



# VISION IAS

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## GENERAL STUDIES (TEST CODE : 1840)

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Medium Eng./Hindi	English	Registration Number	505389
Center	Online	Date	30/08/2022

### INDEX TABLE

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

Total Marks Obtained:

Remarks:

### INSTRUCTIONS

- Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).  
उत्तर पुस्तिका में सूचनाएं करना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
- There are **TWENTY** questions printed in **ENGLISH & HINDI** इरामें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
- All questions are compulsory.**  
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.  
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one.  
प्रश्नों के उत्तर उरी 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।
- Word limit in questions, if specified, should be adhered to.  
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.  
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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## 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.

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।

Fixed term employment provides <sup>all</sup> benefits of employment but only for the time of contract. Hence, it is not a permanent solution to social security.

Concerns Associated.

- 1) Even though employee gets fixed & timely remuneration, stress about future remains.
- 2) It can promote moonlighting.
- 3) It does not provide dignified & gainful employment.
- 4) Social security is compromised.

5) Causes high frictional unemployment.

↳ time spent on searching new jobs.

↳ money lost (that could have been earned)

6) Not suitable for low skilled workers.

Way forward

1) Social security concerns must be addressed. eg. PM-JBY, Atal Pension Yojana, etc.

2) Women must be provided special safeguards

3) Issues of informalization must be addressed

4) People must be upskilled. eg - PM-KSY.

Hence, a gained & dignified employment is right of people.

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।

India's logistic sector costs about 13-14%. while in OECD, it is 6-7%. Hence, efficient logistics can improve industry competitiveness & reduce unnecessary expenditure.

Need for Efficient Logistics.

- 1) Reduce the turnaround time - from ports to market.
- 2) Warehousing must be focussed to provide seamless operation & prevent damage to load hauled.
- 3) Bharatmala aims to provide an integrated transport & storage infrastructure.

- 4) This will promote balanced regional growth as roads lead to spread & spillover of ideas, goods, trade, services, etc.
- 5) Warehousing can promote factoring business.
- 6) These networks of roads & warehouses will promote regional growth.
- 7) These can further be integrated with other modes for a seamless multimodal mix of - Judo-Gati Shakti.
- Hence, an efficient logistics & warehousing sector will spread development to Indian hinterland & create one nation - one market.

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

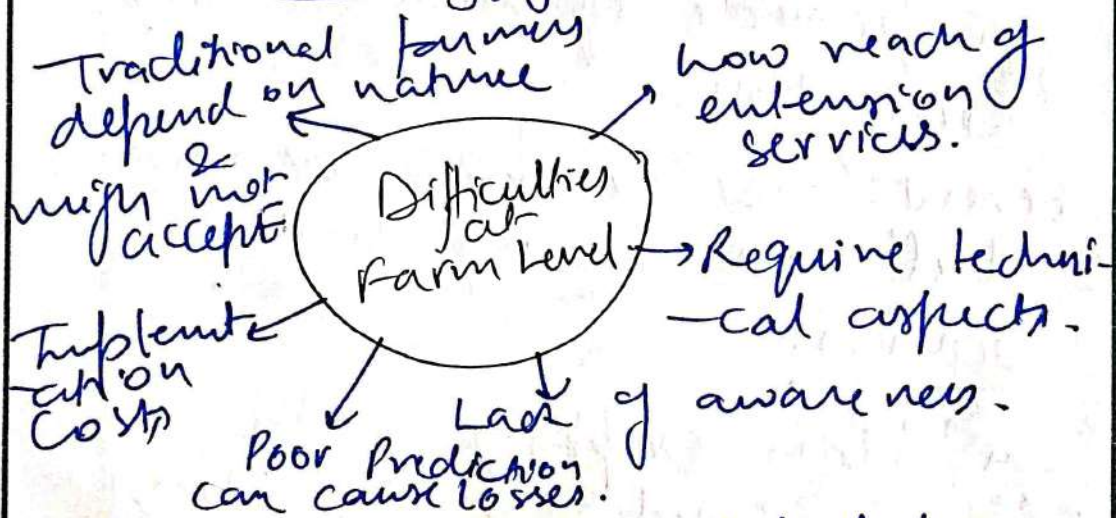
'सिंचाई निर्धारण (इरिगेशन शेड्यूलिंग)' पद से आप क्या समझते हैं? इसके द्वारा उपलब्ध कराये गए लाभों का वर्णन करते हुए, इसे खेत स्तर पर लागू करने के समक्ष आने वाली कठिनाइयों की विवेचना कीजिए।

Irrigation scheduling can be defined as the planned application of irrigation by taking into account the soil requirements & external weather.

