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NEXT IAS

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(To be filled by candidate)

**Name of Candidate :** Paras Garg

**Roll No. :** 0861073

**Registration Number :** MT23MACEN226 **Date of Examination :** 21/08/2023

**Exam Centre :** Old Rajinder Nagar ☐ Bhopal ☐ Online ☑

**Test - 3** **Code : TC073**

# MTS IGP Batch 2023

## GENERAL INSTRUCTIONS

This Question-cum Answer (QCA) Booklet contains 56 pages. Immediately on receipt of the booklet, please check that this QCA booklet does not have any misprint or torn or missing pages or items, etc. If so, get it replaced by a fresh QCA booklet.

Candidates must read the instructions on this page and the following pages carefully before attempting the paper.

Candidates should attempt the questions strictly in accordance with the instructions specified in the question paper and in the space prescribed under each question in the booklet. Any answer written outside the space allotted may not be given credit.

Question paper will be provided separately and can be taken by the candidates after conclusion of the exam.

.....

**SUBJECT/PAPER**
GENERAL STUDIES

**Invigilator's Sign. :** .....

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*(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 | | | |
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| 12 | 24 | | | |
| 13 | 27 | | | |
| 14 | 30 | | | |
| 15 | 33 | | | |
| 16 | 36 | | | |
| 17 | 39 | | | |
| 18 | 42 | | | |
| 19 | 45 | | | |
| 20 | 48 | | | |
| Grand Total | | | | |

Signature

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# MACRO COMMENTS

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# IMPORTANT INSTRUCTIONS

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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

Windfall tax refers to sudden increase in tax revenue either by changing tax rate or by change in base itself. eg Windfall tax due to high excise duty on petrol when crude oil prices had reduced to ₹ 30 per barrel.

Effective Re-distribution of Wealth & greater Equality :- YES!

1) More taxes ⇒ Better distribution

2) Better capacity of Government to spend on infrastructure projects

eg Capital spending in 2023-24 by Central Government has been proposed to be ₹ 10 lakh crore

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3) More social spending on schools, health

4) Better social security.
eg PM VVY.

5) Scheme for vendors during COVID.

6) 220 Crore vaccinations.

7) PM GKY for free foodgrains.

No, it may not reduce Inequality!-

1) Petrol taxes ⇒ Regressive in nature as these are indirect.

2) Increase cost of other products.
⇒ Inflation = Tax on poor.

3) May impact economic growth due to less availability of money for consumption.

4) High tax on Businesses ⇒ lesser investment

Therefore, a balanced approach must be taken so that these taxes remain progressive and help in achieve goal of inclusive growth

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Q.2 नई मौद्रिक नीति समिति (एमपीसी) व्यवस्था के अंतर्गत मुद्रास्फीति लक्ष्यीकरण को क्रियान्वित करने की कथित सफलताओं और चुनौतियों पर चर्चा कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

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

The new MPC regime was started in 2016 and the mandate of this committee was to keep inflation in a range - 2% to 6%.

**Perceived Successes :-**

1) For last 6 years - Inflation was mostly in the 2% to 6% bracket.

2) Controlling spiralling inflation

3) Counter cyclical policy was followed. i.e. Decreasing repo-rate during slowdown and increasing by 250 basis points from May-2022 to December-2022.

4) Data based policymaking

⇒ More objectivity & predictability for the market.

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5) Control over core inflation.

However, there are certain challenges :-

1) Higher CPI than 6% from ~~July~~ May 2022 to November 2022 and again in July-2023

2) Failure to keep in the range of 2% to 6%

3) High food inflation > 8% in certain months.

eg Tomato prices = ₹ 200/kg in July 2023.

4) Lesser focus on WPI ⇒ change in CPI in future.

5) Growth slowdown concerns

Way forward →
- Balance between Growth and inflation needs to be maintained.
- Addressing structural issues such as land & labour issues
- Increasing Potential GDP by better infrastructure, skilling etc.

Current Inflation is more due to structural & supply sides issues and comprehensive fiscal as well as monetary measures are needed.

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Q.3 भारत में सतत् 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

The recent NFHS-5 has revealed that 35% children U/5 in India are stunted, 19% are wasted and 67% are anaemic raising concerns over food security

Millets are also known as nutri-cereals and are coarse grains having many advantages. They have potential in

**Promoting Sustainable Agriculture :—**

1) Climate resilient crops - Resistant to extreme conditions of temperature and moisture..

2) Less water intake — water saving. in water depleted regions

3) Improves soil fertility - by

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mobilisation of nutrition.

4) Less care is needed.

5) Important for development of dryland areas.

6) Other benefits → Fodder for dairy animals
→ Better storage resilience

**Improving food security :-**

1) High nutritional value.

2) Anaemia reduction – High iron content

3) Decentralized availability in all regions.

4) Lesser cost of millets as compared to cereals.

