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GENERAL STUDIES (TEST CODE : 1840)

Name of Candidate	KUMAR SUSHANT		
Medium Eng./Hindi	ENGLISH	Registration Number	1267594
Center	ONLINE	Date	27/08/2022

INDEX TABLE		
Q. No.	Maximum Marks	Marks Obtained
1	10	
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3	10	
4	10	
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6	10	
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18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. 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)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI** इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
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.
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. Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. 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.

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6.

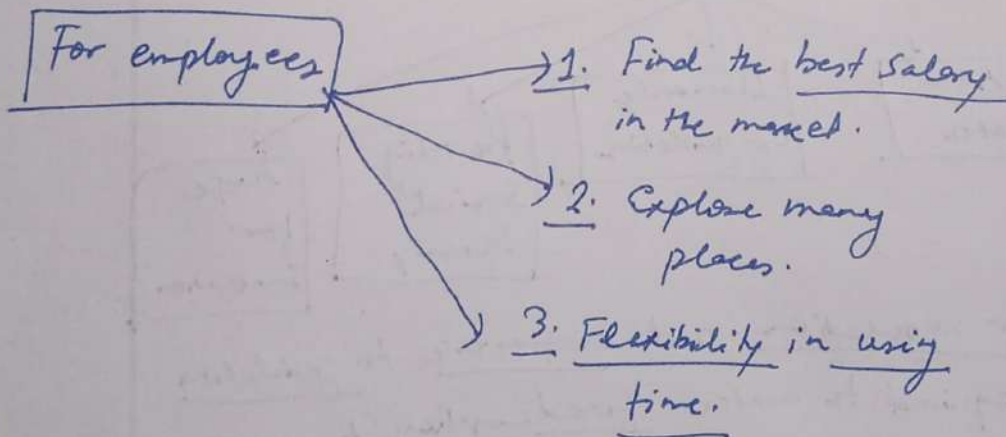
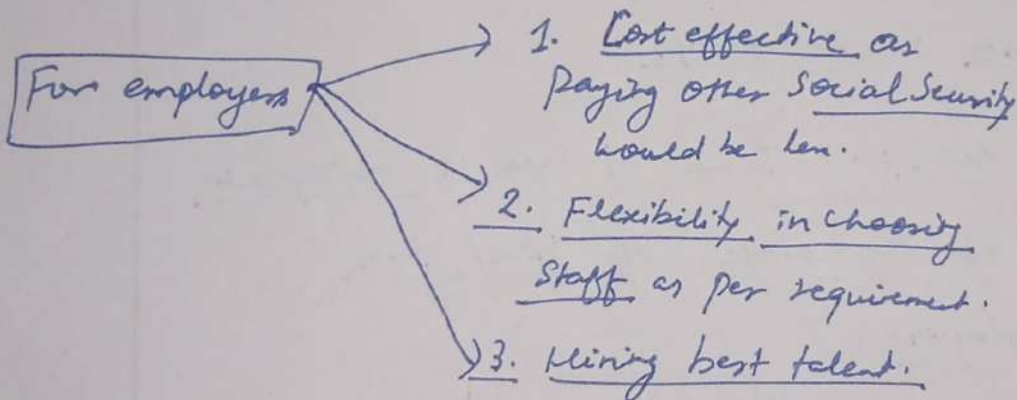
1. While fixed-term employment offers an ingenious way to address specific issues faced by both employers and employees, there are also some concerns associated with it. Discuss in the context of India.

(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।

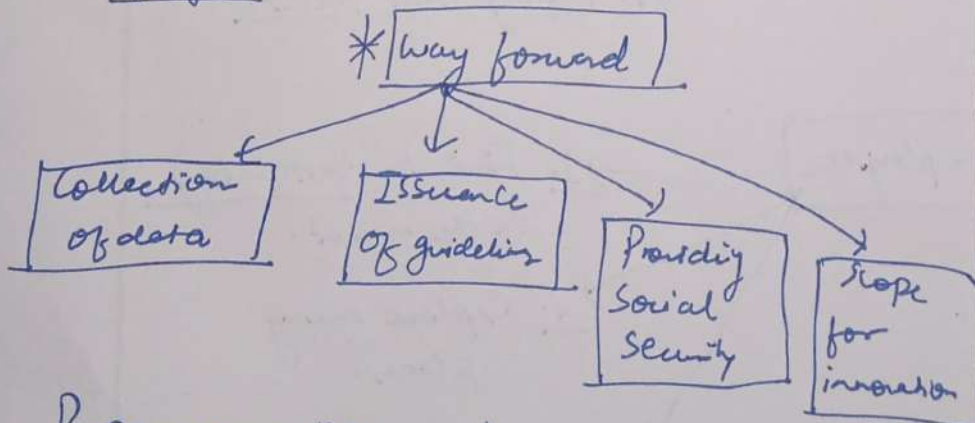
Fixed term employment refers to the employment for a specified period of time. Ex:-
teachers or contracts.