Advantages.

- 1) Can provide optimum amounts of irrigation.
- 2) Prevent over or under irrigation & help in saving water resources.
- 3) Can align cropping with climatic conditions. - Very forecasts of weather & planning accordingly.

- 4) Can be further improved by using technology. like Moisture sensor probe & AI to make decisions.
- 5) Save time of farmers.  
↳ can be utilized on other ventures of Animal Rearing
- 6) Reduce risk of crop failures.
- 7) Prevent land salinization & water logging.



Hence, irrigation scheduling must be leveraged further with ICT solutions



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।

PM-FBY has been one of the most important income security measures. but due to practical aspects like high crop failures, it has become unviable.

Concerns in implementation,

- 1) Has become unviable for private players in high risk areas. eg - Vidarbha, etc.
- 2) Delay in claims has caused distress for farmers.
- 3) The planning was miscalculated as profit margins are reducing for ~~farmers~~ - insurers.

- 4) It suffers from systemic faults & moral hazards.
- 5) Due to voluntary nature, it has now become ~~is~~ useless.
- 6) Field & crop assessments are fraught with issues of methodology.

### Way Forward.

- 1) Government can provide support in high risk areas to private players. eg - Vidarbha,
- 2) Breed Model - is an ideal case in point.
- 3) Government should increase incentives for farmer -  
hence, crop insurance ~~set~~  
or must become competitive  
whilst ensuring a viable  
functioning.

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 was the first time when nations finally recognized the importance of multilateral cooperation in climate governance. Hence, UN-Conference on Human Environment (1972) was a paradigm shift.

### Impacts of UNCHRE.

- 1) Brought environmental issues into international forum.
- 2) Provided for a push towards climate perspective in developmental planning.
- 3) Hence, India formed its

Ministry of Environment after his  
FM later 1980s.

- 4) Created a base for future multilateral negotiations. eg - Brundtland Commission, 1987, UNFCCC, UNCBD, etc.
- 5) Along with poverty, environment gained a center stage.
- 6) Inspired future ideas on ecocentrism rather than anthropocentrism.
- 7) India had a crucial role in this as India had attended UNCTE.
- 8) It also laid foundation for Climate action, Climate justice & coordination.  
Hence, indeed UNCTE was a paradigm shift that created an environmentally conscious world.

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।

Due to anthropogenic global warming, frequency and intensity of climate-induced disasters has increased. - IPCC.

Hence, early warning systems can provide necessary time to react to reduce risks.

Role of Early Warning Systems.

- 1) Provide advanced alerts which can provide a window to raise alarms.
- 2) The time can be used to arrange & mitigate when disaster hits.
- 3) Even Sendai Framework (2015)

suggests how EWS can reduce loss & damage of lives & property.

- 4) People can be advised to brace for impact.
- 5) Essential supplies can be arrayed.
- 6) Post disaster cycle can be put on standby!

Case-Study - The INCOIS has successfully provided early warning against potential ~~tsunami~~ <sup>Cyclone</sup> especially for Odisha.

Hence, an early warning system like Doppler Radar, Buoys, can help in reducing impacts of disasters.

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।

Technology in policing can improve the efficiency of police but at the same time, there are concerns of state overreach. - as highlighted by George Orwell in book, "1984".

Benefits of leveraging technology.

- 1) Improves the reach of police and provides better evidences.  
eg- Use of CCTV.
- 2) Can help in catching criminal even in crowd. - eg- ~~National~~ NAFRS (for facial recognition)
- 3) Body cams can help in increasing accountability.
- 4) CCTVs - will improve the

inter-operability among various  
police stations.

