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GENERAL STUDIES (TEST CODE : 1840)

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Medium Eng./Hindi	ENGLISH	Registration Number	996306
Center	DELHI	Date	11/9/22

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
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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 or contractual employment is where the employer offer the employee the job only for a fixed period mentioned in the contract.

Way to address issues:

① Investor friendly: Fixed-term employment is investor friendly which leads to attracting more capital

② Free labour market: It makes the labour market free and flexible thus increasing the market efficiency.

③ Meet seasonalities: It allows industries to meet seasonal requirements, exigencies

④ Suitable for MSMEs: Smaller industries

which can't commit to the longer term employment can make use of this.

Concerns associated:

- ① Exploitative: Such contracts may be exploited by bigger players with whom employees can't fight
- ② Regular renewal: Employers may renew the contracts regularly making him/her a de facto permanent employee but denying him the benefits
- ③ No job security: This will promote 'hire & fire' culture in industries which will erode job security in the economy.

fixed-term employment can encourage growth of industries. Essential safeguards must be placed in order to prevent it from being exploitative

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 spends 14% of GDP on logistics whereas countries like China spend only 7-8%. This points to need of efficient logistics sector.

Efficient logistics sector:

- ① Reduce costs: Cheaper transport is essential for the success of Bharatmala yojana as infrastructure can be used efficiently.
- ② More usage: With efficient logistics sector, more usage of infrastructure will be made under Bharatmala yojana.
- ③ Multi modal mix: Effective logistics is needed to make use of multi-modal connectivity under this scheme.
- ④ Reduce delays: Currently, logistics face huge

delays. This will result in less productive use of Bharatamala infrastructure.

③ Last mile connectivity: Efficient logistics sector can only realise Bharatamala's objective of having last mile connectivity.

Focus on warehousing:

① Create supply chains: Warehousing will itself create supply chains that will make efficient use of Bharatamala.

② Reduce burden: Lack of warehousing will overburden logistics sector.

③ Endurance: Warehousing will give high endurance to transporting of goods.

④ Clear bottlenecks: Warehouses are the bottlenecks in Indian logistics sector.

Focus on logistics and infrastructure will lead to efficient and effective use of Bharatamala scheme.

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 is creating a timeline and schedule of which farms are irrigated at what time of the day, month and year.

Advantages :

- ① Resource use efficiency : It will lead to efficient use of stressed resource like water.
- ② Regional equity : Equitable distribution of water can be achieved through scheduling.
- ③ Prevent ground water depletion : Ground water can be saved with scheduling irrigation.
- ④ Increase irrigation footprint : Currently

only 35% of net sown area is irrigated, with scheduling this can reach 55-60%.

Difficulties:

- ① Enforceability: It is difficult to enforce schedule over millions of small farmers
- ② Awareness: It is difficult to spread awareness and information to different farmers over scheduling.
- ③ Can't stop drawing water: It is difficult to monitor and stop drawing water by farmers over thousands of drawing points.
- ④ Political compulsions: Irrigation is a sensitive issue. Political sensitivities may prevent on-ground application.

It is necessary to create a consensus before going ahead with such an ambitious programme.

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 Fasal Bima Yojana (PMFBY)

is touted to be the gamechanger in the agricultural sector especially in managing risk.

Largest crop insurance scheme:

- (i) Almost all the farmers of India participate in PM FBY to mitigate risks.
- (ii) This scheme allows farmers to undertake ambitious and novel methods of agriculture.
- (iii) This scheme provides risk resilience to farming community especially in the wake of climate disasters.

Concerns:

- ① Lack of expertise: FBY needs expertise in calculation of potential crops, risks in

order to fix premium and compensation.

② Higher premiums: Due to greater chance of risks, premium amount for PM FBY is high causing financial burden.

③ Risks covered: Not all the risks are covered and it is contingent on farmers to select the list of risks.

④ Lack of data: The data required for insurance companies to calculate costs, risks is absent.

⑤ Too high risk amount: The amount of risk combined for all farmers is too high putting many insurance companies out of option.

PM-FBY is an ambitious and necessary ~~and~~ initiative. With good capacity building in insurance sector, this scheme can see a great success.

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 of 1972
is the first conference participated by
~~the~~ most of the countries underlining
environment and climate change as the
most important issues.

