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GENERAL STUDIES (TEST CODE : 1419)

Name of Candidate	MALIYE SR. PRANAV		
Medium Eng./Hindi	ENGLISH	Registration Number	596044
Center	ONLINE-HYD	Date	05/12/20

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
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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, विद्यापी 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 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 उसकी अंश को स्पष्ट रूप से काटा जाना चाहिए।

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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.

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 are

currently facing 30-40% of losses mainly due to AT&D losses.

Issues

- ⇒ ① Financial Unsustainability due to Subsidy Burden. (Power Subsidies)
- ⇒ ② Lack of proper metering at domestic level, leading to low bill collection. (Power Thefts)
- ⇒ ③ Huge AT&D losses and SAU losses.
- ⇒ ④ Poor feeder separation, with huge stress on domestic feeders.
- ⇒ ⑤ Piling up of dues by State Governments and increasing NPAs

Privatising DISCOMS

- ① Infuses Capital into DISCOMS as they are Capital starved.
- ② Brings in new technology such as "Smart Grid", "Smart Meters".
- ③ Improvements in distribution feeders
- ④ Minimises ^{Debt} ~~State~~ Burden on State Governments. (UDAY → 75%)

Atmanirbhar Bharat aims at infusing 90000 Cr into DISCOMS through POWER FINANCE CORPORATION as well as inviting private players by reducing burden on State Government.

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।

"Smart Agriculture" aims
at infusing the new revolutions in IR4.0
which can help in doubling farmer income.

Smart Agriculture in Various Components

→ ① Irrigation

- ↳ Installing IoT with Micro Irrigation
- ↳ (Reduces Manual labour cost and provides optimal usage)

→ ② Markets

- ↳ Can provide digital platforms for efficient farm-to-market transformation (Minge kart)
- ↳ Quality Checks by Image Processing.

→ ③ On-farm Technologies

- ↳ Helps in Precision Agriculture by predicting Soil Health, Moisture
- ↳ Site-specific Nutrient provision.
- ↳ "Super Seeders" to prevent Stubble Burning.

→ ④ Weather and Credit Intelligence

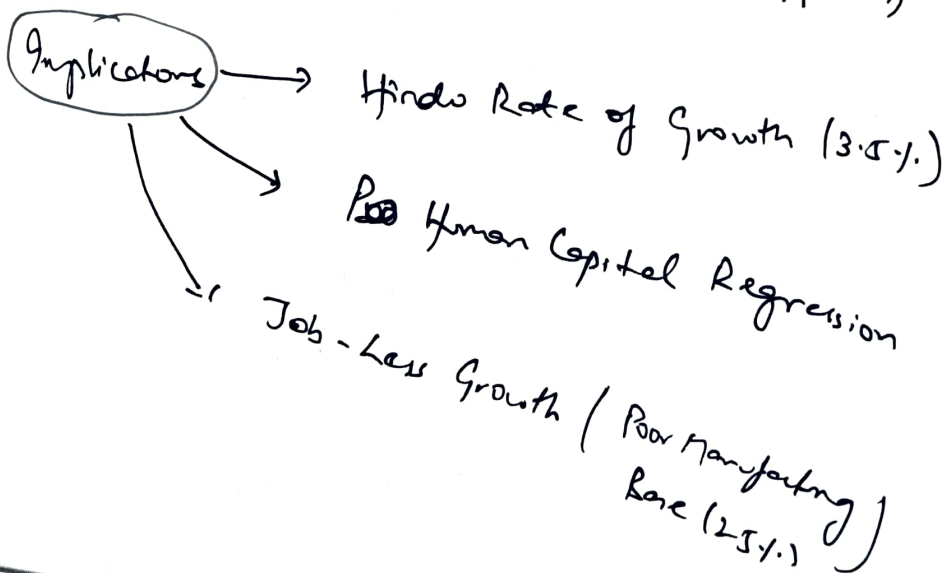
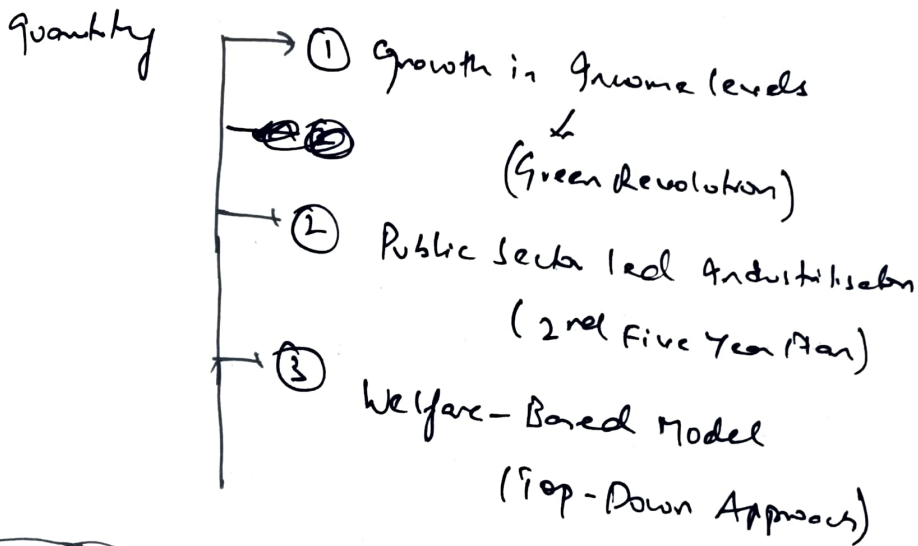
- ↳ Provides Weather Inputs as well as Credit Availability which helps in crop planning
(MISAN, FASAL)

Therefore, KVKs as well as ATARI (Agri Tech Institutions) should take leadership role in promoting Smart Agriculture.

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।

Till 2000s, India's
Growth Strategy has always been the
"Trickle Down Theory" which focussed on



So, 11th FYP has come up with Inclusive Growth which focuses on Quality:

- ① → Participative : Bottom-Up Planning
(MGNREGA) Rights Based Approach
- ② → Equity : Equitable Economic Growth
(Startup India) Upliftment of Vulnerable
(Standup India)
- ③ → Growth : New India Strategy
(Ease of Doing Business) Digital India Skill India.
- ④ → Sustainability : Compliance with INDC at Paris Summit
Fulfilling SDG Goals
- ⑤ → Stability : Sound Fiscal Policy Regime
(FRBNA Act) Reforms in Financial Sector
(PM-Jan Dhan Yojana)

Thus Inclusive Growth focuses on Quality of Growth and optimal allocation of Resources.

