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Evaluator Code :

Q.No	Pg No.	Maximum Marks	Marks	Total
1	1			
2	3			
3	5			
4	7			
5	9			
6	11			
7	13			
8	15			
9	17			
10	19			
11	21			
12	24			
13	27			
14	30			
15	33			
16	36			
17	39			
18	42			
19	45			
20	48			
Grand Total				

Signature

MACRO COMMENTS

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Question No. प्रश्न संख्या

UPSC

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1- Windfall tax refers to taxation imposed on making profits that are based on some practice that is though not illegal but illicit in orientation.

Effective redistribution and equality

i) It is seen as taxation for social responsibility of a company to share its proceed to company

ii) It is aligned to Gandhian trusteeship principles to re-distribute excess wealth

iii) It promotes economic equality by directing the taxation for necessary investment

iv) It promotes brand social perception with philanthropic contribution

v) It improves role of state to ensure distributive justice and adequate regulations

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However, the issues :-

i) It is against the company's right to profit maximization without doing illegal.

ii) McKenzie Report highlighted that is mostly used against foreign companies with technological benefits.

iii) It hampers avenue for innovation and promote regulatory cholestrol.

iv) It erodes international rating due excessive taxation regime.

Thus it is necessary that such taxation are used in limited quantum, when serious situation arises for imposition.

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2- Inflation targeting practice keeps the attainment of inflation rate within tolerance limit at paramount to maintain fiscal discipline

Success of it under Monetary policy Committee

i) Economic Survey highlighted its success in controlling inflation compare to other nations due global crisis

ii) It brings in more transparency by making committee accountable if target breached for three successive quarter

iii) It has helped in better market penetration through means like repo rate linked MCLR to control banking activity

iv) It has brought specialization in market management with consolidation of economic growth.

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Challenges -

i) It keeps economic growth at secondary status and thus issue of counter-cyclical outfit.

ii) It reduces banks independency in lending activities and thus a situation of moral hazard.

iii) It works in compartmental manner and hence lack of cooperation with fiscal policy committee under state.

iv) It has failed to keep to the intended limit of 2 to 6% during covid-19 crisis

v) The selection of headline inflation without accounting volatile commodity

Thus the need lies in comprehensive coordination to balance growth targets.

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3- Recently UN declared International year of millets signifies the importance of millet in food plate across the globe

Potential for sustainable agriculture

i) It can prevent issues like virtual water trade and problems like Eutrophication due rice-wheat system

ii) Being draught resistance, it can easily face extreme condition upto 40°C thus adapting to climate change.

iii) The use of limited fertilizer and inputs to greater shelf life highlights its sustainable nature.

Improve food security

i) It can help achieving SDG targets are zero hunger and health due zero-gulletin levels.

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ii) Indian Council of Agriculture Research, highlights its need to resolve hidden hunger and diversify minerals need

iii) It can promote food fortification and due greater shelf life, thus can be stored for long time

challenges
- farmers attitude due lack of MSP support
- social perception as "poors food" for acceptability

Way forward

i) Implementing government initiatives like National Millets mission

ii) Providing support under MSP and awareness to farmers

iii) Boosting its export potential post Ukraine crisis.

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4- NITI Aayog recently highlighted the fall of falkenmark indicator from optimum 1700 m^3/capita to 1535 m^3/capita to identify issue of acute water shortage.

Significance of Jal Jeevan Mission

i) The potential to improve water usage with attitudinal changes in consumption pattern like success story of Kullu region

ii) It improves availability with integrating to traditional water harvesting means like Phumdis, baolis etc.

iii) It improves accessibility by providing facility of water taps across villages like in villages of Uttarakhand.

iv) It promotes water management through means like Pani Panchayat and har ghar jal with jal survekshan.

