



# VISION IAS

www.visionias.in

## GENERAL STUDIES (TEST CODE : 1840)

|                   |             |                     |          |
|-------------------|-------------|---------------------|----------|
| Name of Candidate | Komal Ponia |                     |          |
| Medium Eng./Hindi | English     | Registration Number | 1026090  |
| Center            | Online      | Date                | 3/3/2023 |

| INDEX TABLE                  |               |                | INSTRUCTIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|---------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q. No.                       | Maximum Marks | Marks Obtained |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1                            | 10            |                | 1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).<br>उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2                            | 10            |                | 2. There are <b>TWENTY</b> questions printed in <b>ENGLISH &amp; HINDI</b> इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3                            | 10            |                | 3. <b>All questions are compulsory.</b> सभी प्रश्न अनिवार्य हैं।                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 4                            | 10            |                | 4. The number of marks carried by a question/part is indicated against it.<br>प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 5                            | 10            |                | 5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one.<br>प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे। |
| 6                            | 10            |                | 6. <b>Word limit in questions, if specified, should be adhered to.</b><br>प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 7                            | 10            |                | 7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.<br>उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।                                                                                                                                                                                                                                                                                                                                                                                                  |
| 8                            | 10            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 9                            | 10            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 10                           | 10            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 11                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 12                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 13                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 14                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 15                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 16                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 17                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 18                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 19                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 20                           | 15            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Total Marks Obtained:</b> |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Remarks:</b>              |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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

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

## EVALUATION INDICATORS

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

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

VisionIAS

All the Best

1. While fixed-term employment offers an ingenious way to address specific issues faced by both employers and employees, there are also some concerns associated with it. Discuss in the context of India.

(150 words) 10

हालांकि, नियत अवधि का रोजगार (फिक्स्ड टर्म एम्प्लॉयमेंट) नियोक्ताओं और कर्मचारियों दोनों के द्वारा सामना किए जाने वाले विशिष्ट मुद्दों को हल करने का एक सरल तरीका प्रदान करता है, लेकिन इसके साथ कुछ चिंताएं भी जुड़ी हुई हैं। भारत के संदर्भ में चर्चा कीजिए।

The efficacy of fixed term employment is specially relevant in post-covid era where ~56% new job creation is in gig or platform based economy.

### Benefits of fixed-term employment

#### Employee specific

- ↳ ① security of tenure
- ↳ ② job security in face of crisis (eg. covid)
- ↳ ③ Benefits like DA, Social security

#### Employer specific

- ↳ ① Stability of workforce
- ↳ ② fixed wages and payments
- ↳ ③ establish long-term relations [Social Capital]

Concerns

- ① rigidity of labour laws  
[eg] Industrial disputes Act 1947 -  
many rigid provisions.
- ② formation of trade unions -  
employer's discontent.
- ③ social security and pensions -  
burden on employer.
- ④ lower employment rates - low  
female LFPR [21%]

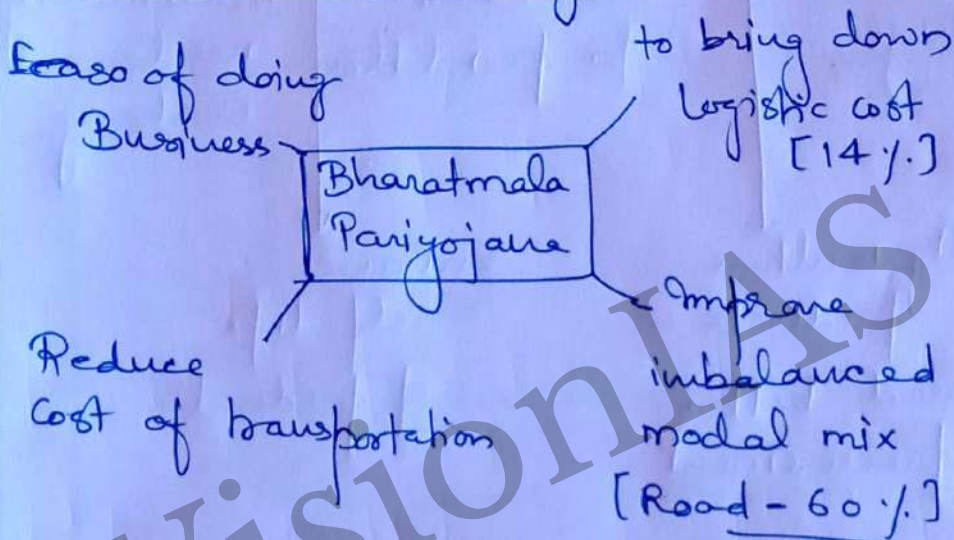
Way ahead

- ① effective implementation of labour codes
- ② flexible labour laws - world practice  
need to be adopted.

A hybrid model inclusive of benefits  
of fixed-term and gig economy is  
way ahead.

2. An efficient logistics sector with a focus on warehousing is pivotal to the success of the Bharatmala Pariyojana. Discuss. (150 words) 10  
वेयरहाउसिंग पर केंद्रित एक कुशल लॉजिस्टिक्स क्षेत्रक भारतमाला परियोजना की सफलता के लिए महत्वपूर्ण है। विवेचना कीजिए।

Bharatmala Pariyojana envisages improving logistic efficiency through multimodal connectivity.

