



VISION IAS

www.visionias.in

GENERAL STUDIES (TEST CODE : 1419)

Name of Candidate	Vinayak Chandra	Registration Number	553357
Medium Eng./Hindi	ENGLISH	Date	03-12-20
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	

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 ENGLISH & HINDI
इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी 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 अनाम प्रवेश पत्र में किया गया है और उस माध्यम को 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 दिए 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।

Total Marks Obtained:

Remarks:

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.

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।

Power discoms have been facing a crisis of debt and inefficiency, and privatization of these discoms has been presented as a solution.

Issues with discoms

- Highly inefficient
 - high employee cost
 - unable to check AT&C losses
 - Poor management
- Piling up of debt leading to high interest payments and debt unsustainability.
- Debt-raising through UDAY scheme did not work out as objectives of efficiency were not met and debt piled up again.
- Inability to recover user charges and late credit of subsidies by state govt.
- As a result of these DISCOMS resort to load shedding, cuts, etc. inconveniencing the users.

Privatisation as a solution?

- Good experience with Discom Privatisation in Delhi which has led to efficiency in management, lower costs of operation, better service delivery due to corporatisation of Discoms.
- Better recovery of charges due to proactive nature of Pvt. players.
- considerable decrease in AT&C losses due to upgradation of infra, installation of meters and check of electricity theft.

But certain issues remain as privatisation of public services and utilities has not happened in India on a large scale and thus there are apprehensions about monopolistic practices, rise in bills, etc.

Thus public also needs to be taken into confidence before privatisation of

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 सिद्ध हो सकता है। चर्चा कीजिए।

Farming in India suffers from low efficiency and low productivity due to conventional agri methods.

Agriculture in India → old technology of 1970's with little upgradation
 → issues with irrigation as about 45% of land is still rainfed

Smart Agriculture

It is a practice which is rooted in local ecological conditions and hence is not input intensive.

↳ Crop choice as per local climate and moisture availability

eg. Millets, groundnut, oilseeds, gram in dry land regions

↳ less use of costly fertilizers and pesticides and rather than using integrated pest management.

↳ using organic manure and traditional methods for cultivation which reduces costs.

↳ integrated farming — apiculture
— agroforestry
— livestock rearing
— fisheries

All this enhances overall output in terms of value at lower cost and is thus more efficient.

It is also ecologically sustainable and doesn't lead to groundwater depletion and soil infertileity.

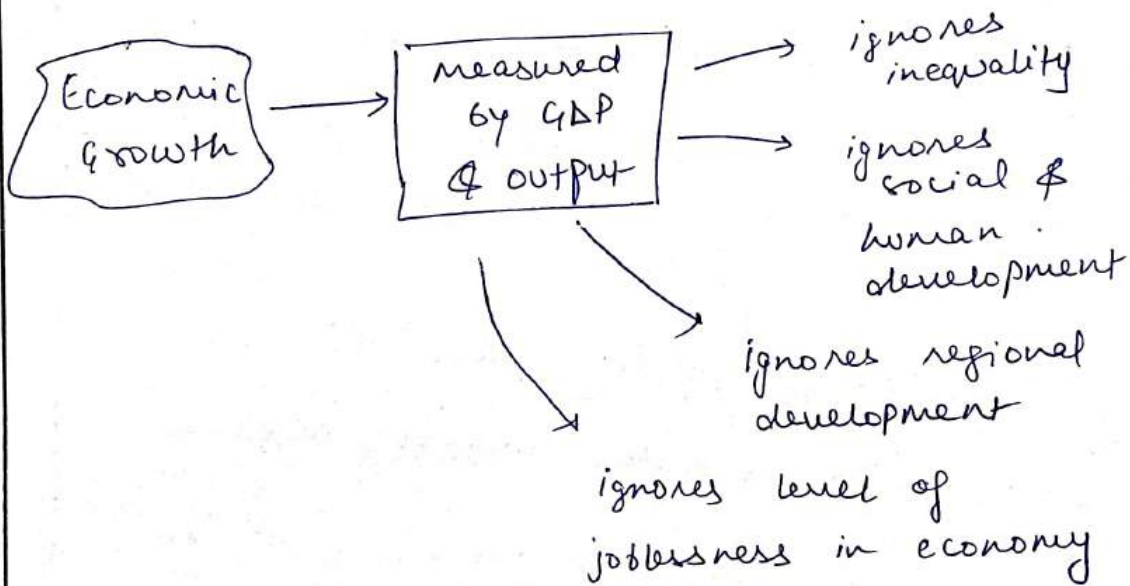
	Cost	Productivity	Profit
Intensive farming	↑↑	↑↑	↓
Smart agriculture	↓↓	↓	↑↑

Thus climate smart agriculture is the need of the hour for augmentation of farm incomes & ecological sustainability.

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 broad based growth which is equitable in nature and penetrates all regions, all social groups and thus reduces inequality and raises overall living standards.



Thus quantitative assessment in terms of GDP doesn't fulfill policy objectives of human development and socio economic justice.

And therefore multiple Plan documents and Niti Aayog's strategy focuses on inclusive growth and creation of opportunities for all.

Parameters (in terms of quality of growth)

- Nutritional security and related health indicators
- Educational attainment and skilling
- creation of jobs and making envt. for self employment and entrepreneurship

The qualitative growth thus ensures broad based growth across regions (Aspirational Dist. Program) and is sustainable and inclusive in nature.

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।

Atmanirbhar Bharat as a policy refers to self reliance and its objectives include capacity development, achieving competitiveness and integrating into global value chain as a key partner and is thus an outward looking policy.

Core areas

- Leveraging specialization and uniqueness of India and hence importance to apparel industry, leather, handicrafts, pharmaceuticals, IT, etc.
- Integrating into value chain across diverse products and adding value in India in sectors like electronics, chemicals, refinery products, etc.

- Agri processing and export and thus adding value to farm produce while diversifying Indian agriculture and augmenting incomes.
- Realizing export potential in modern products like defence equipments, telecom hardware, etc and carving out a niche market through aggressive pricing.