Contemporary 'environment era' :

- (i) This Conference underlined the need to focus on environment for the first time.
- (ii) This conference brought focus on climate change and the need to take urgent measures to mitigate it.
- (iii) This conference brought world attention on issues of ecological damage due to

anthropogenic activities.

Paradigm shift :

- (i) United Nations Environment Programme (UNEP) was first instituted in this conference which now is a key player in climate change fight.
- (ii) This conference serves as precursor to the Rio conference of 1991 which led to the establishment of UNFCCC.
- (iii) This conference realised that developed countries must take urgent measures to save the world from climate change.
- (iv) Foundations for a thorough rule-based order on climate emissions control were laid in this conference.

Stockholm Conference +50 was recently conducted to celebrate 50 years of 1972 conference and reiterate those goals.

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।

Early warning systems are the systems which warn on the impending disasters and prepare society for the disaster.

Mitigate impact of disaster :

① Give lead time: Early Warning Systems (EWS) give lead time to response forces to undertake relevant measures.

② Risk reduction: EWS give time to evacuate people, reduce risk and prevent heavy impact of disaster.

③ Impact-based forecasting: EWS can help in impact-based forecasting which will give better idea to response forces.

- ④ Mobilise men and equipment: EWS gives time to mobilise forces and the equipment needed to fight the disasters
- ⑤ Awareness and warning: EWS give scope to warn people and make them aware of the impending impact of disaster.
- ⑥ Informed decision making: EWS can lead to informed decision making by the government thus leading to productive efforts.
- ⑦ Scope for planned response: EWS gives the scope to plan the disaster response and • implement it on the ground effectively.

EWS are essential due to the sudden and violent nature of disasters due to climate change.

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।

Leveraging technology is the use of technology in policing to make it effective and efficiency.

Advantages :

- ① Reduce burden : Technology will ease burden over understaffed police
- ② Increase capacity : It will infuse expertise into police making them effective.
- ③ Meet new age threats : Technology will help police meet the crimes of modern age Eg. Cyberdome to fight cyberthreats.

Disadvantages :

- ① Privacy concerns : Privacy of citizens may not be respected leading to violation

& constitutionally provided rights.

② Blatant misuse : Technology can be misused for personal gains

Eg. Tracking mobile numbers of friends, relatives etc.

③ Political targeting : Technology can be used to target political rivals by using policing techniques.

Eg. Facial recognition used to track political rivals

④ Spying on citizens : Technology can be used to spy on the citizens thus creating an authoritarian state

Use of technology is essential to make policing efficient and effective. However, the use of technologies must uphold 'rule of law'.

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 कहाँ तक सहमत हैं कि जलवायु परिवर्तन अंतर्राष्ट्रीय शांति और सुरक्षा के लिए खतरा है?

Climate change has severe socio-economic effects on the world. These create threats to international peace.

Threat to peace and security

① Resource stress: Climate change is straining resources. This scarcity may cause threat to international peace
Eg. Fight for water between Egypt & Ethiopia

② Climate refugees: Climate refugees caused by climate change can trigger political crisis across the world.

③ Concern over responsibilities: Huge tension between developing and developed countries over climate responsibilities is a big threat.

⑦ Changing geopolity: Climate change is leading to new sea routes, areas for resource exploration leading to geopolitical tensions.

⑧ Varied impact: Climate change is not uniform in impact. This may cause tensions between various countries.

⑨ Disjointed efforts: The disjointed nature of efforts may ~~may~~ lead to friction between various countries leading to a threat for world peace.

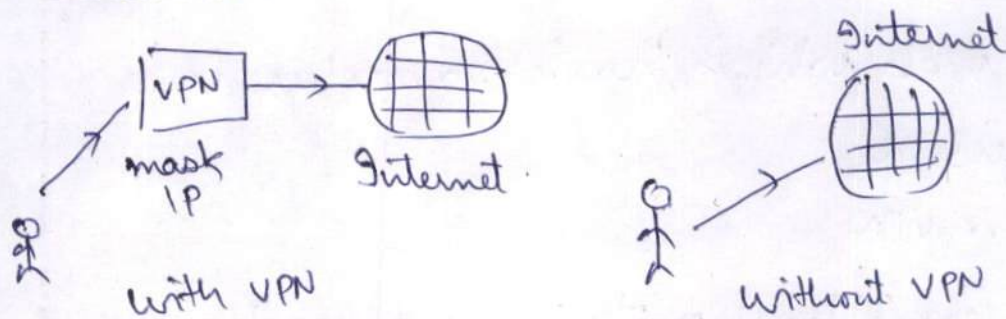
⑩ Terrorism: Terrorists can take advantage of disasters like sea-level rise in order to establish new safe havens.

