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GENERAL STUDIES (TEST CODE : 1419)

Name of Candidate	Narayan Amit Malempati		
Medium Eng./Hindi	English	Registration Number	687682
Center	Online	Date	23 rd Dec, 20

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

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)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI** इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
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।
6. Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
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।

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

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar
Delhi- 110009

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

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।

Electricity is the engine of our economic growth.

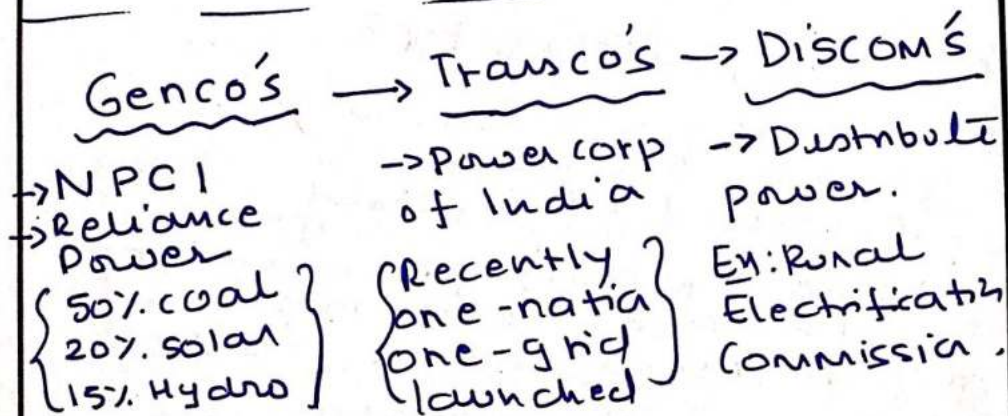


Fig: 1

Thus Discoms are the last leg of the electricity infrastructure in our country. Yet they are plagued with several challenges:

1) Siphonage of electricity by population & weak fines and enforcement mechanism

2) Power-Tariffs kept deliberately low for farmer welfare which affects the profitability of discoms.

3) Operation in less-dense areas on govt - direction has led to reduced profitability.

4) old infrastructure & lack of capital availability to invest in new infrastructure.

< Is Privatising a Solution? >

Yes: ① Increased efficiency

② More company friendly might increase investment in power.

③ Govt fiscal deficit reduce

No: ① price of electricity would increase drastically

② May affect National Dev & Inclusive Growth.

③ Govt launched UDAY scheme to help stressed discoms so results expected soon.

< Way-forward >

Thus new-solutions such as Smart-Metering & Netmetering

via solar cells will help achieve SDG 7 of clean & affordable power.

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 is the use of ICT & Next Gen Appliances to aid in the improvement of yield & quality of the crop produced.

< Advantages >

1) Drones can be used to survey the land & assess the yield. It would help to plan better crop management.

2) GIS can be used to digitize land records & settle disputes.

3) Smartphone Apps & broadcasting systems to deliver tailor made-advice to farmer.

4) Using AI & Machine Learning

to predict crop yield & the estimated sale price.

5) creation of National Agri Market as started by E-NAM.

6) Using Smart-Internet of Things enabled devices, the control of pumps can be done remotely.

7) Real-Time monitoring, weather & rainfall analysis & disaster preparedness possible.

8) Rental of Harvesting Equipment & Happy Seeder is easier.

9) Home-delivery of fertilizers, seeds & weedicides.

< Way-forward >

While Smart-Agri will help achieve SDG 10 (Reduced Inequality) & double farmers income by 2022; but challenges of privacy, digital divide & cost of infrastructure must be addressed.

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।

Earlier economic policies were focused on 'Growth'; a quantitative approach. They believed that ultimately prosperity would 'trickle-down' to the masses.

However rising inequality, hunger, disease, low-wages, poor education & healthcare are causing societies to talk about Development & Inclusive Growth.

OECD: It defines inclusive growth as that growth whose benefits are shared equitably among the population & which provides equal opportunities for all.

Many Scandinavian Countries

Don't write anything in margins
1 year before & after the exam

have adopted this approach.

Good Health

Decent Wage & Income

Mentioned in Art 47 of DPSP & recently

Ayushman Bharat Abhiyan is a

step in the right direction

Component of I.G.

Judicial GDP/PPP

is only 1.25 Lakh/year & ~ 20x less than USA.

Quality Education

Note: ASER Report by N60 Pratham says class 5 students cannot read class 2 books

Fig: 1

Ex: Oxfam Internals 'Time to Care Report'

↳ 14,000 years for domestic help to earn 1 year salary of Software CEO

<Contemporary Relevance>

India ranks 130 in Human Dev Report of UNDP & 115 in the

Global Hunger Index of well-hunger-

-life. Hence "Sabka Sath Sabka Vishwas" approach is

needed to achieve SDG's by 2030.

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।

After the COVID-19 Lockdown, Aatma-Nirbhar Bharat Abhiyan

was launched by our Prime Minister to make India into a self-reliant superpower.

The goal to create 10 crore manufacturing jobs & 25% of GDP by manufacturing is being given a fillip.

< Way-Forward >

1) Regional Resource based Manufacturing needed.

→ Coastal: Coir

→ North East: Bamboo

→ West-Bengal & Bihar: Jute

2) MSME to be promoted;

→ Recently, definition revised.

