

# NEXT IAS

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(To be filled by candidate)

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## MTS IGP Batch 2023

### GENERAL INSTRUCTIONS

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SUBJECT/PAPER  
GENERAL STUDIES

Invigilator's Sign. : .....



(For filling by Examiners only)

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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Q.1

अप्रत्याशित कर (विंडफॉल टैक्स) से आप क्या समझते हैं? क्या आपको लगता है कि अप्रत्याशित करों से संपदा का प्रभावी ढंग से पुनर्वितरण हो सकता है और अधिक आर्थिक समानता को बढ़ावा मिल सकता है? (150 शब्दों में उत्तर दीजिए) 10 अंक

What do you understand by Windfall tax? Do you think that windfall taxes can effectively redistribute wealth and promote greater economic equality? (Answer in 150 words) 10 Marks

Recently, Government had announced windfall tax for petroleum companies in wake of very high profits after market recalibration in wake of Russia-Ukraine crisis.

About windfall tax

It refers to tax imposed on specific sector recording very high profits due to external factors and not necessarily related to companies' economy of scale.

For example, cheap urals in wake of Ukrainian crisis led to very high profits of petroleum companies. So government announced windfall tax.



## Significance

↳ It acts to curb against not passing of benefits to the customers and thus using tax as medium to redistribute wealth

↳ Help reduce extreme inequalities - and ensure that profits due to government policies & actions also help reach lower end

(Eg: windfall tax helped to increase revenue collection which was used for capital expenditure and social sector schemes like health, education)

So, effective redistribution depends on the budget provisions that emphasize on inclusive growth, their effective implementation and tracking the outcome.

Mere tax imposition is thus not sufficient it has to be complemented with effective & good governance.



Q.2

नई मौद्रिक नीति समिति (एमपीसी) व्यवस्था के अंतर्गत मुद्रास्फीति लक्ष्यीकरण को क्रियान्वित करने की कथित सफलताओं और चुनौतियों पर चर्चा कीजिए।

Discuss the perceived successes and challenges of implementing inflation targeting under the new Monetary Policy Committee (MPC) regime. (Answer in 150 words) 10 Marks

After Ujjit Patel committee recommendations, Government adopted Monetary Policy Committee (MPC) framework to control inflation within 2-6%. Last year high inflation above 6% band for 3 quarters has raised debate on challenges of MPC.

### Challenges

1. MPC is effective for demand side inflation targeting & not supply side (it can only anchor expectations)
2. Inflation was due to external crisis like Russia-Ukraine war, Chinese slowdown, supply chain disruption, high metals cost
3. India has high parallel black economy with informal credit system as high as 30%.



4. Monetary policy acts with a lag as banks have high time deposits & provisioning requirements
5. Core inflation was high due to pent-up demand from COVID recovery

### Success despite challenges

Over the years MPC has been successful in curbing inflation. Even during last year, inflation was not very high as compared to other developing economies finally with RBI intervention inflation did slow down (250 basis point increase in repo rate) and change from accommodative stance.

Given inflation-growth trade off, we must recognize that monetary & fiscal policy should work in tandem and need of supply side reforms cannot be discounted for achieving monetary policy transmission.



Q.3

भारत में सतत कृषि को बढ़ावा देने और खाद्य सुरक्षा में सुधार के लिए मोटे अनाज उत्पादन की क्षमता का आकलन कीजिए।  
(150 शब्दों में उत्तर दीजिए) 10 अंक

Assess the potential of millet production in promoting sustainable agriculture and improving food security in India.  
(Answer in 150 words) 10 Marks

India and the entire world is celebrating international year of millets. India is the highest millet producer in world, it has been a traditional crop in our agriculture system and has huge potential to transform current agri ecosystem.

Promote sustainable agriculture

- ↳ It leads to nutrient recycling in soil & less fertilizer requirement
- ↳ It can be grown in hardy soil condition without high water requirement
- ↳ It leads to sustainable farm incomes

Improve food security

- ↳ Can be grown in drought-like conditions, given El-Nino conditions



and prediction of monsoon deficit, millets can emerge as alternative for dryland agriculture with poor irrigation facilities

↳ with current trends of rising wheat and rice prices due to crop destruction under climate change vagaries (eg: heat waves, unseasonal rains etc), millets can contribute to fill gap in production of cereal crops

↳ It has health benefits also and thus solve the issue of hidden hunger and malnutrition

Way Ahead

Government has been taking holistic measures like millet promotion, sub mission on millet, Shri-Anna research center, it should be complemented in holistic reforms in PDS and MSP regime. Ashok Dalwai Committee has mentioned millets as significant in doubling farmers income



- Q.4 जल जीवन मिशन में पेयजल की उपलब्धता और पेयजल तक पहुँच में क्षेत्रीय विषमता को समाप्त करने का सामर्थ्य है। मिशन के महत्त्व पर प्रकाश डालते हुए, वांछित उद्देश्यों की प्राप्ति में अंतर्निहित बाधाओं पर चर्चा कीजिए।  
(150 शब्दों में उत्तर दीजिए) 10 अंक

Jal Jeevan Mission has the potential to end the regional disparity in the availability and accessibility of drinking water. Highlighting the significance of the mission, discuss the underlying impediments in achieving the desired objectives.  
(Answer in 150 words) 10 Marks

Recently, WHO credited Jal Jeevan Mission in saving upto 400,000 lives in rural areas and savings in DALY (disability adjusted life years) leading to twice recovery in costs.