* Benefits of fixed term employment :-



* Concerns associated with it:-

- (i) Exploitation :- often employees are underpaid and are required to provide long hours.
- (ii) Lack of regulation :- There is no law or mechanism regulating fixed term employment.
- (iii) Social Security :- It could help individual's economic state in times of disease or emergency.
- (iv) No data :- There is lack of adequate data on the state of fixed term employees.



Proper regulation and adherence to guidelines are required to make fixed employment work.

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।

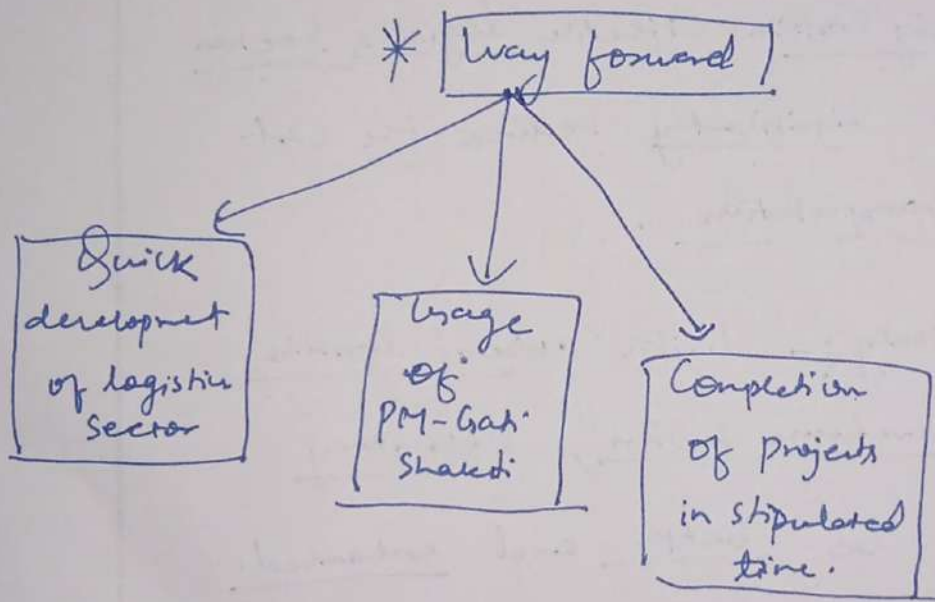
Bharatmala Pariyojana focuses on the development of roads and infrastructure throughout the entire Indian territory.

* Role of logistics and warehousing for Bharatmala Project:-

- (i) Reducing Cost:- Effective logistics sector could significantly reduce the cost of transportation.
- (ii) Efficiency:- With robust logistics and warehouse system, efficiency would be better and enhanced.
- (iii) Connectivity:- Better logistics and warehousing would provide smooth connectivity.

(iv) Economic growth:- Better Logistics is Synonymous to better economic growth and results.

(v) Development of Community:- Better logistics would increase employment leading to Community development.



Logistics and warehouses can bring multidimensional benefits and also supplement Bharatmala Prayojana.

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 the irrigation at particular schedules which enhances water-use efficiency.

* Advantages of Irrigation Scheduling:-

- (i) Water-use efficiency:- It reduces the required water in comparison to conventional modes of irrigation like tubewells.
- (ii) Productivity:- It also ensures adequate productivity of crops.
- (iii) Reduces farmer's labour:- It reduces farmer's effort and makes it more hassle free.

(iv) Less Requirement of fertilisers:- Water use efficiency leads to lower consumption of fertiliser.

(v) Preserving groundwater:- The highly depleting water can be preserved.

* Difficulties in application :-

(i) Awareness:- There is lack in awareness among farmers about the usage.

(ii) Complexity:- The process of irrigation scheduling is complex.

(iii) Fragmented landholding:- It makes it difficult to adopt.

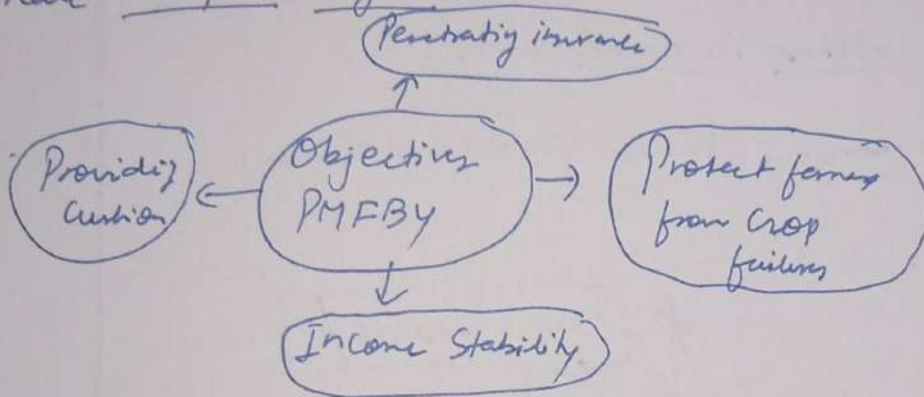
Irrigation Scheduling could improve agricultural productivity, reduce groundwater exploitation and benefit farmers.

Comprehensive steps towards its adoption should be taken.

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।

PM Fasal Bima Yojana was introduced to provide income stability to 140 million farmers of India. However, only 20 million farmers have adopted it yet.