→ Avoid MSME Dwarfism which

- prevents them from becoming giants by tweaking rules.
- 3) Textile Promotion as it helps low skilled workers & women.
- Encourage in Rural areas;
 - 'Solar-Chaukha' Scheme by Mo MSME, etc.
 - Free Trade Agreement with European Union.
- 4) Leather & Footwear; India is 2nd largest producer yet the exports are negligible.
- R&D needed; Synthetic
 - Sign proprietary deals; Nike
- 5) Assemble in India & Network Products to be leveraged as wages rising in China.
- 7 more new jobs by 2030.

< Conclusion >

Above initiatives will help India become a Strillion \$ economy by 2025 & move Millias out of poverty.

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

असैनिक 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 is a heavy inorganic metal pollutant that causes great damage to humans.

< Sources >

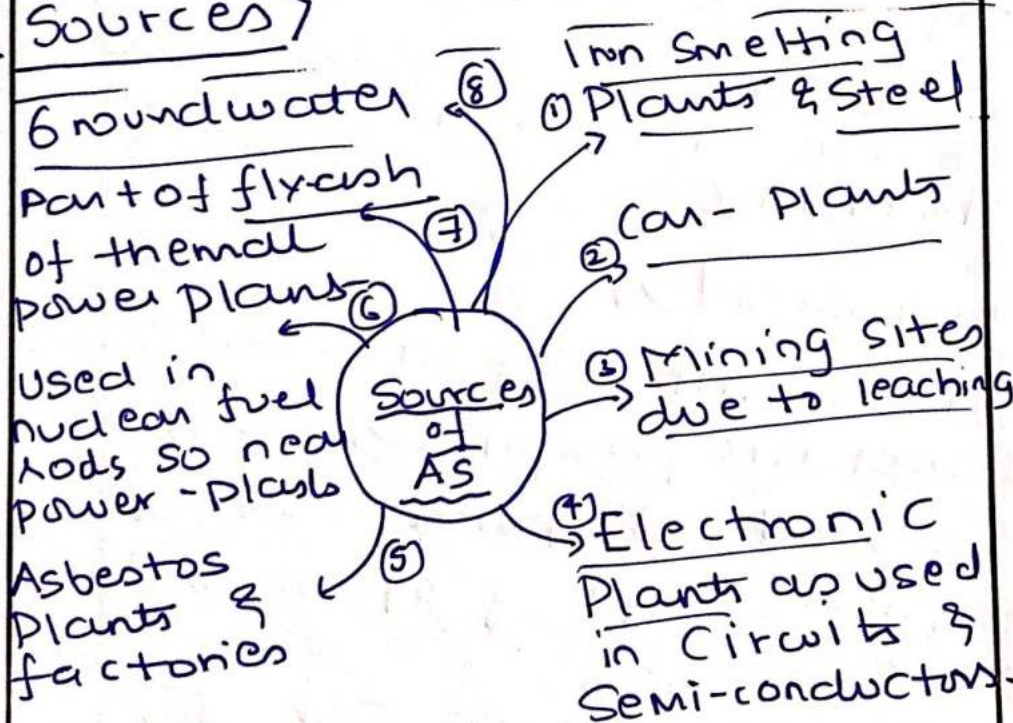


Fig : 1

< Consequences >

1) Affects respiratory system of humans & leads to Asthma, lung Inflammation, etc.

2) Contact with skin, eyes, etc
causes rashes, dermatitis &
inflammation & sources.

3) World Health org^m recommends
that ≥ 50 ppm of As is considered
dangerous to human health.

4) Affects Agriculture yield
adversely & causes diseases
in Bovines leading to their
infertility.

< Way-forward >

1) Arsenic-filters of charcoal &
electrostatic precipitators need
to be used at point sources.

2) Regular sampling of Ground
water sources.

3) CPCB to mandate SOP for
arsenic control & promote
awareness via IEC.

4) National Air Quality Index
to also monitor it & report
on it regularly.

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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।

Renewable Energy is the production of energy from sources which do not pollute the environment & which in theory are not in risk of depletion. Ex: Solar & wind

Note: India as per world's 'best-practices' added Hydro Power to renewable energy.

- ↳ Subsidies for companies setting up plants
- ↳ Finance at cheaper rates
- ↳ Renewable Purchase obligation on the Gencos at ~ 15% of power.

How Renewable energy is promoted

Present Capacity at 11CT & Net-metering
↳ 1756w to to sell excess electricity
be(↑) to 4506w back to Discom,
by 2030.

< Green Term - Market Ahead >

It is a national market for Renewable Energy. It will link the surplus states with that of the deficit states.

① → True-price discovery possible

② → Future-contracts & spot sale both available.

③ → Solar, wind, Hydro are all on for sale.

④ → It will count under the RPO obligation

It is in sync with India's participation in the International Solar Alliance & push towards Green economy.

< Way-forward >

GTAM is thus a step in the right direction & will help achieve UNDP'S SDG 6 of Clean & affordable electricity for all

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 is a proactive approach to reduce & manage risk & vulnerabilities associated with an adverse event with the potential to cause devastating damage to community beyond its coping capacity.

< GIS & Remote-Sensing >

Using these technologies, the satellites & the drones can map out the topography of the area & create models.