5) Increase absorption of nutrition.

6) Helps in Dairy production also.

Considering, the importance of millets, 2023 has been declared as the International year of millets by UNGA.

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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

Jal Jeevan Mission has been able to provide households a tap water connection (11 cr Rural households), thereby empowering them and is an important initiative for inclusive growth.

Potential to end Regional disparity in availability & accessibility of drinking water
- → Nationwide programme to provide tap water
- → Aim to provide water to all by 2024. i.e. Har Ghar, Nal se Jal
- → Covered – remote areas

**Significance of mission :-**

1) Har Ghar Jal se Nal – Tap water connection to all.

2) Potential to address – Time poverty by reducing time of women in collecting water ⇒ Women empowerment

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3) Reducing disparities
4) Sustainable water practices.
5) Improves productivity -
6) Essential for Sanitation.

However, there are certain Impediments :-

1) Infrastructure funding for pipes.
2) Water availability challenges in all the regions eg - Rajasthan, Ladakh,
3) Governance issues - corruption and leakages.
4) Lack of clean water accessibility.
5) Water tables are declining.

Way forward →
- Localised solutions - Tanks.
- Rain water harvesting structures.
- Water usage wisely to reduce wastage.

This has the potential to achieve SDG-6 - Clean water and sanitation for all.

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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 क्रांतिकारी 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

Battery Energy storage systems refer to storing energy in the chemical form for spatial and temporal usage.

eg - Storing electricity from Solar energy in batteries.

Applications :-

1) Ensuring usage of all types of energy - Solar and Wind.

2) Addressing intermittence challenge of Renewable energy eg Solar.

3) Electric vehicles - No pollution by the vehicle

4) Promote Green energy

5) Addresses spatial issues - eg - Energy generated in Rajasthan can be used in North East India.

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6) Temporal variability - addressed.

**Revolutionizing energy program of India :-**

1) Electricity availability and accessibility in all the regions.

2) Universal electrification.

3) Energy storage for emergency usage.

4) Green jobs ⇒ Demographic dividend.

5) Green Hydrogen - storage ⟹

6) Green Growth → Fulfilling climate goals and development simultaneously.

7) Reducing cost of energy

eg - Cheap wind from offshore.
Cheap solar from Rajasthan & tropical areas.

Better research and development must be done to efficiently store energy in long term and PLI scheme for this sector is a welcome move.

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 is supposed to be India's first indigenous mission carrying astronauts into space.

**Challenges :-**

1) Threat to human life if the mission fails.

2) Most complex - High capacity of launch vehicle.
- Provision of essential services eg food, oxygen, water, sanitation.

3) Training of astronauts.

4) National prestige is at stake.

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**Possible Benefits :-**

1) Inspiration for young millions to take up science as career.

⇩

Huge long term benefits.

2) Development of infrastructure to launch future missions.

3) Understanding of space ⇒ Basic Research.

4) Anciliary industries ⇒ providing component.

5) Many startups can develop in space sector.

6) India's prestige will increase

⇩

More future projects

⇩

Forex earnings

This project will put India in the category of very few nations - such as USA, Russia and China..

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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

Budget 2023-24 has earmarked 15000 Crore rupees for Green Hydrogen mission with an aim to develop capacity of 5 MMT by 2030

Green hydrogen is liquid hydrogen manufactured using Green sources of energy eg Solar, Wind energy.

**Silver Bullet to tackle Climate Change:-**

1) Storage of energy in Green Hydrogen as batteries are costly and India lacks Lithium reserves.

2) Efficient utilization of solar energy by storage in Green Hydrogen.

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3) Solving problem of intermittency of solar energy.

4) Clear storage — On burning only Water is produced.

⇓

Decline in Air pollution.

5) Easy transportation for long distances.

6) Very less changes are needed in existing engines to use Hydrogen as fuel ⇒ Better adoption of Hydrogen vehicles.

7) Benefits of Economics of scale.

Challenges →
- Water hydrolysis – limited Water.
- Volatile
- High level of technology is needed.
- Energy intensive.

To get the maximum benefits it should be applied in sectors where it's most suitable.

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**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

Joshimath is witnessing the land subsistence due to following reasons.

- Anthropogenic
  - Tapovan Dam project
  - Tourism – Badrinath, Hemkunt Sahib.
  - Poor urban planning
  - Water drainage is poor.
- Natural
  - Close to Tapovan fault – Re-activation has caused this.
  - loose soil.
  - Close to seismic zone-V.
- Other factors
  - Haphazard urbanisation
  - River silting
  - Construction of Roads and highways.

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## Lessons for Disaster management :-

1) Disaster Risk understanding

eg Tapovan dam construction near Tapovan fault.

2) Haphazard Urbanisation ignoring vulnerabilities.

3) Disaster management integration in development policies was not done.