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Impediments to it :-

i) The lack of adequate support by local government due funds and functionaries shortage

ii) The lack of emphasis in promoting sustainable practice across urban region, with incentivization.

iii) It lacks state coordination because water being state subject and thus secondary to state government means

Way forward :-

i) The need for effective monitoring and sharing best examples across media

ii) Integrating to schemes like LIFE Campaign to promote holistic implementation.

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5 - In the backdrop of building energy crisis due fast depletion of conservative sources of production, battery system is envisaged as cleaner and better alternatives

Battery energy storage system

i) It helps to conserve excessive energy by converting to chemical energy within battery

ii) It provides effective means to transport energy from rich to deficient areas

iii) It uses principle of electrochemistry to reduce losses of energy storage

iv) It is compatible across wider applications from electronic devices to large systematic storage across wind mills, solar etc.

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Revolutionize energy production

i) It can reduce AT&C losses by better transmission in bulk.

ii) It can help in creating buffer to be utilized at peak economic hours

Applications

i) In implementation of FAME initiative to decarbonize vehicles

ii) In linkage to semi-conductor industries under National Semiconductor mission

iii) Across transmission of renewable energy to last mile connectivity like used in Rajasthan villages from solar cells

challenges

i) Low R&D culture for improving storage capacity

ii) The issue of chemical hazard

Thus effective mechanism for battery utilization be emphasized.

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6- Gaganyaan Mission is significant aspiration of India's space programme to harness the potential of space exploration and tourism by manned mission.

Development of Gaganyaan mission

i) The effective modal of launching vehicle through GSLV MK III with greater efficiency

ii) The successful trial to lower earth orbit with robot humanoid.

iii) The changing approach from successful testing to fault testing to prepare for unintended consequences

iv) The design of seperate pilot capsule with emergency evacuation and safety nets.

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Challenges in the mission :-

i) The past failure in working of GSLV MK III seen in few launch operation.

ii) The training module is still in early nascent stage and excessive reliance on Russian system.

iii) The diversion of funds for the mission to other like Chandrayaan III leading to delays.

Way forward :-

i) The need to strengthen the emergency system by aligning holistically to international standards

ii) The timely and more comprehensive focus for time bound launch of mission.

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7- With India's declaration of Panchamitra target in COP-26; the need lies in speed fast the efforts towards clean energy and Green hydrogen is identified alternative

Green hydrogen, the silver bullet :-

i) As envisaged in National Green hydrogen mission, the focussed approach in production through renewable means can reduce emissions challenges.

ii) It can help to achieve carbon neutral target by 2070, as it holds practical ~~needs~~ utility in many applications

iii) It can help to diversify needs of energy to clean technology

iv) The high energy potential and low pollution ratio make it feasible to arrest climate change by coal-petroleum system

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Challenges :-

i) The lack of effective technological expertise and foreign dependency for technology transfer.

ii) The low safety storage facilities and emphasis to arrest the combustion of large scale.

iii) The low conversion rate to produce green energy and transportation due leakage challenges.

Way forward :-

i) The focus on R&D in this field with industry- academia linkages

ii) International cooperation like with Japan to harness maximum potential

Thus holistic efforts to develop green hydrogen holds the future.

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8- In recent times, the increasing quantum and destructive potential of hazards like Joshimath disaster provides learning ground for effective mitigation and risk reduction preparedness.

Key lessons for Joshimath disaster

i) Ministry of Home Affairs report identified the issue of haphazard development without effective monitoring

ii) As Himalayan ecosystem is fragile and tectonic active, the need for NDMA guidelines dedicated for Himalayan management

iii) The need for adequate fund to develop forecasting technology and dopplers especially across glacial lakes and river system.

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iv) The huge problem of landslides must be addressed through either artificial strengthening by iron-nets or planned development on its course.

v) The most important lesson is to strictly follow flood plains marking and reduce enchroachment.

vi) The culture of sustainable tourism like in Italy to keep balance with carrying capacity of Himalayas

vii) The need for effective response mechanism through National disaster response team and evacuation strategy

viii) The role of mitigation of risk by restoring natural barriers and retrofitting in buildings

Thus comprehensive management of Himalayas is necessary.

