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सामान्य अध्ययन (प्रश्न पत्र-III)/GENERAL STUDIES (Paper-III) (2424)

निर्धारित समय: तीन घंटे
Time Allowed: Three Hours

अधिकतम अंक: 250
Maximum Marks: 250

सामान्य अनुदेश

इस प्रश्न-सह-उत्तर (क्यू.सी.ए.) पुस्तिका में 55+1 पृष्ठ हैं। प्रश्न-पत्र, क्यू.सी.ए. पुस्तिका के अंत में संलग्न है, जो अलग (वियोज्य) किया जा सकता है और उम्मीदवार परीक्षा के उपरांत अपने साथ ले जा सकते हैं।

रफ कार्य के लिए, इस पुस्तिका के अंत में खाली पृष्ठ दिया गया है।

पुस्तिका प्राप्त होने पर, कृपया यह जांच कर लें कि इस क्यू.सी.ए. पुस्तिका में कोई कमी न हो, फटा हुआ पृष्ठ न हो अथवा कोई पृष्ठ गायब न हो इत्यादि। यदि ऐसा हो, तो इसके बदले नई क्यू.सी.ए. पुस्तिका प्राप्त कर लें।

General Instructions

This Question-Cum-Answer (QCA) Booklet contains 55+1 pages. Question Paper in detachable form is available at the end of the QCA Booklet which can be taken away by the candidate after examination.

For rough work, blank page has been provided at the end of this Booklet.

On receipt of the Booklet, please check that this QCA Booklet does not have any shortcomings, torn or missing pages etc. If, so, get it replaced with a fresh QCA Booklet.

(उम्मीदवार द्वारा भरा जाएगा/To be filled by the Candidate)

पंजीकरण सं./Registration No. : 1557138

अभ्यर्थी का नाम/Name of Student : ANUSH SHROTRIYA

माध्यम: हिंदी/अंग्रेजी
Medium: Hindi/English

ENGLISH

तारीख
Date

27 Aug

**सामान्य अध्ययन (प्रश्न पत्र-I)
GENERAL STUDIES (Paper I)**

केंद्र
Centre

Bhai Joga Singh
Public School

निरीक्षक के हस्ताक्षर
Invigilator's Signature

महत्वपूर्ण अनुदेश उम्मीदवारों को नीचे उल्लिखित निर्देश सावधानी से पढ़ लेने चाहिए। किसी भी निर्देश का उल्लंघन करने पर उम्मीदवारों को मिलने वाले अंकों में कटौती, उम्मीदवारी रद्द या आयोग के परवर्ती परीक्षाओं के लिए वर्जित करने इत्यादि के रूप में दण्डित किया जा सकता है।	Important Instructions Candidates should read the undermentioned instructions carefully. Violation of any of the following instructions may entail penalty in the form of deduction of marks, cancellation of candidature, debarment from further Examination of the Commission etc.
1 (क) अपना पंजीकरण सं. एवं अन्य विवरण केवल प्रश्न-सह-उत्तर पुस्तिका (क्यू.सी.ए.) में उम्मीदवार के लिए निर्धारित स्थान पर ही लिखें। (ख) इस पुस्तिका में अन्यत्र कहीं भी अपना नाम, पंजीकरण सं., मोबाइल नं., पता अथवा प्रश्न-सह-उत्तर पुस्तिका (क्यू.सी.ए.) संख्या न लिखें जिससे आपकी पहचान का खुलासा हो।	(a) Write your Registration Number and other details only in the space provided in the Question-Cum-Answer (QCA) Booklet for candidates. (b) Do not disclose your identity in any manner such as, by writing your Name, Registration number, Mobile number, Address, Question-Cum-Answer (QCA) Booklet No. etc. elsewhere in the Booklet
2 अपनी प्रश्न-सह-उत्तर पुस्तिका में कहीं भी प्रश्नों के वास्तविक उत्तर के अतिरिक्त कुछ न लिखें जैसे कि कोई कविता/दोहा, अभद्र या अपमानजनक अभिव्यक्ति इत्यादि और न ही कोई ऐसा चिन्ह/निशान बनाएं जिसका उत्तर से सम्बन्ध न हो।	Do not write in the QCA Booklet anything other than the actual answer such as couplet, obscene, abusive expression etc., nor put any sign/mark having no relevance to the answer.
3 परीक्षक को प्रत्यक्ष/अप्रत्यक्ष रूप से कोई भी प्रार्थना/धमकी भरी बातें न लिखें।	Do not make any direct/indirect appeal/threat to the examiner.
4 उत्तर अस्पष्ट अथवा गंदी लिखावट में न लिखें। इस प्रकार के उत्तर का मूल्यांकन नहीं भी किया जा सकता है।	Do not write answers in bad/illegible handwriting. Such answers may not be evaluated.
5 उत्तर स्याही में ही लिखें। उत्तर लिखने के लिए पेंसिल का उपयोग न करें, हालांकि आरेख, चित्र इत्यादि बनाने के लिए पेंसिल का उपयोग किया जा सकता है।	Write answers in ink only. Do not use pencil for writing the answers. However, pencil may be used for drawing diagrams, sketches, etc.
6 प्रवेश पत्र में उल्लेख किए गए माध्यम के अलावा अन्य किसी माध्यम में उत्तर न लिखें। अधिकृत और अनधिकृत की मिली जुली भाषा का भी उपयोग न करें।	Do not write answers in medium other than the authorized medium in the Admission Certificate. Do not use mixed language either i.e. authorize and unauthorized media together for writing answers.
7 प्रश्नों के उत्तर ठीक उसके नीचे दिए गए निर्धारित स्थान पर ही लिखें। निर्धारित स्थान के अलावा किसी अन्य स्थान पर लिखे गए उत्तर का मूल्यांकन नहीं किया जाएगा।	Write answer at the specific space (right below the question) only. Answers written elsewhere at unspecified places in the booklet shall not be evaluated.
8 यदि आप अपने किसी उत्तर को रद्द करना चाहते हैं तो उसे पेन से काट दें तथा उस पर "रद्द" लिख दें, अन्यथा उसका मूल्यांकन किया जा सकता है।	If you wish to cancel any work, draw your pen through it and write "Cancelled" across it, otherwise it may be valued.