SDG-17 must be realised to have ~~need~~ a 'impactful fight' towards climate change.

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

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

VPN is a private network created that gives anonymity to the user of internet by masking his/her IP address.



Advantages:

① Anonymity: VPN gives anonymity to the user thus protecting his/her privacy on the internet.

② Access deep web: VPN allows users to access deep web content from a different geographic location.

Eg. IIT Guwahati gives access to its Intranet for its students, faculties through VPN.

③ Access content from other nations: With VPN one can access content of other nations by masking the IP to that of other countries.

Concerns:

① Dark web: VPN can give access to dark web which hosts smugglers, drug peddlers etc.

Eg. Tor VPN

② Access illegal material: VPN can lead to accessing illegal content like pornography anonymously.

③ Work around country restrictions: VPN can work around restrictions posed by a country leading to loopholes.

④ Unauthorised usage: It can be used by non-state actors to anonymously undertake anti-social activities.

VPN is a double-edged sword in internet access.

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 in Switzerland
has been on the topmost laboratories
for scientific experiments ~~over~~ across
the world.

Role played by CERN :

- ① House infrastructure : CERN houses state-of-the-art infrastructure for the conduct of scientific experiments.
Eg. Large Hadron Collider (LHC)
- ② Experiments : CERN undertakes huge, ambitious experiments on particulate and quantum physics.
Eg. Higgs Boson confirmation was due to the work of CERN
- ③ Expert Scientists : CERN is home to

scientists of great expertise from all over the world thus leading to scientific discourse.

④ Robust procedures : CERN follows robust procedures to validate experiments leading to scientific development.

⑤ Rare laboratories : CERN houses rare laboratories of huge sizes that makes it one of the very few scientific areas with such facilities.

CERN is important in scientific development which is evident from the number of Nobel Prizes that scientists from CERN have achieved. It is the apex institution in scientific facilities and probably only such institution to have them.

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

Cropping pattern is the pattern of how and what crops are sown in what seasons on the field.

Factors affecting cropping patterns:

① DMSP regime: Minimum Support Price (MSP) has affected, drastically, the cropping pattern. The entire agriculture became highly skewed towards rice-wheat system.

② Green Revolution: This made many of crops to get substituted to rice or wheat.

③ Irrigation: This led to growing of water-intensive crops in low rainfall areas.

Eg. Rice in Punjab, Sugarcane in UP, Bihar

④ Market access: Lack of markets for pulses have resulted in substitution of pulses with rice or wheat.

⑤ Subsidies: With higher subsidies, farmers are undertaking HYV varieties of crops away from organic farming.

Need to modify:

① Ecological damage: Monoculture has resulted in excess use of fertilizers causing damage to nearby ecosystems.
Eg. Eutrophication of water bodies

② Land degradation: Use of fertilizers has resulted in degradation of land causing salination and acidification

③ Water stress: Irrigation has caused water stress and loss of ground water
Eg. Punjab

④ Nutritional security: Focus on rice, wheat

has resulted in import of pulses thus putting nutritional security in danger.

⑤ Future food security: Land degradation, water stress can affect future food security of the country.

⑥ Lack of sustainability: Current crop patterns are extremely unsustainable and may cause potential agricultural crisis in future.

⑦ Lack of climate resilience: Cropping patterns of India are artificial making them vulnerable to climate disasters.

It is essential to slowly nudge agriculture towards climate-resilient, sustainable cropping patterns to make it future-ready.

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 are the reforms in government budgeting methods and procedures that pave way for effective fiscal management.

Better management :

(i) Until before COVID-19, India's fiscal deficit was on the way to targeted

3-1% of GDP.

(ii) Outcome based budgeting has ~~made~~ made the expenditure effective and efficient.

(iii) Renewed focus on gender budgeting has resulted in gender equity in the expenditure.