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9- The roots of Khalistani movement can be traced to the time when Akali Dal under Bindrawala for political gains lead to communalism in the Punjab region.

Recent development in Khalistani issue

i) The role of external actors in motivating and subjective realization of deprivation like Canadian secret society.

ii) The mobilization of funds, arms and militant training due border infiltration and brain-washing.

iii) The misuse of cyber-space to instill sense of Khalistani identity over nationalism for vested interest of terror group

iv) With close proximity to region

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of Golden crescent of drug trafficking and thus brainwashing youth through it

Measures to handle

i) Implementation of dedicated policies like Operation Sadbhavna in Kashmir or Samadhan scheme.

ii) The role of effective perception management with national solidarity.

iii) The need to mobilize task force like Punjab regiment to take up operation against illicit linkages.

iv) Securitizing border with technology to avoid infiltrations

Thus, the need lies in balancing development with state intervention to resolve building fissures.

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10-

Drones have emerged as double edged sword, whereby it can be misused for border infiltration and planned attacks and surveillance overcoming radar system.

Vulnerability due drone operations :-

i) The increasing use across globe to planned attack like swarm drone attacks.

ii) The easy to breach border security with its low lying flying capacity and small size to detect.

iii) The potential to identify strategic location and advocate signal jammer to prevent coordination.

iv) SIPRI highlighted its misuse to cause maximum deterence with minimum

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ammunition, with bulls-eye attack to critical infrastructure.

Ways to tackle:-

i) Effective implementation of schemes like drone capture through NETRA

ii) The use of alert mechanism on identifying electronic activity at border by ICT interventions

iii) Capacity building and training personnel against drone attacks.

iv) Strict following to drone rules 2021 and marking NO-GO zones to identify breaching drones.

Thus inculcating knowledge of drone attacks in defense system is necessary.

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Question No. प्रश्न संख्या

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11- The electricity amendment Bill, 2022 envisaged on emerging methods of electricity production and resolving the concerns of ATBC losses and inculcating clean energy.

Advantages of it :-

1) Consumers
It promote energy saving and selling excessive produced by clean technology like solar to bring Atmanirbhar system

11) DISCOMs
It envisages on plan to resolve excessive debt problem, system of minimum capping and denouncing the practice of free electricity, that creates fiscal burden on discoms.

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iii) Environment

↳ It aims to harness green energy and clean development mechanisms

↳ It aims to rationalize use of Renewable energy certificates to improve the fiscal support to such producer

iv) It aims to bring shift towards clean energy by polluters pay principle on those who used conventional means

v) It aims to improve distribution and transmission system efficiency.

Shortcomings

i) The lack of emphasis on research and development to reduce wastage and create new technology

ii) It fails to account issue of electricity misutilization across agriculture

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iii) It fails to connote appropriate bill towards electrification of last mile and rural disparity

iv) It doesn't focus on adequate measures to conserve electricity and linkage for efficient planning of electricity usage at commercial spac

Way forward :-

i) To learn from international best practices like USA having minimal leakage and wastage

ii) International collaboration for development electricity efficient mechanism of transmission and distribution

iii) The need to incorporate change in lifestyle for effective electricity usage.

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Question No. प्रश्न संख्या

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12 - Securities and Exchange board of India (SEBI) was created for specialized monitoring of capital market and to prevent distortionary practices.

Important role in regulation :-

1) Share market :-

a) It keeps checks and balance and prevent manipulative activities

b) It aims to make it more inclusive by plans like social bonds, municipality bonds for targeted financing

c) It ensures accountability and secure credibility for foreign investment to promote further investment.

d) It provides constant information and deregister party of non-compliance

e) It ensures diversification of responsibility from RBI for effective monitoring.