कार्यालय के प्रयोग हेतु For Official Use	कार्यालय के प्रयोग हेतु For Official Use
परीक्षक के हस्ताक्षर Signature of Examiner(s)	

प्राप्तांक के विवरण (परीक्षक द्वारा भरा जाए)/ Marks Details (To be filled by the Examiner(s))

प्रश्न सं. Q. No.	अंक Marks		प्रश्न सं. Q. No.	अंक Marks	
1			11		
2			12		
3			13		
4			14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		
उप-योग (A) Subtotal (A)			उप-योग (B) Subtotal (B)		
सकल योग (A+B) / GRAND TOTAL (A+B)					



सामान्य अध्ययन (प्रश्न पत्र-III)/GENERAL STUDIES (Paper-III) (2424)

निर्धारित समय: तीन घंटे
Time Allowed: **Three Hours**

अधिकतम अंक: 250
Maximum Marks: **250**

प्रश्न-पत्र संबंधी विशेष अनुदेश

कृपया प्रश्नों के उत्तर देने से पूर्व निम्नलिखित प्रत्येक अनुदेश को ध्यानपूर्वक पढ़ें:

कुल बीस प्रश्न दिए गए हैं जो हिंदी और अंग्रेजी दोनों में छपे हैं।

सभी प्रश्न अनिवार्य हैं।

प्रत्येक प्रश्न/भाग के लिए नियत अंक उसके सामने दिए गए हैं।

प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए, जिसका उल्लेख आपके प्रवेश-पत्र में किया गया है, और इस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यू.सी.ए.) पुस्तिका के मुख-पृष्ठ पर निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिखे गए उत्तर पर कोई अंक नहीं मिलेंगे।

प्रश्न संख्या 1 से 10 तक का उत्तर 150 शब्दों में तथा प्रश्न संख्या 11 से 20 तक का उत्तर 250 शब्दों में दीजिए।

प्रश्नों में इंगित शब्द सीमा को ध्यान में रखिए।

प्रश्न-सह-उत्तर पुस्तिका में खाली छोड़े गए कोई पृष्ठ अथवा पृष्ठ भाग को पूर्णतः काट दीजिए।

QUESTION PAPER SPECIFIC INSTRUCTIONS

Please read each of the following instructions carefully before attempting questions.

There are **TWENTY** questions printed both in **HINDI** and in **ENGLISH**.

All questions are compulsory.

The number of marks carried by a question/part is indicated against it.

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 a medium other than the authorized one.

Answers to Questions No. 1 to 10 should be in 150 words, whereas answers to Questions No. 11 to 20 should be in 250 words.

Keep the word limit indicated in the questions in mind.

Any page or portion of the page left blank in the Questions-cum-Answer Booklet must be clearly struck off.

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.

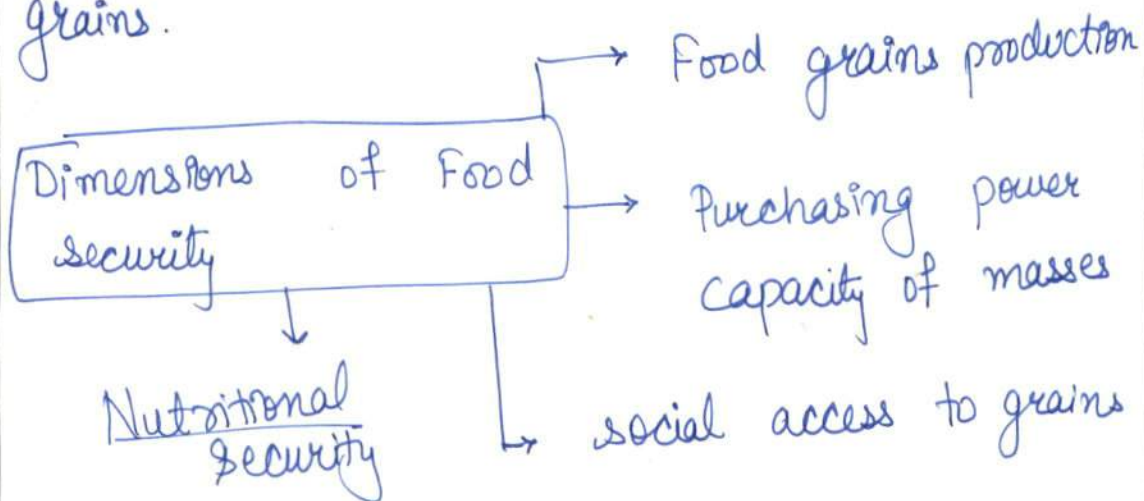
खाद्य सुरक्षा के विभिन्न आयाम क्या हैं? इन आयामों के मद्देनजर खाद्य सुरक्षा सुनिश्चित करने के संदर्भ में भारत की स्थिति का परीक्षण कीजिए। (उत्तर 150 शब्दों में दीजिए)

What are the different dimensions of food security? Examine India's status in terms of ensuring food security with regard to these dimensions. (Answer in 150 words)

10

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इस हाथिए में
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Food security refers to availability, accessability and affordability of food grains.



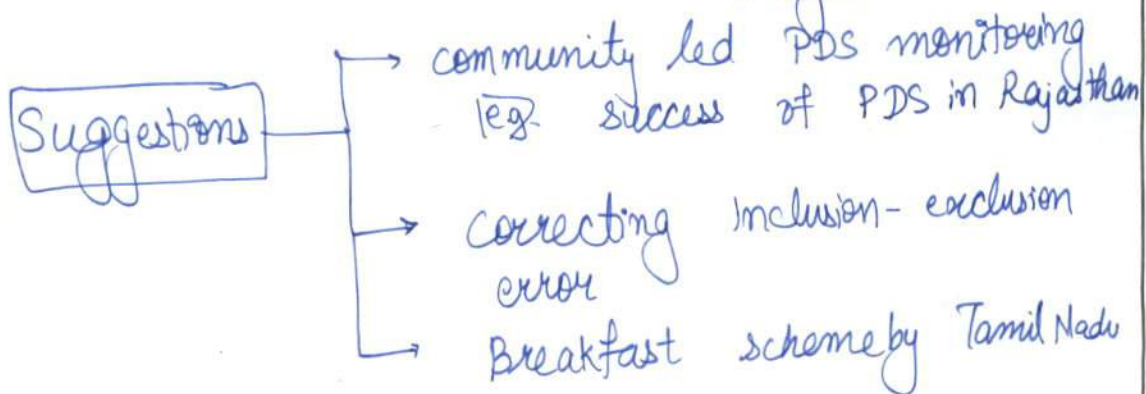
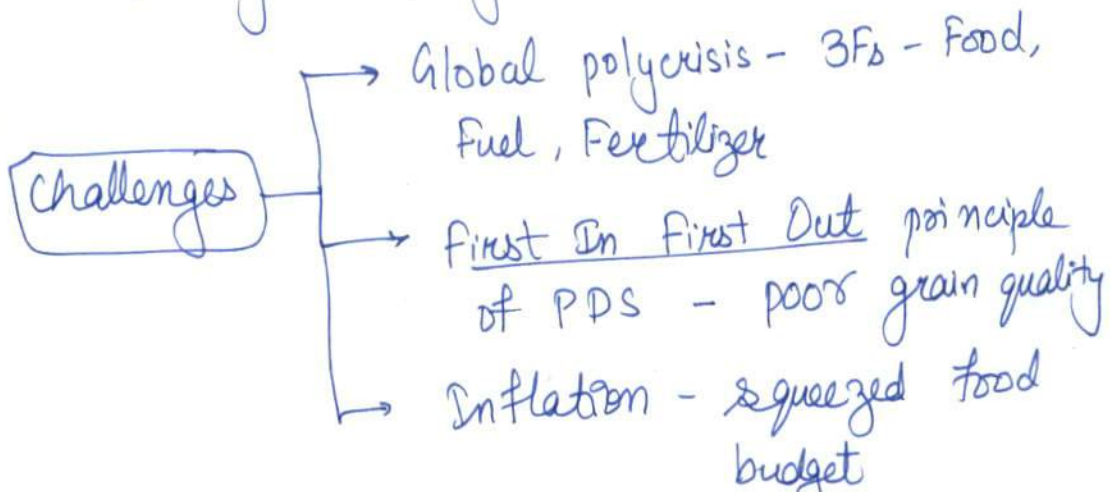
India's status

(1). Through green revolution food production increased to > 300 mn tonne (2022) from 80 mn tonne in 1970s

(2). By purchasing grains at MSP., state ensures sufficient remuneration to farmers as well as public stockholding.

