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GENERAL STUDIES (TEST CODE : 1840)

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Medium Eng./Hindi	English	Registration Number	1365836
Center	Delhi	Date	28 Aug 2022

INDEX TABLE		
Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
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10	10	
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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 भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
- There are **TWENTY** questions printed in **ENGLISH & HINDI**.
इसमें 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 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।
- 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) नियोजकों 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 refers to
tenure of a job for a fixed
period.

Addresses Issues of employers

①. Certain jobs requiring employees
for a fixed period. (Eg) → electronics
industry.

②. Costs of production of employers
remains at low levels.

Addresses Issues of employees

①. No uncertainty regarding job tenure.

②. Beneficial for seasonal unemployed. (Eg) → Agri labourers, farmers, etc.

However, certain issues still remain →

①. Issue of structural unemployment not resolved.

②. Fixed-term employees discriminated against regular ones. (Eg) → in terms of social security benefits, wages, etc.

③. lowers productivity as contract is pre-determined.

Fixed term employment along with social security is imperative for empowerment of marginalised.

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 tends to provide ease of doing business by developing efficient logistics along entire supply chain.

Efficient logistics sector required

- ①. Building of warehouses for storage. (Eg) → Agri produce and other manufactured consumer goods.
- ②. Decreases cost of doing business. (Eg) → Warehouses near industries and markets.
- ③. Decreases turnaround time at

the ports. (India → 3 days, world
Avg. - 24 hrs).

④ Attracts FDI in multiple sectors

(eg) → electronics, renewable energy,
etc.

Complements Bharatmala

Parikojana →

①. Connectivity along with
storage capacity.

②. Seamless transportation decreases
logistical hurdles.

③. Warehouses at ports also gives
boost to Sagarmala Parikojana.

Building robust logistics is
the key to the success of
Atmanirbhar Bharat.

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 irrigating the crops as per their demand by using some measuring instrument.

Advantages of Irrigation Scheduling →

①: Problem of over-irrigation and under-irrigation can be resolved.

eg → Using tensiometer.

②: Saving of electricity and groundwater. eg → using water meters.

③: Solves various environmental

issues like $\left\{ \begin{array}{l} \rightarrow \text{Eutrophication} \\ \rightarrow \text{Alkalinity of soil} \\ \rightarrow \text{soil erosion} \end{array} \right.$

④ Per crop more drop is available
as envisaged under PM-Kishu
Sinchayi Yojana. eg \rightarrow using micro
irrigation techniques.

Certain Difficulties

- \rightarrow Inadequate infrastructure. (less than 1% of GDP invested on irrigation)
- \rightarrow Unawareness and high costs of equipments like drip, sprinkler irrigation, etc.
- \rightarrow lack of extension services by Kishu Vigyan Kendras.

Irrigation scheduling has a potential to solve water stress and crop productivity. Thus, difficulties must be resolved at earliest.

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, प्रधानमंत्री 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।

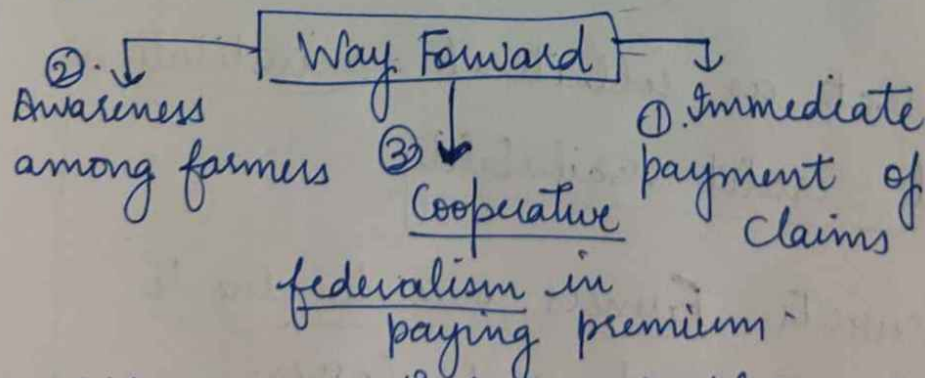
Pradhan Mantri Fasal Bima Yojana
provides insurance cover to farmers
in case of crop damage by pest attack,
natural disasters and so on.