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

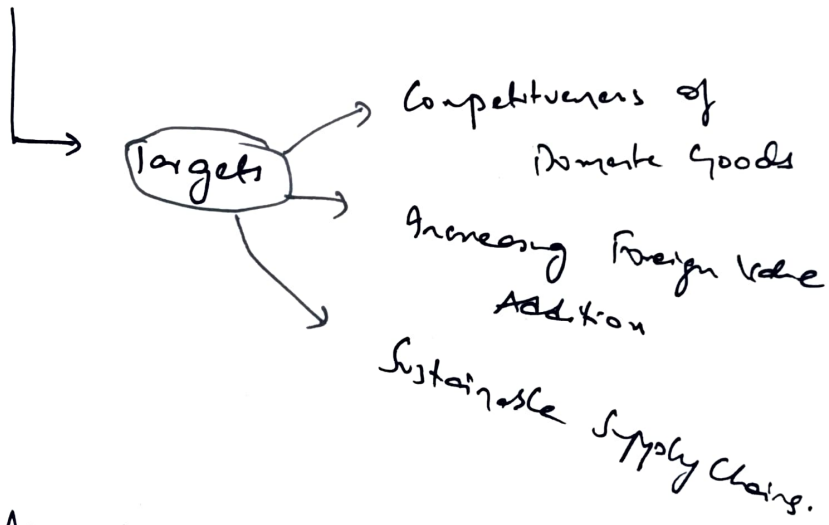
आत्मनिर्भर भारत की पृष्ठभूमि में, भारत के लिए एक विनिर्माण केंद्र बनने हेतु निर्यात संवर्धन में महत्वपूर्ण मुख्य क्षेत्रों (कोर एरिया) की विवेचना कीजिए।

Atma Nirbhar Bharat

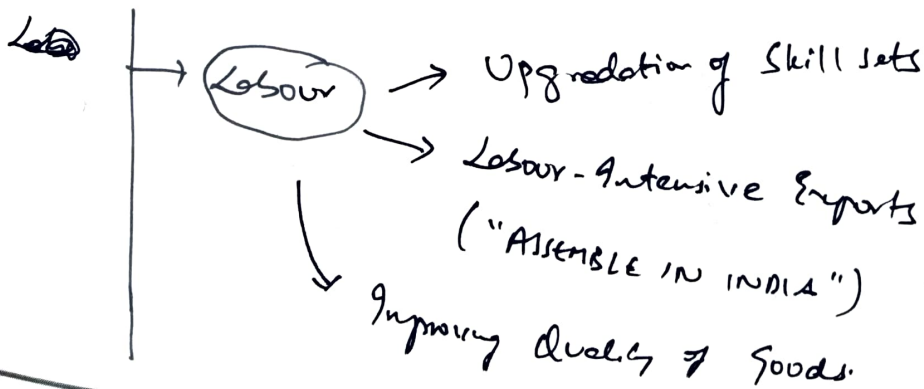
focuses on "India's participation in gvc"

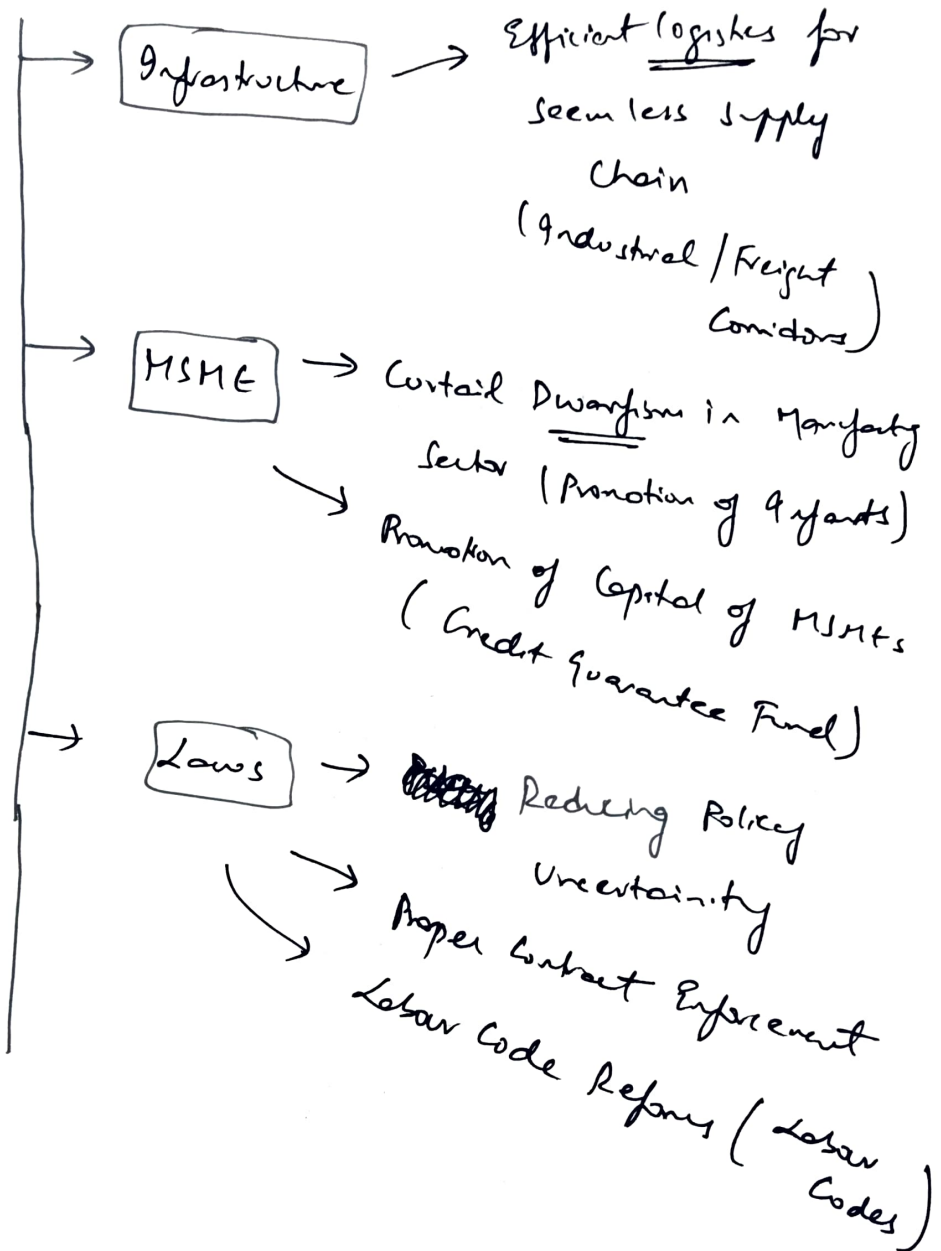
with domestic solutions to global

Problems. (LOCAL WITH LOCAL)



Core Areas for Export Promotion





This can lead to increase
in 8-10% of GDP with a promise of
60-70M Jobs. (Economic Survey).