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II) Safeguard investors :-

a) It provides adequate ombusdmen mechanism to resolve issues

b) It keeps check on closed envelope practices and looks to provide stock information to citizens.

c) It promotes time-bound investigation of complaints by investor.

Challenges :-

I) It fails to account illicit activities like dabba trading acting outside formal channel

II) It fails to account money laundering activities and investment to shell companies

III) The lack of capacity to protect cyber-frauds and adequate safeguard mechanism

IV) The internal management is found in instances of illicit activities that

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erodes investors confidence and transparency in internal working

v) The lack of authority to account insider trading that breaches public trust to invest

Way forward

i) The capacity building aligned to modern needs of cyber-specialization

ii) Standard operating procedures in working to ensure public trust with corporate governance

iii) The need to attract more investors and rationalizing working in regards to FPO's launch.

Thus SEBI holds great responsibility of stock market.

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13- In India, despite over 45% labour force as per PLFS-2021; its contribution to GDP is minimal 20%, highlighting the dismal state of agriculture sector

Major contributor of economy :-

i) It has ensured absorption of huge demography and avenue for rural development (80% of rural household engage in agriculture)

ii) It has helped to achieve self-sufficiency under National food security mission and also means for export.

iii) It provides required raw material to industrial sector like food processing and hence linkage to other activities

iv) It provides security net during adversity like emerging as only sector witnessing growth during Covid-19

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Several constraints :-

i) The input challenges accounting :-

↳ Land fragmentation as about 86% of farmers hold less than 1 hectare land

↳ The limited rice-wheat monocropping leading to land degradation and over-reliance on monsoon.

ii) Post harvest challenges :-

↳ The APMC system having cartelization of big middlemen

↳ The food wastage due improper logistic and warehousing facility

↳ lack of sufficient linkage to food processing sector

iii) The other challenges like :-

↳ Agrarian class divide that leads to distortion of benefits

↳ Lack of farm mechanization and extension services.

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Role of technology

i) It promotes precision agriculture by adequate usage of inputs

ii) It helps in climate smart agriculture to improve long term sustainability

iii) It promotes digitalization like Bhoomi portal by Karnataka for land titling

iv) It helps to improve productivity by means like soil health card and farm mechanization

v) It resolves pollution problem like happy seeder to stubble issue

Thus inculcating technology is need of the time.

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14- Irrigation is the vital component of agriculture and effective methodology is necessary for efficient water usage in situation of water stress.

Impact of irrigation -

i) It leads to soil degradation and run-offs like in flood irrigation in rice plantation.

ii) It creates water shortage in the region due virtual water export by excessive groundwater discharge for Kharif crops.

iii) It leads to eutkrophication that impacts marine life and leading to huge biological and chemical oxygen demand

iv) NITI Aayog highlighted its direct impact on land degradation and

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preventing further avenue of utility turning in barren.

v) The barren land due excessive irrigation becomes source for positive feedback mechanism to global warming.

vi) Economic Survey highlighted the excessive irrigation with fertilizer leads to destruction of natural resource like mangroves, peatlands like in Bengal

Steps taken

i) The micro-irrigation envisaged through per drop more crop initiative

ii) Incentivizing use of drip irrigation and sprinkler irrigation

iii) The international effort through UNCCD listing means to achieve land neutrality by right practices

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iv) Schemes by state Government like 24X7 metered water by Punjab, Operation Kakatiya by Telangana.

Way forward :-

i) To ensure sustainability circular economy of water by storing access during monsoon and effective utilization

ii) The shift from water guzzling to efficient crops like millets.

iii) The traditional means like Zabo technique to water conservation and utilization

Thus irrigation system be rationalized to achieve SDG goals like water conservation, zero hunger etc.