5) Can be used to tackle cyber  
crimes, doxing, frauds & online  
raffs.

\* Disadvantages & Concerns

1) Can lead to racial profiling  
& data issues. - y. NAFRS

2) State can misuse to plant  
incriminating evidences.

3) People's privacy could become  
a victim.

4) Collecting evidences of - recent  
lawson collecty body to  
↳ can violate dignity.

5) Can have chilling effect on  
freedom of speech.

Hence, Policy & Technology  
must be guided by a suitable  
legislation.



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?

Climate change has indeed caused disruption in human lives, making them vulnerable to influences of radicalization. Crowdswell report suggests links between climate induced migration & terrorism.

Climate Change poses threat

- 1) Disrupts people's livelihoods.  
eg - Sahel Region of Africa.  
↳ desertification.
- 2) This causes migration. eg -  
from Africa to Europe via Mediterranean.
- 3) It increases burden on gover-

ments to provide for refugees.

4) Also, it can cause international river disputes. eg. -

between China & Vietnam, Thailand, etc over reduced flow in Mekong.

5) Also, it can lead to changes in Geopolitics & Geo-economics.

eg - Melting of Arctic

↳ Opening of Trade Route

↳ Competition for mineral resources.

6) Climate induced poverty can cause rise in radicalization & terrorism. eg - Al-Shabab in Somalia.

Hence, there seems to be plausible links between Climate Change & international peace & security.

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।

Virtual Private Network provides for an encrypted pathway and disguised online identity, which allows an anonymous & safe web browsing experience.

Advantages.

- 1) Provides for a virtual identity.
- 2) This overcomes local restrictions.
- 3) Also helps in safe data transfer. eg - encrypted end to end.
- 4) "Kill switch" - prevents data breach & protects from eves-dropper.
- 5) Provides access to even those

Content, banned in one's own country.

6) Affordable & fast.

Concerns - posed.

1) Can be used by criminals to conduct illegal activities like Data piracy, IPR violation, etc.

2) Anonymity can cause issue for agencies.

3) Some free VPN providers secretly capture data via backdoor trackers.

4) Most VPN providers have servers in foreign → data theft.  
Hence, Govt. has provided for compulsory data storage of users for 5 years & data localization to ensure accountability.

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।

CERN has been a pioneer in particle physics which has helped in developing the Standard model by providing evidences for it.

Role Played by CERN.

1) An excellent example of how science binds people together. CERN has representations from Europe & also even from other countries like India.

2) Provided accurate evidences for Standard model. CERN - Higgs boson discovery.

- 3) It has led to extensive research in high speed particle physics.
- 4) Results obtained have helped in development of other fields.  
eg - Quantum Computing,  
Nuclear Physics, etc.
- 5) Such technologies are now used in Socio-economic development of the people. eg -  
Nuclear energy from fusion,  
Quantum Key distribution, etc.
- 6) Has also helped in bridging the gap between the  
fundamental sciences of  
Particle Physics, quantum mechanics  
gravity, etc.  
Hence, CERN is an epitome  
of how science can promote  
collaboration & development.

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 has about 15 Agro-Ecological regions. But due to technological interventions, we see cropping patterns modified as per human requirements. This incoherence can have ecological repercussions.

### Factors Affecting Cropping Pattern

- 1) Topography of the area dictates spatial distribution & variations in cropping patterns.
- 2) Climatological factors like the annual precipitation.
- 3) Population distribution and density.

dictates intensity in cropping patterns.

4) Type of soil also has a deep & ecological impact.

5) Technology like inputs of seeds, fertilizers, etc.

↓ - HVY in Punjab has led to monocropping.

6) Irrigation systems. γ-Tube well irrigation leads to multiple crops

7) Institutional Factors. - like owner-ship, govt. policies, subsidies, etc.

8) Infrastructural & societal factors.

Need for Modifications

1) Agro-ecology has been neglected which reduces resilience.

2) Local climate based crops like



Millet in arid regions, wheat in Punjab are better suited.