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 IN INDIA

Arsenic Pollution in
India is on rise
adding to India's global
Burden of Disease.



Sources

- Ground Water : Excessive Tube well
Irrigation
(N. Plains, West Bengal)
- Food : Addition of Pesticides, Preservatives
Irrigation to the crops
- e-Waste : PCBs, Printers
- Municipal Medical Waste : Drugs,
Syringes,
Diagnostic Equipments
- Industrial Waste
(Furniture, Paints)

Consequences

- ① Black foot Disease (Fungal Infection)
- ② Anti Microbial Resistance due to disposal of wastes in Rivers.
- ③ Tolt to Food Security, as food grains are unfit.
- ④ "Water Stress" due to Pollution.

Measures

- ① Arsenic Resistant Agriculture
(WB: Arsenic Resistant Rice)
Arsenic
- ② Reducing dependence on Tube Well Irrigation
(Shifting to Rain Irrigation)
- ③ Precision in applying Fertilizers
(Conservation Agriculture)
- ④ Solid waste management Rules to be properly implemented.

if not tackled properly Arsenic can add further burden to prevailing Water Borne Diseases.

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 क्षेत्र को सुदृढ़ बना सकता है।
मूल्यांकन कीजिए।

Power Ministry recently announced the scheme of "Green Term Ahead Market" for spot trading of Renewable Energy.

Uses

- ① Augments the Renewable Purchase Obligations of States by Spot Market.
- ← ② Revolutions in Carbon Market by Value addition to RECs
- ③ Reduces burden on DISCOMs to buy power from Confinced GENCOs
- ④ Pan-Indian Renewable Energy Market removing State Barriers.

- ⑤ Fulfill our INDC Paris Targets as well as Kyoto Targets.
- ⑥ Capital Infusion in Renewable Energy GENCOs.

Issues

- ① Huge GST on Renewable Energy Certificates can act as impediment
- ② Poor enthusiasm of States to participate.
- ③ Monopoly of Solar Power and Hydro Power hurting others such as Wind Co-power and Biomass based Companies.

However, it can still be considered as a revolution, as we can generate 40% of Energy from non-fossil fuels.

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.

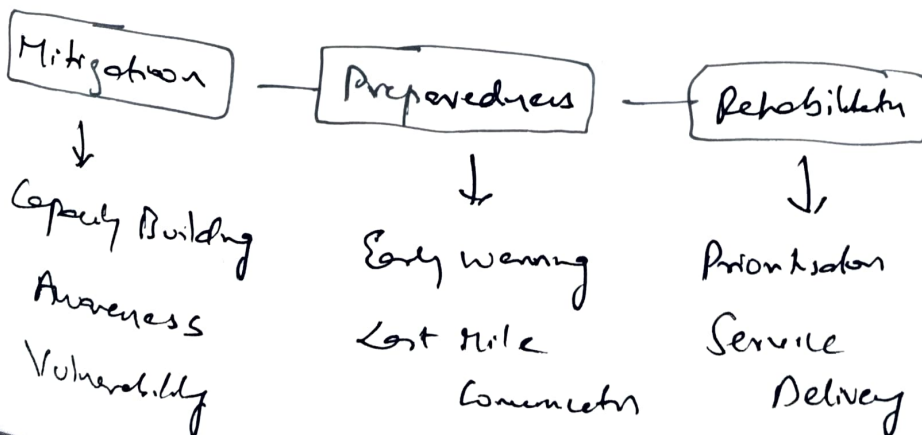
(150 words) 10

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।

Hyogo and Sendai Frameworks

stressed on importance of Use of
Technology for Build Back Better
Strategy in Disaster Resilience..

GIS/Remote Sensing can play crucial
role in Disaster Management across the
Cycle.



Application

→ GIS

- ↳ Location of Multipurpose Cyclone Shelters under National Disaster Commodity Centre (NIDCC)
- ↳ Flood Basin Management and Monitoring (C-FLOWS under INCOIS)
- ↳ National Landslide Early Warning System (Amrita University developed)
- ↳ Hazard Vulnerable Mapping (Drought Management Cells)

→ Remote Sensing

- ↳ Small Inge Forecast System (INCOIS)
- ↳ Doppler Weather Radars
- ↳ Mitigation Inventory (Cyclone Risk Mitigation Project)
- ↳ Super Computer Forecast (NCHMWF + NCTH + IMD)
Pratish, Mihir

So, GIS/Remote Sensing can help in timely disaster management.

8. The CRISPR/Cas9 genetic scissors have revolutionized the genome editing technique with applications in various areas. Discuss. (150 words) 10
- क्रिस्पर/कैस9 (CRISPR/Cas9) आनुवंशिक कैंची द्वारा विभिन्न क्षेत्रों में अनुप्रयोगों के साथ जीनोम संपादन तकनीक में क्रांतिकारी परिवर्तन का संचार किया गया है। चर्चा कीजिए।

Recently Nobel Prize in

Chemistry is given for revolutions in
Genetic Sciences by CRISPR-CAS9 Editing.

↳ So, it can be understood that
it has revolutionised Gene Editing.

CRISPR
CAS9 → It acts as Gene-Editing Scissor
with help of CRISPR Engine
and CAS9 Protein

↳ Eases Germline Editing and
Pronounces ~~pronounces~~ desirable
characteristics.

(LULU) WANG Babies in China who
are HIV Resistant

Applications

- (Sonsate)
- ① Stem Cell Therapy using m-RNAs
 - ② GM Crops Cultivation (GM-Mustard)
 - ↳ Drought Resistant
 - ↳ Pest Resistant
 - ③ Therapeutic Cloning and DNA Alteration.
 - ④ Tackling Antibiotic Resistance through Bacteriophage Tech

Issues

- So,
- ① Violation of Medical Ethics (LOLU) WMA
 - ② Threat to Agro Bio Diversity due to GM Crops
 - ③ ~~③~~ { Parliament on Science and Tech

However, if used in Right Spirit, it can solve many of our problems.