* Concerns regarding implementation :-

(i) Non-implementation by States :- States like Bihar haven't implemented it due to increased cost of premium and fiscal issues of states.

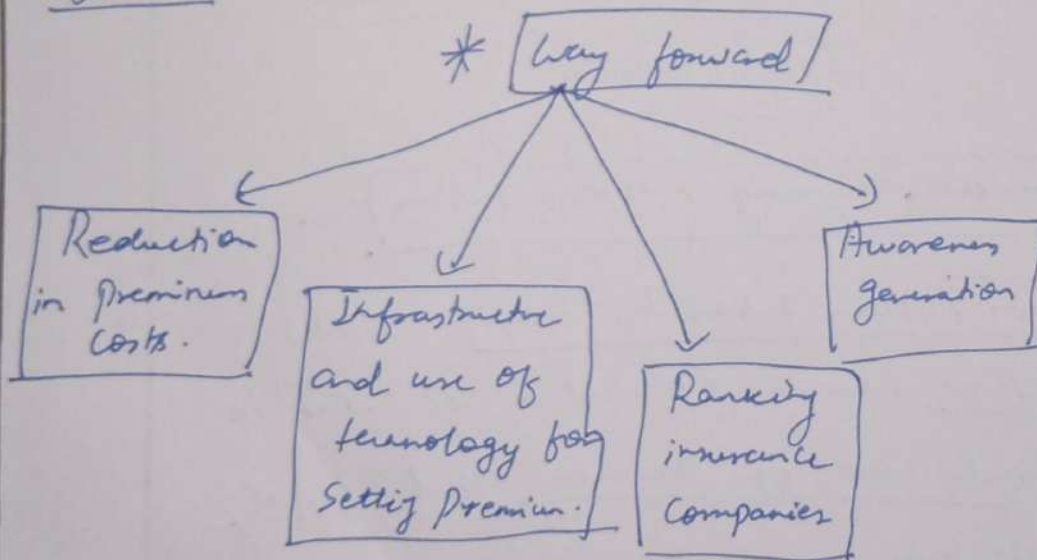
(ii) Delays in farmer's claim :- Due to lack of adequate staff and

delay in government's reimbursement of Subsidies.

(ii) Lack of interest by insurance Companies:- Due to low population in states like Nagaland and high risks in states like Maharashtra.

(iv) Lack of infrastructure:- Many insurance Companies don't have adequate infrastructure and offices in rural areas.

(v) Awareness:- Lower awareness among farmers.



PM Fasal Bima Yojana is important to insulate farmers from Climate Change effects on productivity. Comprehensive steps are required.

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 held in 1972.

It was the first international conference concerned with environmental protection.

* Role played by Stockholm Conference :-

(i) Environment Consciousness :- It was the first conference that brought out the impact of environmental degradation and steps that needs to be taken.

(ii) Way for Organizations :- The conference gave way to the formation of UN Environment Programme (UNEP).

(iii) Precedent for future course of action :- It set the precedent for future institutions like

UNFCCC and CoPs.

(iv) Sustainable development :- It addressed the issues related to Sustainable development and which later got mentioned Brundtland Report.

(v) Collaboration :- It became the first platform for the Collaboration between Countries for Environment Production.

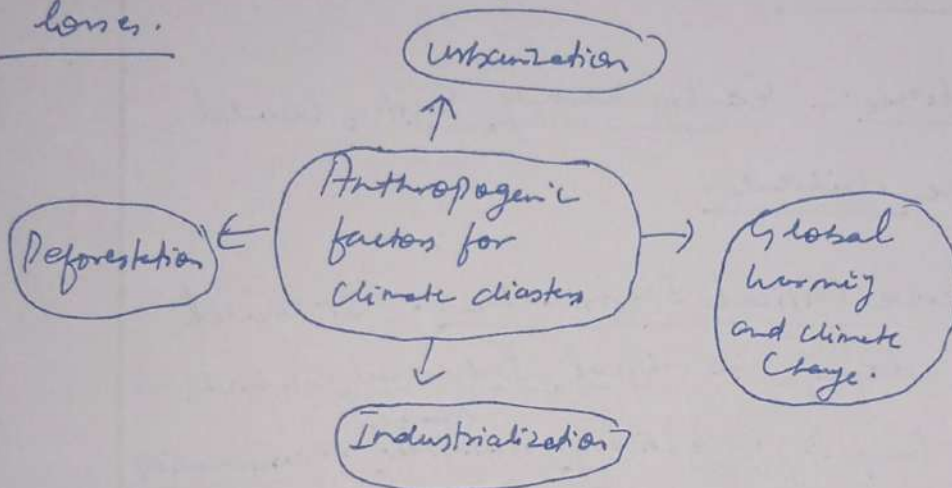
After 50 years of Stockholm Conference, environment consciousness and organization have developed. However, it is time to realize actual results and achieve net zero targets and cooler earth when we celebrate 100 years of Stockholm Conference.

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।

According to WMO, world has witnessed
11,000 disasters causing \$3.64 trillion
losses.