1) Hazard Zonation Mapping:

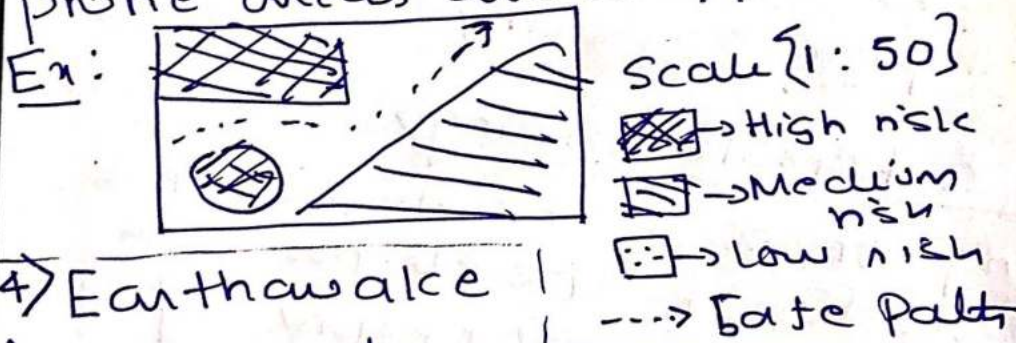
It was done after the 2013 Uttarakhand floods to identify weak areas & reinforce them.

→ Crowd Management also possible as if probability of

Landslide increases then the road can be closed

2) In Orissa & Bengal; Low lying areas are surveyed which are prone to floods due to seawater incursion or river overflow of Ganga, Mahanadi, Subarnachal or Vamsadhara

3) In the Western Ghats of Maharashtra & Karnataka rockslide prone areas are mapped.



4) Earthquake fault speeds can be marked

Ex: Indian plate → NNE (15mm/yr)
thus construction can be avoided in these areas. Ex: Terai Region of India & Nepal

<Way-forward> The NDMA, 2005 & NDMP, 2016 are enacted to enable India to fulfill obligations under the Sendai Framework 2015.

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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।

All humans are made of cells whose centre called Nucleus has 23 pairs of chromosomes. The chromosomes are made up of DNA & contain Nitrogenous bases which make life possible due to their encoded information.

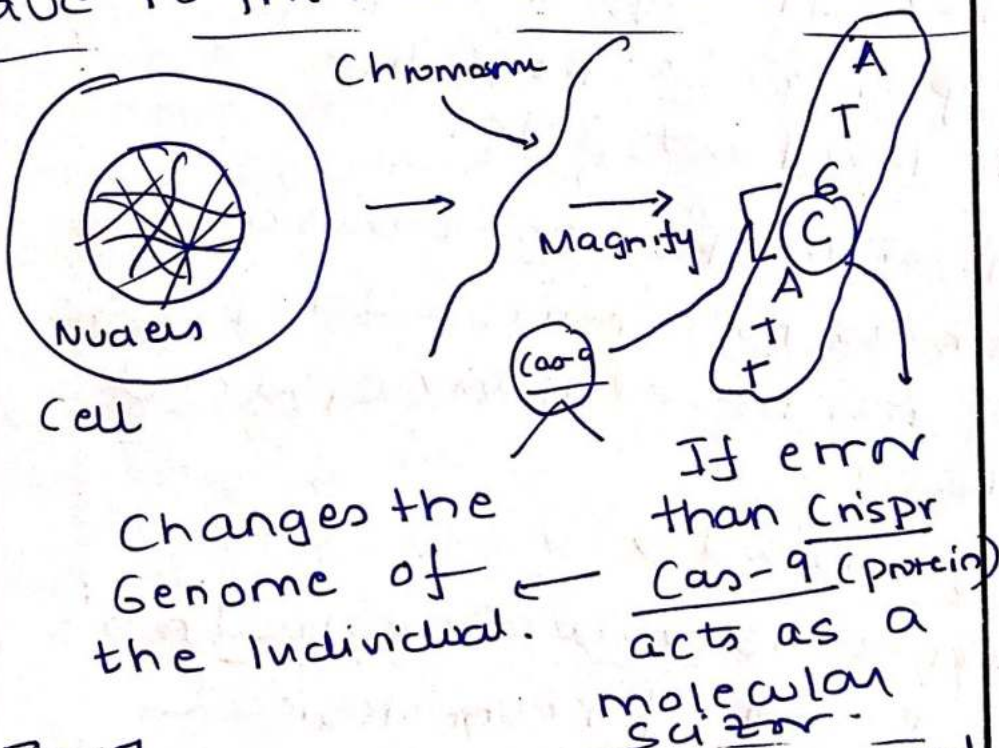


Fig : 1

Changes :
 -> Somatic : Not passed on
 -> germline : Inherited hence ethical concern.

Applications

- 1) Curing of genetic diseases such as Cancer, Melanoma, Heart-disease, etc.
- 2) Creation of Genetically Modified organisms that can create chemicals, such as Insulin at our whim & fancy.
- 3) Dev GM-Crops with pesticidal properties. Ex: Bt-Cotton & GM Mustard, etc.

A) Designer Babies: Make changes such as nose, hair, color, IQ, etc. This has raised many ethical concerns.

< Way-forward >

Science is value-neutral hence the result of technological progress dependent on our value system. Hence great-amount of debate needed on application.

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।

Financial Action Task Force (FATF) is an inter-governmental orgⁿ started by G7. It is head-quartered in Paris & the Secretariat services are provided by OECD.

<Features>

1) Prevent Money-laundering, State sponsoring of terror, organized crime, terror-finance.

2) Ensure economic order free of smuggling - human trafficking & other social menace.