3) Wrong selection has led to ecological damage. e.g. Sugarcane in Madhya, Rice in Punjab

- ↳ Depletion of water resources.
- ↳ Rise in desertification.

4) Wrong cropping patterns have also affected soil biodiversity.

- ↳ Pesticides killing good organisms like snails.

5) Skewed cropping patterns cause disruptions in Food systems.

6) Ecological problems must not become socio-economic e.g. Punjab cancer issue.  
Hence, cropping pattern needs to align with agro-ecology for sustainable growth.

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।

Budgetary Reforms have been introduced by Debray Committee recommendations to reduce burden on encheques, time taken in passage & better accountability.

Reforms Taken.

- 1) Separation of Rail way Budget from general budget has been done away with.  
↳ Debray Committee recomend.
- 2) The budget presentation has been shifted to earlier February
- 3) This prevents march night

- 4) Gender Budgeting has been quite successful.
- 5) Outcome based approach.
- 6) Fiscal Consolidation - FRBM, 2003.
- Issues still persisting that need redressal.

- 1) The recommendations of committees like Public Accounts Committee, Estimates Committee, etc. not binding.
- 2) Government imposes cesses & surcharges that reduces rights of states for devolution.
- 3) Also, budget has large number of fixed funds. under the central sector schemes.
- 4) These reduce autonomy &

initiative of states.

5) Budget also fails to account for externalities like crude oil price fluctuations.

6) It is also difficult to monitor the success of expenditure made.

Hence, further improvements in budget will help in making the budget more outcome oriented rather than output oriented.

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।

National Rail Plan 2030  
aims to increase railways  
contribution in the modal mix  
& at the same time increase  
its efficiency & financial robust-  
ness.

Need for innovation & resource  
efficiency

- 1) Railways are highly dependent  
on fossil fuels.  
↳ hence, need decarbonization.
- 2) Cross subsidization, affects the  
input output ratio. eg - Railway  
makes ₹0.97 on ₹1 investment.

- 3) Rail accidents cause loss of human lives & property.
- 4) rule delays affect efficiency and economic productivity.
- 5) Lack of private participation has reduced competitiveness & service delivery standards.
- 6) Infrastructure needs overhaul. 40-year old ICF coaches need to be replaced.
- 7) Increasing the cargo/freight potential of railways.

Use of Innovation & Efficiency for harnessing true potential.

- 1) National Rail Plan, 2030 aims to make railways future and provide better

- Safety & services.
- 2) Innovative solutions like Automatic Train Collision Prevention tool → independently developed.
  - 3) Introduce electrification in all trains.
  - 4) Using Siemens/Bombardier coaches instead of ICF ones.
  - 5) Attracting private participation for better exploitation of tourism & meme based potential.  
eg - Bhaat Gaamar Trains.
  - 6) Dedicated freight corridors + services like Kishan Rail can promote socio-economic progress hence, future ready railways can be the growth engines of development & connectivity.

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।

Government has come up with many e-governance & technological solutions for doubly farmers incomes. e-

e-Negotiable ware house receipts, etc. But, implementational & extension challenges hinder the transmission of benefits.

Significance of Technology for Agricultural Sector-

- 1) Promotes data driven and evidence based solutions.  
e- Soil Health Cards for rationalizing fertilizer use.



- 2) Provide farmers direct access to information extension services.  
eg- Touch kiosks.
- 3) Income support via direct benefits transfer. (PM-KISAN)
- 4) Warehousing & Cold Storage technology. Has increased farmers options.  
↳ prevents distress sales.
- 5) e-NWR. promote credit access & give push to factoring businesses.
- 6) Kisan Drone scheme has revolutionized field operations.
- 7) m-Kisan - information & market knowledge in regional languages.
- 8) Technological solutions like PM-KISAN provide energy

security & decarbonization of fields.  
↳ also give additional income  
by selling surplus to grid.

Challenges  
in  
Realizing  
Potential.

- ① Most farmers are small & marginal (about 85%).  
↳ Make adoption unviable
- ② Schemes like Kisan Drone are highly technical.
- ③ PM-KUSUM - upfront 10% payment is difficult for small farmers.
- ④ PM-KISAN ~~does~~ does not benefit landless.
- ⑤ Behavioural change & acceptance of disruptive tech. is an issue.
- ⑥ Extension is not effective.