Benefits for farmers

- ①. Losses faced by farmers on account of crop loss reimbursed by the scheme.
- ②. Act as collateral \Rightarrow institutional credit availability.
- ③. Prevents Farmers suicide due to droughts and crop losses.

However, several concerns have
been highlighted →

- ①. Delay in disbursal of claims ⇒
Financial crunch for farmers
- ②. States not paying insurance
premium to insurance companies
due to high fiscal deficit :
- ③. Other issues {
 - issue of under inclusion
and over exclusion
 - corruption and leakages
- ④. Farmers not aware about the
schemes.



PMFBY is essential for doubling farm
-er's income (~~Shree~~ Daluwa 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।

"Environmental era" implies that all developmental policies must be in sync with ecological health. Thus, prioritising environment over unsustainable development.

Paradigm shift in environmental governance

①- All countries to be equal stakeholders in environmental protection

②- Principle of Common but differentiated Responsibility ⇒ funds mobilisation by developed countries.

③. Multilateral efforts for preventing impacts of Climate Change on Small Island Developing countries.

④. Efforts at domestic levels by all countries.

Way Forward →

①. Policies to be aligned with the goals of Paris Agreement.

②. Participation of people.

③. Localisation of SDGs as has been done in India.

④. Focus on Green Economy and Electric vehicles.

'Environmental Era' must usher in an era of actions of humanity in favour of Planet earth.

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।

Climate Change has led to high frequency of intense weather events affecting disproportionately the marginalised.

Anthropogenic factors leading to Climate-induced disasters

①. encroachment of wetlands & other water bodies. eg → Chennai floods, 2015.

②. Use of fossil-fuel based sources of energy in industries & transport. eg → heat waves witnessed recently in 15 states.

③. Development of Urban heat Islands

owing to huge concretisation of roads & buildings.

④ land-use change → Deforestation
→ unplanned Urbanisation
→ Desertification.

Role of Early Warning Systems

effective → ~~in~~ during disasters
→ helps in community preparedness
→ Govt preparedness
→ reduces damage & vulnerability.

Not effective → If not accurately predicted
→ technical issues
→ If not accompanied by subsequent actions.

Early warning Systems must be strengthened to reduce the impact of frequent extreme weather events.

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।

Policing in India is mired by several challenges highlighting the need for reforms. Technology can play a great role in this regard.

Positive Implications

- ①. helps in coordination among different departments - (Eg) → CCTNS.
- ②. helps in identifying victims and criminals. (Eg) → DNA profiling.
- ③. Prevent crime at first stage.
(Eg) → use of facial recognition technology.
- ④. effective against new age crimes like cyber attacks. (Eg) →

NATGRID

- ⑤. Reporting of crimes might go up.
(eg) → Cybercrime reporting portal,
online FIR, etc.

However, certain concerns also
arise with use of technology :-

- ①. Facial profiling might lead to
surveillance state.
- ②. Against Right to privacy. (eg) →
using DNA without one's consent.
- ③. Technologies like Brainfingerprinting,
etc. amount to self-incrimination
(Art. 22) → Stanislous Case.

Way Forward { Data Protection law
(BN Srikrishna Committee)
Rights to privacy ensured
(Puttaswamy case)

Technology must be used in a
way to provide justice to one and
all.

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 अंतराष्ट्रीय शांति और सुरक्षा के लिए खतरा है?

Climate Change not only has ecological implications but also has social, economic and political ones.

Climate Change: Threat to international peace

- ①. Issue of Climate refugees due to forced migration:
- ②. Conflict b/w developing and developed world for funds mobilisation. (eg) → USA exit out of Paris Agreement
- ③. Policies of China like Debt Trap of BRI might be opted for by Small island developing nations

④. Protectionist tendencies - eg →
Bhutan in case of BBIN.

⑤. Carbon tax might be employed
to prevent free market access.

Thus, several measures
required in this regard →

①. "Common but Differentiated Responsibility" - this principle must be
adhered to.

②. Investment by developed countries
in green technology in developing
countries.

③. Concerns of Small Island develop-
ing nations must be prioritised.

Climate Change is a shared issue.
Hence solution lies in effective
cooperation and collaboration.

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 refers to hiding one's activity while surfing on internet websites :

eg → Using Incognito mode of Google.