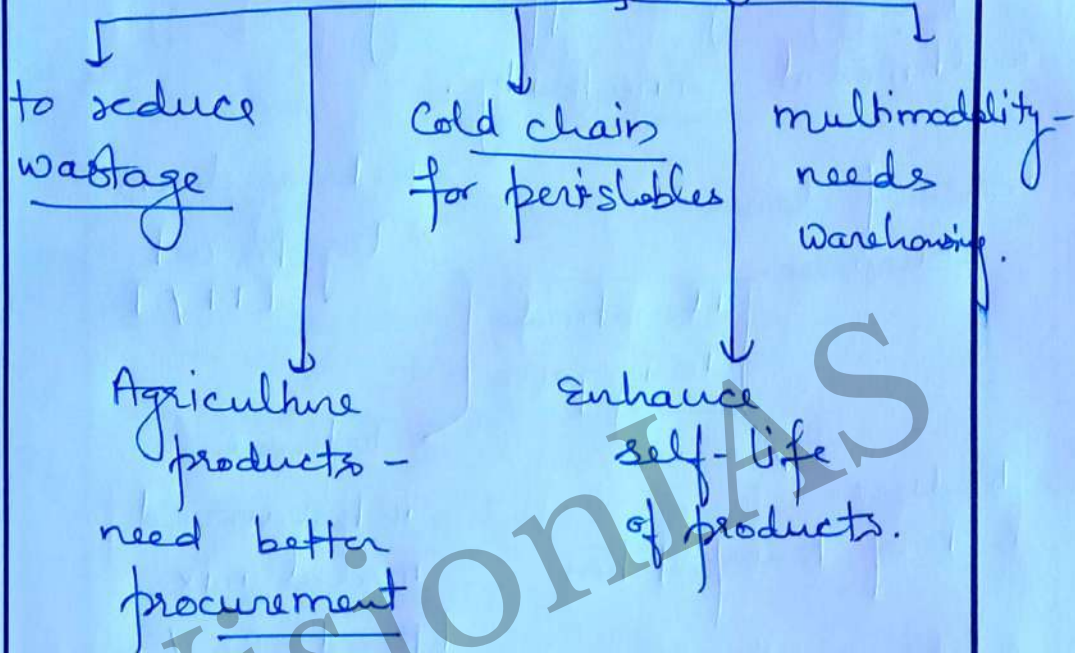


Efficient logistic sector - pivotal

- ① provide seamless connectivity.
- ② Supply chain linkages
- ③ Infrastructure creation - for capital investment.
- ④ Sector specific infrastructure - eg Cold chain for food processing.

⑤ Storage, transportation and linkage to market.

⑥ Strong focus on warehousing is needed



Recent initiatives like NIP, PM GATI Shakti, Bharatmala need to bring efficiency to logistic sector.

National logistic policy 2022 aims to bring logistic cost to 7%. [Global average.].

3. What do you understand by the term Irrigation scheduling? Bringing out the advantages provided by it, discuss the difficulties faced in applying it on a farm level. (150 words) 10

'सिंचाई निर्धारण (इरिगेशन शेड्यूलिंग)' पद से आप क्या समझते हैं? इसके द्वारा उपलब्ध कराये गए लाभों का वर्णन करते हुए, इसे खेत स्तर पर लागू करने के समक्ष आने वाली कठिनाइयों की विवेचना कीजिए।

Irrigation scheduling refers to precise use of irrigation and application based on needs of crops.

### Advantages

- ① Reduce Groundwater wastage  
↳ Agriculture accounts for 80% GW extraction.
- ② Prevent leaching of nutrients to soil.
- ③ Enhance crop yield
- ④ Increased input efficiency
- ⑤ Reduce cost of production -

- ⑥ contribute to doubling farmer's income [Ashok Dalwai Committee]

### Difficulties in applications

- ① Issue of largescale infrastructure needed.
- ② >85% Small and marginal farmers - challenge of credit for irrigation scheduling.
- ③ High maintenance cost and absence of mechanics at local level.

Governmental push by making credit access easy through Priority Sector Lending can provide a way ahead.

4. While the Pradhan Mantri Fasal Bima Yojana was touted as the largest crop insurance scheme globally in terms of farmer participation, various concerns have arisen since its implementation. Discuss. (150 words) 10

यद्यपि, प्रधान मंत्री फसल बीमा योजना को किसानों की भागीदारी के संदर्भ में वैश्विक स्तर पर सबसे बड़ी फसल बीमा योजना बताया गया था, तथापि इसके कार्यान्वयन के बाद कई चिंताएं उत्पन्न हुई हैं। चर्चा कीजिए।

PMFBY is one of largest crop insurance scheme to provide support to farmers in lieu of erratic monsoon, climate vagaries etc

### PMFBY successes

- ① Income safety to large number of farmers in wake of -
  - ↓ climate change
    - ↓ floods
    - ↓ draughts
    - ↓ heat waves
  - ↓ Reduced monsoonal delays
  - ↓ productivity.
- ② Ensure input cost for next crop season.
- ③ Reduction of farmer suicides
- ④ Sandbox for disaster hit farmers  
[eg. Coastal Odisha - cyclone]

Concerns with PMFBY

- ① under utilisation of funds
- ② Regional imbalances and disparities in implementation.
- ③ Small and Marginal farmers - not able to garner benefits  
[constitutes ~85%]
- ④ Rising climate extreme events -  
heatwaves, droughts, floods
- ⑤ lack of awareness among farmers.

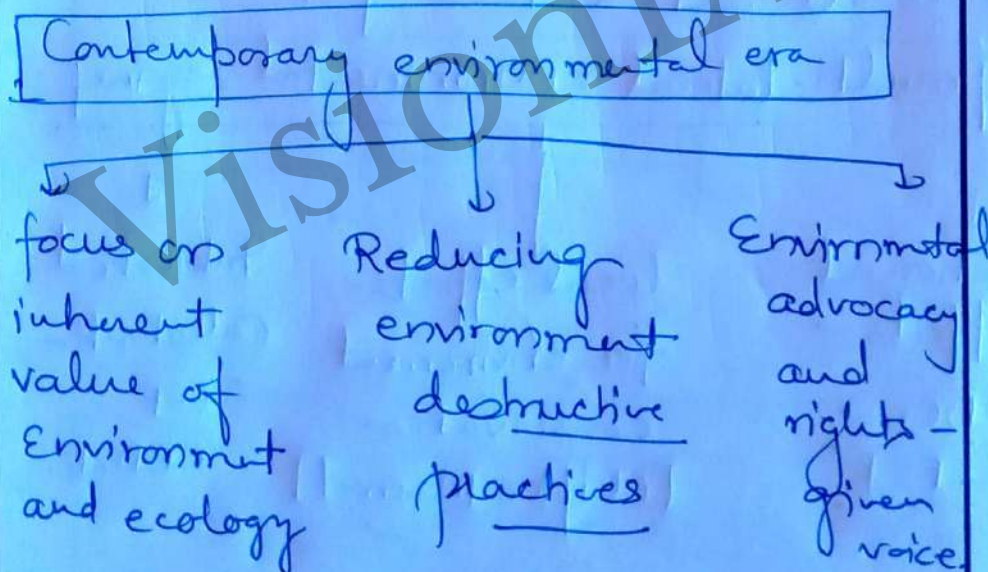
Way ahead

- ① Reduce insurance premiums
- ② Construction of a Special Purpose Vehicle (SPV) for insurance management

PMFBY is a crucial step to ensure doubling of farmers income [Ashok Dalwai Committee]

5. The Stockholm Conference commenced the contemporary "environmental era", which brought a paradigm shift in the environmental governance and set a tone for multi-lateral environmental regime. Discuss. (150 words) 10
- स्टॉकहोम कॉन्फ्रेंस ने समकालीन "पर्यावरण युग" की शुरुआत की, जो पर्यावरणीय गवर्नेंस में एक आदर्श बदलाव लाया और उसने बहु-आयामी पर्यावरणीय व्यवस्था के लिए एक दिशा प्रदान की। विवेचना कीजिए।

Stockholm Conference heralded the contemporary environmental era by bringing forth issues of climate change and anthropocene.