4) Using Traditional wisdom

↳ Local knowledge was not used.

5) Construction over loose soil

6) No disaster resilient infrastructure.

7) Safety audits ignored.

Thus the key lessons of reducing disaster risk were ignored and it should act as a warning in other areas and should nudge policy makers into better DRR strategies.

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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 statements by Amritpal Singh, attacks on Ajnala Police and subsequent arrest has highlighted that the Khalistan issue has still many sympathisers and should not be taken lightly.

**Still Simmering :-**

1) Support for Amritpal Singh's activities by youth.

2) Farm protests for 1 year ⇒ Huge Radicalisation.

3) Support by Khalistani elements from Australia, Canada, USA, UK etc.

4) Attacks on Indian embassies in USA, U.K.

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5) Massive support against arrest.

6) Attacks on Police station in Mohali shows availability of weapons and arms coming from Pakistan via drones.

**Measure to handle it:**

1) Strict action on Anti national elements.

2) Addressing the drugs issue




3) Addressing ~~Econo~~ Economic issues - Farm challenges.

4) Using moderate voice to bring radicalised elements into mainstream. - De-Radicalisation.

Thus, multidimensional steps - security, development, intelligence and psychological must be taken to address this challenge.

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**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

Recent reports of arms smuggling from Pakistan into India using drones have shown the threat these can pose to national security.

Anonymity & Ease ⇒ Challenge to India's border security :—

1) Arms smuggling across borders.

2) Surveillance of national security infrastructure.

3) Drugs trade using drones.

4) Threat of using drones for warfare.

eg- Ukraine's usage of drone missiles against Russia.

5) Low technological frontiers → Development & operation of drones is easy ↓ wider possibility of misuse.

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Suggestions to tackle drone problem in border areas :-

1) Using technology - eg Radars and laser technology

2) Night vision glasses.

3) Aerial surveillance.

4) Training of border forces in dealing with this.

5) Standard Operating procedures and guidelines to counter this

6) Experts engagement to develop strategy against this.

7) Better intelligence.

8) Drone regulations must be properly implemented.

This new challenge has the potential to thwart progress of years. Technology must be challenged using technology.

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**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

Electricity Amendment Bill, 2022 was recently tabled in Parliament. It deals with issues related to generation and distribution of electricity.

**Advantages for Consumers :-**

1) Better prices due to more competition
2) Choice of distribution company
   ⇒ Better service, i.e. lesser cuts.
3) Reliable supply and safety of equipments.
4) Availability in all areas.

**Advantages for DISCOMs :-**

1) Using infrastructure of other DISCOMS.
2) Focus on core areas.
3) Lesser Transmission losses.
4) Better usage of subsidy to compensate DISCOMS by fund

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**Advantages for environment** :-

1) Efficient utilization of infrastructure.
   ⇒ Lesser AT&C losses.
2) Provisions for Renewable Energy
   ⇒ percentage of renewable Requirements
3) Efficient generation of energy.
4) Grid integration of renewable energy.
5) Renewable Purchasing Obligations on Industry etc ⇒ More incentives towards Green energy.

However, it has **certain shortcomings** :-

1) Concerns of state - National authority will determine RPO obligations.
2) Cross usage of infrastructure may lead to disincentives to maintain the distribution infrastructure.
3) Sensitive - politically, DISCOM employees may resist.

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4) Privatisation of an essential service. by allowing entry of Private DISCOMS.

These can be overcome by following measures:-

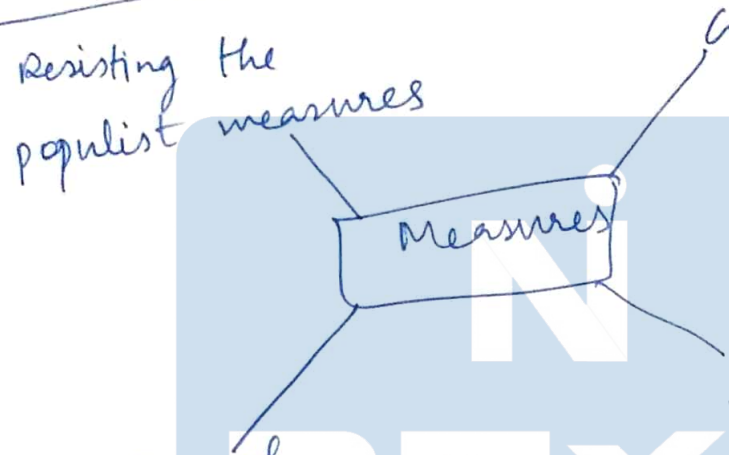



Fig: Measures for overcoming shortcomings.

In this way, this bill is although progressive needs to to updated to remove the concerns raised. Only then we can achieve SDG-7 of Clean energy for all.