(3). Through PDS fair shops, grains are provided to ~67% of population at very low cost (zero for this year)

(4). Supplying fortified rice, take-home rations to pregnant women, children through Anganwadis, Posham Vatikas.



India's PM Garib Kalyan Anna Yojana was lauded by world for ensuring food security. Such steps and reforms in FCI-PDS are the way ahead.

2.

ब्लॉकचेन और चैटजीपीटी जैसी आधुनिक प्रौद्योगिकियां कृषि को अधिक कुशल और संधारणीय क्षेत्रक में बदलने की अपार क्षमता वाले शक्तिशाली साधन हैं। भारत के संदर्भ में चर्चा कीजिए। (उत्तर 150 शब्दों में दीजिए)
Modern technologies such as blockchain and ChatGPT are powerful tools with immense potential to transform agriculture into a more efficient and sustainable sector. Discuss in the context of India. (Answer in 150 words)

10

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
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Blockchain refers to organized data chain secured by cryptography. ChatGPT is an generative AI tool.

Potential to transform agriculture

(1). Blockchain can streamline the contract farming through smart contracts.

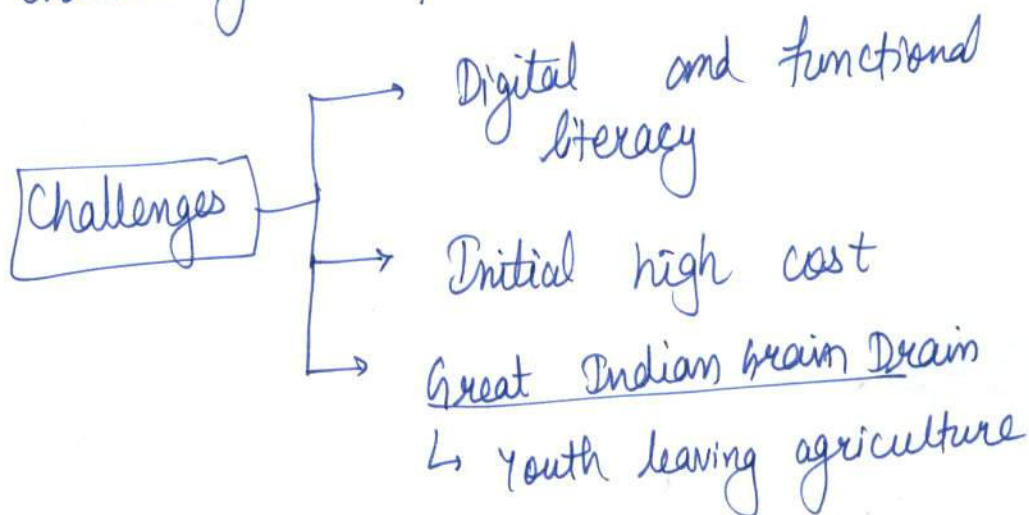
(a). Advance land reforms: Blockchain can advance digital land records modernization, transactions, etc.
↳ Promotes leasing of land, reduced litigation, increased cooperative farming

(b). ChatGPT can enable democratization of information and overcome linguistic barriers faced by farmers.

(4). Modern technologies like GM Mustard can make the agriculture efficient and productive.

(5). Precision Agriculture - It will reduce input cost, excess chemical use.

(6). Deployment of such technologies can ensure greater private investment.



Agriculture is the backbone of economy.

Modern technologies and handholding

by government (e.g. AgriStack) can make agriculture sustainable and efficient.

3.

वैश्विक अर्थव्यवस्था में वि-डॉलरीकरण की प्रवृत्ति में हालिया तेजी के लिए कौन-से कारक उत्तरदायी हैं? क्या आपको लगता है कि डॉलर का प्रभुत्व जल्द ही समाप्त हो जाएगा? (उत्तर 150 शब्दों में दीजिए)
What factors have led to the recent acceleration in the trend towards de-dollarization of the global economy? Do you think the dollar will lose its dominance anytime soon? (Answer in 150 words)

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De-dollarization refers to decreasing trend of use of dollar in global economic transactions.

Factors

- (1). Weaponization of dollar eg Exclusion of Russia from SWIFT, sanctions on Venezuela, Iran
- (2). Domestic economic stability eg Dollarization makes countries vulnerable to BOP crisis, Taper Tantrum.
- (3). Promotion of internationalization of currencies like ₹ → Nations promoting domestic currency to stabilize economy, greater integration with respect to supply chain
- (4). Rise of yuan eg Russia asking to settle trade in ₹-yuan.

(5). Increasing digitalization and interoperability eg Indian UPI - Singapore Pay Now.

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए।
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Though, de-dollarization has picked up pace, dollar will not lose dominance ^{soon} as:

- (1). Hard currency: currencies like ₹, Rouble are not while \$ is.
- (2). Easy and full capital account convertibility of \$, US follows market exchange rate unlike fixed or managed floating
- (3). Military superpower → complements hard economic power
- (4). Control over international financial systems like IMF, G-7 of USA.

Though de-dollarization is still far-fetched,

India should promote its domestic stability and ₹ as medium of global trade.

(current A/c deficit < 2% GDP
fiscal deficit < 3% GDP
(Tarapore committee))

4.