3) Works through its regional bodies such as Asia-Pacific Working Group.

4) Based on objective criteria puts countries on grey & black list due to their activities.

10. Discuss the recent reforms that have been undertaken in the National Security Architecture of India.

भारत की राष्ट्रीय सुरक्षा संरचना में हाल ही में किए गए सुधारों की विवेचना कीजिए।

(150 words) 10

National Security is one of the primary responsibilities of the State; with rise of state sponsored terrorism, organised crime, asymmetric warfare & lone wolf attacks the following changes have been made:

1) The post of Chief of Defense Staff has been created based on recommendation of the Kargil Review Committee.

1.1) He is head of Dept. of Military Affairs

1.2) First among equals of the 3 service chiefs.

1.3) No direct operational command of armed forces

1.4) Reports directly to PM.

2) The number of Deputy National Security advisors have been increased to allow the National

Security advisor secretariat to function better.

3) Strategic Policy Group has been reformed with NSA as its chairman. The Cabinet, Home, Finance, Defense & External Affairs Secretaries are its Members too.

Thus above land-standing changes will promote ability of India to act as Net security Provider in South Asia & Indian Ocean.

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 refer to the redistribution of land resources in an equitable manner.

At Independence; Acharya Vinod Bhave & JP Narayan had led the Gramdan & Bhoodan Movt's with these noble ideas.

Even our 1st PM Nehru was devoted to this cause. He enacted 1st CA in 1951 to create the 9th Schedule to protect the land reform acts from JR. Successive Govt's have found the land reform issue to be more challenging as the initial enthusiasm of the formation of New Nation has reduced & personal ambitions & statuswism has set in.

< Challenges >

- 1) Land consolidation is very difficult as our mfg sector is not well dev. We shifted from 'Agri → Service' industries thus our growth ⇒ Jobless. Hence lack of jobs for farmers to move into.
Ex: 18% of GDP but 40% of the workforce by Agriculture.
- 2) Land Records not maintained & heavy fudging so disputes on ownership stall reforms.
- 3) Many farmer org^{ns} & caste based pressure groups have resisted efforts.
- 4) Huge & unreasonable demand for land compensation which adversely affects fiscal deficit of state.
- 5) Vested interests & Politico-Industrial nexus.
- 6) Laws on ceiling have been

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regularly flouted. In addition, there are many exemptions.

People will shift to Mfg & Service sector which will help achieve \$ Trillion by 2025 (3)

Fig: I

Reduce load on Agriculture & reduce disguised unemployment (2)

Ex: 86% of farmer own less than 2ha of land

Adv of Land Reforms

The pooled land can be used for novel purposes such as Cold Chain, Food Park, Defence etc (4)

Farmer land size would (↑) ⇒ farm mechanization & better methods (1)

Ease of Doing Business will be promoted hence make India a lucrative market

Ex: Farmer Producer Companies will get a boost
Cooperative Farming

Therefore Land Reforms on a Pragmatic & people-centric manner must be implemented to achieve goal of "Sabka Saath Sabka Vikas".

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।

Hunger is the distress that arises from insufficient caloric intake. Thus early policy makers focus was ensuring adequate caloric consumption via food security. Hence we adopted the PDS/T-PDS/IPDS & recently the NFSA, 2013.

<Challenges>

While food security has improved; yet many children suffer from nutrient, mineral & vitamin deficiency.

→ Wasting Disease (Protein)

→ Marasmus Disease (Protein & energy)

→ Anemia (Fe is less)

→ Goitre (Iodine deficiency)

⇒ It led to rise of hidden hunger & Protein Malnutrition.

2) Science has established that lack of nutrients ⇒ Cancer, Diabetes Type-2, Immuno-Deficiency Syndrome, TB, etc.

3) Especially applicable for pregnant & Lactating women & children ⇒ ICDS Scheme, MawCD.
Thus Nutritional Security emphasis ✓

< Way-forward >

1) Fortification of foods with Iron (Anemia) & Iodine for Goitre.

2) Developing GMO foods such as Golden Rice by India Agri Research Institute, MoA FW.

3) Bharat - Poshan Krishikosh which keeps tabs on crop breeds & nutrient status & dev by MoWCD to be expanded

4) Prime-Minister Overarching Scheme for Wholistic Nutrition

to be implemented on war footing
 5) Suspend skewed MSP policies
 & instead promote coarse
 grains such as Jowar, Bajra
 & Ragi. Infact 2018: Intl. Year
 of Millets by UNGA.

< Conclusion >

Thus by addressing above
 Challenges we can fulfill
SDG - 2: Zero hunger &
SDG - 3: Good Health & Well
 being for all as set by UNDP
 by 2030 timeframe.

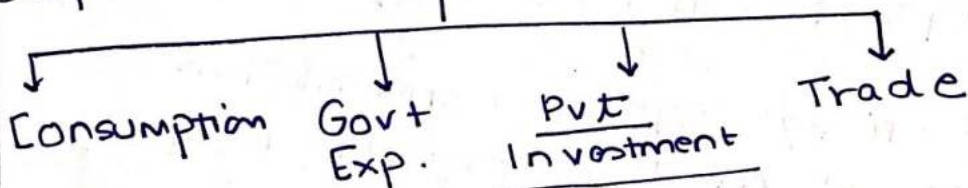
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13. Private investments are key for India to move into a high growth trajectory. Discuss. Also highlight the steps taken by the government in recent times to address the fall in private investments. (250 words) 15

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।

The GDP of any country is dependent on 4 engines of growth.