Paradigm shift in environment governance -

↳ ① focus on ESG (Environment

Social Governance

- b② Global platforms discussing Environment Governance -  
G20, Earth Summit,  
CBD, COP27 etc.
- b③ Earlier passive response to active mitigation oriented approach.

This all set a tone for  
 ┌ multi-lateral environmental regime

national efforts -

NDCs -  
COP21

local efforts -  
for environment  
conservation  
[Chipko Movement]

International  
Collaboration  
- COP,  
CBD etc.

Stockholm Conference aims to  
achieve SDGs and living  
harmoniously with nature.

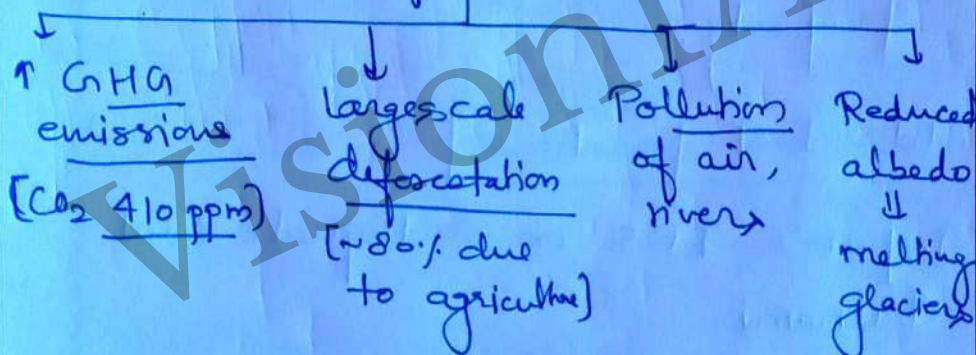
6. The world has witnessed a huge surge in climate-induced disasters, which are largely driven by anthropogenic factors. In this context, analyse the role of early warning systems in mitigating the impact of the disasters.

(150 words) 10

विश्व में जलवायु-प्रेरित आपदाओं में अत्यधिक वृद्धि हुई है, जो बड़े पैमाने पर मानवजनित कारकों से प्रेरित हैं। इस संदर्भ में, आपदाओं के प्रभाव के शमन में पूर्व चेतावनी प्रणालियों की भूमिका का विश्लेषण कीजिए।

The events of European heatwaves, Pakistan floods, Turkey Earthquake - are a reminder of surge in climate-induced disasters.

### Anthropogenic factors as cause



### Role of Early Warning Systems (EWS)

- ① for preparedness and quick response
- ② EWS enhance readiness to mitigate disasters [e.g. Switzerland EWS]

③ Satellites [Rohini Series] - for weather prediction and possible climatic disasters - helps information dissemination to people.

④ Evacuation time is provided due to early warning systems.

[e.g.] Odisha - largest evacuation drive during cyclone Phalins

⑤ reduce damage to lives and property.

#### World's best practices

① Japan's EWS on Earthquake and Tsunami.

② NavIC for Indian Ocean region.

India should use Unmanned Aerial Vehicles, GIS, GPS, IRNSS, Satcom, 5G - for improving its Early Warning system.

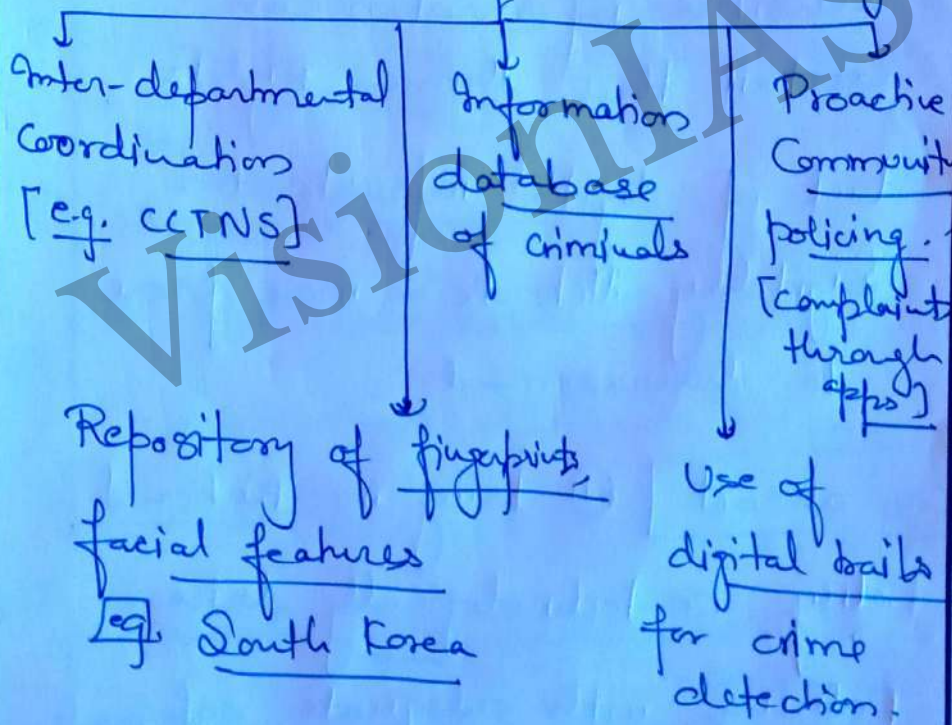
7. Critically examine the implications of leveraging technology in policing. (150 words) 10

पुलिस व्यवस्था (पुलिसिंग) में प्रौद्योगिकी का लाभ उठाने के निहितार्थों का समालोचनात्मक परीक्षण कीजिए।

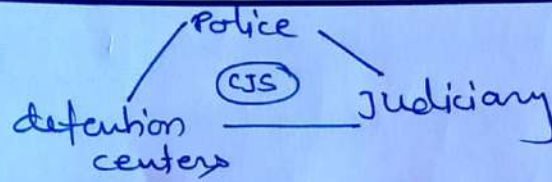
Onset of Industrial Revolution 4.0.

envisages a modern and technologically driven policing systems for effective mitigation of crimes in society.