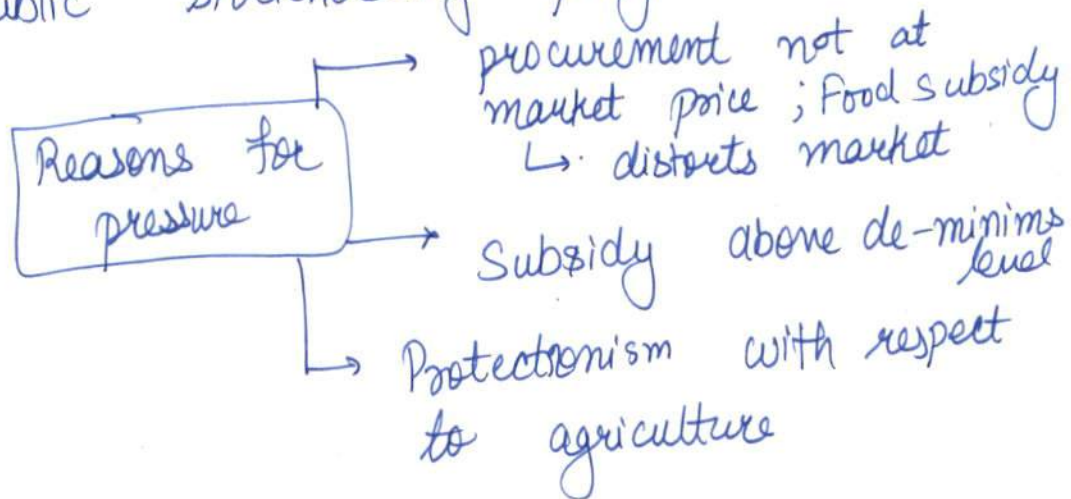
विकसित देशों द्वारा भारत पर खाद्य सस्बिडी व्यवस्था में बदलाव करने के अत्यधिक दबाव के बावजूद, भारत के लिए निर्धन व्यक्तियों हेतु अपना नीतिगत समर्थन बनाए रखना एक उचित कदम होगा। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

Despite significant pressure from the developed countries to alter its food subsidy regime, there is merit in India trying to retain its policy support for the poor in the country. Discuss. (Answer in 150 words)

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India has withstood greater international pressure in WTO with respect to its public stockholding program.



Merit

(1). Hunger is the most inhumane form of poverty. Public Distribution System ensures food security of millions.

In fact, world agencies themselves lauded PM Garib Kalyan during covid.

(2). MSP to farmers ensures sufficient

• Food grains production maintaining domestic food 'atmanirbharata'.

(3). MSP also ensures livelihood of farmers (Monthly income - ₹ ~~1028/-~~ 1028/-
(77th NSSO))

(4). The other countries also do not comply with WTO regime entirely
eg Huge green box subsidy by west
China's subsidy above de-minimis level for rice.

Though the vitality of such policy support is quintessential certain reforms are long due:

- Transforming agriculture into agriprenuership
 - ↳ It will reduce dependence on MSP
- Reforms like e-RUPI to curb leakages and reduce public procurement
- eg Despite advisable 25 mtonnes FCI procures ~80-90 mtonnes.

Global players need to arrive upon consensus to resolve "Peace Clause" and ensure functional WTO. Recent exemption to World Food Programme is a welcome step.

5.

भारत की जल संबंधी जरूरतों को पूरा करने की दिशा में सरकार द्वारा कई पहलों की शुरुआत की गई है, परंतु जल की उपलब्धता और जल की गुणवत्ता जैसे मुद्दों पर अभी भी नीतिगत हस्तक्षेप की आवश्यकता है। विवेचना कीजिए। (उत्तर 150 शब्दों में दीजिए)

Several initiatives have been taken by the government towards addressing India's water needs, but the issues of water availability and water quality still warrant prioritised intervention. Discuss. (Answer in 150 words)

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India is identified as a water-stressed nation. Government has taken initiatives to address water needs :

(1). Jal Teerav Mission: Tap connections, piped water supply to rural households by 2024.

(2). PM Krishi Sinchai Yojana: 'Per drop more crop', 'Har khet ko Pani'.

(3). Integrated Watershed management

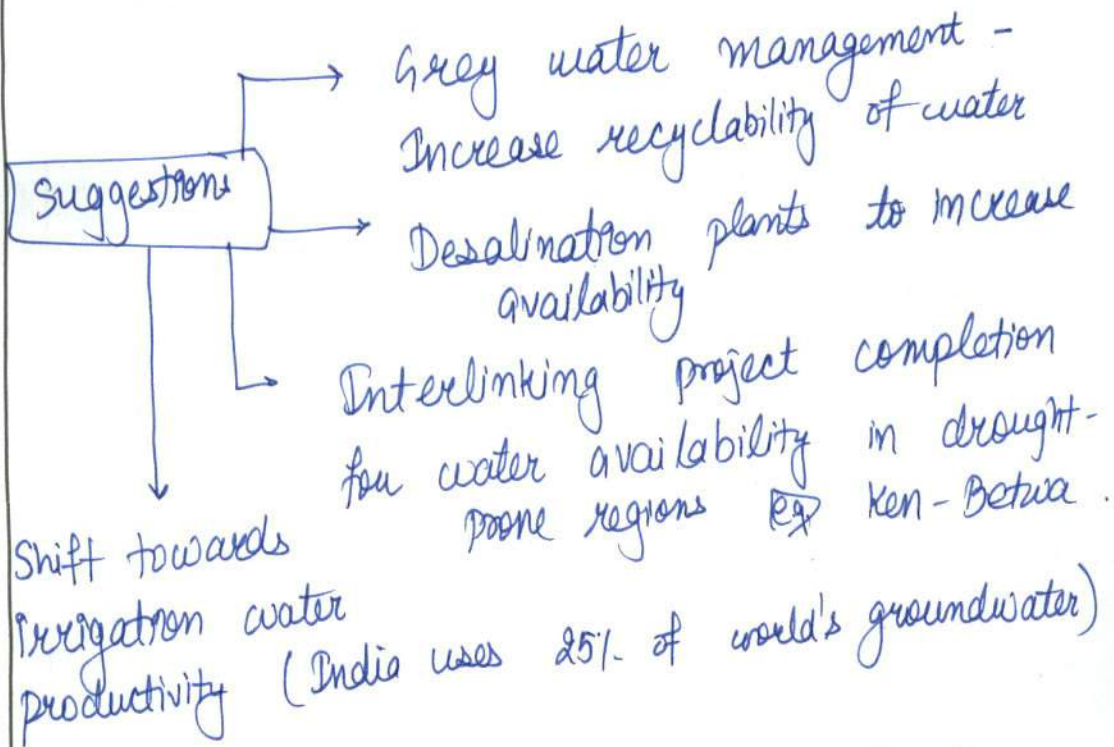
(4). Amrit Sarovar scheme - Rejuvenating 75 water bodies in districts.

Persistent issue of water availability and water quality

(1). Goal of delivering 55 litres per person per day requires greater availability of water, e.g., dams.

(a). Several tap connections are without regular water supply.

(3). Increased contamination of water due to untreated discharge, surface runoff.
eg cancer train from Punjab.



The water crisis looms large due to unabated unsustainable water practices. Greater water management, learning from best practices like Israel, water diplomacy can be the progressive steps.