(iv) Counter cyclical fiscal policy has led to arresting of economic slowdown pre-COVID

Issues still need redressal:

(i) India's debt-to-GDP ratio is still higher than the targeted range of 30-35%.

(ii) The revenue deficit is still very high. The target of narrowing down the revenue deficit to zero feels like impossible task

(iii) Lack of ambitious capital expenditure is also a concern as it doesn't propel economic boost.

(iv) The targets for disinvestment have not been adequately met for past years.

(v) Zero-based budgeting is not applied

in letter and spirit making it a redundant exercise.

- (vi) Tax buoyancy of the economy is still a concern as tax revenue to GDP is stagnated and is lesser than many ASEAN countries.
- (vii) Majority of vaper is still driven by states and not Centre despite huge opportunity to increase it.
- (viii) Fiscal deficit after COVID-19 has been over 6%. Thus leading to concerns of debt sustainability.

Fiscal discipline is essential to manage the economy sustainably. Ironing out the above issues is essential to bring fiscal stability and efficiency.

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।

India has the 4th highest railway network in the world but it is riddled with many inefficiencies.

Measures in National Rail Plan 2030:

- (i) Electrification of all railway lines
- (ii) Phasing out of diesel locomotives
- (iii) Bring new age locomotives to handle freight trains.
- (iv) Expand the dedicated freight corridor (DFC) network for goods movements.

Harness innovation & resource efficiency

- (i) Indian railways need to phase out the inefficient, polluting locomotives to make it climate-friendly.

(ii) Innovative methods to attract and retain passenger traffic must be brought.

Eg. Vistadome coaches for scenic routes.

(iii) Railways must be punctual and offer amenities to meet the needs of passengers.

Eg. Tejas Express by IRCTC

(iv) Railways must leave the monopolistic inefficiencies and focus on maintaining sustainable use of resources

(v) Railways have high freight costs. To have sustainable, non-coal freight revenue, it must adopt efficient methods.

(vi) Railways need to shed the inertia to change. It must adopt

new-age methods and initiatives
to address problems.

(vii) Railways must focus on achieving net-zero as soon as possible to comply to climate commitments of India.

Such a huge institution will inherently have inertia to change as quickly as the market or consumers need. To be future-ready, railways must undertake innovations and cut the inefficiencies. The operating costs must be reduced to induce sustainability.

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।

Technology plays a key role in increasing the efficiency of agriculture making it ready for the needs of 21st century.

Importance of technology:

① Efficient application of fertilizers:

Technology can aid effective, efficient application of fertilizers

Eg. Liquid Nano Urea (LNU)

② Reduce water stress: Novel irrigation methods can reduce water usage.

Eg. Drip irrigation methods

③ Increase productivity: Mechanisation of farming will drastically increase productivity.

④ Reduce climate emissions: Scientific interventions can reduce instances like stubble burning

Eg. PUSA decomposer.

⑤ Soil health: Technology can help in monitoring soil health and undertake requisite modifications.

⑥ Livestock monitoring: Scientific devices can be used to monitor the health and status of livestock

Eg. Earclips to monitor health of cows.

Challenges in realising potential:

~~① Lack of farm tech~~

① Lack of lab-to farm chains: Supporting chains from lab to farm are absent.

② Less funding in research: Agricultural funding is limited in research thus depriving innovation.

③ Lack of expertise: There is lack of expertise in areas of agricultural technology.

④ Weak agri-start up ecosystem: The agricultural entrepreneurship ecosystem is very weak and unproven.

⑤ Weak IPR: Due to weak IP regime, investment from MNCs on innovations is lacking.

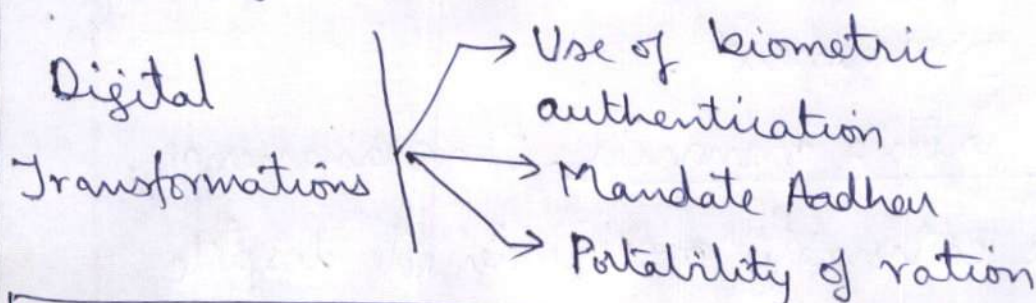
⑥ Lack of private participation: Strict regulations, markets have restricted private participation which in turn led to less infusion of technology.