All this requires structural reforms, liberalization and govt. facilitation. If successfully done India can attain its target of 3% share in global exports while also providing productive employment at home.

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 of ground water sources in Ganga Brahmaputra basin is a serious issue with wide socioeconomic and health related effects.

Sources of Arsenic Pollution

- Natural presence in certain river basins primarily in Ganges basin.
- From fertilizers and farm outflows into rivers and groundwater.
- Industrial discharge, wastewater, dumping of e-waste, etc into landfills and leaching from there.

This was limited to certain blocks in Bihar and UP but now Arsenic pollution is taking a wider pan India form due to vehicular discharges & coal based power plants

Consequences

- Infestation of drinking water and thus effect on health particularly of children and also Arsenic poisoning as it is a mild toxin.
- Falling soil fertility due to irrigation from Arsenic polluted water
 - ↳ biomagnification through food crops & vegetables as plants absorb this toxin.

Measures to tackle it

- Wastewater management, solidwaste management and groundwater recharge through recharge pits.
- Water treatment before use through cheap portable machines developed by IIT Madras, etc.
- Mapping of regions and localized solutions.

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 सुदृढ़ बना सकता है। मूल्यांकन कीजिए।

Green Term Ahead market is a future trading market for renewable energy through online auction and trade at competitive prices across India.

Benefits

- Help Discoms better discover rates of various renewable energy sources
- Fulfillment of renewable purchase obligations at cheaper rates.
- Bringing competition in renewable energy market and also allowing it to compete with conventional power.
- Transparency in renewable sector and Predictability of supply of power at pre contracted rates.

- Integration of Power across India and also leading to creation of wider power infrastructure like transmission networks, etc.
- Mobilizing capital for renewable energy and helping increase capacity and thus fulfilling targets under Paris deal.
- Institutional buyers may also procure and gain carbon credits like Indian railways, etc.

Thus ETAM is a positive step towards cleaner & sustainable development.

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.एस. और सुदूर संवेदन के अनुप्रयोग पर कुछ प्रकाश डालिए।

Disaster management has been largely mitigated using technology and even Disaster Risk Reduction has been achieved through technological interventions.

GIS & Remote Sensing

Geographic Information System and remote sensing are technologies for remote observation of areas, their changes and indexing them upon maps. This is done through combo of satellite imagery and GIS softwares.

Application in Disaster Management

- Tracking of atmospheric system and changes for prediction of cyclones and wave surges
- RISAT, etc have been used by IMD to predict and then issue warnings to

district administration, fishermen, naval crew, etc.

↳ many lives were saved during cyclone Fani due to evacuation and precautions due to early prediction.

- Tracking of forest fires and guiding firefighting operations of Himachal forest fires extensively used GIS systems to predict spread and take corrective measures based on wind directions.

- Precipitation & Monsoon tracking and thus preparation for floods & droughts.

Thus GIS & remote sensing has been very helpful in early warning & management.

But also IAS will have to derive better forecast models and district administration needs to be proactive so as to mitigate disasters.

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 संपादन तकनीक में क्रांतिकारी परिवर्तन का संचार किया गया है। चर्चा कीजिए।

CRISPR/cas9 is a genome editing technology which is used to edit gene structure and pattern through cutting the strand at desired location and making suitable edits thereby altering the DNA of the being.

CRISPR are protein based short palindromic repeats which mimic the DNA strands and have potential in various fields.

Applications

- Recently in China a scientist used this to edit the undesired parts of DNA of embryo thereby essentially manufacturing a child.

↳ cure ~~the~~ for genetic disorders
↳ breeding of stem cells and altering their structures as per needs.

VISION IAS™

- use in agriculture to ensure food security by creating food crops that are resistant to pests, etc.
- breeding of specialized bacteria and animals for variety of purposes.

But a lot of ethical concerns are related to this techniques as its role in cloning, manufactured babies, etc will be contentious.

Recently, it was applied in isolating COVID strain and also in development of vaccine against COVID.

Thus a balanced approach with certain safeguards is needed to keep this technology safe.

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।

FATF is a global watchdog against money laundering, terror financing and other financial crimes.

Role in tackling money laundering

- Setting global agenda & policy w.r.t money laundering & terror financing.
 - ↳ devising definitions
 - ↳ putting in safeguards and devising SOP's in place for a safe and secure global financial system.

- Arbitration and sanctioning authority
It acts as a bulwark against erring nations who are complicit in terror financing, through black listing & grey listing.

eg North Korea - Blacklisted.
Pakistan - Grey listed

- Global coordination against money laundering & streamlining of laws and regulations across countries & jurisdictions.

All this has led to considerable decline in terror financing & money laundering thereby hampering terror networks & organized crime networks.

But there are concerns of politicization of body by certain countries and formation of groups to further their own agenda and thereby impacting fight against terror.

eg Malaysia & Turkey blocking Pakistan's blacklisting despite its failures.

Thus there is need for reform of AATF to depict current realities & hide over petty politics.

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।

National Security Architecture of India is very broad based which includes Armed forces, National Security Advisor, Strategic Forces Command & various intelligence agencies like RAW, IB, etc.

It is responsible for security & integrity of country from all external & internal threats & thus with changing geopolitics and security concerns continuous reforms is necessary.

Recent Reforms

- Upgradation of NSA to cabinet rank & thus making security more broad based
- Reforms in Armed forces like creation

VISION IAS™

of CSS for single point advice to
 CCS [cabinet committee on security].

- Mandating NSA to prepare national security strategy & thus initiating a broad based survey of threats & possible solutions.

- formation of NATGRID & collation of all intelligence under NSA for proper coordination & response.

Reforms in NSA is an dynamic process as the evolving needs & thus must carry on.

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।

India is primarily an agrarian economy with more ~~than~~ than 40% people directly dependent on it; but agriculture has not been remunerative and also there is large inequality both within and outside agrarian sector.

Importance of Land Reforms.

Since before independence land reform has been a key political and socio economic agenda. primarily to ensure,

- fair landholding - equitable in nature
- higher rural incomes driving broader economy.