Current data suggests more than 12.5 crore tap connections from mere 3.5 crores at start of scheme. It has significant

benefits :-

1. Provide safe, quality drinking water
2. Emphasize on women development & inclusive growth
3. Freeing up women time from gathering water from long areas to do productive work (rural women labour force is at 36% higher than urban 24%)



4. Productive capital expenditure schemes lead to employment opportunities (multiplier effect) and reduce stress on MGNREGA
5. Reduce regional disparity, example some states have higher tap connections earlier but now there is aim for universal access
6. Reduce rural-urban infrastructure gap

### Challenges

1. Need collaboration of state governments
2. Insufficient capacity of PRIs to implement the scheme
3. Lack of commensurate training facilities

It can be overcome by effective monitoring (JIM dashboard) and ensuring strengthening of PRIs with support from state governments

SDG-6 by its localization at rural levels. This mission aims to achieve



Q.5 बैटरी ऊर्जा भंडारण प्रणाली (बीईएसएस) से आप क्या समझते हैं? इसके अनुप्रयोगों पर चर्चा कीजिए और यह भारत के ऊर्जा कार्यक्रम में किस प्रकार क्रान्तिकारी बदलाव ला सकता है। (150 शब्दों में उत्तर दीजिए) 10 अंक

What do you understand by Battery Energy Storage Systems (BESS)? Discuss its applications and how it can revolutionize the energy program of India. (Answer in 150 words) 10 Marks

Recently, world's last Nobel Prize winner John B. Goodenough who revolutionized the battery energy storage system through lithium ion battery leading to mobile & telecom revolution.

In decade, rising digital penetration and need for shift to green energy, battery system development has become sin-quan-non.

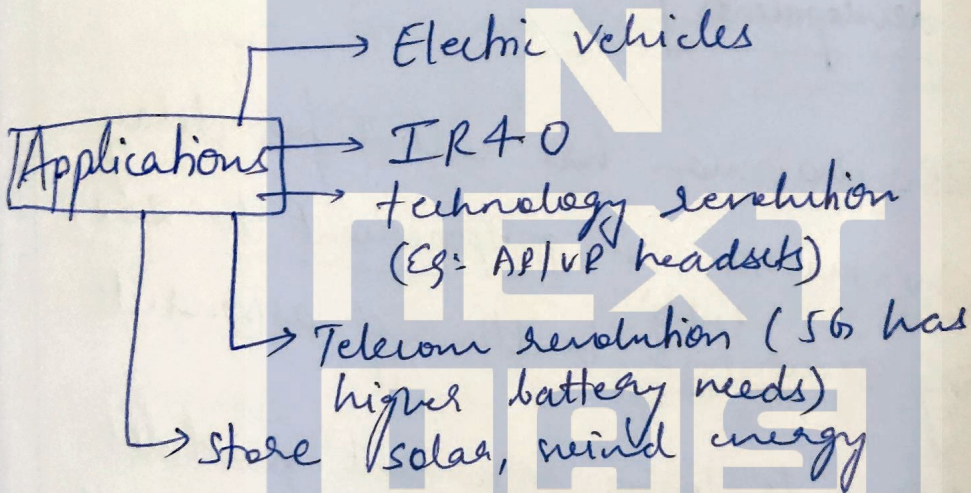
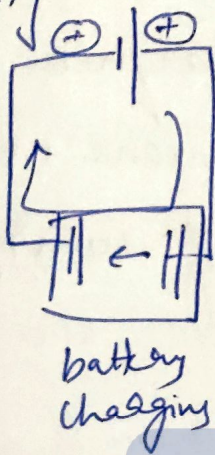
About BESS

It refers to storage of electricity produced which can be used later or used to drive cars.

- Example → Traditional Acid battery  
 ↳ Lithium ion battery  
 ↳ Nickel-metal battery  
 ↳ Solid state battery



These batteries while discharging provide electricity



Revolutionize energy program

India aims to create 450 GW of non-fossil energy (Panchamitra commitments), it requires storage potential, while green H<sub>2</sub> is one way, BESS will act as most important pillar for this.

Thus, budget also announced a scheme for this regard & enablement of battery replacement ecosystem.



Q.6

इसरो के गगनयान मिशन में हुए विकास और उपस्थित चुनौतियों पर संक्षिप्त चर्चा कीजिए। समाज के लिए मिशन के संभावित लाभ क्या हैं? (150 शब्दों में उत्तर दीजिए) 10 अंक

Discuss in brief developments and challenges in the Gaganyaan mission of ISRO. What are the possible benefits of the mission for the society? (Answer in 150 words) 10 Marks

Gaganyaan mission is the marquee initiative of ISRO to put humans in space. India will be the 4<sup>th</sup> country to do so.

### Recent developments

- 1) ISRO chairman has called for delay in the mission in postponement to 2024 citing security <sup>(safety)</sup> & health of astronauts
- 2) ISRO is developing important modules like crew recovery, habitable module, re-entry module
- 3) There is collaboration with Russia, France on training our astronauts
- 4) Recently, we signed Artemis Accord and NASA-ISRO will collaborate to conduct training



## Challenges

1. For safety of astronauts, ISRO needs to be certain of important module developments like recovery module
2. Upper/outer space has high radiations, so there needs to be protection against it
3. Astronauts need to be trained for lonely environment, low gravity conditions and challenges physical & mental environment

## Benefits

### Technological

→ Develop significant modules which be used for further missions

↳ spill over in other sectors like defence

### Geo-strategic

↳ Showcase our  prowess

↳ Develop capabilities in current race

### Educational ## of space militarization

↳ Inspire youth to pursue S&T

Overall our space sector is rising as sunrise sector & missions like Chandrayaan, Gaganyaan, private sector participation will deepen our contribution in global space economy



Q.7

"जलवायु परिवर्तन और प्रदूषण से निपटने की हमारी खोज में हरित हाइड्रोजन एक सरल और जादुई समाधान हो सकता है"। भारत के राष्ट्रीय हरित हाइड्रोजन मिशन के आलोक में कथन का आलोचनात्मक विश्लेषण कीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

"Green hydrogen can be the silver bullet in our quest to tackle climate change and pollution". Critically analyze the statement in light of India's National Green Hydrogen mission.