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Q.12 भारतीय प्रतिभूति एवं विनिमय बोर्ड (सेबी) शेयर बाजार के नियमन और निवेशकों के हितों की सुरक्षा में महत्त्वपूर्ण 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

SEBI was given the statutory status after Harshad Mehta Scam and its powers were considerably enhanced to deal with emerging challenges.

Role in Regulation of share markets
- Devising norms for annual statements, Red herring prospectus for IPOs
- Transparency norms. eg- Against Insider trading.
- Timely Action and investigation. eg- Investigating recent Adani Case.

Safeguarding interests of investors
- Regulating trading in options and futures to prevent speculations.
- Awareness and education by its institutes.
- Rights of minority shareholders.

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However, recent events show that it faces certain challenges :—

1) Low manpower ← Inadequate training
Complex procedures and nature of scams.
eg Issue of market manipulation.

2) Low capacity to conduct regular audits.

3) Inability to check malpractices.
eg NSE case – Giving advantages to certain brokers.

4) Legitimacy issue – Gets affected due to allegations of Crony capitalism.

5) Training modules – Not keeping pace with market changes.

6) Size of market – Inability to take timely action.
eg Hindenburg report → Public panic

7) New technology – Algorithmic trading in era of Artificial intelligence.

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To address these challenges, various committees have recommended certain reforms :-

1) Increasing both strength of manpower and size of manpower. by - regular recruitment and training and re-training

2) Devising SOP's for various events. eg - Allegations must be countered.

3) Public Role - For better transparency. it should publish reports of any malpractices caught. - coming out in public on issues affecting legitimacy of stock market.

4) Pro-active - measures eg - Random audits.

Capital markets are essential to mobilise savings and allocate capital in most efficient way and these must keep faith of people and SEBI has an important role in it

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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 प्रौद्योगिकी 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 contributes around 16% to India's GDP and employs around 47% of the total workforce. However, certain constraints are plaguing its growth.

| Constraints | Role of Technology in addressing these constraints |
|---|---|
| 1) Low availability of quality seeds | R&D in High yield varieties and Climate resistant crops can mitigate this problem. |
| 2) Poor yield in case of millets. at only 1239 Kg/ha. | - Better research to develop new seeds and methods. eg - Global Center for Millets in Institute of Hyderabad |

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3) ~~Decling~~ Declining water table in Pb, Haryana and Western U.P.

- Usage of Drip and Sprinkler irrigation.
  eg Per-drop more Crop
- Using crops suitable for agro-climatic region.
- Fertigation - Mixing fertilizers & water.

4) Fertilizers issue - Poor NPK ratio at 8:4:1

- ⊙ Soil Health Card
  ↳ Using satellites and data from soil to recommend optimum usage of fertilizers.
- ⊙ Nano Urea
- ⊙ Neem coating of Urea
- ⊙ Bio-Resources centers for developing fertilizers from bio-resources.

5) Market Issue - Post harvest - storage, cold-storage issues.

- ⊙ e-NAM - Nationwide ~~bigg~~ bidding.
- ⊙ Chilling Infrastructure.

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| | |
|---|---|
| 6) Skilled manpower | ⊙ Using drones to apply fertilizers. |
| 7) Insurance issues | ⊙ Using data from satellites to determine losses ~~of~~ under PM Fasal Bima Yojana. |
| 8) Wastage of Perishable commodities | ⊙ Krishi Udaan 2.0.<br>⊙ Better varieties that can be stored for longer duration. |
| 9) Oversupply and Undersupply. | ⊙ Developing market intelligence and information dissemination<br>eg - Digital Public infrastructure in Agriculture |

Suitable thrust must be given to technology in Agriculture as being envisaged in Budget - 2023-24 for eg - Agriculture Accelerator Fund has been proposed.