Advantages of VPN

- Ensures privacy rights of individual (Art. 21)
- switches off search algorithms of websites.
- Advertisements targetting consumer can be prevented from being visible on websites.
- Cyber attacks and fake or

insecure websites can be avoided'

↓ Several concerns associated are →

- ①. ~~Such~~ Users remain deprived of desired recommendations based on search algorithms.
- ②. Might not be able to access all websites.
- ③. Advertising companies face losses.
- ④. Illicit activities can't be tracked
 - drug-trafficking
 - terrorism
 - black money

Thus, VPN as a double-edged sword must be used for level playing field to all users and service providers alike.

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।

The discovery of the Higgs Boson at the Large Hadron Collider in CERN highlights the instrumental role of CERN in scientific development.

Role played by CERN

- ①. Boost to R&D → Robust R&D ecosystem in CERN.
- ②. Study of evolution of stars, planets and universe.
- ③. Helpful in study of

Black holes and gravitational waves.

- ④. Boost to sub-atomic particle physics.
- ⑤. Inspiration of young scientific minds.
- ⑥. Study of birth, growth and decay of stars and study of solar system as a whole.

Thus, CERN has played a tremendous role in giving scientific development a new lease of life.

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 कृषि 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 15 agro-climatic zones
thus many cropping patterns. How-
ever, certain factors have led to
distortion of cropping patterns.

Factors affecting Cropping
pattern →

- ①. Green Revolution and its
benefits ⇒ rice being grown in
Punjab and Haryana.
- ②. State policies such as MSP
on rice and wheat leading to
skewed pattern.

③. Irrigation systems availability

③ → Rice grown in Punjab, Haryana despite having less rains
→ less cultivation of rice in Bihar due to unavailability

④. Monsoon dependent (more than 65% of India's agriculture rain-fed)

④ → Bajra, Jowar in Rajasthan, Jute in West Bengal, etc.

⑤. Geography and physiography

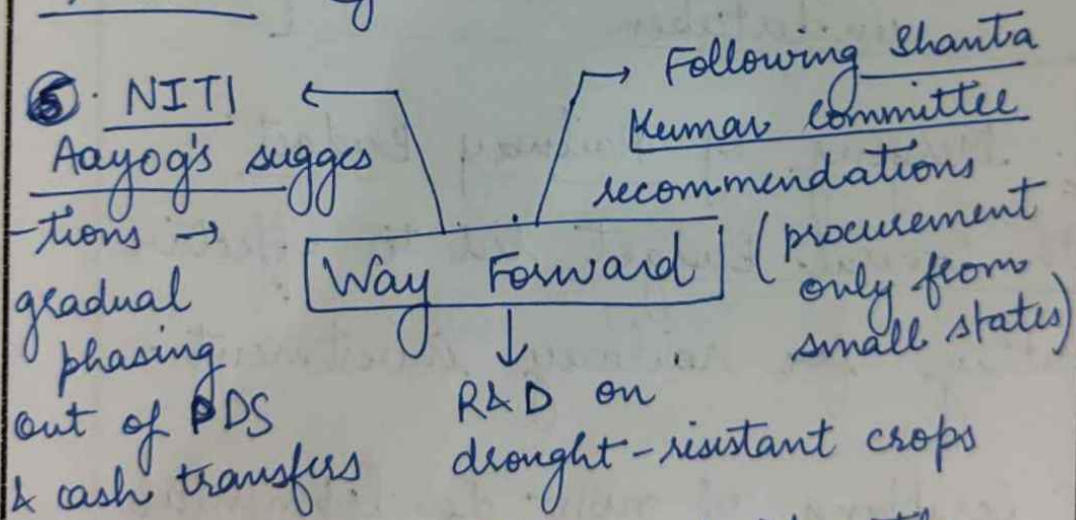
⑤ → Tea in Assam and Western Ghats, Coffee in Karnataka, etc.

Need to modify it

①. Unecological and unsustainable cropping pattern → depletion of groundwater tables. ① →

Punjab, Haryana, etc.

- ②. Creating regional ^{disparity} and disparity among farmers. (eg) → Procurement of wheat & rice ^{from} large states (NITI Aayog)
- ③. Climate change making it necessary to grow drought-resistant crops. (eg) → Jowar, Bajra, Ragi.
- ④. To curb the menace of Farmer suicide. (eg) → Vidharbha.



Cropping Pattern decides the fate of farmers which has to be improved for the growth of nation as a whole.