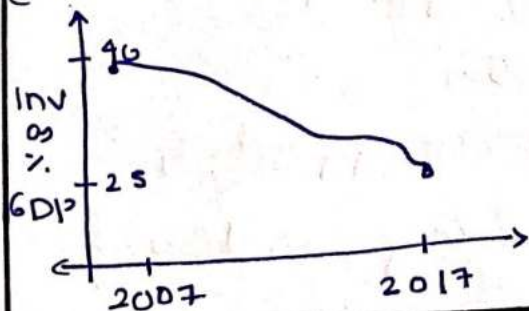


As per classical economic theories:
Savings → Investment → Growth

But as per ES-19/20 (K Subramania):

Investment → Growth → Savings

Thus a virtuous cycle of growth can be started by Investment.



Due to GFC,
⇒ Slowdown;
Investment has
come down which
has affected
Growth rate too.

Hence if we want to become a 5 Trillion dollar economy by 2025; then urgent need is there to ramp up Pvt investment.

< Steps taken by Govt >

- 1) National Agri Investment Fund under MoAFW to create more infrastructure assets.
- 2) National Infrastructure Pipeline to pump in 110L Crore in 5 year period; with 30% by Union, 30% by states & the rest by PPP.
- 3) Relaxing of FPI/FDI/ECB/borrowing laws to attract foreign investment.
- 4) Corporate tax rate cut to 22% & only 15% for new manufacturing firms.
- 5) Angel Tax cases dropped & Startup India schemes provides

- 4 year tax-holiday to startups.
- 6) CSR violations are no-longer considered criminal violation.
- 7) FPI Surcharge rolled back.
- 8) SEZ, EPZ, etc are being promoted. In addition, Skill India, Make-in-India & Assemble in India campaigns are being synergized.
- 9) As money multiplier & the spillover & +'ve externalities are very large; many orgs such as Invest India, Industry lobbies such as FICCI, CII & ASSOCHAM & remodelled org of govt such as DPIT are taking road-shows & summits to project 'Brand India' at world level.

< Way-forward >

Above steps are being implemented on war footing & will help achieve SDG 8 of decent work & economic growth for all.

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। सविस्तार वर्णन कीजिए।

India has a wide variety of geographical challenges which are compounded further by the wide-spread regional disparities, have led some to opine that a targeted regional specific action plan is the way forward.

Geographical Challenges

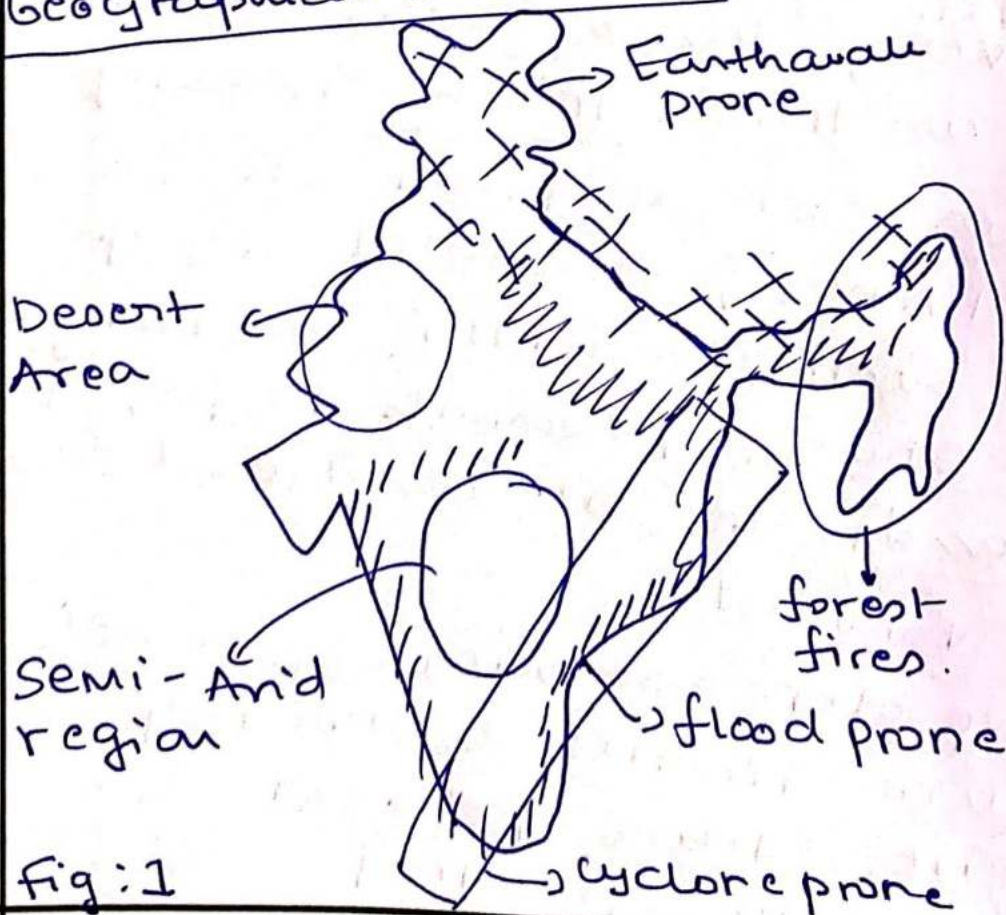


Fig: 1

< Regional Disparities >

1) North East, Hill States, etc have very less economic size.