* Role of Early Warning System in mitigating disasters:-

- (i) Reduced economic loss:- Early warning systems could reduce the economic losses and disruptions. For ex, early warning in Amarnath could have stopped the economic loss.

- (ii) Preserve human loss :- Early warning can help to issue warnings at right time and reduce loss of lives.
- (iii) Better disaster governance :- It could help to early deployment of NDRF and fast relocation.
- (iv) Resilience :- Early warning system could improve resilience.
- (v) Preserve critical Infrastructure :- It could reduce damage to critical Infrastructure which could help to effectively mitigate ^{manage} reconstruction and redevelopment.

Early warning system could help to achieve the Sendai Seven goals like reducing mortalities and economic loss

Under Sendai Framework signed by India.

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 can have an important
impact on the way policing is
exercised.

* Benefits of technology:-

(i) Reduced Crime:- Better use of technology
like face recognition could create
deterrence and reduce crime.

(ii) Efficiency:- It could help to quickly
monitor the case and identity
the criminals.

(iii) Better Connect with people:- Provisions
like e-FIR and e-tracking could help
to build better connect.

(iv) To mitigate emerging tech:- To counter
emerging threats like crypto crimes,
technology could be of great use.

(v) Resource efficiency:- Could bring resource efficiency.

* Issues with use of technology :-

(i) Bias:- If more number of data are in certain category, technology could create a bias.

(ii) Accuracy:- It has been argued that technology like facial recognition has only 70% accuracy.

(iii) Privacy:- Extensive use of technology could infringe individuals privacy and violates Article 22.

(iv) Lack of law:- Due to lack of personal data protection law, misuse of data is a possible threat.

(v) Economic Cost:- Adoption of technology requires huge investment.

Ethical use of technology and adequate law can be a boon for policy in India.

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?

Recently, a proposal was initiated in UNSC to consider climate change as a part of threat to international security.

* Climate Change as a threat:-

- (i) Creating tensions:- It has been argued that climate change induced tensions would lead to conflicts.
- (ii) Geopolitics:- Issues over scarce resources could bring geopolitics which could threaten security.
- (iii) Food Security:- Climate change induced food security issues could bring instability.

* Climate Change not as a threat:-

(i) ~~Ans~~ It has been argued that there are platform like UNFCCC which specifically deals with Climate Change. Bringing it in UNSC would bring multiplicity.

Further, Climate Change may not be as extreme a problem like terrorism or nuclear weapon. It can be mitigated at other platform.

It is true that Climate Change is a threat to Security but it isn't at that stage to be implemented at UNSC. Incorporating security dimension in UNFCCC is a better option.

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 ^(VPN) refers to encrypted messaging for safe and secure flow of information.

* Advantages of VPN:-

- (i) Anonymity:- It maintains ambiguity about the transaction and data, thus adding to security.
- (ii) Safe:- The user's data is safe as it couldn't be manipulated by hackers.
- (iii) For Confidential matters:- It could be used for confidential matters related to important issues.
- (iv) Reduces threat:- It reduces threat

of hacking.

* Concerns associated with it:-

(i) Data Breach:- There has been cases with where the 3rd party has been given data by VPN network.

(ii) Money laundering:- Money laundering cases are shielded and difficult to trace due to presence of VPNs.

(iii) Digital Sovereignty:- It goes against government's Supreme Control of its Citizen's data.

(iv) Against business:- It is against nation-based services provided by platforms like Netflix.

Government's decision for storage of information by VPNs is a good step towards managing 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।

Higgs boson's discovery has brought about significant changes in science's history.

* Role played by CERN :-

- (i) Development of Scientific literature :- CERN has developed the scientific literature and discoveries over the years.
- (ii) Cooperation :- CERN has lead to the cooperation among various nations about scientific collaboration.
- (iii) R&D :- CERN has lead to extensive research and development in the field of development of LHC.

(iv) Innovation :- CERN has led to many to innovation and fosters the idea of innovation.

(v) Observation :- CERN has contributed immensely to Scientific observation as well.

Even, being an observer member, can utilise the expertise and research for its own 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।

The wheat-paddy cycle dominated Indian agriculture has led to multi-dimensional issues of groundwater exploitation and poor soil health.

* Factors that affect cropping pattern in India:-

- (i) Infrastructure:- Availability of market, seeds and fertilisers determine which crops can be efficiently grown.
- (ii) Irrigation:- If irrigation is available like in Punjab, farmers will prefer crops like Rice, if it is absent they would prefer dryland crops like gram.
- (iii) Government policy:- The procurement policy is shifted towards rice and wheat, this leads to production of 82%.

of cereals among food crops.

(iv) Landholding:- Lower landholding in India leads to the choice of food crops rather than Commercial crops.

(v) Capital:- Capital required for Commercial crops is high, due to Poor Capital, farmer opt for rice or wheat.