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Question No. प्रश्न संख्या

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15- Indian science and technology field witnessed many great scientists, amongst which the famously known Homi Bhabha as father of nuclear physics and Vikram Sarabhai as father of space programme in India

Contribution of Homi Bhabha :-

i) He established India's doctrine of three-stage nuclear energy to harness natural resource of Thorium

ii) He advocated for using nuclear energy for electricity usage like in early developments in this field

iii) He laid foundation for developing indigenous atomic bomb and identify Pokhran as site of testing

iv) He had institutionalized study

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of atomic energy by the support of Tata Trust.

v) Being the first chairman of PM science wing and thus advocated for spreading technology across independent India.

Contribution of Vikram Sarabhai

i) He played the foundational role to establish INCOSPAR at Thumbi that later become ISRO.

ii) He advocated and established ties for using satellite in communication like television shows.

iii) He has contributed in field of material science and devising the initial material for Indian space-craft to face atmospheric challenges.

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iv) He has established today's IIM Ahemdabad for study of MBA based on international standards

v) He has worked for improving life of mill workers and promoting use of technology like power looms

vi) He expanded development of space technology in other fields like monitoring, space exploration etc

Thus both scientists had immense contribution in India's fild of atomic and space energy by giving initial boost.

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16- Generative Artifical intelligence through means like ChatGPT, Bard etc has emerged as new technology in field of AI to provide experiential hands-on utility to user.

Potentials of generative-AI :-

i) It has potential in conducting research in more nuanced manner by providing existing hypothesis.

ii) It can plug-in gaps to reach to disadvantaged section like language converter to Braille for blind

iii) It can help in developing new technology to conduct analysis like Ansys for force analysis in automobile

iv) It can act as means to spread education and awareness by

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simple interface like providing forecasting information and right farm management.

v) It can help in solving complicated problems and designing models by neural networks.

Challenges :-

i) The societal impact is seen in creating social inequalities on accessibility and reinforcing patriarchy.

ii) The ethical consideration of loss of jobs by technology and low accountability of utility

iii) It can further cause asymetric warfare by using G-AI in planning and developing complex ammunitions

iv) The data breach and privacy by accounting user information

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for its learning and training purpose

Way forward

i) G-AI has vast future, but it must be regulated for right usage to prevent its development for illicit utilities

ii) The need for companies to take responsibility of such technology and ensure public trust in data security.

iii) The advocation must be based on societal consideration and equality in its working

iv) The need to harness the potential with adequate academia-industry linkages.

Thus right usage of technology be ensured.

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17- In the backdrop of global depletion of mangrove resources, which has wide utility needs International cooperation for protection for which Mangrove Alliance for climate is created

Purpose of it :-

i) The share of best practices across globe in safety of mangroves

ii) The global standard and framework that should act as guidelines for global protection of mangroves.

iii) The culture of monitoring by coordinating with external agency to holistic evaluation of conservation efforts.

iv) The efforts to arrest its downfall in the regions of global common and identifying areas of immediate concerns

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Importance of mangrove :-

i) It acts as ecotone and hence suitable site for mating and reproduction for marine organism

ii) It acts as natural kidney for filtration of heavy contaminants

iii) It acts as natural barrier to reduce the intensity of tropical cyclones by acting as wind break.

iv) It acts as source for green tourism and hence important cultural sites

v) It acts as home for rich biodiversity like sunderbans for Bengal tigers.

Challenges

i) The heavy destruction due to increased encroachment and growing population needs.

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ii) The unsustainable practices of extraction of natural resources

iii) The discharge of chemical affluents and eutrophication.

Way forward :-

i) Implementing schemes like MISHTI for protecting mangroves.

ii) Proper regulatory mechanism and coordination across platforms like Mangrove alliance for climate

iii) The need to revamp mangroves through conservative manner and securing from illegal activities.

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18- In current times, the vulnerability to disaster has significantly increased highlighting risk potential, and thus need for effective mitigation steps are paramount.

Benefits of Coalition for Disaster resilient infrastructure (CDRI) :-

i) It helps to bring in specialization in designs for risk reduction.