Benefits of technology in policing



↳ technology enhances effective communication between 3 organs of Criminal Justice system -



However, there are certain issues associated with it -

- ① Data privacy - in absence of PDP Bill.
- ② Misuse of criminal data - sensitive information can curtail their Human Rights.
- ③ lack of digital infrastructure - Digitally illiterate - more prone to harassment.

Way ahead ① bring in National Policy on technologically driven policing with adequate safeguards.

- ② Capability building of existing police force.

8. How far do you agree with the view that climate change poses a threat to international peace and security? (150 words) 10

आप इस विचार से कहीं तक सहमत हैं कि जलवायु परिवर्तन अंतर्राष्ट्रीय शांति और सुरक्षा के लिए खतरा है?

The newly emerged dimension of international peace and security is driven by exorbitant climate change.

Climate change: threat to peace & security

- ① Climate Refugees - enhance border tensions
- ② threat to existence of Small Island Developing States (SIDS)
- ③ ↓  
might forge alliances [China using vulnerabilities]
- ③ food insecurity ← climate change  
↓  
Increased tensions over resources → Increased global conflicts

④ poor and vulnerable → most affected

prone to extreme ideologies  
[↑ terrorist activities]

eg. Boko Haram

### Climate change as Binding factor

① forging new alliances / partnerships -

eg. IRIS by SIDS

② provide a global challenge -  
need global efforts and  
cooperation - highlighted at  
summits like G20, Quad, UNQA.

### Way ahead

→ Mitigating impacts of climate  
change - using technology and  
sustainable practices.

Through collaborative efforts, world  
needs to unit against chaos posed  
by climate change

9. What do you understand by a virtual private network (VPN)? Highlight its advantages and discuss the concerns posed by it. (150 words) 10

वर्चुअल प्राइवेट नेटवर्क (VPN) से आप क्या समझते हैं? इसके लाभों पर प्रकाश डालिए और इससे उत्पन्न चिंताओं पर चर्चा कीजिए।

VPN refers to access of internet to private devices [e.g. mobile, laptops etc.]. This is a big step towards decentralised internet access.

### Advantages

- ① Increased access of internet
- ② decentralised internet access - facilitated wider reach
- ③ Increased privacy and security  
VPN → Difficult to hack  
Compared to open Network -
- ④ More safer applications

## Concerns

- ① Not immune to cyberattacks
- ② Negative impact of false information spreading.
- ③ Digital illiteracy - exclusion of wide section of population
- ④ More data (personal) - prone to be misused.
- ⑤ Private organisations misusing internet - challenge of Data sovereignty.

There is urgent need of Personal Data Protection Bill to be passed as suggested by BN Shriprina Committee.

10. The discovery of the Higgs Boson at the Large Hadron Collider in CERN completed 10 years recently. In this context, discuss the role played by CERN in overall scientific development. (150 words) 10

सर्न (CERN) स्थित लार्ज हैड्रॉन कोलाइडर में हिग्स बोसोन की खोज को हाल ही में 10 वर्ष पूरे हो गए हैं। इस संदर्भ में, समग्र वैज्ञानिक विकास में सर्न द्वारा निभाई गई भूमिका पर चर्चा कीजिए।

Large Hadron Collider (LHC) at CERN is a massive particle accelerator - accelerating subatomic particles to nearly speed of light and creating extreme conditions by colliding them - useful in study of subatomic particles' nature.

One of landmark discovery of CERN LHC was discovery of Higgs Boson (God particle) with integral spin moment in 2012. It is believed to be cause of mass of Baryons and leptons in Standard Model of Particle Physics.

CERN has played significant role in solving mysteries of Standard Model, Unification of forces, discovery of dark matter and role in studying the neutrino problem.

The particles inside LHC are accelerated using magnetic field in a circular chamber. Their collision at femtometer scale discloses the interactions due to strong force, weak force which are observable at that scale. It reproduces conditions of extremely high temperature and pressure.

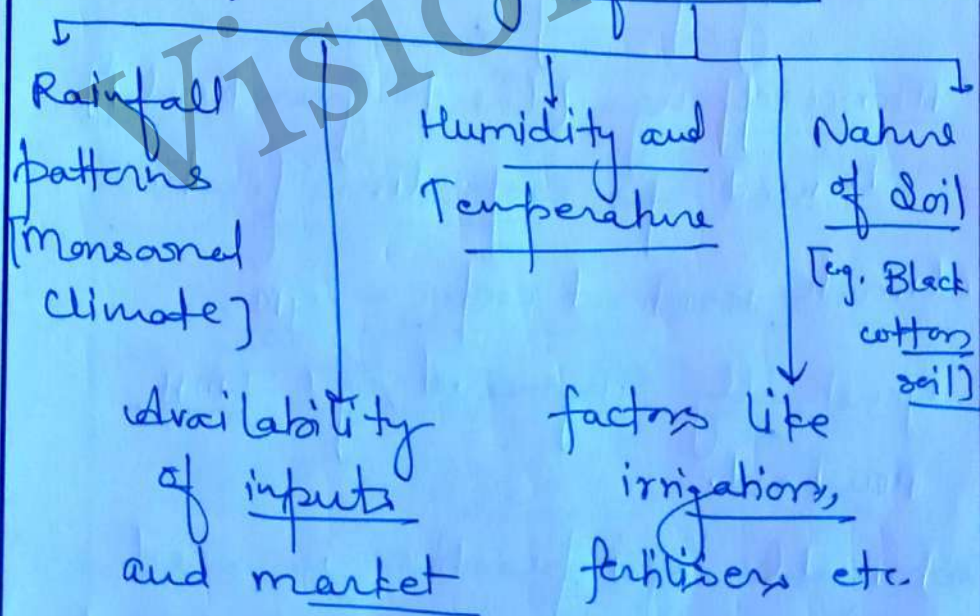
CERN is still pursuing to solve various unsolved mysteries of particle physics.

11. Highlighting the factors that affect the cropping pattern in India, discuss the need for modifying it in the context of the emerging agro-ecological concerns. (250 words) 15

भारत में फसल पद्धति को प्रभावित करने वाले कारकों पर प्रकाश डालते हुए, उभरती कृषि-पारिस्थितिकी चिंताओं के संदर्भ में इसे संशोधित करने की आवश्यकता पर चर्चा कीजिए।

India is large country having ~18% population, ~2.4% total geographical area compare to that of world.