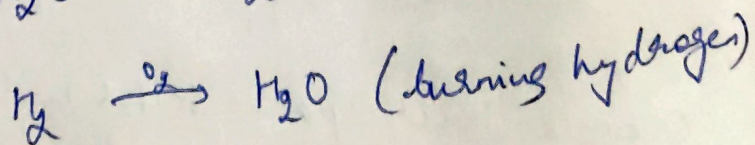
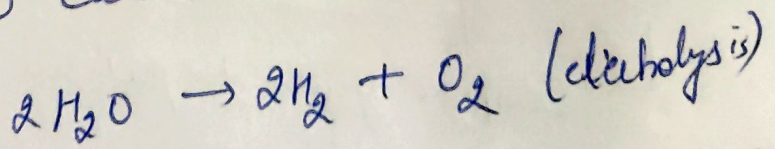
(Answer in 150 words) 10 Marks

Recently Government announced 20,000 crore worth Green Hydrogen mission with aim to generate 5MMT of hydrogen capacity, create 125 GW energy potential while simultaneously creating jobs and attracting investment.

Recently Capital Group report also recognized potential of Green H<sub>2</sub> by calling it a transformation mission.

Tackle climate change

1) No carbon emissions



2) Contribute to NDCs and Panchmitra commitments of reducing CO<sub>2</sub> emissions by 40%



- 3) It will complement our solar & wind energy generation by acting as energy storage system
- 4) It can also green other sectors like green steel, green ammonia can be created
- 5) Hydrogen vehicles will emerge as game changer given lithium ion shortage.

### Tackle pollution

- ↳ Burning coal & fossil fuels produces pollutants like  $SO_2$ , black carbon which is not so in  $H_2$
- ↳ Even lithium battery technology requires excavation & drilling which contributes to land, water as well as air pollution

Hence green  $H_2$  will act as a game changer. We should now focus on creating requisite infrastructure like storage facilities (cold temperatures) and provide desired subsidies & incentives for its adoption.



Q.8

हाल ही में जोशीमठ, उत्तराखंड में आई आपदा के आलोक में, हिमालय क्षेत्र में आपदा प्रबंधन और पर्यावरण संरक्षण के लिए मुख्य सबक क्या हैं? (150 शब्दों में उत्तर दीजिए) 10 अंक

What are the key lessons for disaster management and environmental conservation in the Himalayan region, in light of the recent disaster in Joshimath, Uttarakhand? (Answer in 150 words) 10 Marks

Recently Joshimath noticed land subsidence which has highlighted the challenges of fragile Himalayan ecosystem. But as PM's 10-point guidelines call for making every disaster a learning opportunity, we analyse key learnings :-

### Disaster management

- 1) Need to focus on disaster risk reduction and reactive approach following disaster
- 2) Emphasis should be on capacity creation especially at local level and ensure their participation
- 3) Implement NDMA guidelines in letter & spirit (Eg, zonation activities should be performed)



- 4) There should be holistic study of construction, urbanization & development projects (eg: alleged water leak during dam construction)
- 5) Need whole of society approach from govt institutions to civil society to market forces

### Environment conservation

1. Need to strengthen environmental impact assessment framework
2. Promote eco-tourism
3. Development in Himalayas should take cognisance of fragile ecosystem (Example - Ranu Chopra Committee)
4. Need for proper drainage management, prevention of soil erosion (ban on sand mining)

Even ICIMOD report has highlighted challenges of losing glaciers upto 50% in Hindu Kush Himalayas due to climate change. We must act now on these lessons to address the policy crisis.



Q.9

"पंजाब में हालिया कट्टरपंथी रुझानों से पता चलता है कि खालिस्तान का मुद्दा अभी भी उबल रहा है।" हालिया घटनाक्रम के संबंध में कथन पर चर्चा कीजिए और इससे निपटने के उपाय सुझाएँ।

(150 शब्दों में उत्तर दीजिए) 10 अंक

"The recent radical trends in Punjab show that the Khalistan issue is still simmering." Discuss the statement with respect to recent developments and suggest measures to handle it.

(Answer in 150 words) 10 Marks

Recent incidents both in India and abroad show the radicalization of youth toward successionist demands like Khalistan

Recent developments

India

- Return of self-styled Bhindranwala from UAE
- Farm laws agitation was used by proxies of ISI to radicalize youth against government
- Lack of development in Punjab, high drug usage, rise in crimes pushing youth to radicalization