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।

Budget tells about the financial health of a nation and the need for further investment measures for further growth and development.

Benefits of Budgetary reforms undertaken

- ①. Merging of Railway Budget with General Budget led to effective outlay for railway investment.
- ②. Scrapping of non-developmental expenditure and developmental expenditure improved public's perception.

- ③. More funds allocated for welfare schemes and capital expenditure.
- ④. Recent Budgets allocated 35% of funds under the head of Capital expenditure \Rightarrow crowding-in effect.
- ⑤. Gender Budgeting considering the concerns of women.

However, several issues still remain as follows \rightarrow

- ①. Welfare schemes under Revenue expenditure head needs to be shifted.
- ②. Borrowing by states still confined to domestic market.
- ③. Demand for grants not being

effectively debated and deliberated.

④. Meagre allocation for social sectors like health, education, etc.

⑤. High expenditure under revenue head leading to high fiscal deficit.

Road Ahead →

①. Budgetary allocation on health, education, needs to be increased.

②. Grants-in-aid, welfare schemes, etc. for social sectors might be shifted to capital head.

③. Gender Budgeting needs to be strengthened.

Budget (Art. 112) must be designed in a way so as to empower vulnerable & usher in era of New India.

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 system is the fourth largest in the world.

However, its potential still remains underutilized requiring to take several effective measures.

Measures under National Rail Plan 2030

- ①. Moving billion people safely i.e. focus on safety of railways travel.
- ②. Increasing share of freight transport in Railways
- ③. Issue of cross-subsidy to be

resolved in an effective manner

- ④. Emphasis on increasing speed and quality services to customers.
Eg → Vande Bharat express, etc.

Need of Innovation in Railways

- ①. Issue of coal supply. Thus, head-on generation, hyperloop system, etc needed.
- ②. To solve issue of accidents.
- ③. Freight Transport. Eg → Dedicated freight corridors are being built.

Need of resource efficiency

- ①. To improve operational & ratio (currently 0.96)

- कुछ बातें लिखें)
- ②. Quality service to passengers at affordable prices.

②. Way Forward —

- ①. Using innovative technologies.
eg → Hyperloop, etc.
- ②. Phasing out subsidised fares gradually along with upgradation of quality.
- ③. More railways for freight transport.

Railways connect the remote and rural hinterlands to mega cities of the country and thus must be strengthened under PM-CATI Shakti Plan.

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।

Technology in Indian agricultural sector must be used to increase/double farmer's income (Ashok Dalwai Committee).

Significance of Technology

- ①. Provide weather forecasting services. (Eg) → Meghdoot app.
- ②. Provide information about optimum level of fertilizer, water to be applied to soil. (Eg) → Soil health card, tensiometer.

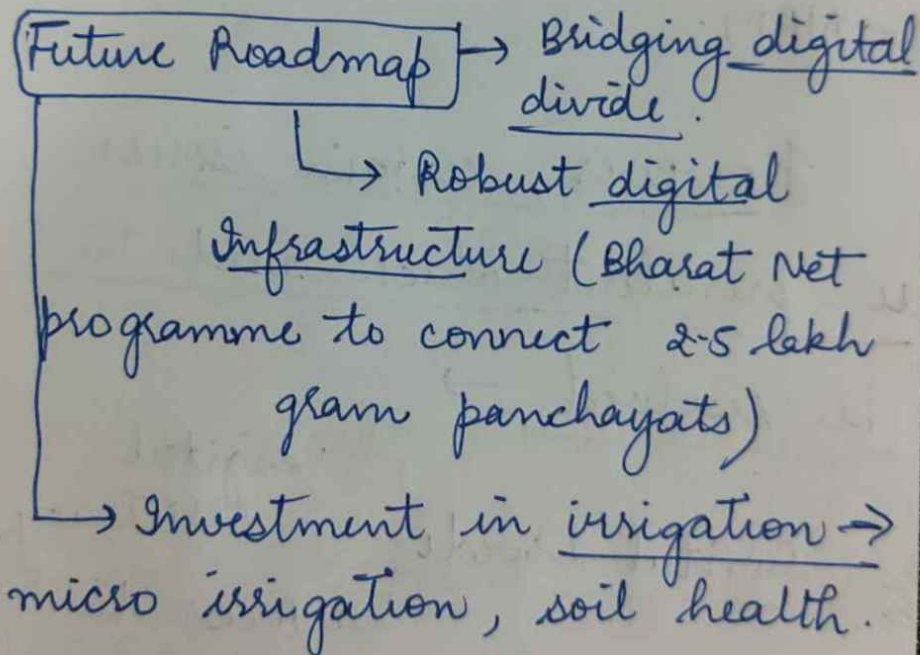
- ③. DBT transfers \Rightarrow financial inclusion. (Eg) \rightarrow PM-KISAN scheme
- ④. Provide institutional credit to farmers. (Eg) \rightarrow KCC.
- ⑤. extension services. (Eg) \rightarrow e-shoupal.
- ⑥. Integration of markets. (Eg) \rightarrow e-NAM.