Ex: Budget of BMC of Mumbai is greater than that of Tripura.

2) Bihar, MP, Chhattisgarh, Jharkhand & Odisha have huge tribal populations that lag in health & educational indicators which is challenging.

3) Insurgency, Terrorism & Disturbance Over system plagues many states such as J&K, Chs, Nagaland, etc.

4) Vast areas of RJ, UP, GJ have become arid & saline due to desertification & over irrigation.

5) The 'BIMARU' states are in aspirant ~~state~~ ^{rank} category of SDG Index as per NITI Aayog.

6) Entrepreneurship is concentrated mainly in the western & the Southern States hence the job-creating capacity is not

leveraged as per K-Sulramaniq
 in the ES-19/20.

<way-forward>

The replacement of Planning Commission
 which was a hierarchical &
 top down inverted body sent
 a signal that region-specific
 plans are need of hour. Then
 only would our rank in Human
 Dev Report & Hunger Report
 improve & will we be able to achieve SDGs.

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।

While India has 18% of the world's population it has only 2.4% of world's area, only a fraction of which is amenable to agriculture. Thus there is excess crowding in agriculture which contributes to 18% of GDP & supports 40% of workforce.

< Challenges >

1) At time of independence, the moneylenders would usurp the produce of farmers in the guise of past arrears; hence APMC laws were made which mandated that 1st sale must take place at mandi; hence rise of the mandi system took place with interstate restriction.

⇒ Thus farmer couldn't sell his produce at national level for a better price.

2) Also contract farming is also not allowed freely. Hence companies such as Pepsico, frito Lay not able to enter contracts.

3) States not passing APMC Reforms & other model acts as suggested by Union.

4) MS Swaminathan, Gadgil, DRSC on Agriculture have suggested many APMC Reforms.

5) Archaic ECA, 1955; prevents dev of logistics & cold storage facilities & thus hampers dev of national market. Also we face high-inflation in food

prices which affects common man, limits scope of monetary policy & acute shortages occur for vegetables, etc in Nov & Dec. Also inspectors prevent FoDB.

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< New Reforms >

1) APMC Reform: farmer need not sell only at Mandi, he can decide at which place to sell. With dev of e-NAM true price discovery possible.
⇒ But doesn't affect MSP or existing APMC network as they are kept intact

2) Contract Farming

Farmer can enter into the contract; price cannot be \leq M-arket price at delivery & land of farmer not auctionable.

3) ECA Amendment

To be only used in rare-cases. No more inspection & clear cut cases (50% price rise) of use laid out.

< Way-forward >

These 3 ordinances (laws now) will help to double farmers income by 2022 & also achieve SDG 11: reduced inequalities.

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।

Floods are an adverse meteorological event wherein an excessive amount of water gets accumulated in an area & is unable to leave causing submergence.

As per IPCC Report, over '2x' more floods are occurring per year since the 2000's. But the devastating impact is also due to human action & our patterns of settlement which have increased risk.

Nature of soil encourages course of river to shift

① Heavy rainfall by the Bay of Bengal Branch.
② Traditional Risks
③ lie in the flood Plain area
④ Many rivers such as Kosi, Ganga & Brahmaputra

< Non-Topological Reasons >

1) Messy urbanization into flood prone areas has aggravated the issue.

2) Destruction of natural embankments, trees, mangroves & events such as deforestation, desertification & soil erosion have reduced our capability.

3) No 'proactive' disaster management planning. Instead we are 'response-centric'.

4) NDRF in Bihar is less staffed & less well funded.

5) Mitigation funds have not been set up.

< Way-forward >

1) Ending the dual-structure in disaster management in the country as old structure is still intact even though NDMA has been set up.

2) Setting of Mitigation finance &

applying concepts of building back better.

- 3) Schemes for relocation of people in low lying areas.
- 4) IEC & community participation & making them stakeholders in the response process.

Thus with these measures we will be able to fulfill our commitments under the Sendai DM Framework; 2015.

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 refers to the 5th generation mobile-radio-telephony apparatus that is run on radio-waves, has lower latency, lower energy use & faster speed than the previous generation.

As per International Telecommunications Union (ITU) {specialized Agency of UN} 5G will contribute to 2% (↑) in Global GDP.

< Unique Opportunities >

1) High Speed:

- Digital Education
- Telemedicine & Tele-law
- Digital Courts
- Online-broadcasting of OTT & television content.

2> Big-Data, AI, Machine-Learning,
Reinforcement Learning, Q-Learning,
Multi-dimensional & Realtime
analysis possible due to low
latency of IMS only.

→ Autonomous Driving

→ Simultaneous Translation

→ Robotic Surgery.

3> "What gets measured; gets
acted upon"; hence scheme
implementation via faster &
Secure DBT, UPI, IMPS &
mobile payments possible.

< Challenges >

1> Penetration of 5G waves is
less hence we need more
radio-tower density; thus cost
of network high.

2> Most 5G with Chinese tech
companies such as Huawei so
national security

3> Most of the Indian Telecom

Companies have unhealthy balance sheets due to AGR Issues, hence may not enthusiastically take up such long-lunge projects.

4) Digital Divide as many Indians don't have point devices.

5) Digital Literacy → Many are apprehensive. Thus MOTRD Vitiya Shikshartha Abhiyan is apt.