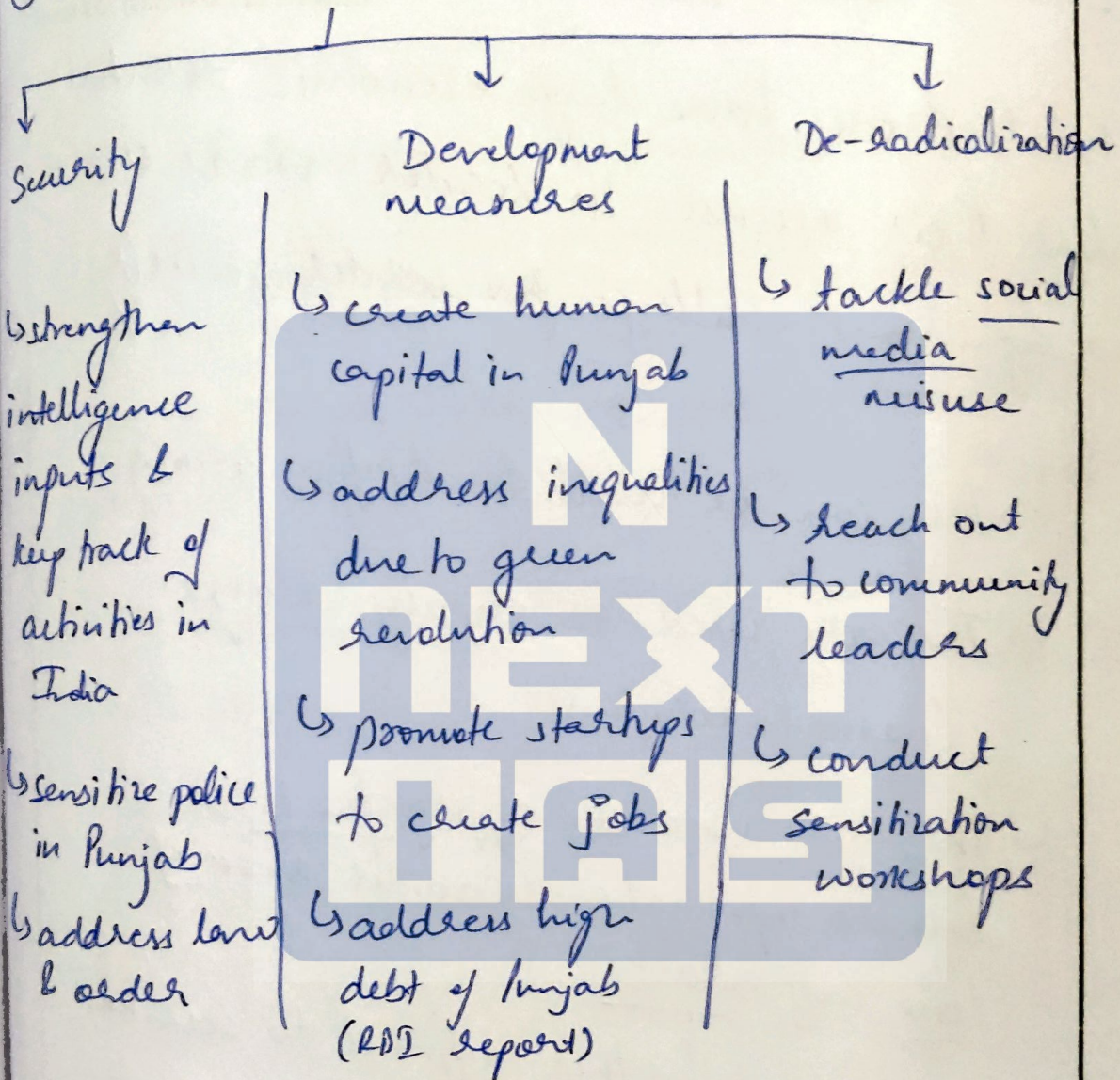
International

- Attack on Indian embassies and consulates in UK, US, Australia & Canada
- Politicization by Canada government



## Measures needed

### ① Domestic measures



### ② International measures

- ↳ use soft diplomacy to counter Khalistan issue
- ↳ build pressure on countries to enforce Vienna Convention & safety of Indians

Further government can lead the activities during Blue Star & ensure that such situation is best averted.



Q.10 ड्रोन संचालन में आसानी और साथ ही इसके संचालक की अनामिता, भारत की सीमा सुरक्षा की चुनौतियों में वृद्धि करती है। विस्तारपूर्वक वर्णन कीजिए और सीमावर्ती क्षेत्रों में ड्रोन समस्या से निपटने के लिए सुझाव दीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

The anonymity and ease of drone operation contribute to the challenges of India's border security. Elaborate and give suggestions to tackle the drone problem in border areas.

(Answer in 150 words) 10 Marks

While drones have huge economic potential but their misuse in border areas create a significant challenge for border security.

↳ They can be used to traffic arms

↳ They are used to supply drugs (narco terrorism)

↳ They are used to supply funds & relevant information (consider rise of low cost attacks)

This problem is further difficult to counter as drones are easy to operate and even when they are caught it cannot lead to action against those operating them across the border. Recently, Pakistan's Member of Provincial Assembly accepted misuse of drone for drug supply



## Counter measures

1. Enhance border security and surveillance
  2. Use technological interventions like CCNTS for better monitoring like night cameras
  3. Use measures like jammers and spoofers to block drone signal
  4. Buy / Invest in sophisticated anti-drone technology (from Israel, US)
  5. Domestic research for maaque technologies like DRDO's Indrajaaal
- step up intelligence inputs
7. Ensure development in border areas (vibrant villages) and community support
  8. Build international pressure on Pakistan
- These measures need to be complemented with training of security forces to effectively implement them in fragile & sensitive border areas.