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आर्कटिक में हिमनदों के पिघल कर संकुचित होने के लिए उत्तरदायी कारक क्या हैं? पारिस्थितिकी तंत्र पर आर्कटिक हिमनदों के पिघलने के संभावित प्रभाव का वर्णन कीजिए। (उत्तर 150 शब्दों में दीजिए)
 What are the major drivers of glacial retreat in the Arctic? Describe the potential impact of the retreat of Arctic glaciers on the ecosystem. (Answer in 150 words)

10

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2021-22 witnessed the highest zombie ice phenomenon, greater glacial retreat in Arctic.

Drivers

(1). Arctic Amplification : Ice-Albedo feedback,
water vapour feedback

(2). Global warming, climate change :
 continuous rise in GHG emissions

(3). Rising ocean sea surface temperature :
 Oceans have absorbed 90% of excess heat.

(4). Glacial retreat leads to release of methane hydrates, greater biomass decomposition further leading to glacial retreat.

Potential Impact

- (1). Opening of new trade routes
- (2). Potential agricultural viability in higher latitudes.
- (3). Greater number of disasters like Bomb cyclone in US.
- (4). Arctic permafrost melting is one of the tipping points → It can endanger human survival.
- (5). Biodiversity loss → Polar bears moving further up.
- (6). Rise of sea level → submergence of SIDS.

There is a need to overhaul environmental approach with increasing mitigation measures and control sea ice melting.

7.

अंतरिक्ष पर्यटन, जिसे सीधे तौर पर एक साइंस फिक्शन फिल्म के रूप में देखा जाता था, अब बिना किसी बाधा के वास्तविकता बन रहा है। अंतरिक्ष पर्यटन से संबंधित चुनौतियां क्या हैं? इन चुनौतियों से निपटने के लिए क्या उपाय किए जा सकते हैं? (उत्तर 150 शब्दों में दीजिए)

Space tourism, which was viewed as something straight out of a science fiction movie, is now becoming a reality albeit not without hindrances. What are the challenges associated with space tourism? What measures can be taken to address these challenges? (Answer in 150 words) 10

Space tourism has emerged as a new economic entrepreneurial venture.

Challenges

- (1). High carbon footprint of space tourism
- (2). Increases space debris leading to Kessler syndrome.
- (3). Inherent threat to lives of astronauts and tourists.
- (4). Contributes to widening the gap between 'haves' and 'have nots'.
- (5). Ethical viability - Diversion of resources from public welfare to such private space tourism.

Measures

- (1). Robust collaborated policies as space is an asset for entire humanity.
- (2). Technological developments to reduce environmental footprint
eg Reusable launch vehicle
Hydroxyl Amine Nitrate - greener fuel
- (3). Ensuring space tourism does not jeopardise public welfare.

Space tourism can be a viable tool for advancing space goals of resource extraction, colonization, etc. However, a balanced ecosystem is needed for development of 'home notes'.

8.

वैश्विक स्वास्थ्य विशेषज्ञ व्यापक रूप से मानते हैं कि CAR-T सेल थेरेपी का विकास कैंसर के उपचार में एक बड़ी सफलता हो सकता है। CAR-T सेल थेरेपी, CRISPR-Cas9 तकनीक में व्याप्त कमियों को कैसे दूर कर सकती है? (उत्तर 150 शब्दों में दीजिए)

Global health experts widely believe that the development of CAR-T cell therapy can be a game changer in the treatment of cancer. How can CAR-T cell therapy overcome the limitations of CRISPR-Cas9 technology? (Answer in 150 words)

10

CAR T-cell therapy involves extraction of anti-cancer T-cell from patients then using biotechnological tools to proliferate such cells and reinject them.

Limitations of CRISPR-Cas 9

- Can induce new genetic mutation due to arbitrary cleavage in DNA
- Absence of tailor-made cancer therapy

CAR-T cell

- (1). Using patients cell prevents excessive immune response.

• (80). Lack of DNA modif.

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9.

चर्चा कीजिए कि प्रमुख हिंसक चरमपंथी संगठनों द्वारा नई और उभरती प्रौद्योगिकियों के बढ़ते इस्तेमाल के विरुद्ध संगठित एवं ठोस वैश्विक प्रयासों की आवश्यकता क्यों है। (उत्तर 150 शब्दों में दीजिए)

Discuss why the rising deployment of new and emerging technologies by prominent violent extremist organizations demand concerted global efforts. (Answer in 150 words)

10

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Technology becoming the mainstay has also impacted national and global security adversely.

Role of technology

- (1). Cryptocurrencies used ~~by~~ as money as revenue laundering vehicle → used by extremists.
- (2). Use of social media to carry out propaganda, hiring persons in organized crimes.
- (3). Social media and internet has also facilitated radicalization.
Recent 250+ overground workers arrest
Lone wolf attacks

(4). Extremist org. using technology as proxy to carry out attack
Ex. Drone attack on Immu air base

उम्मीदवारों को इस कश्चि में नहीं लिखना चाहिए
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Need of concentrated global efforts

- (1). Transnational nature of terrorist org. like ISIS demands joint crackdown Ex. RATS mechanism of SCO
 - (2). & Create policy sync Ex. approving Comprehensive Convention on International Terrorism.
 - (3). Effective implementation of Palermo Convention on organized crime.
- The global nature of such org. requires global efforts Ex. FATF, Interpol, etc.

10.

गलवान और यांगस्ते की घटनाओं के बाद वास्तविक नियंत्रण रेखा (LAC) पर तनाव बना हुआ है तथा भारत एवं चीन दोनों सीमावर्ती क्षेत्रों में अपने बुनियादी ढांचों को सुदृढ़ कर रहे हैं। इस क्षेत्र में ITBP द्वारा निभाई जाने वाली भूमिका पर चर्चा कीजिए। (उत्तर 150 शब्दों में दीजिए)

With the Line of Actual Control (LAC) remaining tense after the Galwan and Yangste incidents and both India and China ramping up infrastructure in the border areas, discuss the role that ITBP plays in the region. (Answer in 150 words)

उम्मीदवारों को इस हॉकिंग में नहीं लिखना चाहिए
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10

LAC has seen tense positions since Galwan clash with more than 1,00,000 soldiers deployed by both sides presently

Role of ITBP

(1). Secures the Indo-China border:-

Regular patrolling, preventing incursion

eg Recent Arunachal Pradesh Clash where ITBP successfully thwarted incursion attempts

(2). Relay intelligence inputs to ministry regarding new developments
eg Chinese 'Xiaokai' villages

(3). Ensures security and safety of

border villages e.g. Prevent Ghost village formation.

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
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(4). Assists Indian army in its operations and programmes.

(5). Support to NDRF forces during disaster relief - rescue operations.

(6). Undertake infrastructural projects and monitoring near border
e.g. Project Vartak

(7). Assists in implementation of Village Defence Committee and Vibrant Village Programme.

Recent union decision to increase ITBP forces is a positive step. Along with domestic capabilities, peace talks needs to be advanced for de-escalation.

11.