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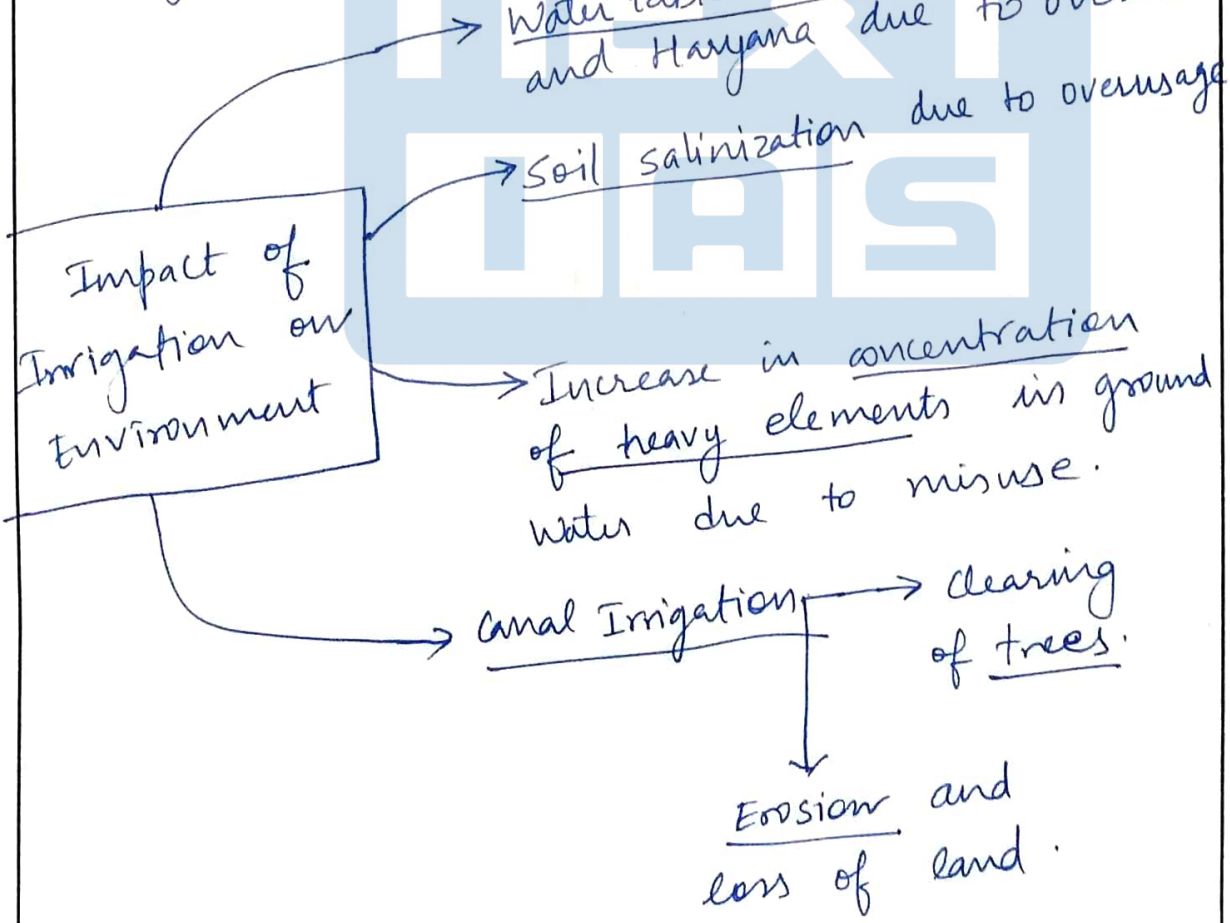

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Q.14 पर्यावरण एवं प्राकृतिक संसाधनों पर सिंचाई के प्रभाव का मूल्यांकन कीजिए, और कृषि में सिंचाई पद्धतियों की संधारणीयता और समता सुनिश्चित करने के लिए उपाय सुझाएँ। (250 शब्दों में उत्तर दीजिए) 15 अंक

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

Irrigation refers to application of required amount of water to crops for optimum yield. Currently irrigation over in India is around 49% and rest of cropped area is Rain-fed agriculture.



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**Impact on natural resources** :-

1) Decline in water table ⇒ less water available for drinking purposes.
   eg India's fresh water usage – 90% for agriculture.

2) Soil issues

⇒ Therefore, measures needs to be taken to address this.

**Measures for sustainability** :-

1) Sowing crops as per agro-climatic conditions.
2) Micro Irrigation eg Drip and sprinkler.
3) Watershed management – Using water, land and trees as a cohesive unit.
4) Soil Mulching and covering techniques.
5) Using traditional methods
   ↳ Zohar, Tanks and Zings for irrigation.

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6) Mapping of highly exploited areas.

**Measures for Equity**:-

1) Increasing irrigation facilities in rain-fed areas. eg - Bihar, Rajasthan as per local needs and environment.

2) PM KUSUM - scheme → better training to use pumps.

3) Rationalizing electricity subsidies
↓
Because these are regressive
↓
Rich & Big farmers are availing most benefits.

4) Shifting to DBT

5) Effective implementation of PM Krishi Sinchai Yojana.

Reforms in the way irrigation is done in the country can go a long way in not only achieving SDG-2 but also in ensuring inclusive growth.

Q.15 परमाणु ऊर्जा और अंतरिक्ष प्रौद्योगिकी के क्षेत्र में क्रमशः डॉ. होमी जहाँगीर भाभा और डॉ. विक्रम अंबालाल साराभाई 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

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Dr. Homi Jehangir Bhabha and Dr. Vikram Ambalal Sarabhai played instrumental role in developing scientific culture in India by establishing various institutes and inspiring future scientists eg APJ Abdul Kalam.

**Strategic Benefits to India due to :-**

**Dr. Homi Jehangir Bhabha - in the field of atomic energy :-**

1) Nuclear energy - Bringing Uranium in India from USA and IAEA to develop Ist nuclear reactor in India.