- Q.11 विद्युत संशोधन विधेयक, 2022 उपभोक्ताओं, डिस्कॉम के साथ-साथ पर्यावरण के लिए कई लाभ प्रस्तुत करता है। सविस्तार वर्णन कीजिए। साथ ही इसकी कमियों को भी सूचीबद्ध कीजिए और उन्हें दूर करने के लिए कुछ उपायों का भी सुझाव दीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Electricity Amendment Bill, 2022 brings several advantages for consumers, DISCOMs as well as the environment. Elaborate. Also, list out its shortcomings and suggest some measures to overcome them.

(Answer in 250 words) 15 Marks

Government introduced Electricity Amendment Bill to overhaul the power sector and address legacy issues like high AT&C losses, T&D losses, debts of DISCOMs etc.

Advantage for consumers

↳ It aims to create power sector more competitive by allowing presence of private companies

↳ Consumers would be allowed to choose from multiple operators

↳ In long run as T&D losses & AT&C losses reduce, benefit will be passed to consumers

↳ Ensure reliable electricity supply



## Advantage for DISCOMs

- ↳ Ensure independence & autonomy of working of DISCOMs
- ↳ Strengthen the financial sheet of DISCOM & address debt burden as high as 70,000 crore
- ↳ Better framework to buy RPOs (renewable energy)

## Advantage for Environment

- ↳ Reduce losses in electricity sector, thereby reducing carbon emissions as most electricity generated from fossil fuels
- ↳ More impetus for green energy

## Challenges

↳ Many experts have argued that it could lead to privitization of sector and thus higher costs for consumers in short run



- Provisions like nominations by Union Government in state Electricity Regulation Board lead to politicization
- Challenges of state-centered cooperation as many states argue it is against federal nature
- Government should ensure adequate protection measures for far off areas where private sector may not come (displacement effect)

### Way Ahead

1. Address concerns of federal structure by taking states in confidence
2. Ensure autonomy of SERCs
3. Maintain checks & balances against exorbitant tariffs by private sector (like ceiling rates)
4. Complement reforms with measures like smart meters promotion



भारतीय प्रतिभूति एवं विनियम बोर्ड (सेबी) शेयर बाजार के नियमन और निवेशकों के हितों की सुरक्षा में महत्वपूर्ण भूमिका निभाता है। दिये गए कथन के आलोक में, सेबी के समक्ष आने वाली चुनौतियों पर प्रकाश डालिए और इस संबंध में सुधारों का सुझाव दीजिये।  
(250 शब्दों में उत्तर दीजिए) 15 अंक

Securities and Exchange Board of India (SEBI) plays an important role in the regulation of the share market and safeguarding the interests of investors. In the light of given statement, highlight the challenges faced by the SEBI and suggest reforms in this regard.  
(Answer in 250 words) 15 Marks

Recently published Hindenberg report and subsequent market crash has put SEBI back into spotlight.

SEBI is a statutory body with quasi-judicial, quasi-legislative powers to strengthen the financial share market. It acts as an independent, autonomous body to enforce investor interests.

Companies Act 2013, Clause 49 requirements and mandatory disclosures by listed companies with corporate governance standards help SEBI to regulate share market.

Consider the recent ban on Zee media promoters in participating in market given their misgovernance practices.



## Challenges faced by SEBI

1. Difficult to enforce jurisdiction on foreign players who are active market participants in form of FPI
2. Cannot act against speculation and allegations (that too from foreign soil) as it's company's prerogative (in this case Adani) to allay any concern
3. Despite regulation & ban illegal activities like Tabba trading, insider trading persists
4. Misuse of legal loopholes to dupe market (further there is lack of proactive policy approach)
5. Unethical measures like short-selling which affect retail investors are not illegal & there are no safeguards against it



## Way Ahead

1. Promote international cooperation with international markets like NASDAQ to address challenges of foreign collusion
2. Strengthen domestic regulation and ensure strict compliance with regulations and guidelines
3. Ensure independent directors have sufficient power & autonomy to address malpractices in governance
4. Use tools like CDS (Credit default swaps) and other financial innovations to protect against short-selling
5. Promote education & awareness among small & retail investors
6. Act against influencers and social media peddlers

Above all, there is a need to shift from reactive to proactive policy approach.



Q.13

भारतीय अर्थव्यवस्था में एक प्रमुख योगदानकर्ता होने के बावजूद, कृषि क्षेत्र कई बाधाओं से ग्रस्त है जो इसकी वृद्धि और विकास में बाधा डालते हैं। इन बाधाओं पर काबू पाने में श्रौतसंगिकी की भूमिका पर चर्चा कीजिए।

(250 शब्दों में उत्तर दीजिए) 15 अंक

Despite being a major contributor to the Indian economy, the agriculture sector is plagued by several constraints that impede its growth and development. Discuss the role of technology in overcoming these constraints.

(Answer in 250 words) 15 Marks

Agriculture sector is a sign of resilient Indian economy as witnessed in COVID (positive growth). It contributes 18% to GVA, 45% to employment generation, \$150bn exports and most importantly to food security.

### Challenges

Though many challenges are regional in nature, the huge climatic & social differences in India, yet some common challenges are -

1) Small landholding size (1.08 hectare average) with high proportion of small & marginal farmers (86%).

2) Issue of disguised unemployment and shift in trend towards rising employment in agri than manufacturing.