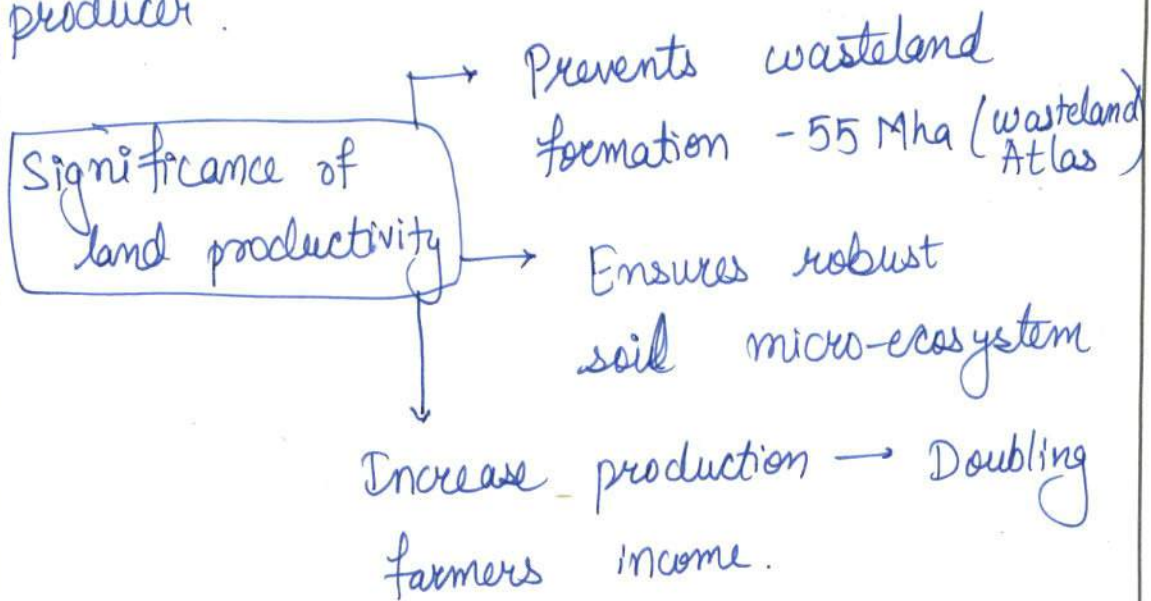
क्या आपको लगता है कि भारत को 'भूमि उत्पादकता' के सिद्धांत को छोड़कर 'सिंचाई जल उत्पादकता' के सिद्धांत को अपनाने की आवश्यकता है? अपने उत्तर का औचित्य सिद्ध कीजिए। यह बदलाव करने में कौन-सी चुनौतियां विद्यमान हैं? व्याख्या कीजिए। (उत्तर 250 शब्दों में दीजिए)

Do you think there is a need for a shift from 'land productivity' to 'irrigation water productivity' in India? Justify your answer. What are the challenges in making this shift? Explain. (Answer in 250 words)

उम्मीदवारों को इस दृष्टि से नहीं लिखना चाहिए
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Indian agriculture suffers from low productivity issue. For ex, Highest area sown for rice but still not the largest producer.



Benefits of shifting to 'irrigation water productivity'

(1). Low efficiency of irrigation techniques
eg. 38% of flood irrigation method

(2). Freshwater is a scarce resource.

↳ Virtual water export

(3). Such shift will decrease the input cost and raise productivity

(e.g.) Fertigation - Reduced and optimum use of fertilizers

(4). It indirectly ensures land productivity - prevents desertification, salinization

(5). 89% of groundwater is used in irrigation. Its management will prevent groundwater depletion and other catastrophe like subsidence of land.

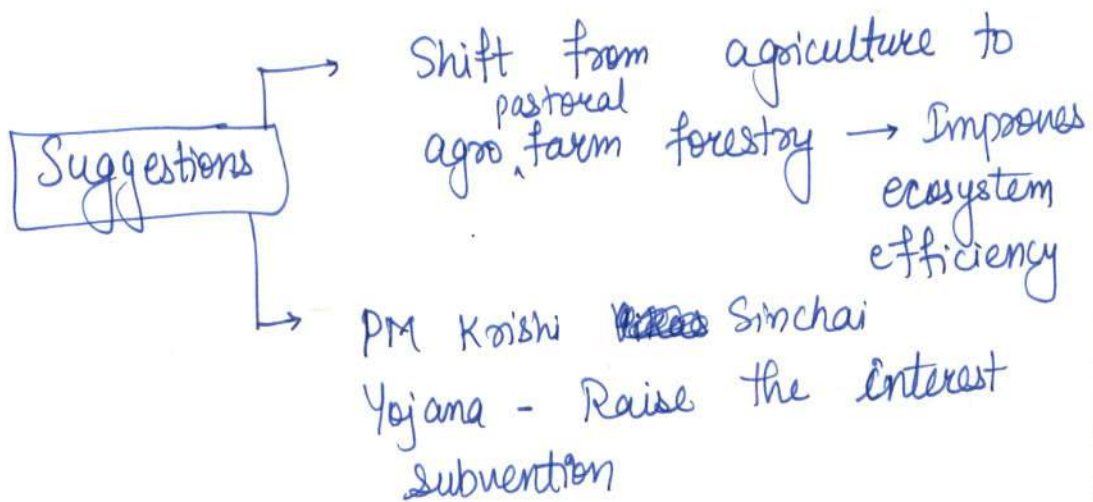
Challenges

(1). Perverse subsidy e.g. Free electricity results in excessive pumping of groundwater

(2). High cost - Setting up systems like sprinkler, drip irrigation, etc. requires high initial investment

(3). Political will ~~for~~ Delays in Sutlej-Yamuna linkage

(4). Lack of knowledge penetration of its benefits among farmers.



Shifting from land productivity to irrigation productivity can safeguard agriculture from climatic vagaries, erratic monsoons and depletion of resources

12.

भारत की ऊर्जा सुरक्षा प्राप्त करने में हरित हाइड्रोजन की भूमिका का परीक्षण कीजिए। राष्ट्रीय हरित हाइड्रोजन मिशन, भारत की अपने ऊर्जा लक्ष्यों को प्राप्त करने में किस प्रकार मदद कर सकता है? (उत्तर 250 शब्दों में दीजिए)

Examine the role that green hydrogen can play in unlocking the energy security of India. How can the National Green Hydrogen Mission help India in achieving its energy goals? (Answer in 250 words)

15

उम्मीदवारों को इस इच्छा में नहीं लिखना चाहिए
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Green Hydrogen refers to hydrogen produced by electrolysis using renewable energy.

Role of green hydrogen in energy security

(1). Substitution of $\frac{1}{2}$ petroleum-products
e.g. Use of fuel cell vehicles

It will reduce the import-dependence.

(2). High calorific value - can serve as industrial grade energy source.

(3). Decarbonization - It can be of significant value in carrying out economic transition towards less emissions.

(4). Production of other hydrocarbons

like methanol, ammonia, etc

(5). It will reinforce the renewable energy generation → Boost to solar energy, wind energy, etc. as it will provide a ready market.