Almost 40% area is under cultivation in India - encompassing variety of cropping patterns - which are influence by factors like



↳ Green Revolution has also

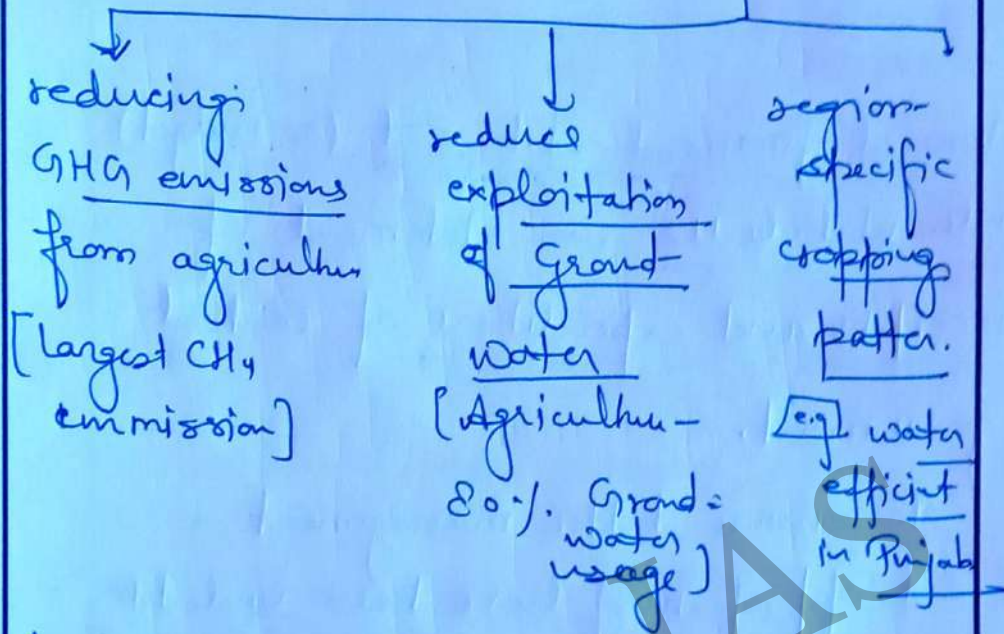
affected cropping pattern.

Need of modification due to emerging agro-ecological concerns -

- ① Depletion of water resources -  
need to move towards drought resistant crops, water efficient crops [e.g. millets]
- ② Soil erosion and degradation -  
need of organic, ZBNF,  
and Agroforestry
- ③ Monocropping (due to Green Revolution)  
↳ need for crop diversification
- ④ Climate resistant crops - GM,  
Genetically Engineered [e.g.] DMH  
Mustard.

Sustainable agri practices is need of hour for sustainable development.

Effects In order to ensure sustainability, there is need for -



↳ There is need for -

↳ Integrated farming systems

↳ Systemic Rice Intensification program

↳ An Indian Agriculture

Service U/A 312 can be

constructed.

Multilayered efforts need to be taken to ensure food security.

12. While the budgetary reforms undertaken by the Central government in recent years have led to better management of government expenditure, there are some issues that still need redressal. Discuss. (250 words) 15

जहाँ हाल के वर्षों में, केंद्र सरकार द्वारा किए गए बजटीय सुधारों के कारण सरकारी व्यय का बेहतर प्रबंधन संभव हुआ है, वहीं कुछ ऐसे भी मुद्दे विद्यमान हैं जिनका समाधान किया जाना अभी बाकी है। विवेचना कीजिए।

### Annual financial Statement (or Budget)

Under Article 112 is Statement of receipts and expenditure of central government.

To ensure better management — a set of reforms have been undertaken —

- ① Constitution of FRBM Act for assuring fiscal consolidation and budget management
- ② Provision of Gender Budgeting — is budget of every department.
- ③ synchronised timings of budget session.

- ④ Separation of fiscal policy and monetary policy - constitution of Monetary Policy Committee.
- ⑤ targeting of fiscal deficit targets  
[3% of GDP]
- ⑥ doing away revenue deficit target  
of achieving zero revenue deficit.

Though these steps ushered better management and consolidation, there are some issues that need redressal -

- ① need state specific FRBM Act.
- ② inclusion of state voices  
in TOR of finance Commission  
↓  
to ensure fiscal federalism

↳ ③ Need for an independent  
fiscal Council [14<sup>th</sup> F.C.]

↓  
to promote stable fiscal  
policy.

↳ ④ Reduction of extra-budgetary  
borrowings - CAG report concern.

↳ ⑤ Sustainable debt to GDP ratio.

Way ahead.

A separate 'Budget Department'  
under finance Ministry can be  
envisaged to better align  
budgetary reforms.

13. For India to create a 'future ready' railway system, it must harness innovation and resource efficiency. Discuss the statement in the context of the measures enlisted in the National Rail Plan 2030. (250 words) 15

भारत को 'फ्यूचर रेडी' रेलवे प्रणाली के सृजन हेतु, नवाचार और संसाधन दक्षता का उपयोग करना चाहिए। राष्ट्रीय रेल योजना 2030 में सूचीबद्ध उपायों के संदर्भ में इस कथन की विवेचना कीजिए।

Indian Railway network is world's  
4<sup>th</sup> largest. It is cheaper, cost  
efficient and more secure form  
of transportation.

future ready railway systems looks like -

- ① Secure, sustainable, faster,  
clean railway systems.  
[e.g. Japan and India - tech share]
- ② Enhance modal mix of railway  
[currently meagre participation]
- ③ Important pearl in multi-modal  
connectivity  
↳ bring down logistic efficiency <sup>cost (14%)</sup>

- ④ Use of bullet trains, magnetically levitated trains for faster reach.
- ⑤ Enhance cargo share and warehousing.

National Rail Plan 2030 envisages

efficient, sustainable and faster railway network -

- ① achieving 100% electrification
- ② Carbon neutrality by 2030 in railway network.
- ③ Vande Bharat trains for faster and enhancing connectivity.
- ④ reduce overutilisation of existing infrastructure.  
 eg. Golden Quadrilateral (15% of total network, 25% of total traffic)

⑤ envisage PPP participations  
for expertise, technology and  
imparting innovation

eg Madhepura Locomotive facility

⑥ Reducing cost of cargo transportation.

Indian Railways is backbone  
for transportation of 33 crore

Indians depending over it.

Innovative and resource efficient  
railway network would ensure  
sustainable development goals.