* Need for modifying the existing cropping pattern:-

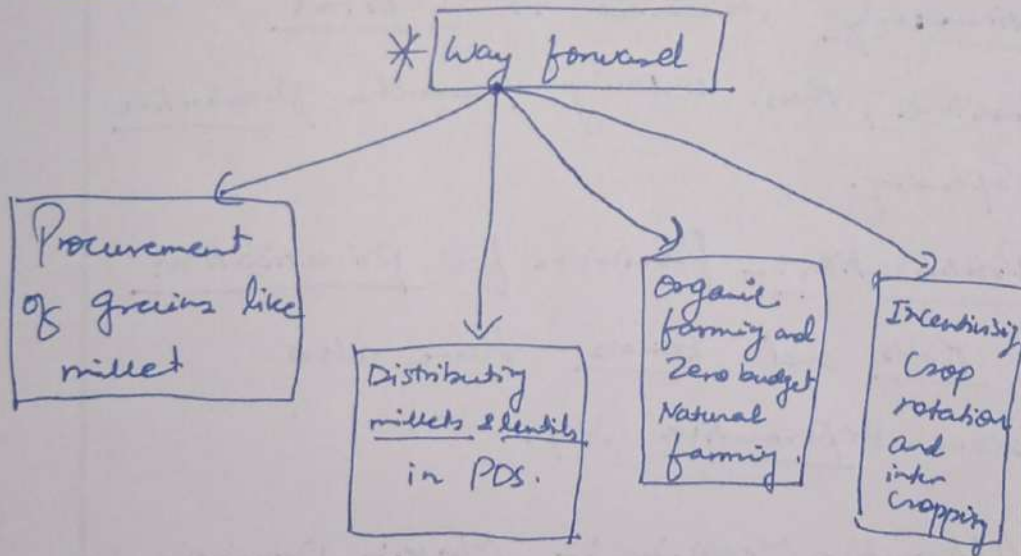
(i) Economic:- Due to lack of proper remuneration, farmer income has not increased due to wheat-paddy cultivation. Agriculture's share towards India's GDP is also slumping at 18%. [Economic Survey 2021-22].

(ii) Environmental:- The existing system has led to issues like groundwater exploitation and soil degradation.

It could create environmental hazards.

(iii) Social :- Without flourishing income from agriculture, there would be rapid urbanization and migration. This could lead to feminization of agriculture.

(iv) Food Security :- The productivity levels of Indian crops are lower than developed countries, with climate change effects, food security could become an issue.



To achieve the goal of 5 trillion economy and SDG goal 2.1 (Poverty and hunger), changing India's cropping pattern is a must.

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।

With Capital expenditure higher by 27% in budget 2022-23 in comparison to 2019-20, government is moving in constructive direction.

* Budgetary reforms taken by government in recent years :-

(i) Capital Expenditure :- Government has continuously increased its Capital expenditure, thus moving towards productive spending.

(ii) Privatisation :- Provisions for privatisation of PSUs and banks have also been reformative steps.

(iii) Alternative Medicine :- Making provision for Ayush ministry to make alternative medicine viable.

(iv) Technology adoption :- Initiatives like Core banking solution for Post office, and others, have led to efficient technology adoption.

(v) Monetisation :- Monetisation of assets through National Infrastructure Pipeline has also been a productive step.

(vi) Infrastructure :- Initiatives like PM Gati Shakti have taken a target for efficient Infrastructure.

* Issues that require measures :-

(i) Education :- With extensive provisions of NEP, 2020, spending upto 6% of GDP is a must. Currently, it is around 3%.

(ii) Health :- Spending on health infrastructure has been meagre.

It is only around 1-1.5% of GDP which is very low.

(iii) Environment:- Adequate attention to ecological concerns and its mitigation has been missy. For example, no mention of mitigating heat waves.

(iv) Cybersecurity:- India has been vulnerable to cybersecurity. Adequate provision regarding safeguarding cybersecurity has been missy.

(v) Employment:- With unemployment rate of 4.7%, emphasis on eradicating unemployment has been missy.

(vi) Gender Budgeting:- Provision for women oriented budgeting remains below par and underwhelming.

Government has taken constructive steps in recent years. However, further steps in direction towards equitable and inclusive growth is the need of the hour.

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।

Railways is the backbone of India's transport sector whose potential has been underutilised.

* Issues with India's Railway System:-

- (i) Human Resources:- Indian Railways is one of the largest recruiters in India. Due to large size of human resources, its Output ratio is 98.4% (CRG).
- (ii) Modernization:- Due to high Output ratio, measures for modernization like dedicated freight corridor have been missy.
- (iii) Short in Safety:- Adequate safety measures have also been missy.

(iv) Working in Silos:- The department of Railways have Synergy between them and work in Silos.

* Role of efficiency and innovation :-

(i) Share in logistics Sector:- National Rail plan envisage Share of 40% in logistics for railways. This would require Innovation.

(ii) Reduce Expenditure :- With proper resource efficiency, railways can reduce its output ratio significantly.

(iii) Use of Technology :- Innovative means like Kawach for Safety and use of technology could revolutionise Railways.

(iv) Public private Partnership :- Involvement of private sector for Innovation could be effective.

(v) Eco-friendly :- Future railways needs to be Eco-friendly. Innovative means like electrification can help.

In comparison to other modes of transport, railways is cost-effective, eco-friendly and convenient. Adequate means like National Rail plan and implementation of recommendations of Biswak Debroy Committee and Sam Pitroda Committee can make Indian Railways a carrier of India's growth.