- 3) Poor infrastructure & market development  
(Eg: lack of cold storage facilities)
- 4) Dependence on rain fed irrigation (two-third irrigation infrastructure in North India)
- 5) MSP distortions leading to very high emphasis on wheat & rice
- 6) Lack of mechanization (30-40%)
- 7) Informal credit system (only 70% farmers had taken institutional loans)

### Role of technology

Data analytics, smartphone apps, predictive agriculture, drones, precision farming has potential to revamp agriculture sector

- ↳ Better market analytics to sow the right crops (tackle cobweb problem)
- ↳ Credit availability on phones
- ↳ Better soil test & advanced analytics



- ↳ Use of drones & machines for fertilizers, irrigation measures
- ↳ Better farm monitoring (drones)
- ↳ Better connect to market with reduced information asymmetry (market analytics)
- ↳ Use platforms like NAM to sell at right prices

### Way Ahead

Government schemes and measures like AgriStack and promotion of agri-tech startups is step in <sup>right</sup> direction.

It needs to be complemented with better training, extension services, subsidies for agri-adoption and creating additional opportunities in allied sectors like food processing to enable capacity build up from farms which now use technology.



पर्यावरण एवं प्राकृतिक संसाधनों पर सिंचाई के प्रभाव का मूल्यांकन कीजिए, और कृषि में सिंचाई पद्धतियों की संधारणीयता और समता सुनिश्चित करने के लिए उपाय सुझाएँ। (250 शब्दों में उत्तर दीजिए) 15 अंक

Evaluate the impact of irrigation on the environment and natural resources, and suggest measures to ensure the sustainability and equity of irrigation practices in agriculture. (Answer in 250 words) 15 Marks

India being an agrarian economy, with high dependency on monsoon albeit its reducing its predictability needs to invest in irrigation measures.

As per Govt data there is skew in irrigation facilities towards tanks and tubewells (~70%) and regional variation with more presence in Punjab, Haryana and western U.P.

On contrary regions like Vidarbha, Bundelkhand still practices dryland agriculture.

Impact of irrigation

↳ currently agriculture amounts to more than 90% ground water extraction



- ↳ without micro-irrigation facilities, most of water is wasted and there is huge groundwater stress in North India
- ↳ it leads to policies like promotion of water guzzling wheat crops even in water stressed regions
- ↳ high exports lead to virtual water trade (India already has merely 1486 cubic meter availability with 800mn people living on less than 1000m<sup>2</sup> /capita)
- ↳ very high groundwater extraction leads to lowering of water table and thus contamination of water with metals, arsenic, sulphur in ground at lower levels



## Way Ahead

1. Promote schemes like Krishi-Sinchayi Yojana and per drop more crop to transition to micro-irrigation facilities
2. create awareness on adoption of water sustainable practices (LIFE) and transition away from exorbitant water subsidies
3. Incentive small farmers to address their concern on adoption of new technology
4. Promote crops like millet, pulses in regions of water stress
5. Bring policy measures to incorporate effect of virtual water export and unremunerate taxes
6. Data driven approach with monitoring These measures are important with rising need to transition to climate smart-agriculture with challenges of food security for rising population and erratic monsoons.



Q.15 परमाणु ऊर्जा और अंतरिक्ष प्रौद्योगिकी के क्षेत्र में क्रमशः डॉ. होमी जहाँगीर भाभा और डॉ. विक्रम अंबालाल सारामाई के योगदान से भारत को रणनीतिक रूप से किस प्रकार लाभ हुआ? (250 शब्दों में उत्तर दीजिए) 15 अंक

How India benefitted strategically from the contributions of Dr. Homi Jehangir Bhabha and Dr. Vikram Ambalal Sarabhai in the fields of atomic energy and space technology respectively?  
(Answer in 250 words) 15 Marks

Dr HJ Bhabha and Dr. Vikram Sarabhai were great Indian minds who worked together to help India reach new heights in atomic & space sector post Independence.

### Contributions of Dr. HJ. Bhabha

- ↳ He was instrumental in setting up first nuclear plant in Maharashtra (Tarapur plant)
- ↳ He coordinated with US nuclear department and ensured properly developed nuclear plant
- ↳ He provided the 3-stage nuclear program aimed to address shortage of uranium and ensuring energy security



↳ His efforts and scientific work contributed in success of operation Smiling Buddha (nuclear test for peaceful use)

↳ He was the head of atomic department and oversee its development till his last breath (in plane crash)

### Contribution of Dr. Vikram Sarabhai

↳ Instrumental in setting up the space program of independent India which has now developed into ISRO

↳ Launched first Indian satellite Aryabhata

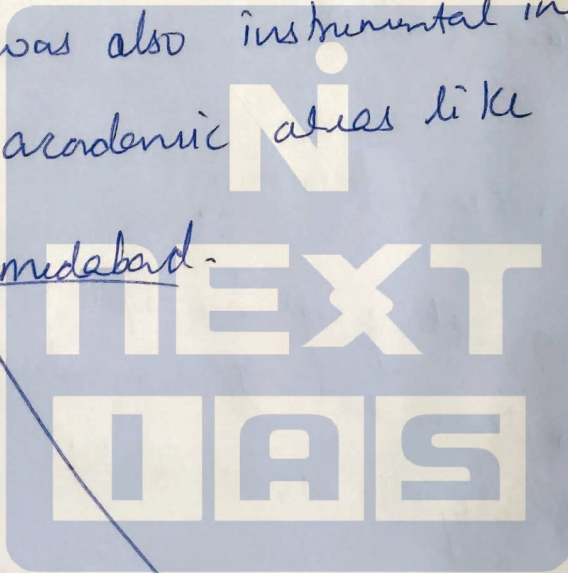
↳ Coordinated with Russian space agency for development of our space program

↳ Set up rocket launching station at Sriharikota



Today, when India lands on moon,  
the sovereign will be remembering  
the stalwart of our space technology  
mission.

While he was a scientist, his  
role was also instrumental in promoting  
other academic areas like MBA at  
IIM-Ahmedabad.