Hence, a more participative & capacity building approach can help in easier adoption of technology.

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।

The Targetted Public Distribution System of India is the world's largest food security initiative. Though it has gone digital, problems remain which deny people their rights.

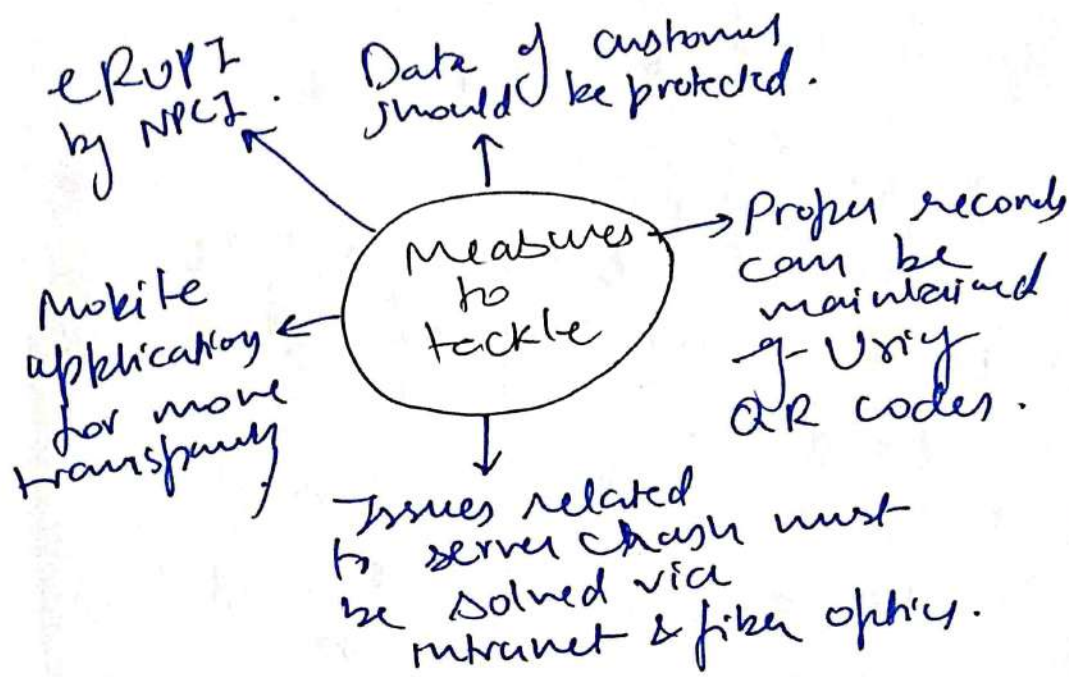
Benefits of Digitization of PDS.

Through measures like AePS (Aadhar enabled Payment System) BAPU, etc, digitization has been achieved but, several issues due to technical glitches & institutional factors need solutions.

## Challenges Still Remaining

- 1) The A-PDS can deny the food access if proper documents are not available.
- 2) Bio-metric system can also malfunction which has caused serious issues. e.g. Death of Tribals in Chhatisgarh on denial of ration.
- 3) Crash of servers has affected supply chains.
- 4) Risks of data privacy & profiting.  
↳ as we don't have a data protection law.
- 5) Records are manipulated by corrupt officials  
↳ adulteration & diversion to market

6) Issues in verification & updation of details.



Hence, PDS system must be robust to ensure food security & rights of poor & technical issues must be solved with innovative solutions of Big Data Analytics.

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 की जाए। साथ ही, इस संदर्भ में किए जा सकने वाले उपायों का भी सुझाव दी जाए।

India has adopted the BS-VI norms directly from the BS-IV norms to stay aligned with Paris agreement targets. (2015)

Issues with fuel efficiency regulations.

- 1) The norms for diesel vehicles are not strict.
- 2) Also, BS-VI standards are not upto the level of Euro-VI.
- 3) Larger vehicles like trucks, Buses, Cranes, etc are

not properly accounted for.