14. Discuss the significance of technology in the Indian agricultural sector. Also, state the challenges in realising its potential to improve agricultural efficiency and increase the income of the farmers. (250 words) 15

भारतीय कृषि क्षेत्रक में प्रौद्योगिकी के महत्व पर चर्चा कीजिए। साथ ही, कृषि दक्षता में सुधार और किसानों की आय बढ़ाने की इसकी क्षमता का उपयोग करने में आने वाली चुनौतियों का भी उल्लेख कीजिए।

Indian Agriculture sector with ~48% workforce depending on it contributes to 17% to India's GDP only.

This imbalance leads to problems of disguised employment and low income to farmers.

Technology can help tackle these problems.

### Significance of Technology

- ① Soil Health - detection of nutrients availability [e.g.] Soil Health Cards
- ② Real time monitoring of crops - use of drones (Bhumi Sat'h)
- ③ Climate resilient crops

③ Biotechnology - GM crops, HVYs  
of seeds, hybrid crops -  
Increase efficiency erj Bt Cotton

④ Precision farming - suited to  
crop needs and soil productivity.

⑤ digitisation of land records -  
reduce conflicts - and establish  
farmers' ownership [NMLRDP]

Challenges in realising the potential

① improving agriculture efficiency

↳ ① digital illiteracy - farmers  
not having knowledge of  
available apps/schemes.

↳ ② skepticism about soil health  
cards - ineffective implementation

↳ ② Issues of GM crops -

↳ long term reduction in efficiency.

↳ ① Increasing farmers income -

↳ ① Cost of technology -  
unaffordable mechanisation,  
drones etc.

↳ ② Precision farming require  
precise input application -  
increase cost of labour

Way ahead

↳ ① Affordable mechanisation  
under SMAM

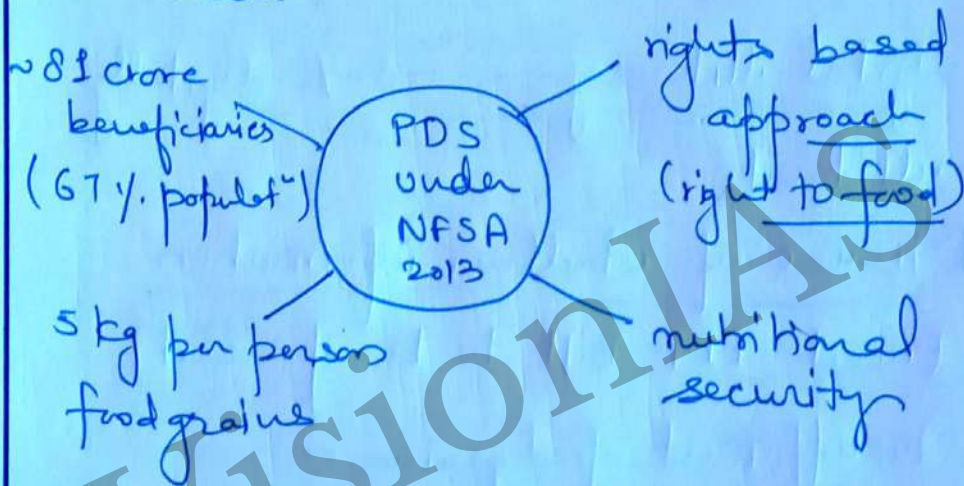
↳ ② need for effective implementation  
of Digital Agriculture Missions

Technology has potential to double  
farmer income and ensure sustainable  
agriculture practices.

15. Despite the digital transformation in the Public Distribution System (PDS) in India, several challenges still remain. Elaborate. Also, suggest measures to address them. (250 words) 15

भारत में सार्वजनिक वितरण प्रणाली (PDS) में डिजिटल रूपांतरण के बावजूद, अभी भी अनेक चुनौतियां विद्यमान हैं। सविस्तार वर्णन कीजिए। साथ ही, इनके समाधान हेतु उपायों का सुझाव दीजिए।

PDS is one of largest welfare programs to ensure food security in India.



### Digital transformation of PDS

- ① Biometric Aadhar identification of beneficiaries.
- ② provision of DBT
- ③ digitalised data records of beneficiaries (identified by States)

## Challenges still remains

- ① Corruption and leakages of foodgrains
- ② procurement issue of FCI -  
inflates the cost of procurement.
- ③ exclusion and inclusion errors.
- ④ digital illiteracy - ~80% digitally illiterate.
- ⑤ Misuse of Aadhar information  
• [need PDP Bill to be passed]
- ⑥ Insufficient food grains -  
hunger and malnutrition prevalence.
- ⑦ Challenges in distribution and beneficiary identification.

## Measures that can be taken

- ① Use of GPS in distribution  
to prevent leakage for ~~Chattis~~

e.g. Athhara Pradesh

② Direct Benefit Transfer - can  
curb menace of corruption

③ PDS departments in state

govt. e.g. Chattisgarh

④ Wadhwa Committee recommendation -  
↳ need to establish state  
level Civil Supply Corporation.

⑤ Right to food as fundamental  
Right [POCL vs UOI case] -  
need to ensure nutritional  
security.

⑥ fortified rice and millet also to  
be provided.

Efficient PDS is crucial to achieve  
SDG-2 and food security.

16. Discuss the various concerns that exist with regard to fuel efficiency regulations for vehicles in India. Also, suggest the measures that can be taken in this regard. (250 words) 15

भारत में वाहनों के लिए ईंधन दक्षता विनियमों के संबंध में विद्यमान विभिन्न चिंताओं पर चर्चा कीजिए। साथ ही, इस संदर्भ में किए जा सकने वाले उपायों का भी सुझाव दीजिए।

Ever increasing cost of fuel and volatility in international market demands fuel efficiency regulations.

Fuel efficiency regulations in India

- ① flex fuels - use of ethanol blended petrol & diesel for enhanced efficiency and reduced vehicular emissions.

eg) 20% ethanol blending target

- ② fuel efficiency regulations for e-vehicles, gas fueled vehicles, also exist.

### Concerns

- ① Suitability of engine for flex fuels.
- ② Higher ethanol blending might corrode engine.
- ③ Issue of cost and higher prices
- ④ Ineffective implementation of targets.

### Measures that can be taken

- ① Adoption of e-vehicles -  
[e.g] FAME scheme.
- ② Use of Green Hydrogen as a sustainable alternative.
- ③ Bharat Stage VI norms to be followed strictly.

② Adoption of state-of-art technology  
for engines suited to blended  
fuel.

③ Diversification of oil supply  
chains.