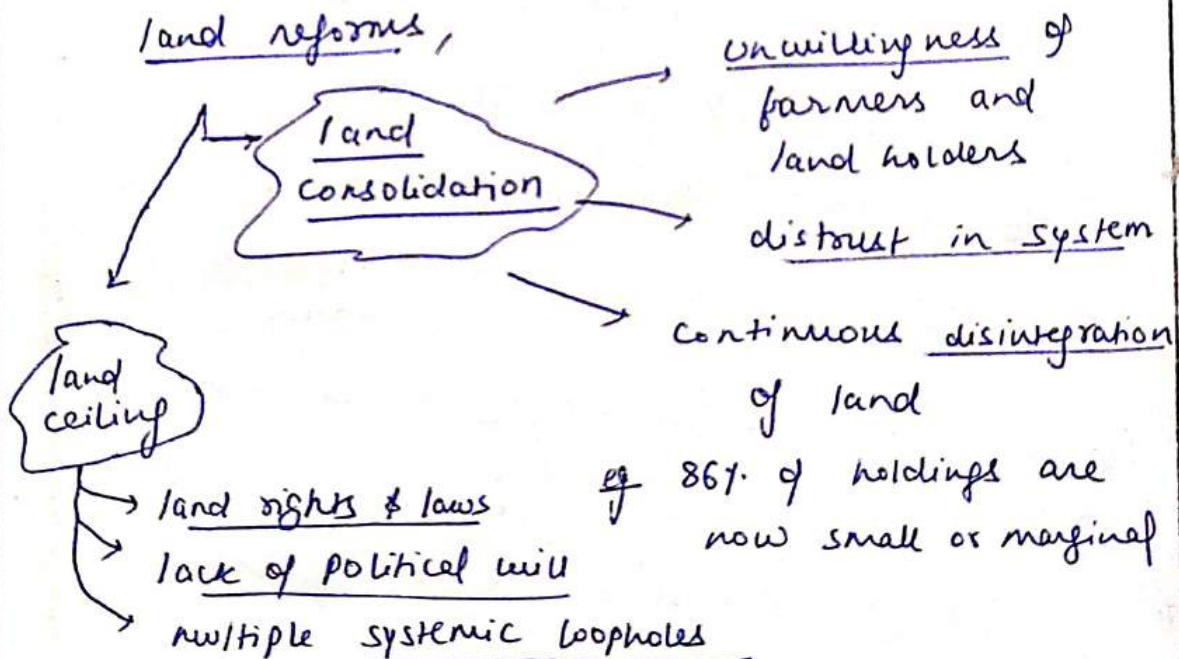
Thus post independence land reforms in form of abolition of zamindari, land

ceiling enforcement, land distribution and land consolidation was taken up but to a great extent it has not succeeded in achieving key objectives.

Hurdles in land reforms

1) Improper record keeping and unclear land titles thus making a proper survey difficult.

2) Difficulty in different aspects of land reforms,



3) large scale corruption and rent seeking.

4) Lack of innovation, today we need new land reforms as per the realities of current economic structure.

- ↳ clear & solid land titles
- ↳ easy, fast and safe land registration and transfers
- ↳ modern land leasing and contract farming laws which do not threaten ownership.

Advantages

- ↳ increase in agri productivity and streamlining of value chain
- ↳ land security and thus lesser conflicts and lesser inequalities
- ↳ Ease of doing business and higher investment leading to multiplier effects

Land reform is one thing which is necessary to raise animal spirit in economy leading to entrepreneurship & growth.

For more
 details
 visit
 www.visionias.com

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।

Human capital development is primarily based upon good education and health which is rooted in nutritional security.

Food security $\xrightarrow{\text{towards}}$ Nutritional security

India has far left behind 1980's when there were food crisis and through green revolution and PSU has ensured food security for all Indians.

Persisting issues \rightarrow lopsided dietary pattern which is highly dependent

problem \leftarrow of one key cereal in one geographic region.

\rightarrow Rice diet or wheat diet
 \rightarrow unbalanced diet

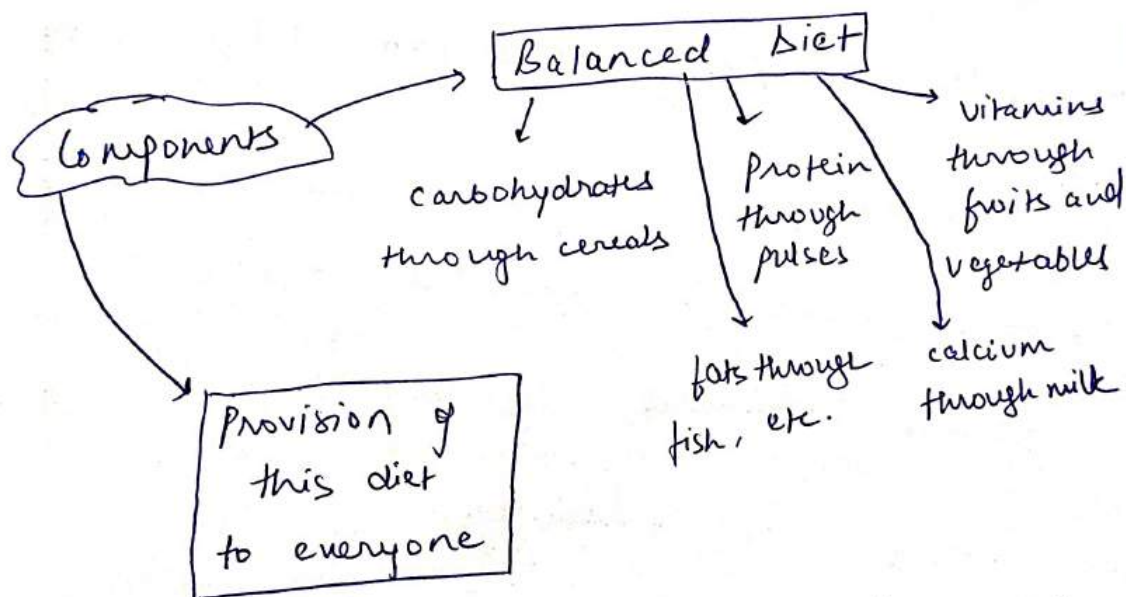
\rightarrow malnutrition and poor health indicators

\rightarrow modern problems of diabetes and indigestion

↳ Issues with wheat, Rice based diet has led to these problems due to their gluten content and high glycaemic index.