Technological developments have the potential to increase the productivity of agriculture and release the stagnated farm incomes. Investment in R&D is a sine qua non for it.

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

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

PDS is the system through which India distributes its food grains to the poorest and the needy protecting its food security.



Several challenges remain:

- ① Inclusion error: Even though a family is no longer poor, it is not excluded from PDS as the 'white ration card' is permanent.
- ② Exclusion error: Many communities do not have Aadhar card, biometric data entries to receive ration.
Eg. Tribals of North Andhra are denied ration.

③ Leakages in Service delivery: There are acute, chronic leakages in service delivery where ration shops siphon off the food grains.

④ Unsustainability: The financial cost of PDS ~~as~~ as per NFSA, 2013 is very unsustainable causing huge burden to the government.

⑤ Overflowing granaries: The granaries of FCI are extremely overburdened despite elaborate PDS.

Measures to address them

① Direct Benefit Transfer (DBT): This can be undertaken to prevent the leakages of food grain and ~~also~~ use resources efficiently.

Eg. It is estimated that government spends ₹3.5 to give ₹1 benefit through PDS.

② End-to-End digitization: From FCI granaries to ration shops, everything must be digitized.

③ Use of technologies: Blockchain can be used to make the service delivery resilient and prevent leakages

④ Portable ration cards: All the states must come together to make ration cards portable to integrate PDS all over the country.

⑤ Rationalise NFSA, 2013: The amount of people eligible must be rationalized to allow fiscal room to the government.

It is essential to adopt novel ways of PDS to make it efficient, effective and prevent any corruption in delivery.

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 regulations

(~~Bharat regulations~~ Standard) are the engine regulations for vehicle makers to adhere to. Currently, we are in BS VI standard.

Concerns:

- ① Big leap : India leapt from BS IV to BS VI putting huge pressure on the manufacturers.
- ② Expensive : BS VI norms are expensive making the vehicles costlier.
- ③ Less research : There is very less research going on to have a smooth shift towards newer regulations.
- ④ Not up to standard : Comparison with

Euro standards like Euro VI has been that Indian regulations are still not upto the standard.

Measures :

- ① Discussions with industry : Thorough discussions must be made with industry to have consensus on regulations.
- ② Long-term planning : Plan of regulations for the next 15-20 years must be done to give ~~idea~~ idea to the manufacturers.
- ③ Industry-academia linkage : Industry must be encouraged to freely interact with academic institutions to increase research.
- ④ At level with international standards : Indian regulations must be brought at par with international vehicular

emission standards

⑤ Promote research: Research on sustainable fuels, less polluting engines must be encouraged to help the industry.

⑥ Increase intra-industry linkages: By fostering co-operation within the industry concerns of cost, research can be eliminated.

Vehicular fuel efficiency regulations are needed to slowly accelerate the climate fight. However, these regulations must be achievable and acceptable for all.

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 are fire accidents in urban buildings and places leading to loss of lives and property.

Causes :

① Poor regulatory enforcement : Regulations on fire safety, smoke detectors are seldom enforced.

② Poor construction methods : Construction quality, design is very low quality leading to fires, collapses etc.

③ Illegal storage : Illegal storing of firecrackers, flammable items lead to urban fires.

④ Mismanagement : By staff of certain establishments leads to urban fires
Eg. Fire in a hotel in Vijayawada as sanitizer was sprayed on switchboards.

⑤ Use of flammable material : Using flammable wood, ply for construction leads to urban fires.

Steps needs :

① Stringent norms : Robust fire safety norms must be instituted in the building code.

② Regular inspections : Surprise, regular inspections must be done to check fire safety in big buildings.

③ Mock drills : Frequent drills on fire safety must be conducted in schools, malls, theatres to ensure awareness.

④ Regulation of materials: Certain highly inflammable materials must be blacklisted from using as building material.

⑤ Standardisation of fire safety: Tools, implements, equipments of fire safety must be standardised.