6) Vernacular language apps, software & devices to cater to the diversity of India.

7) Privacy & Cyber-security concerns pose challenge.

< Way-forward >

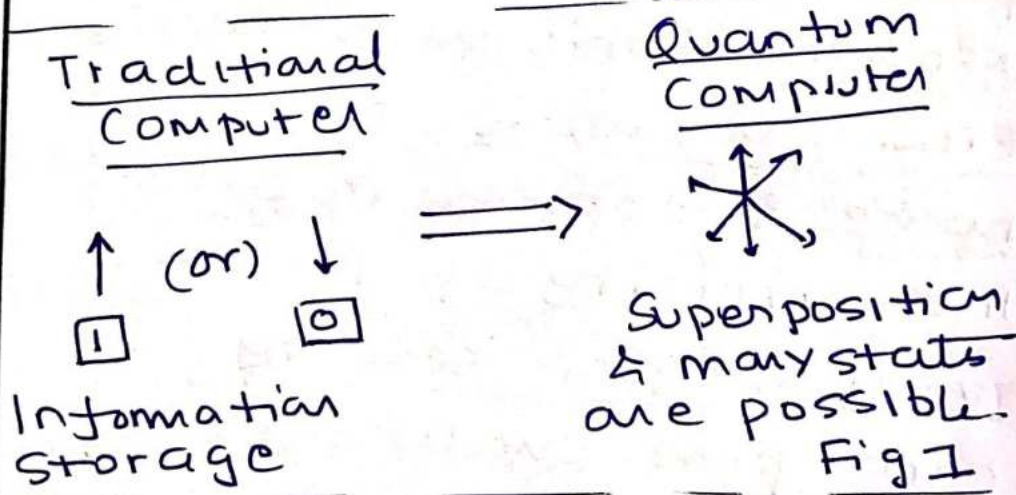
If implemented properly then '5G' can be said to usher in the 4th Industrial Revolution & fulfill SDG9 of Innovation & Industry.

Thus D-10 Group formed by UK for showing 5G infrastructure is step in right direction.

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 the latest leap in computer technology & will usher in a golden age for humanity.



Thus 'QC' can store, process & compute data in much more faster manner. Infact Google's Quantum Computer 'Syracuse' has already achieved 'Quantum Supremacy' which means it can solve problems that previously

couldn't be solved by normal computers.

<Challenges>

- 1) Heavy investment req.
- 2) Limited use cases that are in 'Niche' areas due to nascent ecosystem.
- 3) India doesn't yet have a Quantum Computer; so a National Mission on QC is required. The Centre for Dev of Advanced Computing must lead this effort.
- 4) Due to super-fast calculation, it can crack our - encryption algorithms in seconds & thus poses security challenges; the entire Crypto-currency market would be at risk.
- 5) Cyber-security & Privacy would also be at risk with QC.

Dev of new & sophisticated Cryptocurrency, encryption Algo & security methods. (1)

(2) Space-Tech & Moon bases would be possible -
Ex: Space-X Starliner

Insight into Quantum Mechanics & associated theories.
Ex: Wormhole (3)

Potential of QC

(4) Medicines can be dev by complex simulation & new therapies

Complex Scientific Problems can be solved that were not possible with brute force
< Way-forward >

(5) New devices & applications using simultaneous & parallel processing such as Autonomous vehicles, face recognition.

While every new technology is effective & disruptive, care must be taken to address the security challenges associated with Quantum Computing.

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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 comprises of the Seven Sisters & Sikkim.

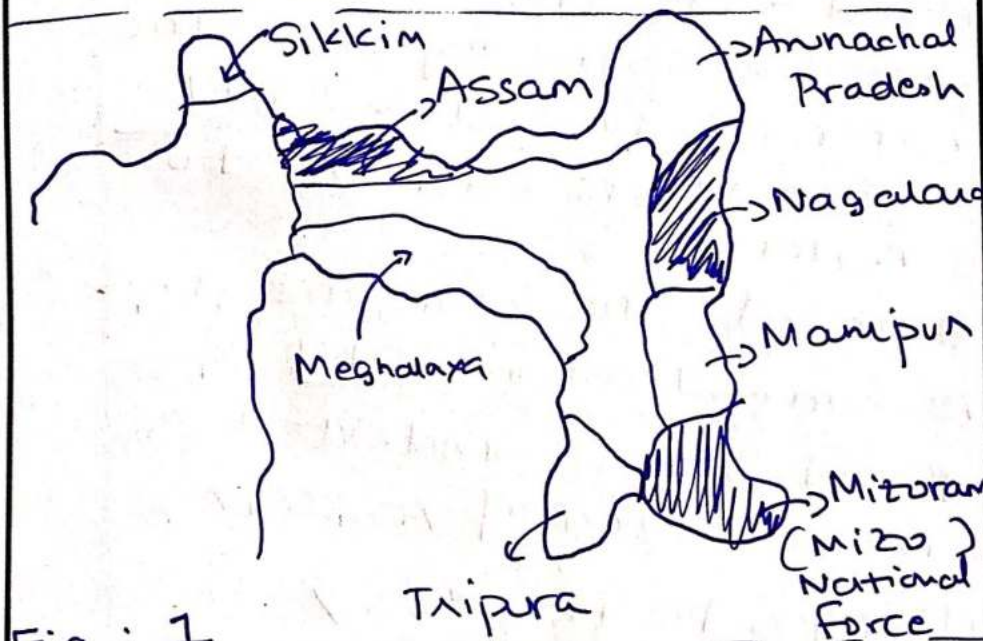


Fig : 1

< Insurgent Groups >

▷ The Mizo-National Front surrendered & signed an agreement with India in 1986. Consequently Laldenga was entering into politics.