4) The Vehicle Scrappage Policy also does not provide enough incentives to push for better & more efficient vehicles.

5) The fuel efficiency criteria is currently only for fossil fuel vehicles.

↳ electric vehicle efficiency is neglected.

\* even though they consume grid electricity.

6) farm vehicles openly flout norms due to poor monitoring & implementation.

7) Motor vehicle Act need amendments.

Measures to be Taken.

- 1) Guidelines must be publically promoted.  
↳ as there is lack of awareness.
- 2) Using hybrid technology to improve efficiency.
- 3) Proper guidelines must be clearly communicated to manufacturers.
- 4) The National Car Assessment Program can be integrated with it.
- 5) State governments can better enforce via traffic regulations & efficiency certificates.  
Hence, efficient fuel regulations become important here to our Panchamrit Targets.



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 fires have become one of the most common urban disasters. and claim many lives due to congested landscape. eg - Recent fires in residential area in Delhi due to short circuit.

Major Factors behind Urban Fires.

- 1) Electrical appliances. & Short circuits are the main causes.
- 2) Buildings are not constructed as per materials prescribed by National Building Code by BIS.

- 3) Higher population density & improper planning (congested construction) compounds the problem.
- 4) Non availability of proper exits
- 5) More concentration of industrial & office spaces. in urban areas
- 6) Urban heat island effect.  
can also cause fires.
- 7) Gas pipelines may leak & catch fires.
- 8) Human errors like cigarette stubs, etc.

### Steps to be Taken

- 1) Constructing buildings as per National Building Code of BIS.

- 2) Providing adequate exit points
- 3) Sufficient mechanisms to control  
y- Fire hydrants, smoke  
detectors, etc.
- 4) Fire resistant building materials.  
y- Not using sun mica.
- 5) Non-structural measures like  
community training in fire  
rescue.
- 6) ISO certified electrical applica-  
nces must be used.
- 7) Enough width of streets so  
that fire vehicles can pass.
- 8) IFR can be declared as  
disaster.

Hence, an urban resilience  
in urban fire is needed to  
prevent any damage to life &  
property.

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।

Recent attack by a Pakistani Drone by dropping explosive on an Airforce base in border area highlights how drones can cause serious damage.

### Threat from Drones.

- 1) Use for supplying arms, ammunition, etc. across the border. eg - Recently BSF shot down one such drone in Punjab.
- 2) Used for smuggling drugs.
- 3) Drones are smaller in size.  
↳ not detected by radars.

- 4) Very cheap and easy among money & hence, used for reconnaissance by terrorists.
- 5) Can be used to drop explosives on sensitive locations. eg. -  
On aircraft hangars.

### Measures taken to regulate

- 1) Government has introduced Drone Rules (2021)
- 2) These provide colour codings for various areas.
- 3) Also provide licenses for big drones.
- 4) Divides drones into categories of micro, small, large, etc.
- 5) In red zones, drone use is prohibited.

6) DRDO has also developed many anti-drone technology.  
eg- Drone Radars, Anti-Drone Lasers.

7) Now, drones are also used by BSF to monitor any activity.

8) The Digital Sky Portal provides single window drone related services. → rules regarding no-fly zones.  
→ provision for license

Hence, Drones have become an imminent threat which need multipronged & technology based solutions.

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।

Despite the Outer Space Treaty & UN-COPUOS, there has been space weaponization due to rise of asymmetric warfare. This can cause a space-arms race which can militarize the global common.

Causes of Rise in Space Weaponization

- 1) Countries have developed the anti-satellite capabilities.  
eg - Mission Shakti in India.
- 2) Satellites act as eyes & ears of other nations → hence keyhole.

- 3) Parity has been reached in earth based systems; hence, a zeroday exploit is attempted at space.
- 4) Space has become the center of politics recently. eg - Inter-national Space Station!
- 5) Major armies have developed their space forces → which promotes & provokes others.  
eg - PLA - Space Force.
- 6) No proper forum to adjudicate space laws.

### Implications.

- 1) This has only increased risks of conflicts.
- 2) Anti-satellite missions can affect critical information infrastructure.