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 G7 initiated body
housed at OECD Secretariat which aims
at Global Coordinated Action against
Money Laundering and Terrorism along with
Organised Crime.

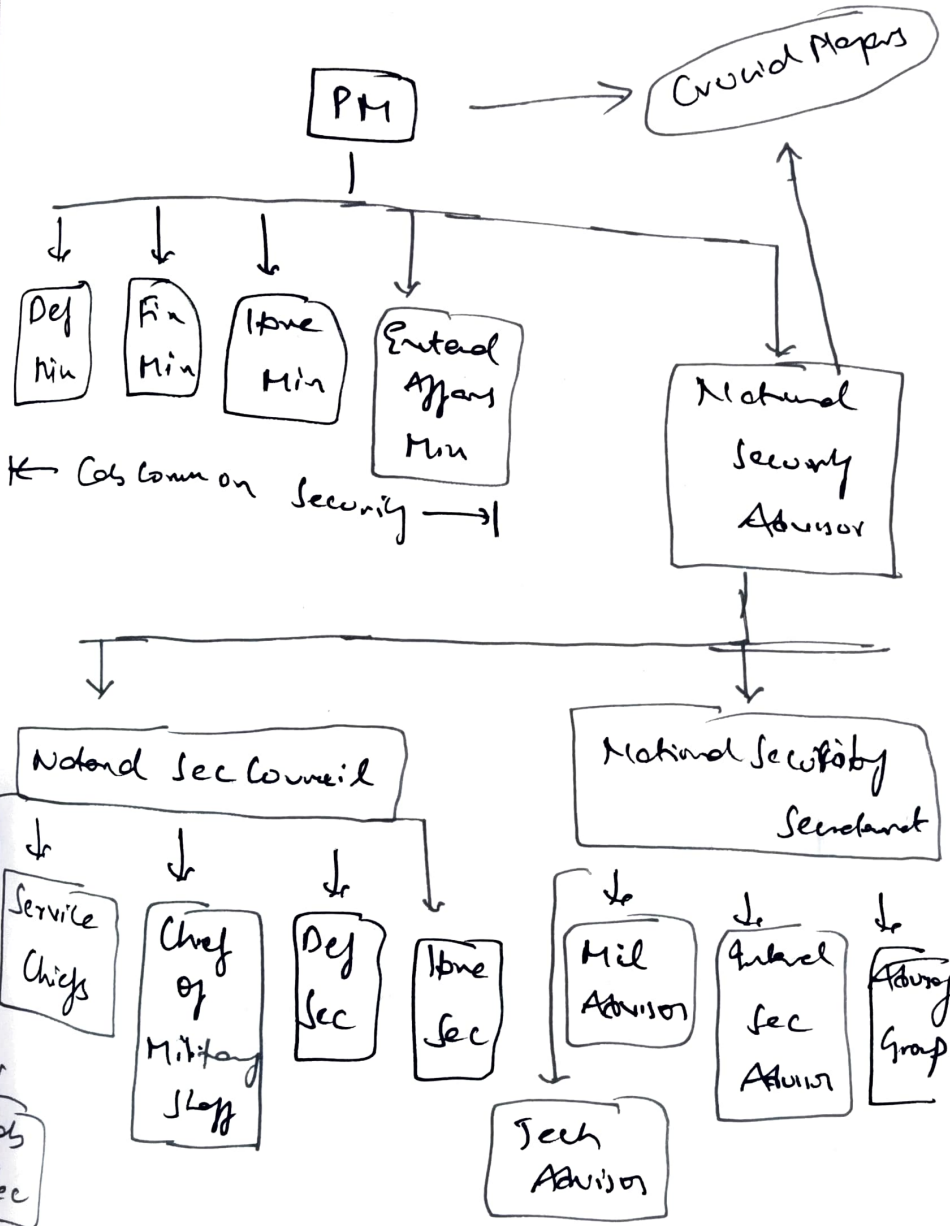
Role Played

- ① Naming - Shaming to ensure
compliance of developed countries
(Black List, Grey List)
- ② Recommendation of
Individuals Arms Embargo
Asset Freeze
Travel Ban On
that act as threat to global
security.

- ③ 40+9 Targets to ensure compliance on nation-states to curb the supply chain of Terrorism.
- ④ Co-ordinator with all FAOs through Extrat Group to augment intelligence in Money Laundering.
- ⑤ Encourages Nations to pass legislations tackling money laundering and promotes Institutional and Resource Support (PMLEA Act, 2002 in tune with FATF)

Thus it plays key role in realising the mandates of UNODC as well as UN Convention against Corruption by promoting financial as well as physical security.

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।



There have been reforms recently in
National Security Architecture:

① Reform in National Security Secretariat
Council

↳ Addition of Advisor on Internal Security

↳ Creation of National Security Advisory Group.

② NSA made head of National Security Council replacing Cabinet Secretary as well as head of Defence Planning Committee

③ Creation of Chief of Defence Staff to coordinate between Civil and Military Branches.

④ Separate Department of Military Affairs in Ministry of Defence.

⑤ NITRO to be housed in National Secretariat. Security

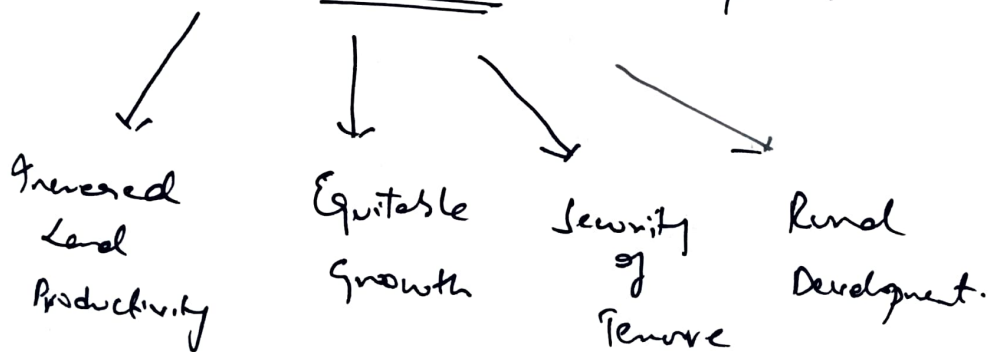
This can help in tackling the present Two-Front Challenge in Border

along with ongoing Developments in Afghanistan as well as ISIS growth.