Need of nutritional security

For healthy and productive life proper nutritional security has to be achieved across life cycle of an individual.



↳ need to create a framework of nutritional security while also ensuring nutritional self reliance.

Frame work

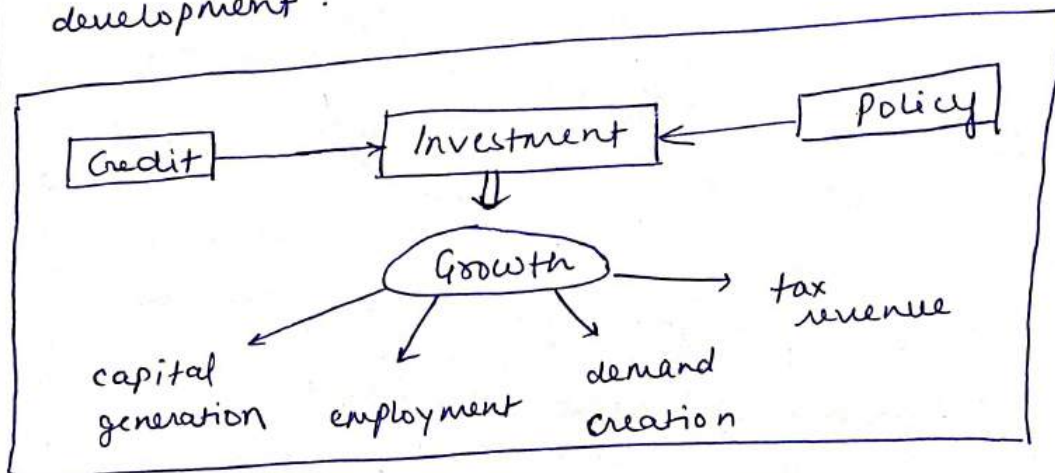
- For mothers and newborns → changes to ICDS and Anganwadi to include a changed and wider nutritional diet.
- Provision of milk in mid day meals and otherwise of Ksheera Bhagya scheme of Karnataka.
- Diversification of PDS and cropping pattern, away from staple cereals where there is a problem of plenty apart from ecological issues.

Thus chartering a National Nutrition Programme based on idea of convergence to achieve national security and thus better human development.

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 संवृद्धि पथ पर आगे बढ़ने हेतु महत्वपूर्ण है। 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।

Private Investment is one of the key driver of growth in any liberalized economy which creates a multiplier effect and leads to broad based development.

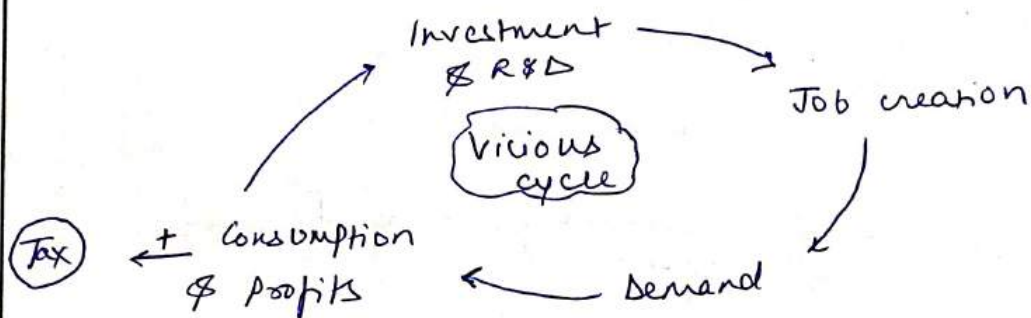


Importance of Private Investment

- with economic expansion the role of government has drastically changed,
 - ↳ capital investment in infrastructure
 - ↳ less share of capital availability
 - ↳ Role as regulator and facilitator

- Thus for other purposes private invest. becomes key,

↳ creation of manufacturing capacity and opening of new firms leading to job creation, innovation



↳ Models across the world which have been successful in terms of socio-economic development are based on capital investment by private sector.

- East Asian Tigers and China

↳ export based economies

↳ global supply chain integration

- Industrialization of West was also propelled by private entrepreneurship.

VISION IAS™

- Govt. spending is also dependent on tax revenues generated from economic activity, leading to welfare measures and capacity creation.

Govt measures ^{context} → private capital invest. as a share of GDP has fallen from a high of 35% to below 30%.

- Structural reforms and

Policy changes

① → labour law liberalization
 ② → liberalization of FDI policy and opening up of newer sectors for private investment ~~of~~ commercial coal mining, etc.

③ → Ease of Doing Business reforms by easing bureaucratic hurdles, investment facilitation, etc., along with tax rationalization.

④ → creation of requisite infrastructure and logistics network of Smartmala, Sagarmala.

⑤ → Newer schemes like PLI, etc to incentivize investment.

It depends on the investment the private sector is able to mobilize to drive growth.

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 विभिन्न स्तर समृद्धि के एक न्यूनतम स्वीकार्य स्तर को सुनिश्चित करने के लिए एक लक्षित क्षेत्र विशिष्ट कार्य योजना को आवश्यक बनाते हैं। संक्षिप्त रूप में वर्णन कीजिए।

India has wide Physiographic and climatic diversity which has manifested into disbalanced regional economic development.