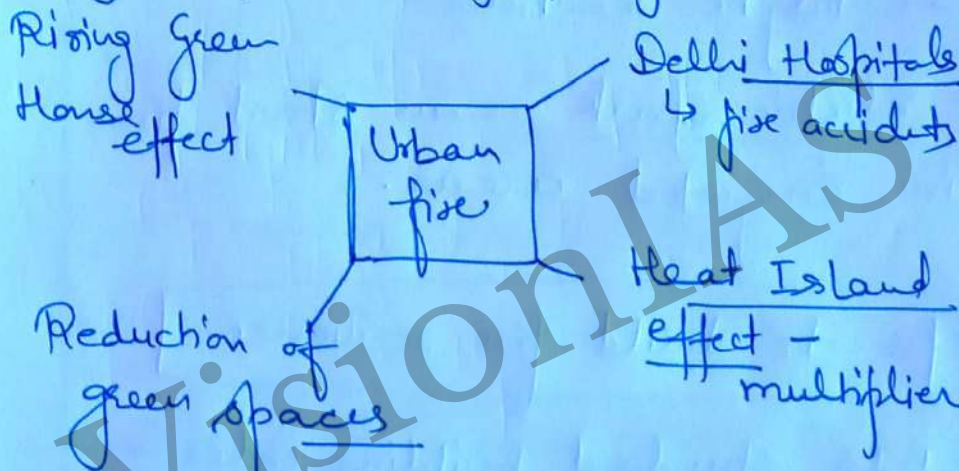
fuel cost has direct impact on  
cost of various goods - it inflates  
cost of food & transportation cost.

A sustainable alternatives like  
Green Hydrogen Mission and  
e-vehicles provides way forward.

17. Urban fire is becoming a serious cause of concern in Indian cities. In this context, highlight the major causes behind urban fires in India. What steps can be taken to build robust fire resilience in Indian cities? (250 words) 15

शहरी आग (अर्बन फायर) भारतीय शहरों में चिंता का एक गंभीर कारण बनती जा रही है। इस संदर्भ में, भारत में शहरी आग के प्रमुख कारणों पर प्रकाश डालिए। भारतीय शहरों में मजबूत अग्नि रोधी क्षमता के निर्माण हेतु क्या कदम उठाए जा सकते हैं?

Urban fire incidents has claimed various lives in recent past with huge impact on property as well.



### Major Causes for urban fire

- ① Climate change - ↑ GHG -  
Global temperature already  
1.5°C risen [IPCC]
- ② Grey Infrastructure - causes

## Heat Island effect

- ④ Deforestation, encroachment  
of wetlands - reduced albedo
- ① Pollution - ground level ozone,  
Volatile Organic Compounds (VOCs) etc.  
- catalytic reactions
- ⑤ Electric spark - can start fires  
in congested areas.

## Steps to build fire resilience

- ① BIS standard building codes -  
while construction.
- ② green infrastructure - green parks,  
wetlands, trees, etc.
- ③ fire resistant materials can  
be used while building -  
[e.g.] geotextiles [Technical textiles]

- ④ fire safety norms to be strictly followed in every organisation
- ⑤ Proper ventilation to avoid accumulation of VOCs -
- ⑥ Proactive fire mitigation strategy ~~at~~ to be adopted in urban planning.

Cities <sup>will be</sup> housing > 50% Indian population by 2050. fire resilience in urban planning is need of hour to ensure SDG of 'Sustainable Infrastructure'.

18. Drones in border areas present a serious threat for border management in India. Elaborate. Also, discuss the different measures taken to regulate the use of drones in India. (250 words) 15

सीमावर्ती क्षेत्रों में ड्रोन, भारत में सीमा प्रबंधन के समक्ष एक गंभीर खतरा उत्पन्न करते हैं। सविस्तार वर्णन कीजिए। साथ ही, भारत में ड्रोन के उपयोग को विनियमित करने के लिए किए गए विभिन्न उपायों पर चर्चा कीजिए।

## Drones or Unmanned Aerial Vehicles

(UAVs) have emerged as serious threats in Border Area Management.

Recent incidents of drone strikes in J&K is an example of this.

### Drone as threat at Border

① Remotely controlled nature →

← difficult to trace origin ← surveillance from far off areas

Complex nature of technology used →

potential to start war due to misunderstanding

② Cheaply available technology

used in  
drug  
trafficking

linkage with  
organised  
crimes

surveillance  
of security  
agencies

③ Easy maneuverability - can  
cause large scale destruction  
to both civilian infrastructure  
and Critical Information Infrastructure.

Measures taken

① Guidelines to regulate drone  
use over restricted, and civilian  
spaces.

② Make in India initiative to  
manufacture drone hardware -  
to enhance deterrence.

- ③ Initiatives like DraaS, Drone Shakti has been taken.

### Further measures needed

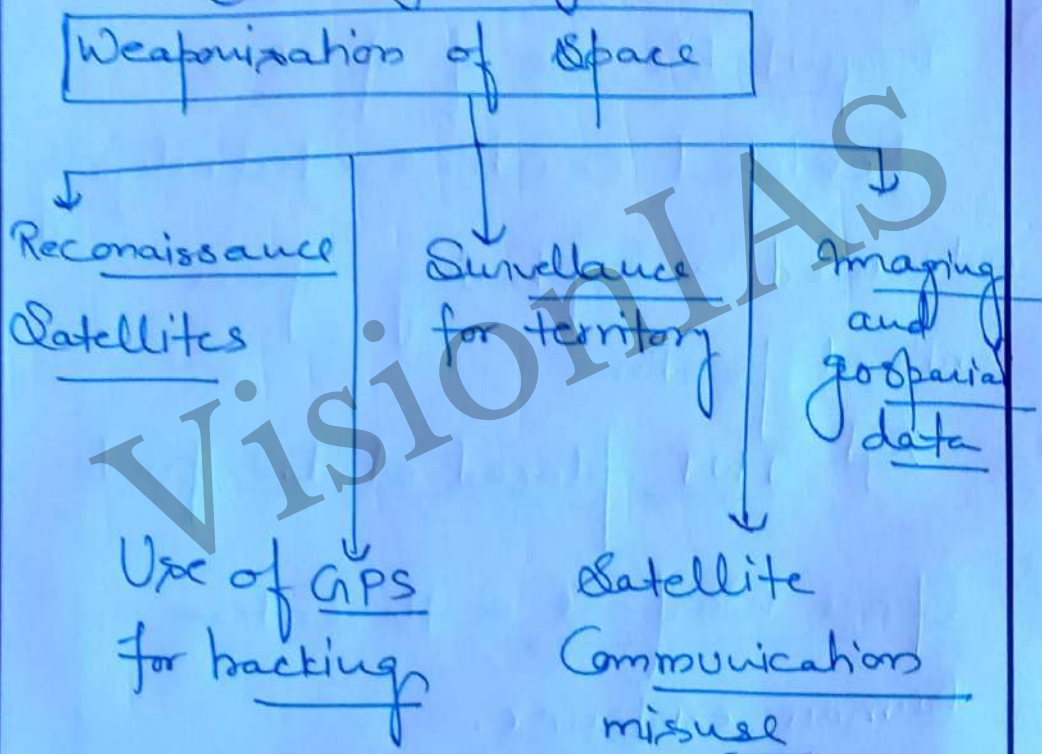
- ① A national policy regulating use of UAVs is need of hour.
- ② International collaboration over 'drone as emerging threat' is needed to regulate their use.
- ③ Respect for civilian space is needed to ensure - Human Rights of people need to be protected alongwith their privacy.
- ④ Government can deploy use of drones in Border Area Management.  
Drone's use has increased complexity of border management. Efforts and for regulation need to cultivate, ~~also~~