However, certain issues are prevalent which needs to be resolved \rightarrow

①. Digital Divide $\left\{ \begin{array}{l} \text{Digital Illiteracy} \\ \text{Access to digital devices.} \end{array} \right.$

②. Inadequate internet infrastructure in rural areas.

- ③. Unawareness among farmers
↓
Big farmers pocketing the benefits.
- ④. Infrastructural investment in agriculture remains poor. (less than 1% GDP invested on irrigation)
- ⑤. Regional disparity due to green rev revolution, etc.



Agriculture providing employment to 55% of youth is backbone of Indian economy & thus must be strengthened.

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।

Public Distribution System under NFSA, 2013 provides food security to 75% of rural youth and 50% of urban population.

Digital Transformation in PDS

- ①. Use of e-point of sale machines at Fair Price shops
 - quality foodgrains to consumers.
 - keeps corruption in check.
- ②. (eg) → Chhattisgarh.
- ③. Availability of information

on Govt. websites leading to transparency.

③. End-to-End Computerization of distribution of foodgrains.

④. One Nation One Ration Card under integrated management of public services. \Rightarrow portability of benefits across nation

However, several challenges still remain which are as follows :-

①. Inadequate digital infrastructure. (eg) \rightarrow in Bihar, UP.

②. Digital divide among people leading to poor social audit.

- ③. Issues of migrant workers still remain as portability not adopted by all states.
- ④. Besides using e-POS machines, issue of poor quality of grains remain

Road Ahead →

- ①. Portability of benefits be made mandatory pan-India.
- ②. Robust digital infrastructure required in form of e-POS machines, internet facilities, etc.
- ③. Role of middle-men to be reduced.
- ④. Recommendations of Shanta Kumar Committee -

Food security requires PDS to be strengthened in all possible ways.

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।

Fuel Efficiency is pertinent to curb the impacts of Climate Change. Hence, certain regulations drafted in this regard needs strengthening.

Concerns w.r.t fuel efficiency regulations →

- ①. Not enforceable and justiciable.
(Eg) → 20% Blending of ethanol by 2025.
- ②. Infrastructure not developed accordingly. (Eg) → Conventional engines not upgraded as per Bharat-IV norms.
- ③. Inadequate manufacturing

capability. (Eg) → Dependence on imports for li-ion battery.

④. Loopholes in regulatory framework

(Eg) → ~~F~~ FAME-II guidelines not effective in making commercial transport electric

⑤. Lack of awareness among officials and public. (Eg) → No punishment for not adhering to Bharat VI guidelines.

Thus, it presents the need to take certain measures which are as follows →

①. Effective regulatory framework - ask with involvement of

all stakeholders. (Eg) → Automobile industries, consumers and govt.

②. Development of Electric Vehicles infrastructure. (Eg) → charging stations and Li-ion battery.

③. Issues related to Fair Remunerative Price and Sugar Mills to be solved.

④. Dilemma b/w food and fuel to be solved in case of biodiesels

⑤. Mission Mode projects to be implemented on/ before deadline.

(Eg) → EV 30 @ 30.

Transport sector contributes 80% of pollution and thus, fuel efficiency can be a game-changer to drive out Climate Change.

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 more frequent than ever be it in industries, factories, homes, hotels, hospitals. (Eg) → Recent Japalpur hospital fire, Karol Bagh hotel fire in 2019, etc.

Urban fires : Cause of Concern

- ①. leads to loss of life and property. (Eg) → Fire in coaching centres.
- ②. loss of jobs and livelihood.

(eg) → Fire in firecrackers or other factories.

③. Poor working conditions for labourers.