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।

Small-Marginal Farmers account for 70%. whereas large Farmers are of 10%. which conveys how skewed land distribution is in India.

So, Land Reforms can help in:



Hurdles

① Poor Land Record digitisation in some states

(No compliance to Land Record Modernisation Program)

② Improper Registration due to huge stamp taxes, regulatory

Hindes

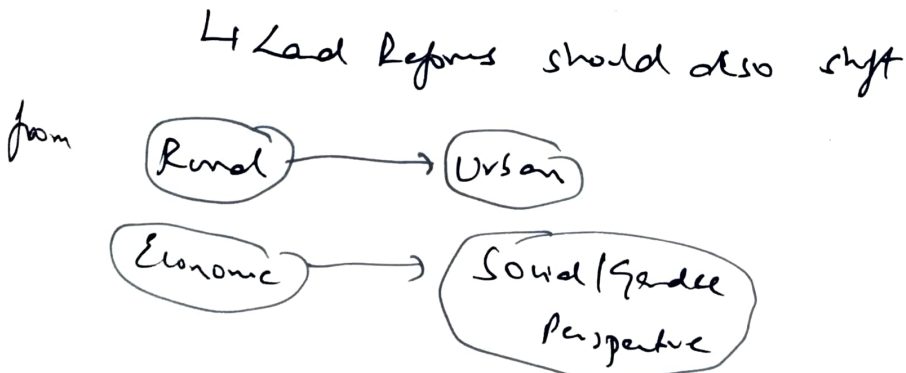
- ③ Land Reforms is still a political issue
(Lack of Political Will)
- ④ Poor State Participation despite "Land" being state subject.
(Only states like West Bengal have been successful)
- ⑤ Social Barriers in Land Pooling, Cooperatives
- ⑥ Schemes such as PM-KISAN, are further aggravating land fragmentation.

Advantages of Land Reforms in Contemporary Times

- ① Rural Development with growth in Agriculture Productivity
(Ownership of Land can increase efficiency).

- ② Reforms such as "Land Leasing"
can reduce distress migration
- ③ Social Inclusion with women
being given Property Rights
[Positive Feminisation of Agriculture]
Financial Inclusion
- ④ Promotion of Co-operatives and
FPOs which leads to value
addition in Agriculture.
(Operation Flood)

Therefore, Land Reforms
as per FAO helps in demolishing exploitative
Centres in rural areas that act as hindrance
in Rural Development.



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।

As per recent SOFA Report,
Production in Agriculture has doubled in last
2 decades, but Malnutrition has further
worsened ($\geq 1/3$ rd Stunted, 50% Anaemic)

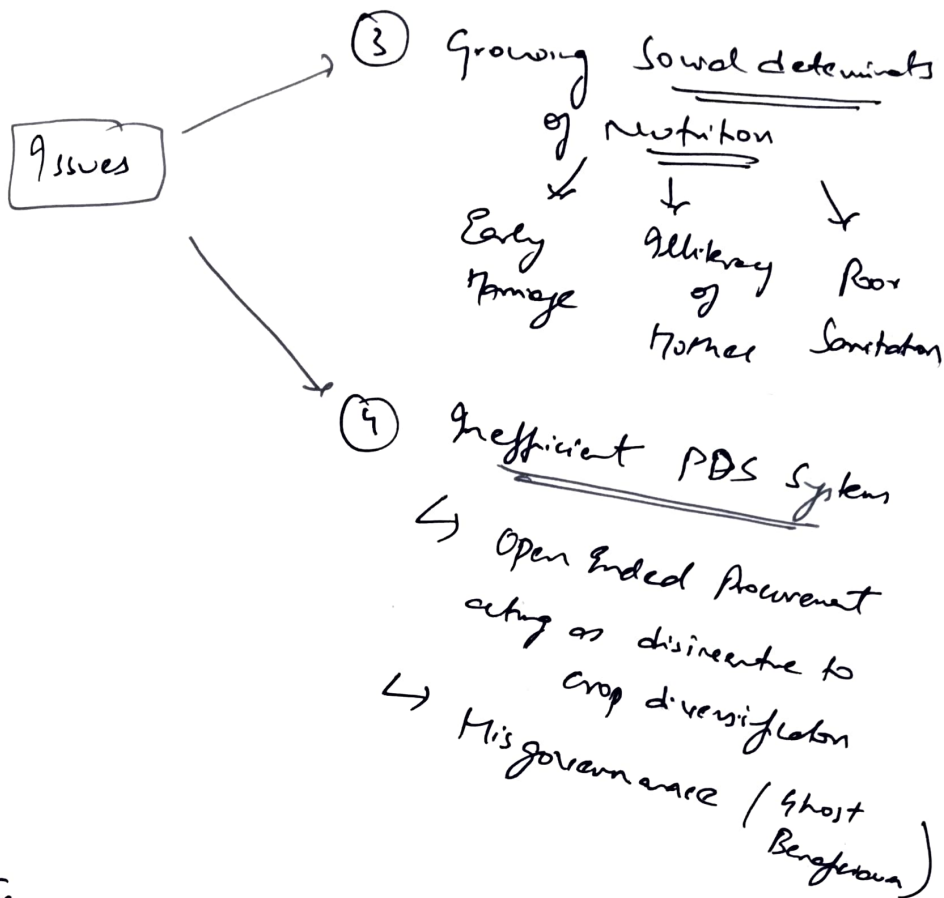
→ Therefore, Nutritional Security matters
more than Food Security.

Issues in
Nutritional
Security

→ ① Poor Nutrient Literacy
(N.S. Information
Content)

→ ② Lack of Agro-Bio diverse
diets

{ C+BPOL: 70,000 species in our
diet reduced to
30 species }

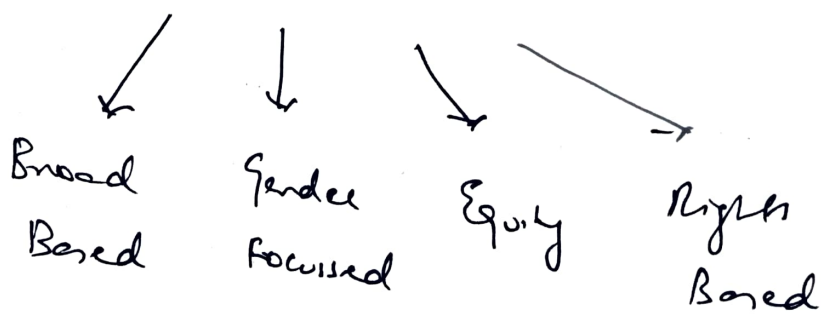


Framework for Nutrition - Self Reliance

- ① Adopting UNICEF's Life Cycle Approach (Infant - Child - Adult - Old)
- ② Priority to Agro-Biodiversity (Promotion of GIATTS, Kirti Poshan kosh)

- ③ ~~Vulnerable~~ Mapping of Nutrition Vulnerable Areas such as (Rainfed Areas, North East, BINSARU) with help of World Food Program.
- ④ PDS to act as bridge between NFSA - NFSA, by encouraging Crop Diversity, Millet Plantation.
- ⑤ Autonomy to Beneficiaries by Cash Transfer, Food Coupons.