19. Despite a global framework to prevent weaponization of space, it has been increasing in the recent times. Discuss. Also, give an account of the implications of space weaponization. (250 words) 15

अंतरिक्ष के शस्त्रीकरण को रोकने के लिए एक वैश्विक ढांचा होने के बावजूद, हाल के दिनों में इसमें वृद्धि हुई है। चर्चा कीजिए। साथ ही, अंतरिक्ष के शस्त्रीकरण के निहितार्थों का विवरण दीजिए।

Q. 19

Space has emerged as 4<sup>th</sup> space for warfare, with increasing weaponization globally.



Global framework to prevent

① Outer space treaty regarding outer space activities.

- ② friendly usage of space.
- ③ Implication of Space Weaponisation
- ① Kessler's Syndrome - problem of cascading effect of space junk.
- ② Inevitable use of space -  
Developed countries - technologically advanced - capturing space critical positions  
[eg] JWT placed at L2 point.
- ③ Space Warfare - threaten human existence.
- ④ Use of global commons for disturbing international peace and security [eg] US denied

GPS access to India while providing  
Pakistan the same.

### Way ahead

- ① A legally binding treaty  
on peaceful use of outer space  
is need of hour.

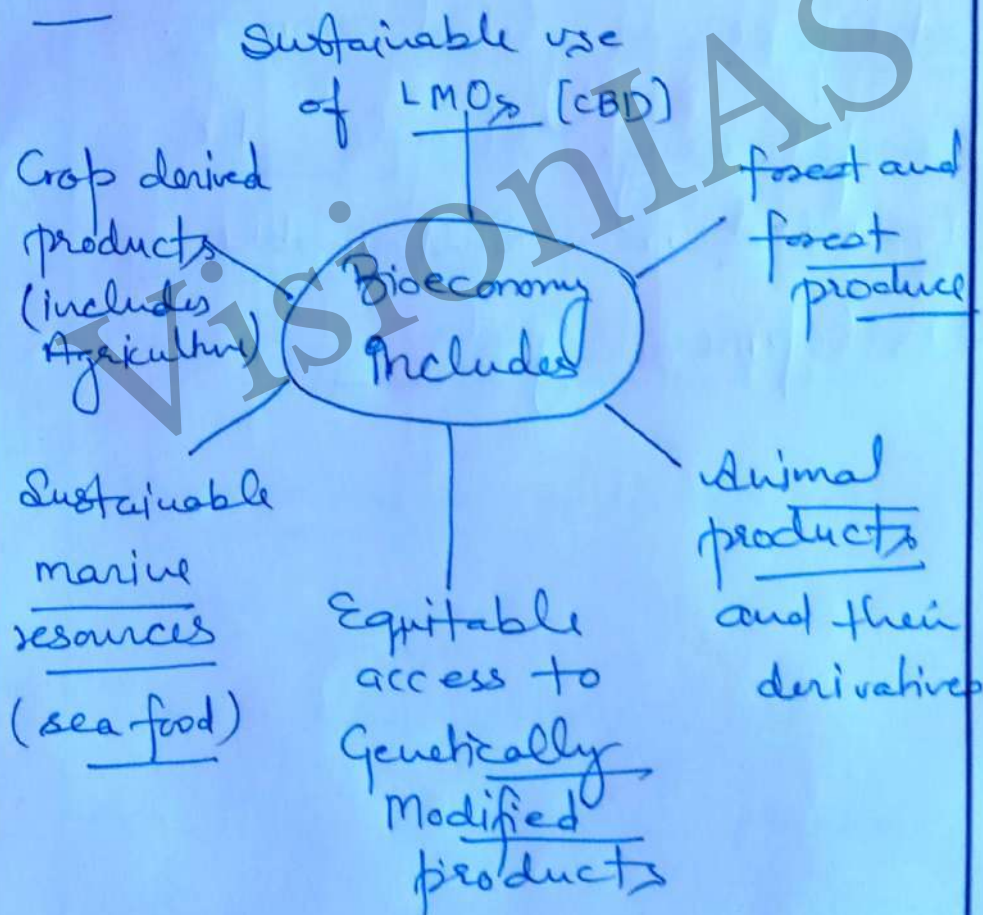
Outer space is global common.

Peaceful usage should be  
included in Sustainable  
Development Goals.

20. What do you understand by a bio-economy? Highlight the role that the National Biotechnology Development Strategy 2021-2025 can play in creating a robust bio-economy in India. (250 words) 15

बायो-इकोनॉमी (जैव-अर्थव्यवस्था) से आप क्या समझते हैं? भारत में एक मजबूत बायो-इकोनॉमी के सृजन में राष्ट्रीय जैव प्रौद्योगिकी विकास रणनीति 2021-2025 द्वारा निभाई जा सकने वाली भूमिका पर प्रकाश डालिए।

Bio-economy refers the use, and value generated by biological products for trade and global use.



## Role of National Biotechnology Development Strategy 2021-25

- ① Achievement of sustainable  
Development goals of  
marine product usage,  
ecological productivity -
- ② Role in blue economy -  
sustainable usage.
- ③ Ethical Genetic Modification  
and equitable Benefit  
and Access sharing  
[Cartagena and Nagoya  
Protocol]
- ④ Enhance tribal products -  
value generation - branding -  
local for vocal.

- ⑤ promotion of regenerative agriculture.
- ⑥ promote Nature based solutions for sustainable development.

Bio-economy has huge potential for economic growth as well as sustainable development. National strategy has crucial role to play in it.