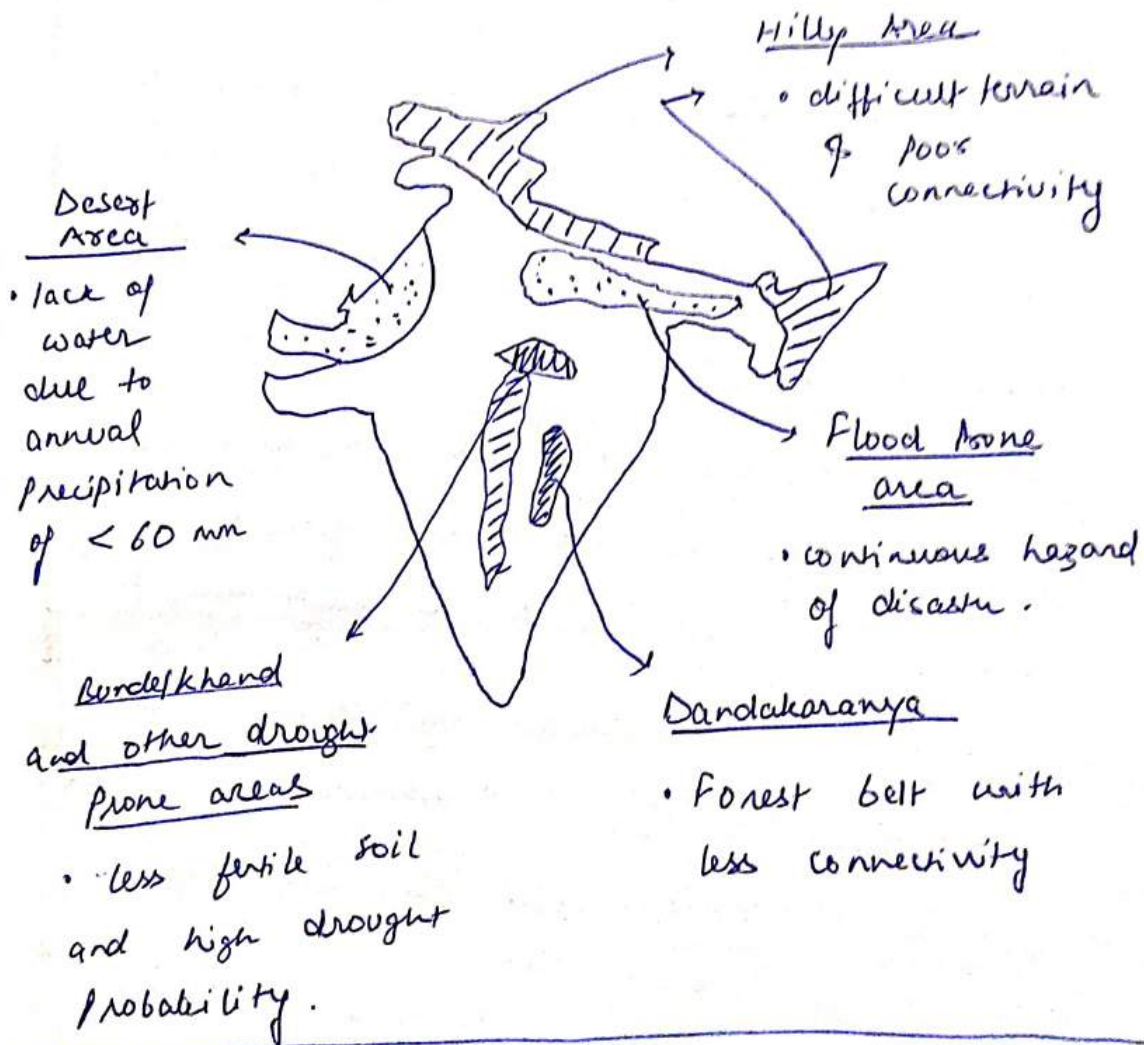


Fig: India's geographical diversity and its manifestation on regional development

Don't write anything this side of the line.

Since each of these underdeveloped regions have had their unique set of problems and hence an area based approach for integrated rural development was taken.

<u>Region</u>	<u>Programme</u>
• Hill Areas	Hill area devt program
• Drought regions	Drought Prone area devt. prog.
• Desert region	Desert area devt. prog.
• Tribal regions	Tribal Sub Plans, etc.

Focus of these Programs

- Solve the basic problem which has kept the area backward
of creation of irrigation potential in drought prone areas and also providing livelihood through schemes.
- Focus on overall socio economic devt. through preparation of special plans and their bureaucratic implementation.

Issues with
area approach

- Top-down model with limited local participation
- Microlevel diversities ignored
- Weak implementation mechanism & bureaucratic apathy and corruption

Neo-Approach envisaged

- use of multi level planning and preparation of plans by locals at Panchayat & district levels of 73rd & 74th Amndt of constitution.
- Aspirational Districts Program
 - ↳ convergence of efforts and schemes
 - ↳ coordination of bureaucracy
 - ↳ outcome based objective approach

It is through local participation and dedicated grievance redressal that this issue of regional disparity can be resolved, as India cannot attain \$5 Trillion goal without participation from 40% of its area.

Don't write
any thing
in the
margin
of the
book

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 किसानों का मशक्तीकरण 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 महायता कर सकते हैं।

Agriculture in India suffers from low productivity and non remunerative prices which precipitates into poverty and debt traps for millions of farmers.