2) The Naga National Council was started by 'Angami Phizo' in 1946 for an independent Nagaland.

2.1) several splits: NSCN, NSCN-IM, etc.

2.2) Few negotiating with the Governor of Nagaland BN Ravi while others continue to use violence.

3) Bodoland: The insurgent groups have surrendered in 2019 & they will be accommodated in the mainstream of Assam.

< Challenges to Progress >

1) Sovereign state demands; as many groups want own flag & constitution.

2) Demand for reservation benefits & 6th Schedule areas in other north eastern states.

→ ADC's number to be increased

with additional powers & guarantees of non-interference.

3) Many insurgent groups are engaged in rent-extraction, smuggling of arms & drugs into Myanmar & Bangladesh.

Ex: Golden Triangle Drug Trade.

4) Many in order to leverage their position take aid & assistance from China.

5) Accommodating vast ethnicities & tribes of NE, as they fight amongst themselves for resources as they resist the Indian state.

< Way-forward >

A pragmatic approach involving give & take is need of the hour. The Asymmetric Federalism provided by our constitution in conjunction with the Tribal Panchayat of Nehru must guide us.

Cyber - security refers to the defences erected against malafide attacks on the ICT infrastructure.

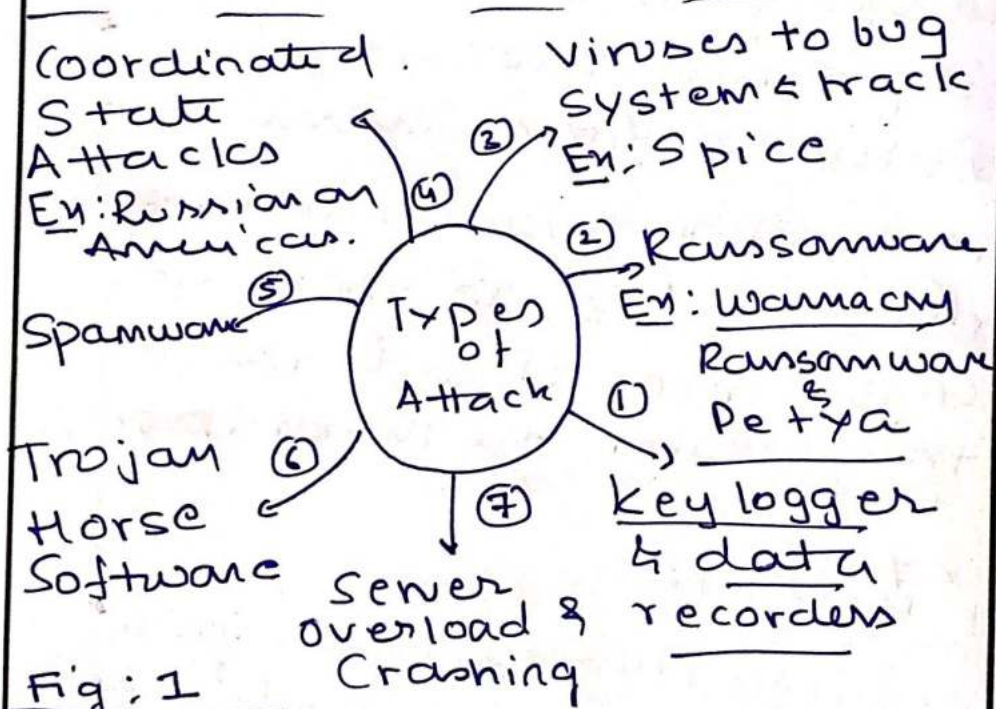


Fig: 1

< Vulnerabilities >

1) Lack of centralized response authority. Currently powers of Cert - In under MoET are very limited.

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- 2> Critical Information Infrastructure such as Radio-towers, Satellites & weather systems.
- 3> Nuclear Power Plants, Army installations & Power Grid.
- 4> National optical fibre grid, Data centres, etc.
- 5> Weak legislative framework under the IT Act & poor punishment mechanism.
- 6> Many org^s have not appointed their Cyber Security officer & have poor SOP's in place.
- 7> Lack of skilled cyber-security professionals & technicians.
- 8> Control over data by Indian Authorities is very superficial; most technological companies are located outside Indian jurisdiction. Thus New Data Protection Bill is step in right direction as per Shi Krishna Committee.

< Suggestions >

- 1) New Cyber-Security Code & Stringent provisions in IPC
- 2) Creation of National Cyber Security authority with powers of civil court.
- 3) National Centre for Protection of Critical Information Infrastructure (NCP CII) to be given more funds.
- 4) Setting up institutes of excellence to do research into cyber-security such as CDAC [Centre for Dev of Adv Computing] & National speciality centres at IISc & IIT's.
- 5) Organise 'Smart Hackathons' & Ethical Hacking workshops to understand risks & also plug vulnerabilities.
- 6) Testing new defences in Sandbox mode.

< Way-forward >

Cyber Security is needed if India wants to be Sakshakt, Samath & Aatma Nirbhar.