Eg- Earthquake engineered buildings

ii) It emphasize on retrofitting mechanism and adaptative interventions in existing infrastructure like emergency evacuation areas.

iii) It helps to prepare from secondary risk due disaster like fire alarm system

iv) It creates efficient cell with appropriate safety equipments.

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v) The importance on foundational maintainence of infrastructure to resist disaster with heavy construction like heavy iron framework at bottom.

Need for new strategy

i) The present efforts are more of after-disaster reconstruction and hence need for better preparedness to minimize risk.

ii) The ecological approach in regions like Himalayas that faces multiple vulnerabilities like flood, landslides etc

iii) The need to incorporate new emerging disaster largely anthropogenic that were earlier black swarn.

iv) The utilization of local governance mechanism, so as to timely give fulfillment to mitigation targets

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v) The United Nation body on disaster management highlighted the need to have duality of adaptation and mitigation in tackling disaster.

Way forward :-

i) The needs lies to timely disperse fund for disaster management

ii) learning from best practices like early preparedness by Odisha and revamping Bhitarkanika mangroves against cyclones.

iii) Integrating technology like forecasting tools by satellites for preparedness

The following Sendai guidelines be prioritized.

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Q- Critical infrastructure refers to those infrastructure whose utility and importance are greater than other because of sensitive and strategic information that can impact sovereignty and integrity of nation.

Rise of ramsomware attack challenges

I) It leads to compromising national security like attack on Kundakulum power plant

II) It creates information asymmetry and strategic benefit to external actors like Wanna cry and Petya attacks

III) It leads to cyber attack which can't be countered by physical forces like use Pegasus to get critical information

IV) It impacts large corporates which directly impacts economy of nation

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Need for measures and policies

i) The dedicated policy for securitizing critical infrastructure like NCIIPC in India

ii) The cyber-awareness through use of media and best practices like Indianization of critical servers.

iii) The need to utilize Cyber Swachta Kendra to plug the loopholes and create SOP against ransomware.

iv) The international cooperation and establishing mechanism of knowledge sharing to securitize against Ransom attacks.

Key factors contributing it :-

i) The strategic advantage to attacker to get the better bargaining power.

ii) To force the compromised nation to negotiate for attackers benefit.

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iii) The disguising the origin of major attacks and veling real identity to make it appear as attack on sovereignity

Impacts of these attack :-

i) It leads to questioning of defence system and public trust

ii) To big corporates, it leads to huge loss of hard earned revenues and compromise trade secrets

iii) For political players, it becomes reason of failure to defend national interest.

Thus it is necessary that adequate capacity building against ransomware be prioritized.

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20- Border security holds critical position in not only defending national sovereignity, but also responsibility of state to ensure national integrity.

Need in border management :-

1) Cooperation and coordination

↳ It helps in effective planning of deterence and reduce collateral damages like investigation agencies NIA for identifying terror prospects

↳ It prevents confusion and dual accountability like Assam rifles faces due dual responsibility and control

↳ It plug-ins loopholes of planned attack, and ensure continuous support to ground workers.

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ii) Managing coastal borders :-

↳ It is necessary to streamline coordination between Centre and state with command instruction theatre

↳ It helps to resolve multiple issue of piracy, smuggling or terror attacks like Bombay attacks

↳ It helps in capacity building with technological competancy in marine border management

iii) Managing terrestial borders

↳ The need to effectively create confidence amongst forces and inhabitants to resolve issue like overground workers

↳ It emphasize to use ICT at borders like night vision cameras at these area

↳ It creates supporting mechanism for forces to gain advantage with

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prior information and standard operating procedures in border management.

Way forward :-

i) The idea of common command theatre is envisaged for effective coordination amongst security forces.

ii) The adequate training mechanism with technology and terrain specific to better planned defence

iii) The effective and efficient management by linking intelligence forces with proper channels of communication.

Thus coordination in security agencies will ensure proper border management.