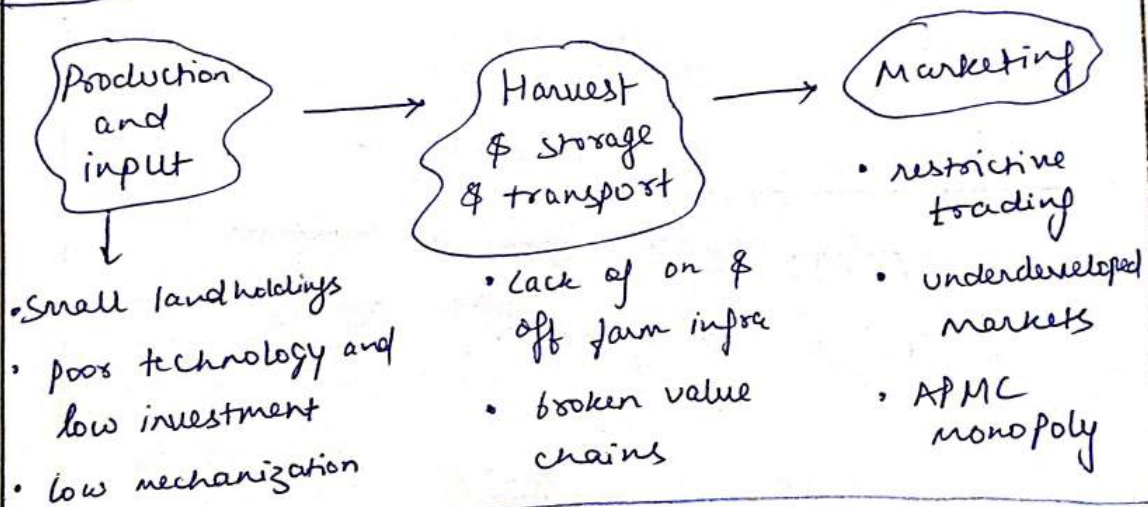


Fig: Issues across life cycle of agriculture

The three recent legislations are a reform effort to unshackle the agri business and improve agri incomes and allow devt. of food processing industries.

① Reform of APMC's and removal of monopolistic practices

- allowing private trade in agri crops outside of mandi system at zero tax

Benefits

- Investment in logistics like storage infra. (cold storages, etc.), transport systems (modern truck fleets, etc.) thus development of value chain.
- More choices to farmers to sell at desired prices and free themselves from cartels of mandi system.

② Contract Farming reform

Benefits

- investment by Pvt. Players in agri technology leading to higher productivity
- freedom from cobweb cycle of market prices by guaranteeing prices and thereby bringing predictability.

③ Reform in Essential Commodities Act and removal of stock limits

Benefits

- investment in food processing industry thereby adding value to farmers produce and increasing their incomes.
- diversification of cropping away from wheat, rice mono culture.

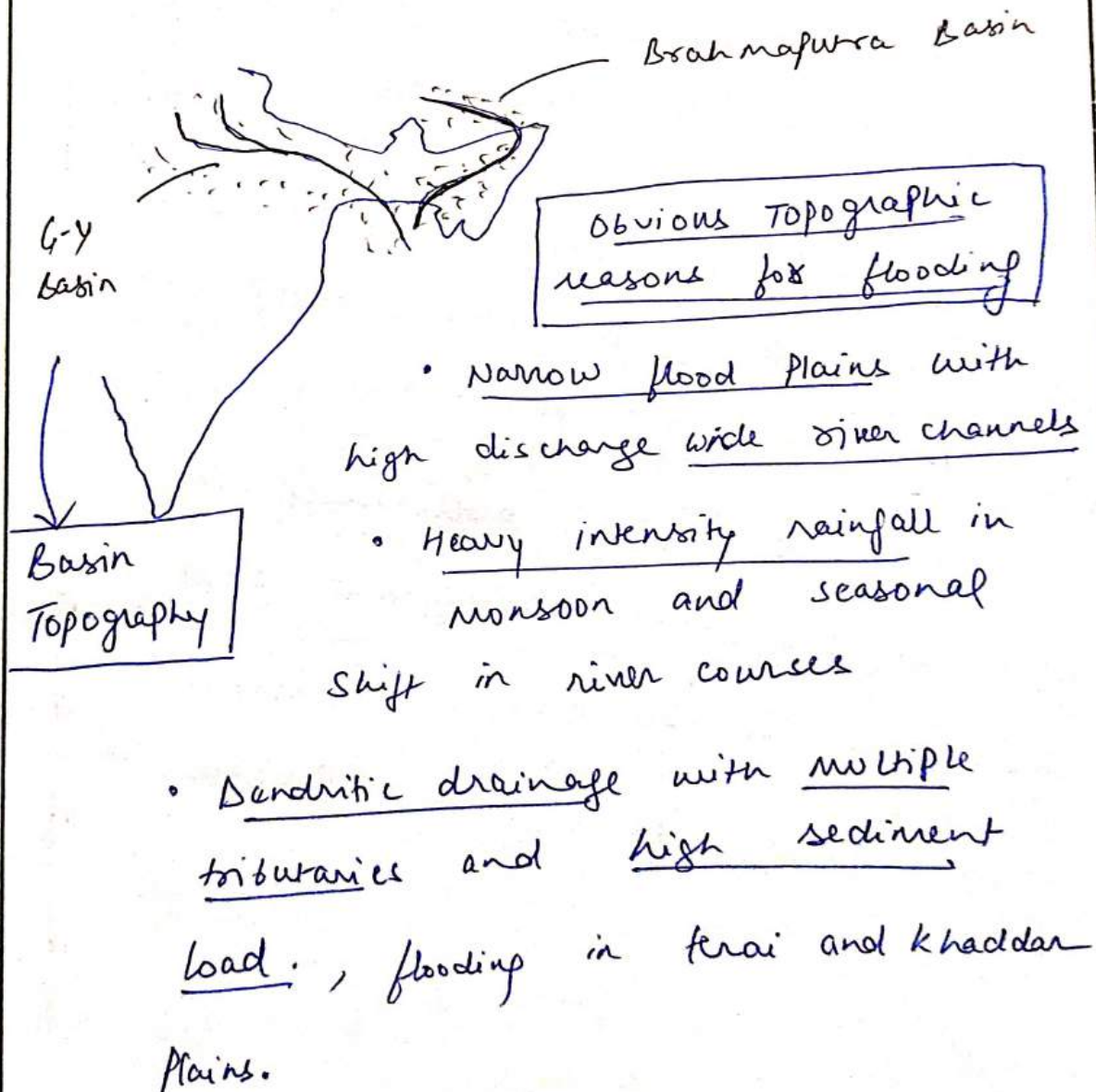
But sufficient safeguards have to be maintained to avoid newer monopolization and harassment of farmers.

Also govt. will need to invest in logistics development and create an environment of investment through continuous reform process.

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 सुझाव दीजिए।

Much of Eastern India in Ganga - Brahmaputra basin is ravaged by flood almost on an annual basis.