जेनेरेटिव एआई निकट भविष्य में नवाचार को सीमाओं को आगे बढ़ाने का सामर्थ्य रखता है, फिर भी इसका सामाजिक प्रभाव पर्याप्त चुनौतियाँ खड़ी करता है। सविस्तार उत्तर दीजिए।

Generative AI holds the potential to push the boundaries of innovation in the near future, yet its societal impact raises substantial challenges. Elaborate.

(250 शब्दों में उत्तर दीजिए) 15 अंक

(Answer in 250 words) 15 Marks

Candidates must not write on this margin

Generative Artificial Intelligence (AI) refers to AI's technological capabilities to generate text, images, poems, even movie scripts.

It is significant advancement from earlier use cases limited to predictive analytics and user specific recommendations.

Potential to push boundaries of innovation

↳ Leveraging machine learning tools, AI can work on its own to strengthen the efficiency of any tool or algorithm  
Eg: it can lead to finding security lapses in cyber architecture

↳ It can be used in governance for effectively targeting schemes



- ↳ Tools like natural language processing when combined with AI have potential to address challenges & diversity issues of multi-lingual peoples (Eg: Bhashini portal to reach last mile in local language)
- ↳ Private companies can use it for more efficiency especially given transition to IP4.0
- ↳ Tools like chatbots can be designed to address user queries & providing personalized recommendation
- ↳ For common citizens, it can act as learning tool (Eg: Chat GPT)
- ↳ It can strengthen our research & analytics for challenges like IPCC and provide better climate forecasts, monsoon prediction etc.



## Challenges

1. Fear of huge job losses (eg: Hollywood writers strike)
2. Fear of unchecked powers (caused by Sam Altman, Elon Musk)
3. Misuse for personal purposes like cheating in exams, plagiarism
4. Generative AI can spread misinformation through deep fakes & lead to social engineering
5. Non-transparent algorithms can reinforce racial & gender prejudices
6. Lack of inclusivity can deepen inequalities

## Way Ahead

Recently UNESCO adopted resolution on Ethics of AI and call for more transparency and accountability across AI lifecycle.

Through G20's SAI 20 India can help build consensus to tackle the challenges and help regulate AI.



- Q.17 नवंबर 2022 में मिस्र में COP27 संयुक्त राष्ट्र जलवायु परिवर्तन सम्मेलन में लॉन्च किये गए "जलवायु के लिए मैंग्रोव गठबंधन" के उद्देश्य को स्पष्ट कीजिए। उष्णकटिबंधीय देशों की तटीय पारिस्थितिकी को बनाए रखने में मैंग्रोव के महत्त्व पर विस्तार से प्रकाश डालिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Explain the purpose of the "Mangrove Alliance for Climate" launched at the COP27 UN Climate Change Conference in Egypt in November 2022. Elaborate on the importance of mangroves in maintaining the coastal ecology of tropical nations. (Answer in 250 words) 15 Marks

Recently India joined the Mangrove Alliance (MAA) for climate for increasing international cooperation of mangrove restoration. Even in our budget we announced MISHTI aimed for mangrove protection.

### Purpose of MAA

1. Better cooperation on mangrove restoration (eg: Sunderban delta has transnational mangroves)
2. Sharing best conservation practices
3. Address common concerns like rising maritime pollution, destruction of mangrove on coast line etc
4. Raise international awareness on mangrove restoration



5. COP27 was aimed at measures for reducing carbon emissions as well as sequestration practices  $\Rightarrow$  mangrove act as important reservoirs of carbon

### Importance of mangrove

1. They store carbon & thus useful  
(in Paris commitment achievement)
2. They act as nature-based solution against cyclones, tsunamis (eg: sab of Bhitarkanika mangrove in protection against cyclone Amri in Odisha)
3. They help to recharge important nutrients and act to recycle water
4. They provide <sup>for</sup> and sustain coastal communities dependent on sea water like fisheries
5. They contribute to eco-tourism



According to TEEB India Study, one rupee invested in mangroves leads to seven rupees benefits in form of ecosystem services.

As per Forest Survey Report India has about 5000 sq km of area under mangroves in important coastal delta areas like Gulf of Kutch, Gulf of Mannar, Sunderban, Krishna - Cauvery delta etc

But they face threat from coastal construction, encroachment and rising sea levels. Government has thus

announced MISHTI scheme and national Plan for restoration of wetlands & mangroves.

State governments too need to ensure safety of mangroves and ensure their cultivation & restoration in the coastal areas



आपदा प्रतिरोधी बुनियादी ढाँचे के लिए गठबंधन का गठन भारत में आपदा प्रबंधन दृष्टिकोण को और अधिक मजबूती प्रदान करता है। टिप्पणी कीजिए। भारत में आपदाओं से निपटने के लिए एक नई रणनीति की आवश्यकता के औचित्य सिद्ध कीजिए।  
(250 शब्दों में उत्तर दीजिए) 15 अंक

The Formation of the Coalition for Disaster Resilient Infrastructure brings more robustness to the Disaster Management approach in India. Comment and justify the need for a new strategy to tackle Disasters in India.  
(Answer in 250 words) 15 Marks

India has been leading global governance in Disaster Risk Reduction. Be it Humanitarian Assistance & Disaster Relief (HADR) - example operation Dost - or marquee initiatives like CDRI, India aims to bring more robustness to disaster management framework

### CDRI pillars

- ↳ Better understanding disaster risk
- ↳ on infrastructure
- ↳ creating effective governance mechanism for creation of disaster resilient infrastructure & participation of private companies
- ↳ Investment in structural measures
- ↳ Investment in non-structural measures

Thus, CDRI provides more robustness to our disaster management framework



which has three levels of response at national, state & local government level.