Therefore our Nutritional Security Framework should be:



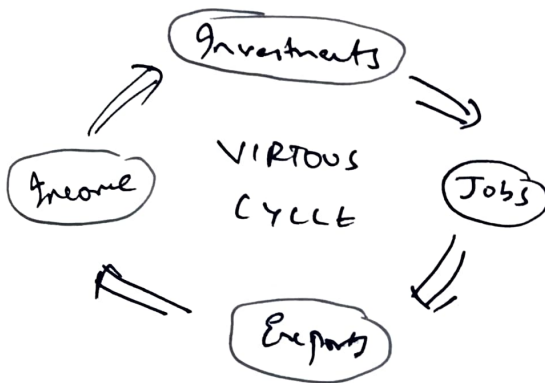
to fulfill UN SDG 2 of Zero Hunger.

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 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।

As per Economic Survey 2019-20,

Private Investment % GDP has declined from 34% to 28.5% denoting "Growth Contraction".



∴ Investments
Can lead to
thriving
Animal Spirits
in Economy.

Importance

- ① Unlocks Productive Capital in Economy which fosters Growth. (FDI)
- ② Unleashes "Economies of Scale" by Tech Reforms, Managerial Skills.

→ ③ To become a export-oriented economy,
Private Investments are need to provide
labour intensive Exports.

(Exports for Jobs - Eswar Survey)

→ ④ Reduces burden on government as it
is suffering on Twin Deficit (F.D/C.A.A.)
and contribute to Mixed Economy.
(Govt as facilitator)

→ ⑤ Private Investments can promote
Entrepreneurship as well as Competitor in
Economy.
(Venture Capital, Seed Capital)

Steps Taken by Government

→ ① Make in India by promoting
enabling environment to Investments
in Manufacturing (New Mindset, New Process)

- ② Ease of Doing Business to reduce regulatory compliance and ensure proper contract enforcement (IBC)
- ③ Atma Nirbhar Bharat, with focus on Land - Labour - Liquidity Reforms
- Laws for FDI participation.
- ④ Reforms in Essential Commodities Act, Corporate Farming for Private Investment Contract in Agriculture.
- ⑤ Strategic Disinvestment and Foreignization of Risky Assets
- ⑥ External Debt Borrowing to reduce crowding out effect.

Also, along with it

Proper Financial Sector Reforms in Banking, NBFC are need to curb fall of private investments.

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 का आवश्यक बनाते हैं। सविस्तर वर्णन कीजिए।

India is blessed with
huge geographical
diversity and resource
security, but the
regional inequalities still
persist.



→ Only 4 Southern States contribute to 50-60% of GST

→ States like Bihar, U.P, Odisha still lags on development indicators { NITI Index, SDG Index }

NITI SDG
INDEX

Performers: T.N, Kerala, H.P
Front Runners: A.P, Tel, Mch
Apprentices: U.P, Bihar, Assam

So, there's varied amount of development across regions.

Targeted Region Specific Action Plan

→ ① Preventing One-Size Fit Approach
and provide Site Specific Interventions
(Aspirational District Program)

→ ② Focus on the strengths of region
and to harness it, along
with human
regional development.
(Resource-Based Manufacturing)

→ ③ Creation of "Niche Economies"
to augment growth of regions

S. States → Coastal (Fisheries)

Raj / U.P / Punjab → Livestock & Agri

Odisha / Jharkhand / WB / Chatt → Mineral Economy
(PURVOPARVA)

Maha / Gujarat → Oil Economy.

Govt Measures

- ① Aspirational District Program for
Region Specific Development
- ② Special Category States and
Special Grants to Backward
States. (Empower Commission)
- ③ NITI SDG Index to incentivise
States to act better.
- ④ Flexi Funds under Sponsored Schemes
to encourage Performers
- ⑤ Cluster Based Agri Growth
(One District - One Product)
- ⑥ Multi-Level Development Planning

Therefore, Balanced Regional
Growth is implicit for a sustainable growth
trajectory.

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 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।

Dahwai Committee reports

that currently Farmers receive only 50%
of Price for their Produce contradicting the
spirit of Doubling Farmer's Income by 2022
due to present Marketing Regime.

Barrier-free Trade

- ① Effective Price Realisation
- ② Value addition to Produce
(India only has 20% value Addition)
China - 50%
- ③ Curtails food inflation and
leads to food security
- ④ Export Prospects are improved.

Existing BottleNecks

- ① Monopoly of APMC's due to Right over ~~the~~ Produce
- ② Poor participation of Private Players in Market, Warehousing and Stock Limits (Essential Commodities Act)
- ③ Poor development of Market Infra and Logistics hindering Market Access
(~~only~~ 70% of Small Farmers sell to Village Traders itself)
- ④ Entry barriers due to multiple levies such as Loading Cost, Storage Cost, Inspection Cost (only 50% is recovered)
- ⑤ Absence of Credit and Market Intelligence.

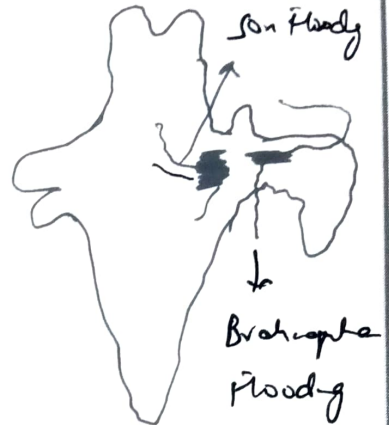
Recent Legislations

- ① Amendment to Essential Commodities Act
 - ↳ Private Players in warehousing and storage
 - ↳ Removes Arbitrary stock limits.
- ② Farm Produce and Trading Act,
 - ↳ Entire ~~State~~ as Single Market Nation
 - ↳ Freedom to sell produce anywhere
 - ↳ Creation of Port Jus Yards and awarding it "Market" status
 - ↳ Single Port Levy and an E-Trading system (e-NAM)
- ③ Contract Farming Act
 - ↳ Promotes disintermediation of supply chain
 - ↳ Value addition to produce
 - ↳ Attracts FDI Processing and Exports by MNC Participation.