④. Fires in institutional spaces
 ↓
 loss of life of students, patients, etc.
 ↗ coaching, tuitions
 ↘ hospitals

Causes of Urban fire

①. Corruption and loopholes in No objection certificate to high rise buildings. (eg) → highlighted in Delhi after Karol Bagh Incident.

②. Congested, illicit factories not having govt. approval.

- ③. No emergency exit in factories.
(eg) → Chandni Chowk incident.
- ④. Poor safeguards at hospitals
w.r.t. oxygen ventilators ⇒ fire.
- ⑤. Underground coaching centres.
(Eg) → Mukherjee Nagar in Delhi.

Suggested Measures

- ①. Building Code to be implemented
in letter and spirit.
- ②. No discretion while giving NOC to
high rise buildings.
- ③. Regular Inspections
ensuring
 - Fire extinguishers
 - Proper electric circuits
 - safe working conditions → Emergency exit.

Man-made disasters can be curbed
with human efforts in relentless manner.

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।

Recently, drone guidelines have been published to encourage use of technology along with ensuring national security and integrity.

Drones : A threat for border management

① Use of spy drones by neighbouring countries. (Eg) → one found on Pakistan border.

② Use of drones for smuggling

- ↓
- drugs
- ↓
- weapons
- ↓
- ammunition

③: Drones beyond visual limit
might hamper patrolling operations.

④. Drones embedded with bombs
↓

new warfare unmanned and
causing great damage.

⑤. Tracking personnel and revealing
-g confidential information. (eg) →
using micro and nano drones.

Measures taken in India

①. New Drone Rules to regulate,
categorising drones and areas.

(Eg) → Drones { Micro
 Nano as per weight
 small

Areas { Red as per security
 Yellow and strategic
 Orange

point of view.

② Director General of Civil Aviation
to register use of drones.

③ License required for operating
drones in certain areas.

(Eg) → near airport, not allowed in
border areas.

④ Drones not allowed beyond
400 m or visual line.

Drones as an innovative
technology must be used and
regulated in a balanced way
to ensure peace & prosperity of
the country and world as a
whole.

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।

Weaponisation of space refers to using satellites and other space assets in a way to help ground based warfare.

(eg) → Using satellites for securing confidential information from other countries.

Ineffectiveness of Global Framework

①. Outer Space Treaty → not signed by many countries.

(eg) → India.

- ②. ~~Assertive~~ countries not following rule-based order. (Eg) → China.
- ③. Scuffle b/w US and China ⇒ weaponisation of space and no respect for peaceful use of global commons.
- ④. Historical strained relations b/w countries. (Eg) → India-Pakistan, US-Russia, etc.
- ⑤. No institutional framework to extract compliance.

Implications of Space Weaponisation

- ①. New dimension of warfare further causing destruction.

- ②. Power centres like US, Russia, China having greater edge already will further concentrate power.
- ③. Anonymous attacks. (eg) → cyber attacks by China on India.
- ④. No peaceful resolution of ties. Rather, further strain might occur.
- ⑤. Other concerns
 - Space Debris
 - Abuse of human rights
 - Misuse of Technology.

Thus, an effective global and domestic legal framework needs to be evolved to ensure that global commons are not weaponised.

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 to use of biology and biotechnology in economic development.

(Eg) → Genetic Engineering, Genome Sequencing, etc.

Role of National Biotechnology Development Strategy

①. Focus on innovative techno-logies. (Eg) → Gene editing, genome sequencing, etc.

②. Focus on skilling students in the discourse of

biotechnology.

- ③. aims to use biotechnology to solve health issues. (eg) → Cancer, Diabetes, etc.
- ④. Helpful in containing pandemics like Covid-19. (eg) → studying gene mutations, etc.
- ⑤. Creating more labs and strengthening existing ones like CSIR, etc.
- ⑥. Creating Genome for reference to study various disease and genetic mutations.

However, certain challenges are required to

be tackled →

①. ethical concerns arising out of these technologies. (Eg) → Designer babies, cloning, etc.

②. environmental issues and natural ecosystem disturbance.

(Eg) → GM crops.

③. New forms of inequalities might get created. (Eg) → Genetic inequality.

Way Forward → ①. Legal Framework required to curb unethical practices.

②. Institutional mechanisms like GEAC must be strengthened.

Bio-economy can be a game-changer to change the face of New India and its people.