urge to
return to mainstream.

↳ Dialogue process has also contributed.

Issues which could create hurdles

↳ Some compromises are worked out
during talks and all the demands could
not be fulfilled

- eg. Demand for Greater Nagalim
or independent Naga flag.

↳ Lack of inclusive development particularly in the North east

↳ Financial and Geological support by foreign governments act as fuel to the fire

↳ Geographical proximity to the Golden Triangle makes a lucrative business for rebel groups.

↳

To ensure sustained peace in the North east region, wholesome development must be carried out touching every aspects of their lives. 2nd ARC

Report on Conflict Resolution also suggests several important steps that needs to be taken for the challenges in North east.

20. Identifying the key vulnerabilities in India's cyberspace, discuss the framework which should be adopted in the envisaged new cyber security policy in India. (250 words) 15

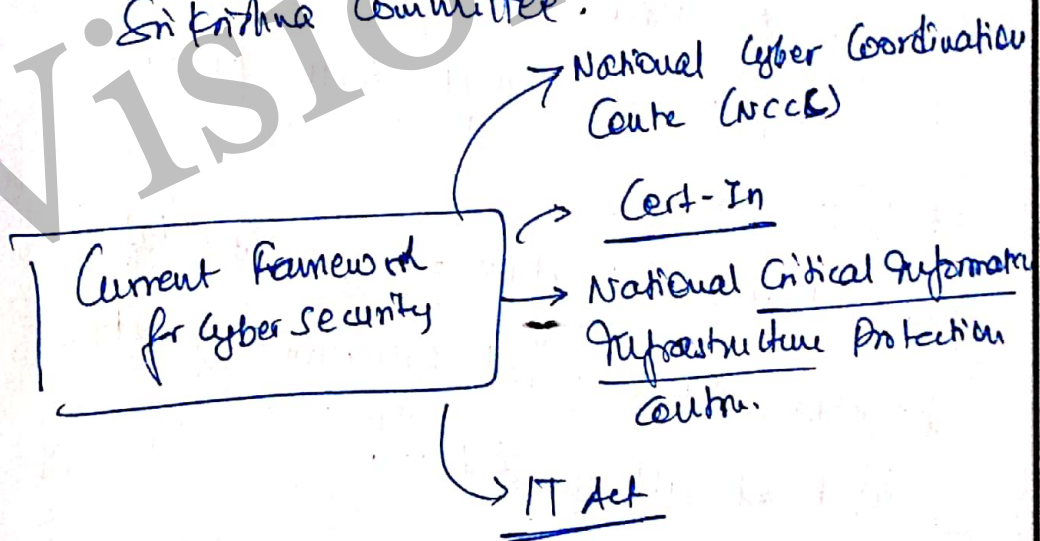
भारत के माइबर जगत में प्रमुख सुभेद्यताओं की पहचान करते हुए, उस रूपरेखा पर चर्चा कीजिए, जिसे भारत में परिकल्पित नई माइबर सुरक्षा नीति में अपनाया जाना चाहिए।

India was ranked 47 in Global Cyber Security Index. Also, India was ranked 3rd most vulnerable country in terms of cyber threats (Symantec's 2017 Report).

Key Vulnerabilities in India's cyberspace

- * High import dependency on various critical equipments
- * Lack of credible code-breaking capabilities.
- * Limited participation and investment by the private players.
- * Lack of an overarching standards operating procedure (SOP) in dealing with a cyber attack which clarifies role of various agencies
- * The National Cyber Coordination Centre lacks in executive power.

- * Officials in the public sector often lacks the technical know-how and information about the evolving cyber space.
- * Use of cyber space as a medium to fuel radicalisation and recruitment.
- * Absence of a Data Privacy Law in India. Only draft has been proposed by Sri Krishna Committee.



Required framework in the proposed Cyber Security law

↳ Role clarity of various organisations involved in cyberspace.

↳ An overarching PPP policy to engage private players.

↳ Indigenisation of various critical equipment
↳ by suitably scaling up Make in India.

↳ Use of AI and ML to track suspicious activities.

↳ Human Resource Development to train the manpower and make them future ready.

↳ International Collaboration — eg. Budapest Convention, Russian-led cybercrime treaty — Christchurch Call for Action.

A robust and pro-active cybersecurity policy is sine-qua-non to ensure the national security of India.