Thus, it can realise the

vision of doubling farmer income by 2022.

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।



NDHM Report

→ Around 36M people are vulnerable to flooding

→ Out of it 30-40% belong to State of Bihar and Assam.

Reasons for Annual Flooding

→ Topographical

→ Annual S.W Monsoons from Bay of Bengal Branch

→ Altered River Regime of Brahmaputra, Ganga due to glacial melt

→ Both the states are located at downstream of rivers.

Other Reasons

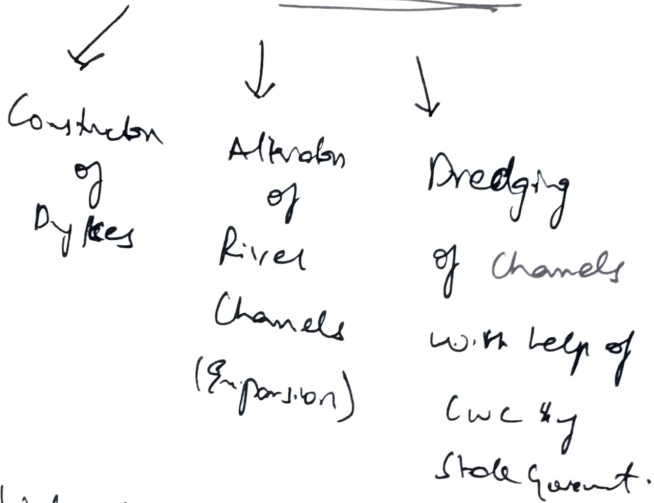
- ↳ Embankment Based Flood Control
which is outdated due to
dilapidation
- ↳ Colonisation of flood Plains of
Ganga, Brahmaputra due to
Infrastructure Activities.
- ↳ Population burden leading to
excessive deforestation and
killing of Recharge zones
- ↳ Exponential Agriculture growth
leading to more canals which
are inundated during floods

Measures ~~Taken~~ Needed

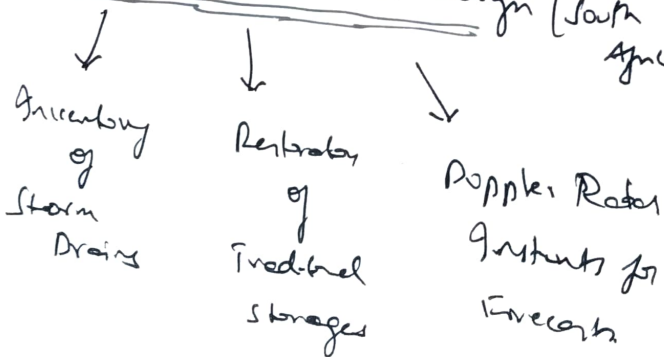
- ↳ ① National Hydrological Mission to
update stages in river basin
in sync with Metered day
(CWC + ISRO)

→ ② National Flood Commission to provide knowledge support to 2 states.

→ ③ Following NOMA guidelines



→ ④ Water Sensitive Urban Design (South Africa)



As annual floods cost almost 1% GDP along with huge Human, Biodiversity Loss (biodiversity), Flood Resilience needs to be improved.

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।

Digital India comes up

with 3 Aims :

- a) Digital Empowerment
- b) Digital Address Core Utility
- c) Services on Demand

5G is crucial to reach all the aims.

Currently Government is planning to auction the
5G Spectrum in year 2021-2022

Digital
Revolution

- ① Low Latency can lead to Quick Delivery of Services (E-Governance)
- ② Future with digital developments such as AR 4.0 (IoT, Big Data, AI)

Digital Revolution

- ③ Augments innovations
in Health and Education
Sectors
(Tele medicine, Smart Education)
(National Digital Health Mission)
(New Education Policy)
- ④ Huge Employment
Potential (Demographic Dividend)
{ NDCP 2019 → 8M Jobs in Digital Sector }
- ⑤ 5G is crucial for Data Economy which is
targeted under New
Economy (Budget 2020)

Tele Density Index in India (103%) → ITU

↳ So, 5G can create a digital Revolution.

Challenges

- ① Telecom Distress
 - ↳ Huge NIPAs and Debts
 - ↳ Litigation Issues over AGR, Spectrum Fees (Airtel - Vodafone)
- ② Emergence of Monopoly in Telecom, disincentivising New Entrants.
- ③ Huge Spectrum Fees
- ④ Reliance more on foreign companies, but geo-politics creating issue (Huawei)
- ⑤ Announce Digital Infrastructure in India (BharatNet is still in operational stage)
- ⑥ Digital Divide and Issue of Privacy. (No proper data protection legislation)

Budget aimed at Harnessing
4A4.0 and Demographic Dividend together for
\$3B Economy, for which 5G is crucial.

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 based on "Qubits" which can rapidly computation and can provide great insights in Scientific Research and Application.

Applications

- ① Development of Super Computers (Syconware) (Protique)
- ② Weather Forecasts and Atmosphere Modelling
- ③ Satellite Applications and Astronomy (Black Hole Observation, Galaxy) Solar system, ~~Prods~~
- ④ Big Data and Machine Learning (Algorithmic Modelling)

- ⑤ Drug Research and Medical
Diagnosis
(Monitoring TB Burden, Microbial
Resistance, Epidemiology)

Challenges

- ① Brain-Drain of Scientists due to
lack of domestic opportunities
(Attracted to Silicon Valley)
- ② Regulatory Burden and ~~low~~ huge
Compliance costs &
(Low Enthusiasm of M/o S&T)
- ③ Lack of Proper Environment to
test and roll out prototypes on
small scales (Sand Boxes)
- ④ Poor R&D expenditure on Quantum
Tech by Government
(Less than 0.1% GDP)

Recent Measures

① Collaboration with ^{France} ~~French~~ ⁱⁿ development of Quantum Super Computers.