India launched the Green Hydrogen Mission with the aim of producing 5 mn tonnes of green hydrogen by 2030.

↳ Components:

- SIGHT - Domestic production of electrolyzers.
- SHIP - Improve the coordination, implementation and awareness.

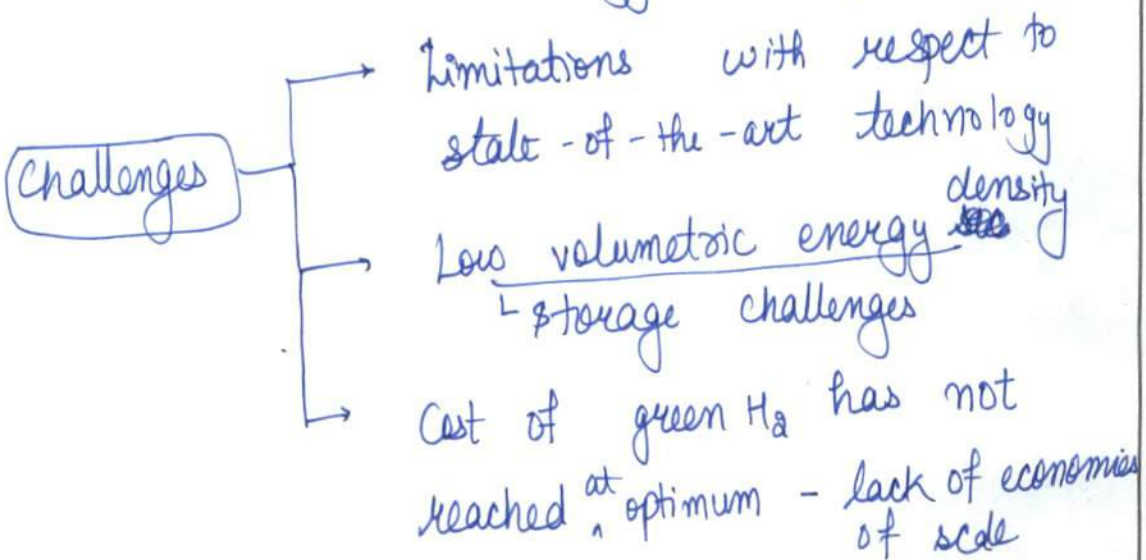
National Green Hydrogen mission Role

(a). It provides tax-free investment environment for initial years.

(2). Green H_2 manufacturers can store the renewable energy upto certain time-limits.

(3). Streamlines the regulatory procedure

(4). Domestic manufacturing will ensure further downstream developments like fuel cell $\rightarrow$ transportation sector energy security.



Green Hydrogen mission gives a significant push to India's 'Panchamrita' and ensuring energy security without carbonizing.

13.

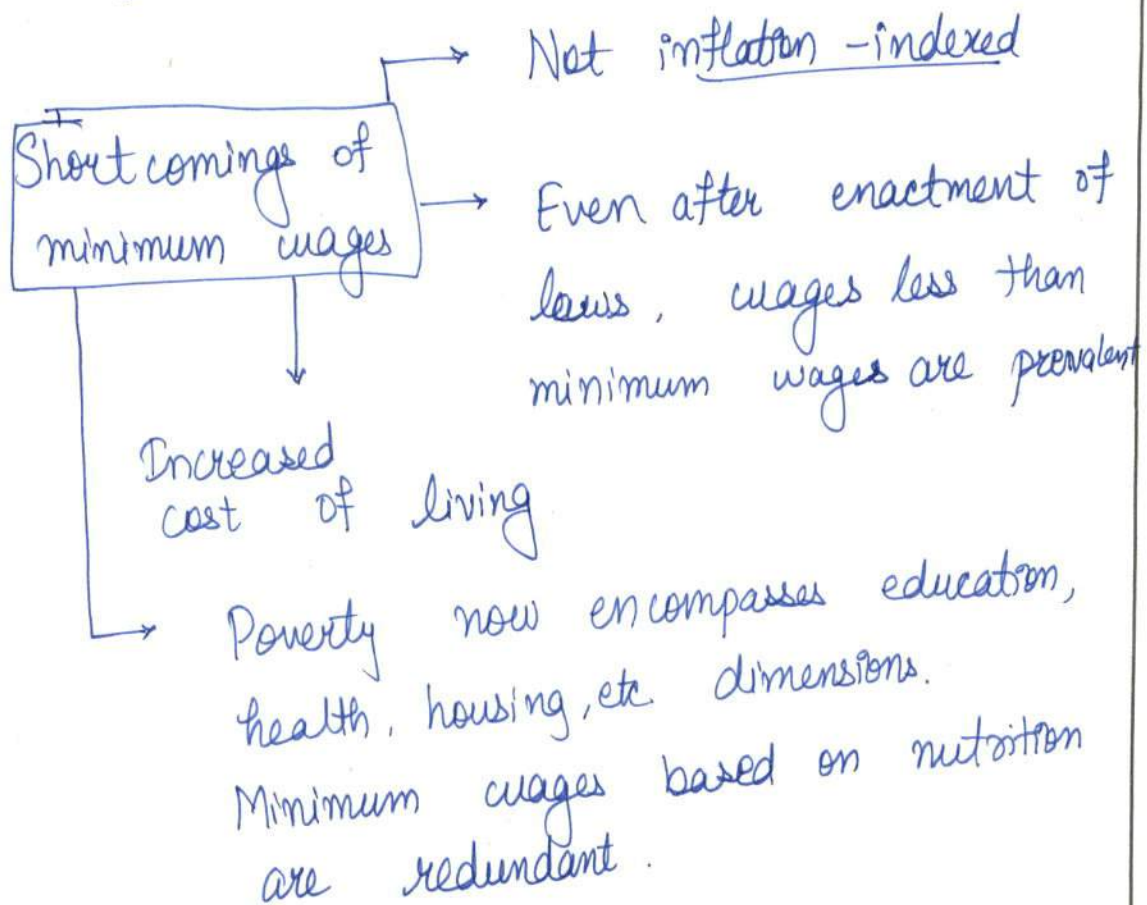
हाल के दिनों में, सरकार न्यूनतम पारिश्रमिक की जगह जीवन निर्वाह पारिश्रमिक को अपनाने पर विचार कर रही है। भारत में जीवन निर्वाह पारिश्रमिक को अपनाने के लाभ और इसमें विद्यमान बाधाएं कौन-सी हैं? (उत्तर 250 शब्दों में दीजिए)

The government has been weighing a transition from minimum wage to living wage in recent times. What are the benefits and constraints in the adoption of living wage in India? (Answer in 250 words)