Other important factors

- Deforestation for land reclamation and thus higher runoff with greater sediment load.
 - Occupancy of flood plains and active settlement and agriculture
 - Destruction of natural coping systems such as wetlands and small streams.
 - Construction of huge dams and their improper operation
 - River bed sand mining.
- All these factors lead to disaster hazard, loss of life and developmental gains, and thus measures need to be taken so as to mitigate flood hazard and reduce disaster risk.

Measures

- Proper flood plain zoning and vulnerability mapping and consequent planning of settlements in the region.

VISION IAS™

- Afforestation and wetland restoration to increase water retention.
- Structural measures
 - ↳ embankment and levee construction and their annual maintenance
 - ↳ desiltation of dams
 - ↳ creation of traditional water structures like check dams, etc.
 - ↳ basin linking for better flow management.
- Proper implementation and coordination between states and authorities, and for this creation of oversight mechanism.

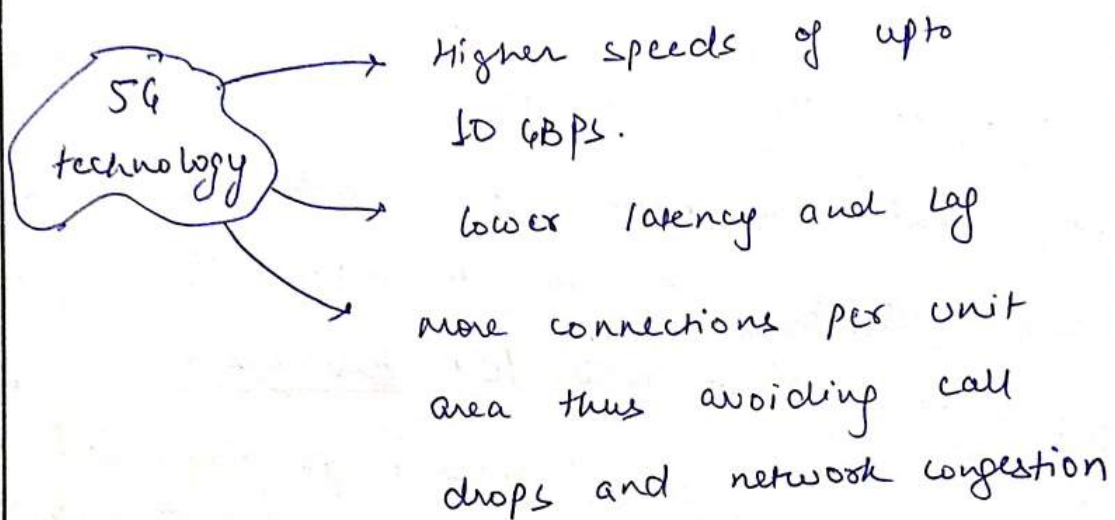
Mitigating floods in Eastern India is key to its development as much of devt. gains and infrastructure is lost to floods every year.

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 technology is a cutting edge mobile and fibre internet and communication technology which is an improvement over current LTE.



Potential
Role in digital revolution

Today's world stands on foundation of technological innovation and faster communication and 5G will further revolutionize it,

- Tele-Medicine - seamless connectivity and speed to allow greater reach of telemedicine.
- e-Education - online education is booming and with smart education and video content as key deliverables importance of speed and connectivity is key.
- Artificial Intelligence and Industry 4.0 with need for greater data analysis from wide sources and its dissemination 5G is key, along with IoT revolution.
- e-governance and people to govt. connect
Today much of govt. services are online and have become transparent and with 5G this will extend to wider regions and will be seamless.
- Newer & wider business opportunities in OTT streaming & other fintech.

VISION IAS™

- Cloud computing & Edge computing need faster speeds which 5G can deliver.

Challenges in adoption

- Huge investment of capital required
- Dependency of China for much of hardware and thus threat of surveillance, data mining & wider cyber and national security.
- History of high spectrum resource prices and cronyism has led to monopolization and fears of overpricing.

Thus govt. needs to come out with its 5G strategy and also needs to put in place a policy framework to tide over such challenges.

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 is an emerging new age technology which has potential to revolutionize communication, computing, industrial process and security architecture.

Quantum physics is based on the dual nature of matter viz. waveform and particle form.

Potential Applications

- Communication - Quantum property is an universal characteristic and hence quantum mechanics can be used for Internet of Things where machines, plants, etc. will be able to communicate amongst each other and with systems

VISION IAS™

thus enabling their automation and remote handling.

- ↳ Reduce cost and increase productivity of agriculture and industry.
- Security Infrastructure - Quantum systems can be used for geofencing, surveillance, network isolation and securitization, etc.
- Space applications - satellites will largely migrate to quantum systems thus enhancing their security and ensuring better faster & cheaper communication.
- Medical Technology - Quantum energy can be used for diagnostics and also for other therapies.

But there are very many challenges that remain and also there are concerns about its potential misuse and weaponization.

Challenges

- still an emerging technology and hence lack of investment interest due to long gestation period for commercialization
- lack of skilled individuals in quantum mechanics locally due to absence of R&D and courses.
- lack of R&D infrastructure like labs, research facilities and equipments largely due to very high cost.