② National Mission on Quantum Technologies

↙	↓	↘
Enabling Environment	Digital Type	Human Resource Development

③ "New Economy" (Budget 2020)

↳ Quantum Frontier Parks

↳ Data Centres

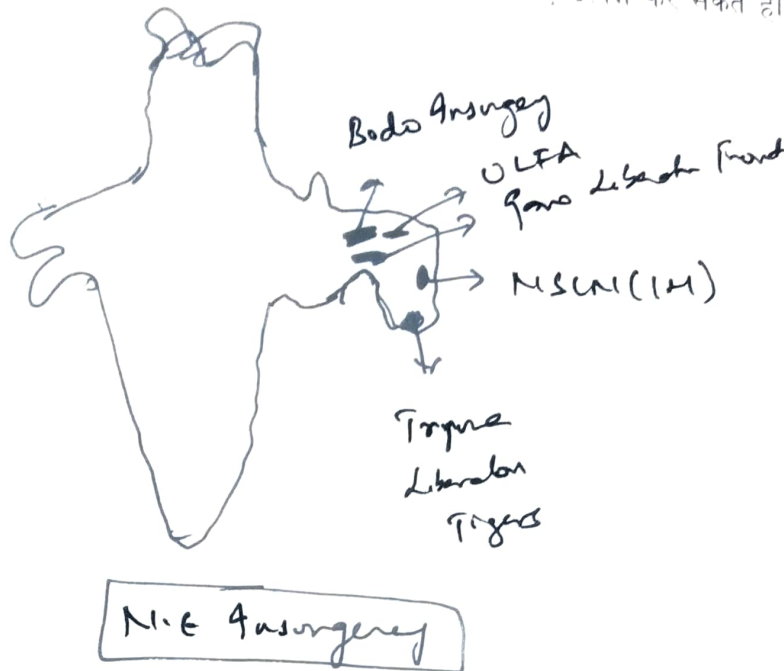
④ Rolling out of 5G

Therefore, Quantum Technology is needed in the era of 4R 4.0 to promote research in science and set up Knowledge Economy.

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।

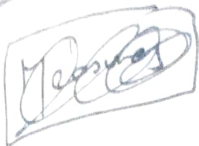


→ Recently there has been development in peace negotiations with N.E Insurgency groups.

- Surrender of Bodo Groups and signing of Bodo Peace Accord with promise of Restoring Bodo Autonomous Council
- Ongoing Naga Peace Deals under R.N. Ravi
- Setting up Burma-Myanmar Dispute and peaceful Insurgents

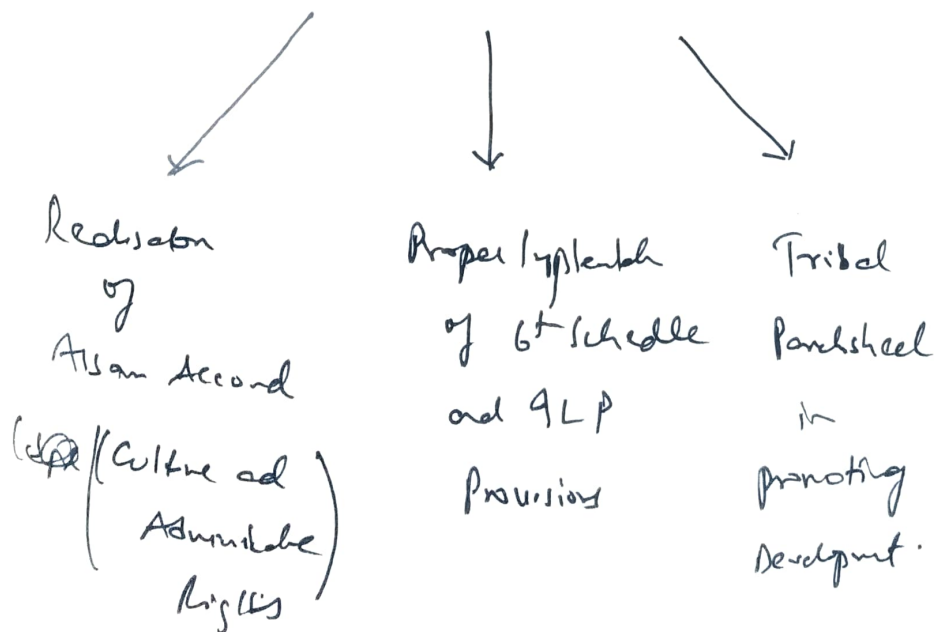
Hurdles

- ① Cross-Border Support for Insurgency
Groups is still intact
(ULFA troops in Bhutan)
(Mizo Troops in Myanmar)
- ② Rise of more demands such as "Nagaland"
"Bodo State" against the Constitution
Can reverse the efforts made.
- ③ Prevailing Sub Regional Conflicts and
Ethnic Conflicts [Mizo vs Naga]
[Bru vs Mijos]
Can re-begin insurgency.
- ④ Recent govt interventions such as
NRC, Citizenship Amendment Act,
Permanent Resident Status is
infuriating Backward Groups due to
demography dilution.



→ ⑤ The ~~per~~ menace of Golden-Triangle
Can boost drug trafficking furthering
the links between Organised Crime and
Insurgent groups.

So, Government should follow
"Development Based Framework" in dealing
with insurgency rather than mere Law & Order
Issue.



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 Space Integrity is

crucial for safeguarding the "Critical Information

Infrastructure" (CII) ~~and~~ which can have

huge implications on Sovereignty and Security.

key Vulnerabilities

- ④ Cyber Space is still a "Residual subject" hindering proper administration.
- ④ Poor data security measures and absence of Data Protection Law.
- ④ Low Expenditure agencies not getting upgraded with tech advancements (Advanced Persistent threats)

→ Growing Cyber Espionage and Cyber Terrorism especially from State Actors such as Pakistan, China.

→ Most of our data servers are located outside the Country
(Increased Vulnerability)

→ Use of imported Devices which can compromise the integrity.

→ New Cyber Forensics (Vacancies)
Framework for New Cyber Security Policy

→ ① 24x7 Surveillance Mechanism
protecting Critical Information Infrastructure.

(Role of NTRC, CERT-IN to be
as leaders)

→ ② Promoter of "Cyber Hygiene" in
Citizens through Cyber Swachh
Kendras.

- ③ 5,00,000 Framed non-Buwei to deal with cyber security issues.
- ④ National Critical Infrastructure Council with special emphasis on critical sectors such as Space, Defence
- ⑤ Capitalizing Co-operative Federation by incentivising states who perform better on cyber front
better
(Kardes - Cyber Dome)
- ⑥ A dedicated "Cyber Crime Reporting Platform" and "Threat Analysis Unit"

Therefore New Cyber Security Policy should provide Artificial Input to Cyber Security Targets with proper skill development.