Further CDRI complements national Disaster Management Plan and specific disaster mitigation strategies under our commitment to Sendai framework

Need for new strategy

- ↳ we need to involve local communities & put them at center of capacity development & risk reduction
- ↳ Need to leverage traditional knowledge (Eg: Bhengahomes in Bhuj survived the earthquakes)
- ↳ Emphasize on high vulnerability to sections like women, tribal, dalits, PwDs, children



- ↳ Incorporate technology solutions like GATI-shakhi, new apps (AR/VR) for training
- ↳ Develop dedicated capacity for early warning system in far-off regions & provide warning in local language
- ↳ Address challenges of climate induced disaster (consider Pakistan floods, heat waves in Europe, Hawaii). Action Aid estimates displacement of 45 mn people by 2030 to climate change
- ↳ Institutionalize international cooperation & strengthen mechanism for frameworks like HADR, URFI.

Further a new strategy need to incorporate whole of society approach in dealing with disasters.



- Q.19 महत्वपूर्ण बुनियादी ढाँचे (क्रिटिकल इंफ्रास्ट्रक्चर) और प्रमुख निगमों को लक्षित करने वाले रैंसमवेयर हमलों में हुई हालिया वृद्धि ने मजबूत साइबर सुरक्षा उपायों और नीतियों की तत्काल आवश्यकता पर प्रकाश डाला है। इस प्रवृत्ति में योगदान देने वाले प्रमुख कारकों पर चर्चा करते हुए, विभिन्न क्षेत्रों पर इन हमलों के प्रभाव का विश्लेषण कीजिए।  
(250 शब्दों में उत्तर दीजिए) 15 अंक

The recent rise in ransomware attacks targeting critical infrastructure and major corporations has highlighted the urgent need for stronger cybersecurity measures and policies. Discussing the key factors contributing to this trend, analyze the impact of these attacks on various sectors.

(Answer in 250 words) 15 Marks

As per National Cybersecurity Coordinator, India has third highest cases of cyber attacks. Recent cases of attacks on Indian oil (in Digboi Assam), AIIMS Delhi show the vulnerability of critical infrastructure.

Need for strong cybersecurity

- ↳ India has highest internet adoption rate in world (Economic survey)
- ↳ Our smartphone users are 2nd highest
- ↳ with impetus to become \$1 digital economy and focus on techade, we need more cybersecurity framework



- b) Governance is increasingly shifting to e-governance (consider DBT, e-sanjarni, Digi Yatra) which needs strong cybersecurity framework
- c) Private companies & startups too have to invest in digital strategies (IWC survey)
- b) There is need to build internal capacity and Human resource potential

### Factors leading to trend

1. Transnational nature of crimes
2. Rising technological tools like deep web / dark web / crypto currencies making systems anonymous
3. Safe havens like those in China, North Korea with state support (cyber terrorism)
4. Lack of commensurate investment in cyber security
5. Reactive approach



## Impact of attack

① On Government → leads to paralysis in governance  
 ↳ expose critical national security policies  
 ↳ affect day to day operations (like AIIMS patient wait time increased)

② On private sector → financial loss  
 ↳ affect efficiency of company  
 ↳ disrupt operations & hurt consumer sentiments

③ On common citizens → push cyberbullying  
 ↳ loss of personal data  
 ↳ caught in financial scams

Government should implement the draft Cyber Security Strategy that is aimed to secure India through multi-dimensional policy recommendations like cyber insurance, creating dedicated cadre etc.



सीमा सुरक्षा के संदर्भ में, तटीय और स्थलीय सीमाओं के प्रभावी और कुशल प्रबंधन को सुनिश्चित करने के लिए विभिन्न सुरक्षा एजेंसियों के बीच सहयोग और समन्वय को कैसे बेहतर बनाया जा सकता है?

(250 शब्दों में उत्तर दीजिए) 15 अंक

In the context of border security, how can cooperation and coordination between different security agencies be improved to ensure effective and efficient management of coastal and terrestrial borders?

(Answer in 250 words) 15 Marks

India faces complex border challenges in nature of insurgency, militant inflow, drug trafficking, money laundering etc.

Terrestrial borders

Security agencies from CAPF, Armed forces, Police, Intelligence agencies need to cooperate to tackle the multi-dimensional nature of threat.

- ↳ It would lead to better intelligence input
- ↳ It would help in synchronized & optimized action
- ↳ It would also strengthen trust in security agencies



Next IAS ID: FTTP220127, TC076, 14-06-2023 03:30 PM  
↳ It can promote development in border areas (consider vibrant village program)

↳ It would involve local population to deal challenges like over-ground workers

## Coastal security

We have three-tier security architecture including coastal guard, marine forces and Indian navy. Further there are departments like MEA's Indo-Pacific division, National Maritime Security

## Coordinator

With combined efforts of these agencies we can better counter maritime challenges like piracy, terrorism (eg: 26/11), backing drug networks (eg: Kandla port 3000kg cocaine discovery)



Further with rising Chinese belligerence and strings of Pearl to encircle India (consider Yuan wang 5 ship at Nambantota), it is important to have holistic policy response.

For our 90% international trade using coastal waters, we need to emphasize on unimpeded trade & commerce. Ministry of Commerce and Maritime Trade Authority have to collaborate with marine police to ensure safety of goods.

As India emissions for SAGAR and being net security provider a coordinated policy response is of paramount importance.