2) Nuclear bomb - Instrumental role in establishing

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plans and execution by Dr. Bhabha.
→ Helped India in becoming Nuclear power.

3) Atomic Energy Commission - As its chairman, the scientific excellence culture was promoted by Dr. Bhabha.

4) Own Indigenous - Nuclear reactor.

Dr. Vikram Sarabhai - in space technology :-

Strategic Benefits :-

1) New leaders were developed during his time - eg APJ Abdul Kalam

2) Foundation for future missions. due to rocket technology developed during his time.

3) Successful development of PSLV vehicle.

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4) Establishment of Indian Space Research Organisation




5) Space Technology - usage in.

- Remote sensing
- communication
- Own GPS - NAVIC

⇒ leadership role in developing world.

Thus, the leaders develop institutions which benefit a nation in long run. as is done by ISRO and Bhabha Atomic Reasearch Commission..

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Q.16 जेनरेटिव एआई निकट भविष्य में नवाचार की सीमाओं को आगे बढ़ाने का सामर्थ्य रखता है, फिर भी इसका सामाजिक प्रभाव पर्याप्त चुनौतियाँ खड़ी करता है। सविस्तार उत्तर दीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Genreative AI holds the potential to push the boundaries of innovation in the near future, yet its societal impact raises substantial challenges. Elaborate. (Answer in 250 words) 15 Marks

Generative AI refers to artificial intelligence's branch that works on large language Models and generate responses in real time in a way a human would respond.

Potential to push boundaries of innovation:-

1) Development of new algorithms to mine data.

2) Better data insights ⇒ Improving businesses.

3) Innovations in healthcare
   ↳ diagnosis of diseases.

4) Psychological counselling in early stages.

5) Writing poetry, creating images based on text prompts.

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6) Building creative websites.

7) Innovations in defence technology based on suitable data sets -

8) Data science - de humanisation.
⇓
Automatic responses as per data.

**Societal Impact and Challenges** :-

1) Concerns on jobs - Can lead to job losses for white collar jobs.

2) Better productivity - requiring need of regulation.

3) Anti social elements - Can develop explosives based on prompts.

4) Robotics usage - Self protection may incentivise A.I to threaten human existence.

5) Ability to manipulate people - using fake videos ⇒ eg Morphed videos of leaders to incite riots.

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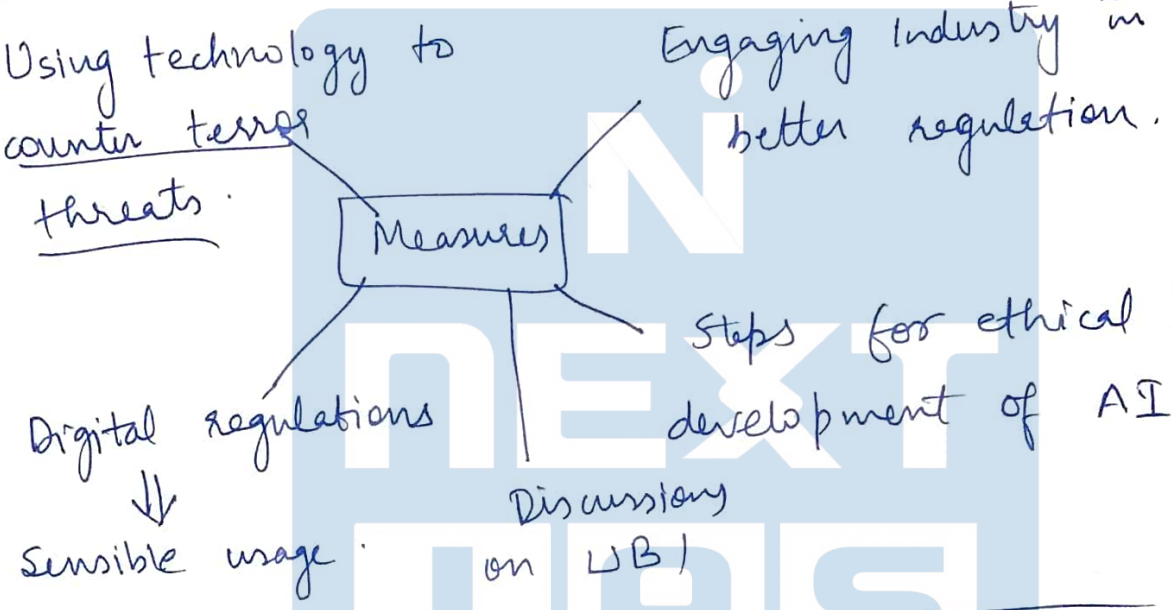


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6) Social unrest - due to unemployment.

7) Aspiration explosion along with huge inequality ⇒ Political turmoil.

All this necessitates following measures.