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 क्षेत्र 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।

Use of disruptive technologies, like IOTs and AI can significantly change the landscape of India's agriculture.

* Significance of technology in India's agriculture sector:-

- (i) Increased productivity:- Use of genetically modified (GM) crops, could make agriculture climate resilient and increase productivity.
- (ii) Food Security:- Proper usage of technology like drones could reduce wastage and ensure food security.
- (iii) Increase farmer's income:- With lower wastage and increased productivity, farmer's income is bound to increase.

(iv) Reducing farmer's labour:- It is contemplated that use of agriculture could ~~increase~~^{reduce} labour by 25-30%.

(v) Environmental benefits:- Better resource efficiency would mean lower use of fertiliser, leading to lower GHG emission.

(Currently, Agriculture contributes to 14% of GHG emission).

* Challenges in realising its potential:-

(i) High cost:- Adoption of technology like drone is expensive. This would be difficult for farmers to adopt.

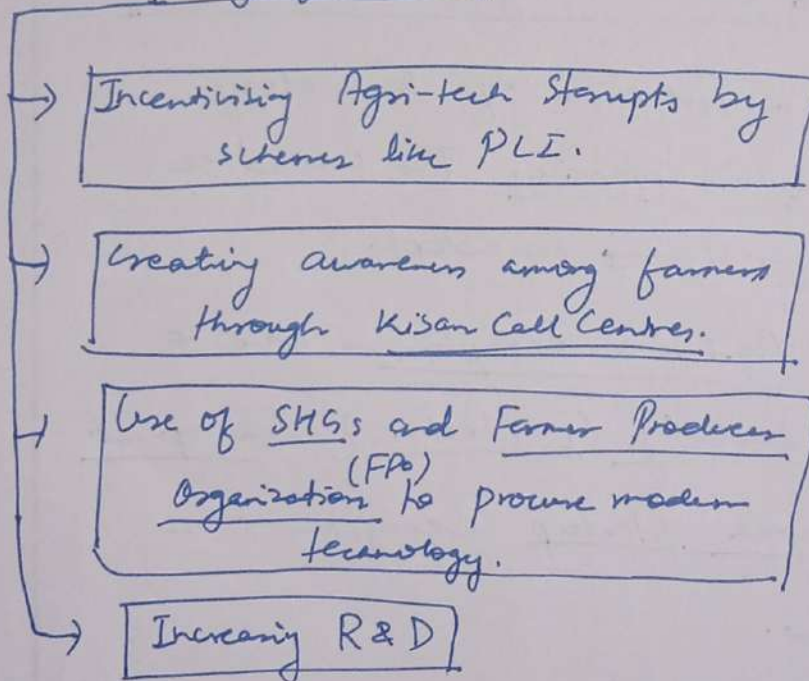
(ii) Lack of Agri-tech ecosystem:- Due to small landholding (0.9 hectare), development of agri-tech startup ecosystem has been slow.

(iii) Reluctance from farmer:- Due to the new nature of technology, farmers would be sceptical.

(iv) Digital Divide :- Availability of Smart phones in rural areas and its use has been lower than urban areas.

(v) Poor R&D :- Research and development in this sector has been underwhelming. According to Niti Aayog 3 year action agenda, India spends only 0.7% of GDP on R&D.

* Way forward



Technology is a driver in nation's growth. Adoption of technology is important to tackle climate change effects and double farmer's income.

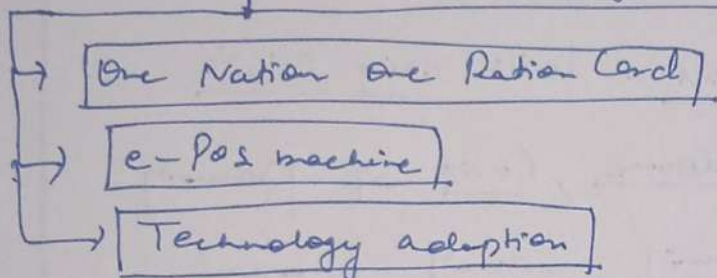
15. Despite the digital transformation in the Public Distribution System (PDS) in India, several challenges still remain. Elaborate. Also, suggest measures to address them.

(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 (PDS) refers to the Chain of System which provides cost-efficient grains and food to poor households.

* Initiatives for digital transformation



* Challenges in Public Distribution System :-

- (i) Procurement :- FCI is still procuring rice and wheat for PDS which hasn't been able to tackle malnutrition.
According to NFHS-5 report, 35.8% children are still stunted. (low height for age).

(ii) leakage:- Issues of Corruption and leaking of products in open market has been prevalent.

(iii) Coverage:- According to Shanta Kumar Committee, National Food Security Act, 2013 covers 67% of population which puts extra burden.

(iv) Increased Costs:- With rising MSPs and filled godowns, costs of procuring has been increasing causing financial loss.

(v) Infrastructure:- Infrastructure for Storage like warehouses has been less.

* Measures to address loopholes:-

(i) Procurement:- Procuring cereals like bajra and millet is required.