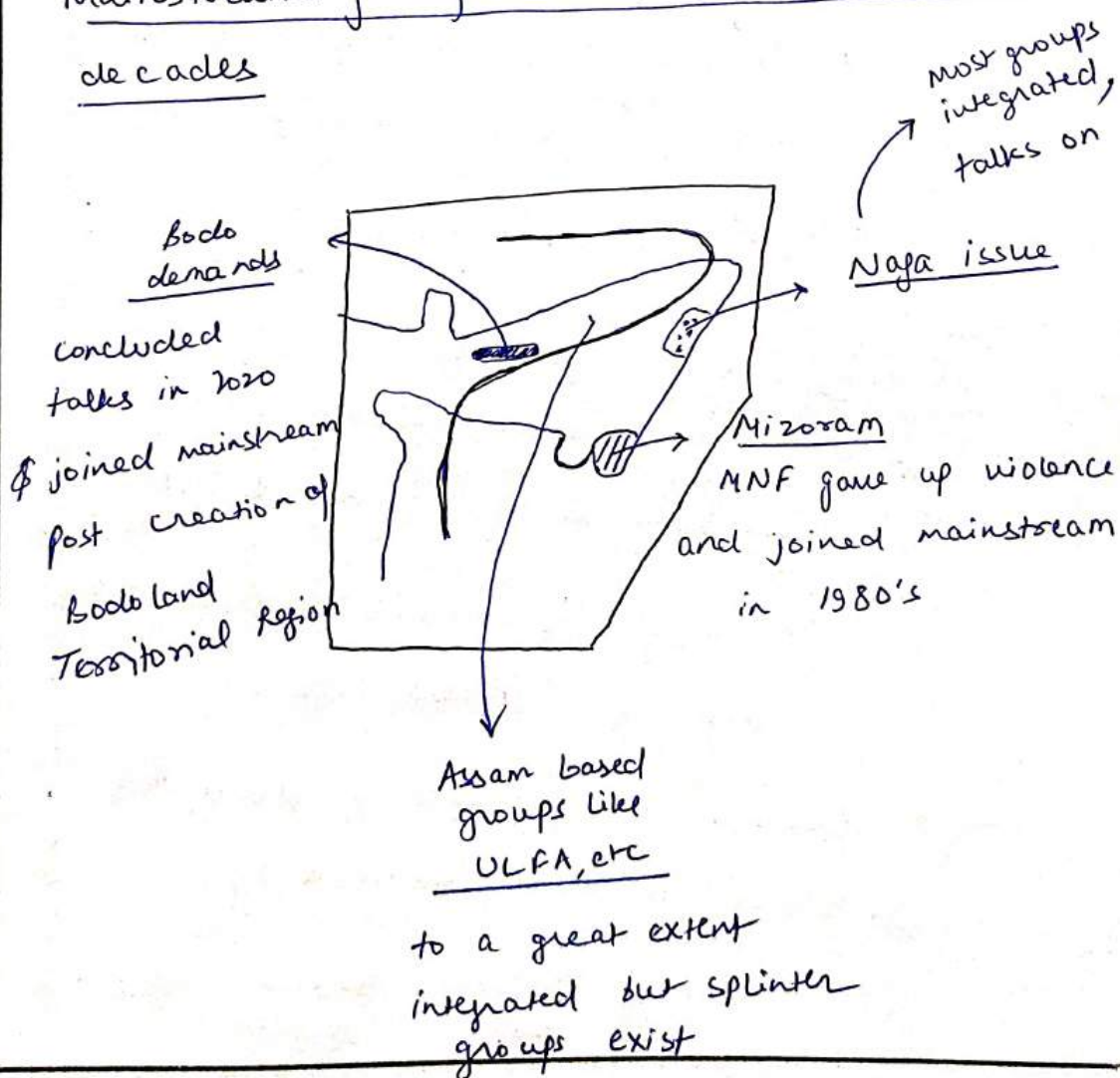
Govt. has committed to National Mission on Quantum Technology with dedicated budget of over ₹8000 cr ~~over~~ over 5 yrs and much will depend on its implementation as public institutions will have to take in lead.

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 भविष्य में बाधाएं उत्पन्न कर सकते हैं। चर्चा कीजिए।

North East India has been infested with insurgency since long but with national integration insurgency is now limited to certain pockets only.

Mainstreaming of insurgent groups over decades



Reasons for insurgency

- Proud identity groups with isolation in history
- multiple ethnic groups with constant tussle amongst them
- imposition of language, culture and administration in early post independence stage.
- alienation of land due to entry of other groups
- terrain and geographic conditions make insurgency easier and role of non state actors.

Mainstreaming over the years

- Constitutional protections in form of special provisions eg Schedule 5, 6; Article 371A, etc.
- Local legislations and restrictions eg local Area permits, etc.
- Delivery of governance, development protection and mainstreaming.
- Negotiations eg Shillong Pact, Assam Accord, etc.

VISION IAS™

Currently also NSCN (IM), NDFB, etc remain engaged in negotiations but there are issues that can threaten this peace process.

Issues

↳ Multiple factions and splinter groups with different ideologies and interests make negotiations difficult.

eg signing of agreement with NNC created NSCN (IM) & NSCN (K)

↳ Role of foreign actors and organized crime networks which have an interest in keeping region unpeaceful

↳ Certain demands are in conflict with other states in region which create problems. eg Nagalim Proposition and opposition by Manipur, Assam & AP.

Thus peace process hangs by a thread in such conditions and govt. will have to negotiate carefully while taking everyone into confidence.

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

Cyber security is key in the age of digital economy when financial systems, energy infrastructure, etc. is dependent upon cyber networks.

Key vulnerabilities in India's cyberspace

- According to Microsoft's cyber research India was the most attacked and also the most vulnerable country to cyber system attacks.
eg multiple ransomware attacks, hacking of govt. sites by cyberterrorists, etc.
- Financial system and banking is dependent on real time networking and any successful attack on it can paralyze the banking sector.

VISION IAS™

- Threat to cyber physical systems like power plants, energy transmission networks, ports, security architecture, etc.
of recently Kudankulam Nuclear Plant was attacked and a bug was found in its system
- Use of cyber systems in organized crime for financial transactions & sales.
- Use by terrorist networks
 - ↳ Radicalization & recruitment
 - ↳ Funding and hawala network.
- Uncertainty introduced by crypto currency.
- Weak cyber policy and infrastructure to deal with any attack
- Absence of Data Protection Law risking privacy of citizens and raising threat of data theft and mining.

Thus there is a need to adopt a proper framework so as to wade of this challenge.

VISION IAS™

Framework

- Proper legislation for cybersecurity and data protection along with update to current cyber policy.

- Strengthening of institutions and giving them mandate and clear outlining of their roles.

of NTRO → national security & cyber security interface
& NATGRID

NCII PC → Protection and strengthening of cyber physical systems.
& CERT-IN

- creation of human capital in cyber space and adequate funding

- Communication & awareness generation amongst public and users

For growth and innovation in digital world, cyber security is imperative to usher and achieve goal of Atmanirbhar Bharat.