⑥ Fire safety audits: Audits of older buildings must be undertaken to ensure that vulnerabilities are known

⑦ Codifying of safety norms: Across the country, safety norms must be codified and uniform

It is necessary to undertake honest inspections by officials to ensure fire safety in urban centres.

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

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

Drones are remotely-controlled, unmanned aircrafts that can cause potential damage to border areas.

Serious threat :

- ① Weapon delivery : Drones can be used to deliver weapons across the border without involvement of men.
- ② Drug trafficking : Drones can be used to deliver packets of drugs across the border.
- ③ Facilitate infiltrations : Drones can analyze the border, find vulnerabilities which can lead to infiltration.
- ④ Reconnaissance flights : Drones can be used

for ~~receiving~~ receiving, spying the border for larger attacks

⑤ Use for attacks: Drones itself can be used to undertake larger, power attacks by controlling them remotely.

⑥ Escape eye of military: Low flying drones are difficult to detect in radars making it easy to fly them.

⑦ Anonymous: Drones are flown remotely and anonymously making it difficult to trace them to culprits.

Measures taken:

① Radars to detect drones: Army has installed radars and air defence systems to detect drones flying over the border.

② Rules of drone usage: The government has released the rules, regulations

of usage of drones as per their weight

2.1) Different zones: green, yellow, red are marked to regulate the flying of drones.

2.2) Permission system for drones has been liberalised with micro, nano drones needing no permission to fly.

2.3) Restricted zones were marked where drones can't be flown.

Eg. airports, military installations

Drones provide a novel threat to internal security of India. There is a need to build capacity in the forces to effectively fight the threat of drones in India.

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।

Weaponization of space is using space to either store weapons or using weapons to attack assets in space like satellites. Global Framework is present in the form of Outer Space Treaty.

Increasing in recent times:

- (i) Countries are getting insecure over their capabilities thus leading to space weaponisation.
Eg. India tested anti-satellite missile
- (ii) Global tensions are giving rise to a new arms race especially in the space sector.
- (iii) Countries have realised the potential

of space weaponisation. They want to be ~~safe~~^{safe} from adversaries.

(ii) Space technology has seen rapid development lately which automatically increased potential for space weaponisation.

Implications :

① Space Nuclearisation: Storing nuclear weapons in space and using nuclear weapons in space will be a result.

② Upset global order: Countries with space weaponisations abilities will become powerful upsetting global order.

③ Trigger arms race: This will trigger race for developing best space weapons

④ Endanger space technology: Satellites, space stations will be endangered due to activities of weapons.

⑤ Threat to global peace: It will lead to erosion of global peace due to distrust between various nations.

⑥ Inrelevance of international institutions: International agreements, bodies like CTBT, NPT will become irrelevant.

⑦ Lack of regulated area: Space weapons come in a gray area of regulations as normal regulations do not apply in space.

It is essential to reach international consensus to arrest space weaponisation before it triggers catastrophes. United Nations must lead the initiative and allow only peaceful use of space.

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 is the economy created by biotechnological advances and methods across different sectors.

Eg. bio-fuels, bio-devices etc.

Role played by National Biotechnology Strategy 2021-25

① Foster innovation: This strategy allows for innovation in bio-technology helping bio-economy.

② Encourage research: This strategy helps in boosting research in bio-technology which in turn leads to robust bio-economy.

③ Industry-academia linkage : Quick adoption of bio-tech advancements is possible by this strategy.

④ Create ecosystem : Bio-tech ecosystem is created to aid advancements in bio-technology and boost bio-economy.

⑤ Infusion of funds : Funding and capital is infused into bio-tech research in India.

⑥ Establish support system : The support system needed to develop bio-technology is established to foster bio-economy.

⑦ Encourage entrepreneurship : This strategy encourages bio-tech start ups which foster bio-economy in the ~~industry~~ country.

- ⑧ Attract foreign investment: This strategy aids the sector to attract foreign investment to aid bio-tech development.
- ⑨ Establish lab-to-farm chains: To aid in quick adoption of bio-tech advances, adoption chains are established.
- ⑩ Create expertise: By focussing on human capital in bio-tech sector, this strategy focuses on ~~sees~~ robust growth in bio-economy.

Bio-technology is important to achieve climate-resilience in the economy. Hence, this strategy comes at an opportune time to boost the growth of bio-economy in India.