(ii) Coverage :- Targeting people who really need food by using data from Socio-economic Census (SECC), 2011.

(iii) Tracking of food grains :- Use of GPS to track the truck carrying grains to avoid leakage.

(iv) Infrastructure :- Involvement of private sector and PPP approach should be adopted.

(v) Resource efficiency :- Reducing wastage and usage of technology.

PDS is important to achieve SDG goal no. 2 (No hunger) and fulfil India's duty as "welfare state". Adopting measures suggested by Shanta Kumar Committee and Ashok Dalwai Committee is the way forward.

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 important to reduce India's import bills and achieve the Panchamita target of Cop-26.

* Concerns that exist with regard to fuel efficiency regulations:-

- (i) Outdated technology:- Technology required for fuel efficiency has outdated technology.
- (ii) Scrappage Policy:- The Scrappage Policy allows to even Personal vehicles beyond 10 years of use, which has a potential to harm the environment.
- (iii) No time bound targets:- Time bound targets to adopt provisions have been missing.

(iv) Slow adoption :- Adoption of provisions has been slow and inefficient in India.

(v) Regulation :- Regulating the fuel efficiency norms have been underwhelming.

* Measures that can be taken regarding fuel efficiency measures:-

(i) Time bound targets :- targets can be made time bound.

(ii) Collection of Data :- Collection of data on use & pace of adoption is required.

(iii) Regulation :- Adequate use of technology and manpower for proper regulation of the norms.

(iv) A National body :- A national body could be constituted to report on the program.

(v) Awareness :- Awareness generation among general public about the role that can be played by fuel efficiency.

Fuel efficiency in vehicles have multi-dimensional benefits like reduction in GHG emissions and reduction in air pollution. Proper promotion and its adoption should be undertaken efficiently.

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?

According to the data produced by NCRB, in recent few years, ^{more than} 9,000 cases of urban fires have been reported.

* Causes behind urban fires in India's cities:—

- (i) Unplanned Urbanization:— Due to unplanned growth of urban centres, there is congestion of electric wires causing danger of urban fires.
- (ii) Lack of adherence to regulations:— Regulation provided by urban local bodies aren't adhered to by the institution.
- (iii) Poor quality of wires:— Many short circuit have been attributed to low quality usage of wires.

(iv) Human Error :- Many incidents are caused due to the negligence of human causing urban fire.

(v) Regular Monitoring :- Lack of regular monitoring checking the adequate standards has also been a reason.

* Steps that can be taken for robust fire resilience :-

(i) Deliberating regulations :- Every local body should deliberate proper regulations and safeguard measures that could be taken.

(ii) Proper monitoring :- Regular monitoring of standards by authorities to reduce the risk of fire.

(iii) Adoption of Technology:- Use of technology like IOTs to reduce the scope of human error.

(iv) Proper Infrastructure:- The transformers and connected wires should be rationalised in efficient manner.

(v) Adequate Safety measures:- Presence of fire alarm and extinguishing mechanism etc. should be made mandatory.

Urban fires cause massive damage to economy, human health and life. Mitigation through appropriate measures is important to achieve SDG goal number 11 (Sustainable Cities).

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, drones were used to carry out explosives from Pakistan border to India.

* Threat Cause by drone in border areas:-

(i) Smuggling of arms:- Drones can be used to smuggle arms to India causing Security threats.

(ii) Tracking of borders:- With lack of technology to track drones, adversaries can use drones to track borders and launch attacks.

(iii) Drug trafficking:- Pakistan is part of "global crescent" for drug trafficking.

Drones could increase the flow of drugs.

(iv) Plan attacks:- Drones can be used to launch attacks on Security forces.

(v) Anonymity:- With unmanned vehicle, it will remain difficult to find out the owner.

* Measures taken to Regulate drones:-

(i) Drone Rules, 2021:- Ministry of Civil Aviation has declared three zones i.e. red, yellow and green. In Security sensitive areas, "red" zone has been delimited.

(ii) Anti-Drone technology:- Development and deployment of Anti-drone technology has been done at border areas.

(iii) Categorise drones :- Drone Rules also
Categorise drones according to weight.

* Way forward

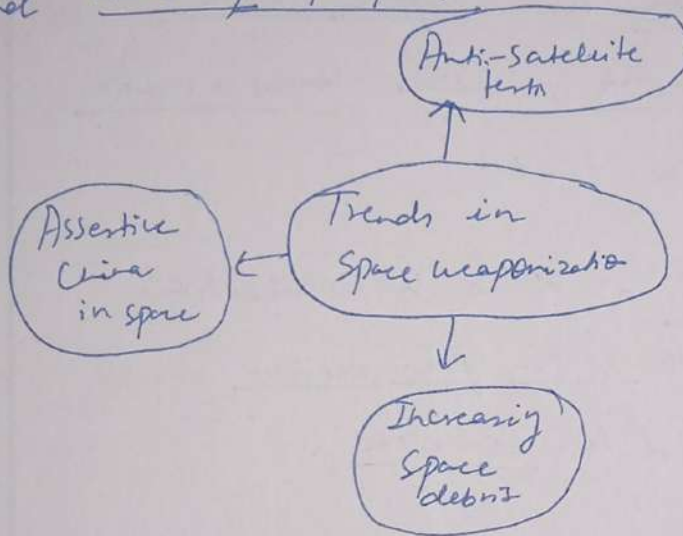
- Use of drone by Security forces to
track borders.
- Awareness among Security forces to
tackle drones.
- Deployment of anti-drone technology
to all border areas.
- Adoption of other technologies
like AI and IOTs.