The Government should regulate this sector ~~so that~~ in a way that it does not thwart the emerging technology ~~and~~ as well as ensuring the technology itself does not impact the social fabric.

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

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Mangroves are transitional areas also known as eco-zones between water bodies and land. They play an important role in managing various ecological services.

**Purpose of Mangrove Alliance for Climate :-**

1) Reducing and reversing the mangrove losses.
2) Using mangroves as natural defences against disasters eg Tsunami, cyclones.
3) Promoting awareness regarding the importance of mangroves.
4) Research and development to better manage the mangrove ecosystem.
5) Collaborations with other initiatives.

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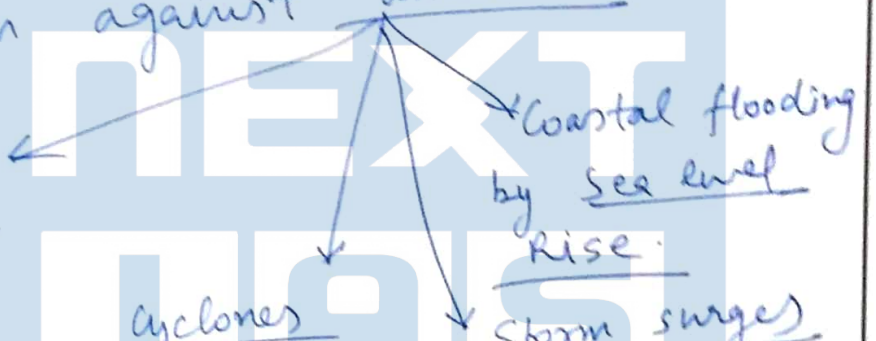
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such as Ramsar convention on Wetlands.

6) Protecting mangroves by sharing of Best practices.

This initiative hinges on the Importance of mangroves in coastal ecology of tropical nations :-

1) Protection against disaster.




eg - NDMP-2016 advocates Mangrove plantation

2) Cleaning of water

3) Carbon sequestration

4) Protection from sea water intrusion

5) Filtering of sea water.

6) Protection against invasive species.

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7) Maintaining balance in delta regions
eg Balance of Freshwater and saline water.

8) Provides food for fishes.
⇒ Better fisheries section

9) Act as Bio-shield.

10) Water purification role.

Measures needed
- → Awareness regarding this value.
- → Preventing encroachments.
- → Measure to maintain the mangrove ecosystem.

India has taken steps such as introduction of scheme MISHTI ~~and PAA PR~~ to protect, rehabilitate and further develop mangrove ecosystem in the coastal areas of country.

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Q.18 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

Coalition for Disaster Resilient Infrastructure (CDRI) was initiated by India along with like minded countries to build disaster resilient infrastructure.

CDRI bringing more robustness in Disaster Managment in India

- Understanding Risk using – Hazard maps and Vulnerability assessments.
  – Zoning of areas. eg Earthquake prone areas
- Building institutions and laws regarding disaster risk reduction
- Mainstreaming DRR in all projects.
- Retrofitting of critical infrastructure.

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→ Developing Physical Infrastructure as per risk and vulnerability assessments.

→ Partnerships to share best practices

→ Provision of Insurance for projects.

**Need of new strategy to tackle disasters in India :-**

1) 12% Land is prone to landslides.
12% Cropped area is prone to floods.
60% land area is prone to earthquakes.
5700 km coastline - prone to Tsunami & Cyclones

2) India is among the top-10 most disaster prone countries of world.

3) Between 2005-14, India was the 4th most disaster stricken country (UNDRR)

4) Old infrastructure ⇒ Vulnerable to disasters.

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5) Multiple vulnerabilities :-

- Economic = Poverty, Inequality.
- Equity = Gender, children, Elderlies. Caste barriers, class barriers
- Physical infrastructure is old & weak.
- Governance - Poor capacity of state to deliver services.

6) Economic loss due to disasters.

7) Climate change induced disasters

eg Urban floods, Increased frequency of cyclones.

All this necessitates a new strategy in India for disaster risk reduction using principles of Sendai Framework - Response, Recovery, Mitigation and Preparedness. Our motto must be to Build Back Better.

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**Q.19** महत्त्वपूर्ण 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

In recent times, the ransomware attacks such as Wannacry in 2017, attacks on Public Electricity Grid in Mumbai in 2020 by China have raised major concerns.

Need of cybersecurity measures and Policies

→ Attacks by other countries; thus need to counter Cyber Warfare

→ Increasing digitalisation, thereby there's a need of better measures.

→ Digital economy will contribute to 20% of GDP by 2025. (Ministry of I.B)

→ Potential to thwart entire economy.
eg Electric Grid ⇒ Stock Market & Major factories will be shut
attacks.

→ Other security concerns – Attacks on Nuclear Reactors.

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The **Key Factors** contributing are :-

1) Rising tensions ⇒ China employing these measure.