- 3) Can hampers socio-economic progress - e.g. - By attacking weather satellites, communication satellites
- 4) Space conflicts can spill over to nuclear conflicts.
- 5) Can increase space junk & debris. & can make low Earth Orbit (LEO) inaccessible.  
(Kessler's Syndrome).

- Way Forward -
- 1) Global consensus & negotiations must defuse issues
  - 2) India must increase space domain awareness. e.g. - via NETRA.
  - 3) International collaboration e.g. - ISRO & NASA.  
Hence, a properly negotiated & consensus based deweaponization is needed. e.g. - U.S. UNSC forum.

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

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

Bio-Economy refers to the economic benefits that can be obtained from biotic resources.  
y - Bio-prospecting for drug discovery.

Role of National Biotechnology Development Strategy 2021-25 can play.

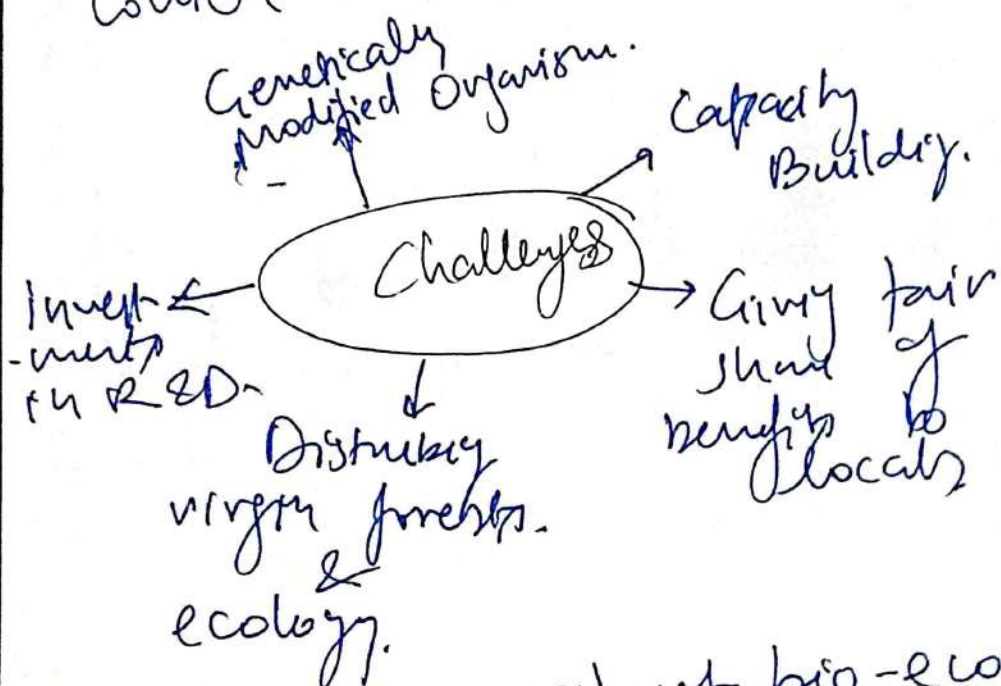
1) Can promote equitable share of benefits. eg - as per the Cartagena Protocol.

2) Open newer avenues for drug discovery. to fight issues like Antibiotic resistance.

- 3) Help local communities capitalize on their traditional knowledge.  
eg - Tribals via Van Dhan Yojana.
- 4) Can help in coming up with biodegradable solutions to the problems of plastics.
- 5) Provide alternative feedstocks for biofuels.  
↳ help in making an Atma-Nirbhar energy secure India.
- 6) Bio-remediation research for dealing with modern day hazards like oil spills, plastic pollution, etc.
- 7) Developing solutions to sequester Carbon.
- 8) Providing alternate sources of proteins. eg - Synthetic-Meat.

To reduce pressure on animal & livestock meat.  
 ↳ consumes more water & releases more carbon.

- 9) It can also reduce chances of zoonotic diseases.  
 10) Provide nature based solutions which are more sustainable.



Hence, a robust bio-economy can help achieve sustainable development & at the same time promote wealth creation.