Drones bring a new set of challenges
to India's Security forces. Proper
regulation and its adoption is
required.

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।

Space weaponization refers to the use of weapons by states for their strategic and military purposes.



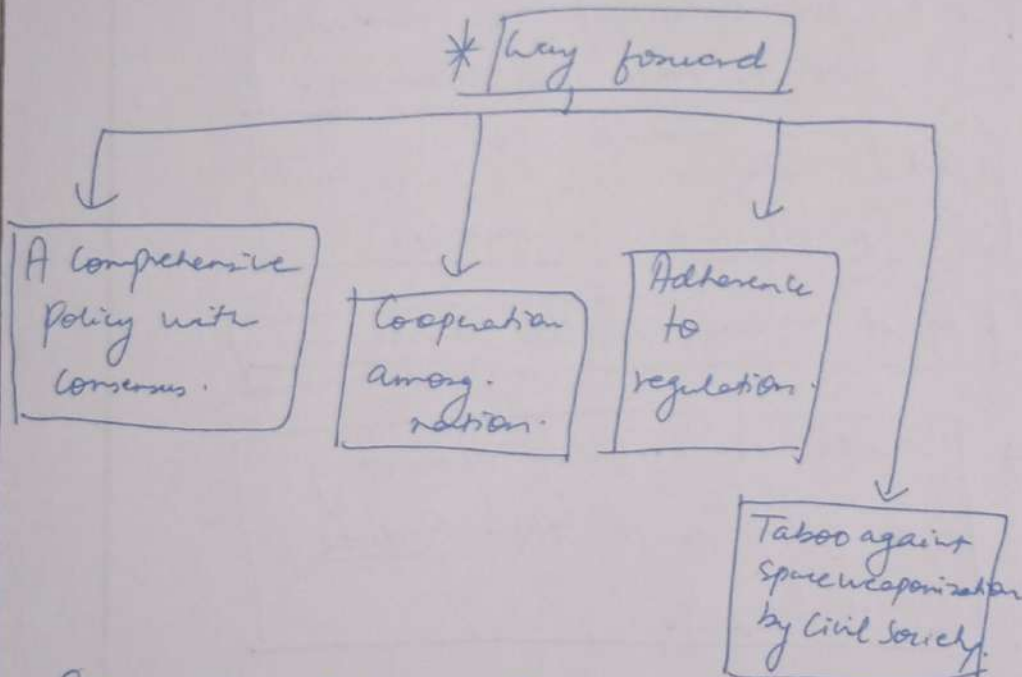
Despite a global treaty like Outer Space Treaty, 1959 which calls for peaceful use of space, countries haven't complied with measures and given priority to geopolitics and national interest.

* Implications of Space Weaponization :-

- (i) Fear of War:- It will create a fear of war among nations and could reduce interest in space sector.
- (ii) Hurting Commercial interest:- Space sector is a rising sector with space tourism growing at high rate, space weaponization could jeopardize that.
- (iii) Space debris:- Space weaponization could lead to more space debris, which can lead to collision.
- (iv) Space colonization:- If there would be fear of space weaponization, countries like USA could reserve space spectrum with itself and not use it for years.

(v) Reduced growth:- With TVS, weather forecast dependent on Space services, Space weaponization could reduce growth of economy.

(vi) High Cost:- With threat of increased Space debris, Companies like Space X would have to increase Safety measures leading to high cost upto 5-10%.



Space should be used for "peaceful purposes" and "common good" as it has the potential to change quality of human's life.

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 the use of biological products which are organic, eco-friendly and sustainable.

* Benefits of Bio-economy.

- It has the potential to increase growth rate of economy.
- Could reduce GHG emissions and achieve net-zero targets.
- Could make world plastic-free.
- Create a circular economy and adherence to 3Rs - Reduce, Reuse, Recycle.
- Supplement Sustainable development.

* Role that could be played by National Biotechnology Development Strategy 2021-25:-

- (i) Increase adoption:- The Strategy could help to increase the adoption of biotechnology related products like GM crops.
- (ii) Creating environment:- It could help to foster innovative environment and better Research and development.
- (iii) Safety measures:- It would ensure security and safety of products so that no ill-effects are witnessed.
- (iv) Awareness:- The Strategy could help to develop awareness among masses.

(V) Development of workforce :- It could encourage development of adequately skilled workforce to make bio-economy a reality.

* Way forward

- Increasing incentives for use of biotechnology.
- Carrying out extensive research and field trials on its safety.
- Advertising the benefits

Bio-economy can be an effective tool to achieve that first Pran of being a developed nation by 2047 under "PanchPran" adopted by PM Modi on 76th Independence day.