2) Adventurism by China and Pakistan.

3) Asymmetric warfare - using non-state computer experts.

4) Ability of cyber warfare to disrupt the economy, polity and security.

5) Increasing digital devises

6) Poor cyber security measures ⇒ Easy targets.

7) Ability to get disproportionate rewards of a succesful attack. eg Wannacry.

8) Rising capabilities in cyber domain

9) Interconnected nes of systems

⇓

Making the entire infrastructure vulnerable

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Impact on various sectors :-

1) Financial - Cyber crimes ⇒ Data issues

2) Healthcare - shutting electricity may impact patient's lives.

3) Capital markets - Volatility.

4) Nuclear installations - threat of major disaster.

5) Chemical factories - ~~the~~ possibility of tragedies.

6) Electricity - Glitches can reduce trust and will impact wider economy.

In order to counter, these threats CERT-In must take active measures in terms of increasing cyber security as per the National Cyber policy and the cyber audits must be conducted regularly.

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**Q.20** 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 shares more than 15000km of land borders and has a long coastline of 7500 km. This data shows the complex task of protecting coastal and terrestial borders.

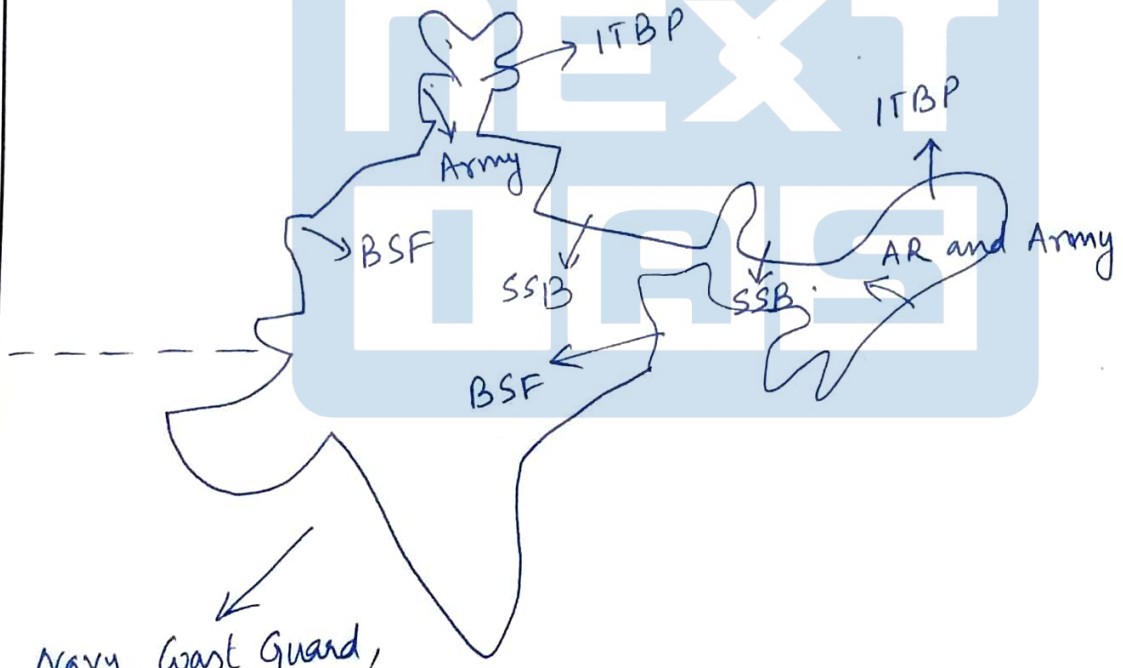



Fig: Different border forces at different borders.

Due to multiplicity of security forces on borders, there is a need of cooperation and coordination between different

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security agencies.

**How to ensure cooperation and coordination :-**

1) Principle of One-border-One force.

2) Clear demarcation of responsibilities and areas of operation
   eg - In coastal water, there is clear need of demarcating areas of Navy and Coast Guard.

3) Regular exercises - to ensure synergy.
   eg - Exercise between BSF and Army.

4) Sharing of data and intelligence to curb cross border smuggling of drugs, animals and weapons.

5) Theatrization of borders - under unified command.

6) Principle of Communication beforehand.

7) Sharing of resources
   - Patrolling vehicles.
   - Anti terror.
   - Night vision devices.

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to ensure efficient utilization.

8) Common patrolling

9) Clear mandate

10) Reducing friction by informal exchanges.

11) Capacity building - by sharing best practices.

12) Cooperation with local police to prevent refugees from intermingling with local population.

13) De-siloization of forces.

14) Bringing all forces under 1 ministry.

eg - Currently Army is under M/o Defence and central armed forces under Ministry of home.

Better border management using SMART principle - using technology, responsiveness and surveillance measures is necessary for the comprehensive security of country.