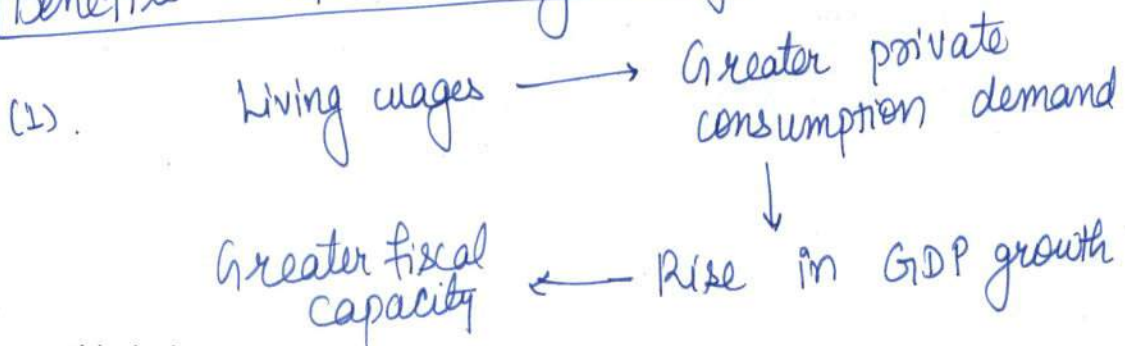
उम्मीदवारों को इस कक्ष में नहीं लिखना चाहिए
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Ans. 41 directs government to ensure living wage for people.



Benefits of living wage



- (2). Living wage will help in reducing the multi-dimensional poverty.
↳ 1 out of 7 poor (Multi-Dimensional Poverty Index).
- (3). Living wage is a pre-requisite of wider umbrella of social security net.
- (4). Bridges the gender-pay gap → 82% of income captured by males in India (world inequality report 2023)
- (5). It will ensure rural economy development → Push to rural MSMEs.

Constraints

- (1). Implementation - Ensuring living wage is an arduous task when even the minimum wages are not provided.

- (2). Inflation - Higher living wages can trigger an inflation cycle leading to macroeconomic instability.
- (3). Fiscal burden - Living wages come under revenue expenditure → It will limit the CapEx and future economic growth.
- (4). Manufacturing push - High living wages will lead to the "dwarfism" in different sectors. It also hinders FDI support.

Living wage is a constitutional and moral imperative. However, the same should be achieved through progressive steps avoiding knee-jerk reaction and in consultation with stakeholders.

14.

केंद्रीय बजट भारतीय अर्थव्यवस्था के लगभग हर क्षेत्र को प्रभावित करता है, फिर भी न तो बजटीय प्रक्रियाएं पर्याप्त सार्वजनिक जांच के दायरे में आती हैं और न ही बजट नीतियां। क्या आप इस कथन से सहमत हैं? अपने उत्तर का औचित्य सिद्ध कीजिए। (उत्तर 250 शब्दों में दीजिए)

The Union Budget affects almost every sector of the Indian economy, yet neither the budgetary processes nor the budget policies come under substantial public scrutiny. Do you agree? Justify your answer. (Answer in 250 words)

उम्मीदवारों को इस हार्गि में नही लिखना चाहिए
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Budget is the annual financial statement of government which sets the broader framework of economy.

Budgetary process and policies not coming under substantial public scrutiny

(1). Parliamentary accountability has seen a decline ~~eg~~ In The first budget of 17th Lok Sabha only 20% demand for grants were discussed and rest were guillotined.

(2). Focus on output - budgeting than outcome - budgeting

(3). Only 57% departments/ministries have setup gender budgeting cell → The Gender Budget has stagnated at 5.5%.

(4). The budget policies scrutiny has not been robust e.g. Former RBI governor claim that PLI is just promoting low-value addition or assembling rather than actual manufacturing.

Though there have been such concerns but the public scrutiny has not been void :

- The scrutiny of gender budgeting led M/o Finance to invite pre-consultation and feedbacks
- The performance budgeting has been operational since 2004-05. It has

led to efficiency in budgetary allocation.

उम्मीदवारों को इस हार्डिप में नहीं लिखना चाहिए
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→ Scrutiny of budget policies has led to greater enforcement and accountability. eg PM Awas Yojana (urban) → 60 lakh / 1.2 crore houses constructed

↳ Scrutiny has been at several levels especially for welfare schemes like MGNREGS (stagnant or declining budget support), maximum of M/o women and child development goes to POSHAN scheme.

Union government needs to imbibe the conclusion reached after such scrutiny. A multi-faceted approach for Budgetary analysis and performance is crucial for its effectiveness.

15.

भारत स्वयं को दूध की कमी वाले देश से दुनिया के सबसे बड़े दूध उत्पादक देश के रूप में बदलने में सक्षम हो गया है, लेकिन देश में डेयरी पशुओं की उत्पादकता चिंता का विषय बनी हुई है। विवेचना कीजिए। (उत्तर 250 शब्दों में दीजिए)

India has been able to transform itself from a milk deficit country to the world's biggest milk producer, but the productivity of dairy animals in the country remains a concern. Discuss. (Answer in 250 words)

15

With the operation flood and efforts of Verghese Kurien India transformed from milk deficit country to biggest producer.

- 55% of Buffalo and 13% cattle ^{of world} are accounted by India
- Livestock and dairy farming contributes upto 27% of farmers income
- Gave a greater push to cooperatives.

However, productivity concerns are there as ~~there is a~~ ~~press~~ ~~concern~~:

- (1). Despite being biggest producer, lower productivity ~~due to~~ ~~average of 1700 per~~ due to poor breeding

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has hindered the production and export. ~~due to~~

- (2). Poor fodder quality $\rightarrow$ 1799 per kg per animal productivity against world average of $\sim$ 2699 per kg per animal.
- (3). Lack of deployment of modern technology in dairy sector.
- (4). Lack of animal (veterinary) health care ~~for~~ Recent Lumpy skin disease led to death of cattles
- (5). Insufficient credit support to ensure economies of scale.

Suggestions

CO. Using genetic engineering techniques, cross-breeding to improve the breeds.

- (2). Genome monitoring of dairy livestock to control any epidemic.
- (3). Greater financial support to farmers and cattle rearers.
- (4). Promote awareness, use of modern techniques, artificial insemination.
- (5). Improve fodder quality and nutrition ~~for~~ Millets.

Rashtriya Gokul Mission, Animal husbandry Infrastructure mission, etc. are welcome steps in raising the productivity and production.

जहाँ एक तरफ जलवायु परिवर्तन, फसल की विफलता के लिए जिम्मेदार है, वहीं दूसरी तरफ चरम मौसमी घटनाओं के लिए कृषि क्षेत्रक स्वयं आंशिक रूप से जिम्मेदार है। विवेचना कीजिए। भारत में कृषक समुदाय की प्रत्यास्थता को सुदृढ़ करने के लिए राष्ट्रीय कृषि आपदा प्रबंधन योजना के तहत क्या रणनीति अपनाई गई है? (उत्तर 250 शब्दों में दीजिए)

While climate change is responsible for crop failures, the agricultural sector itself is partly responsible for extreme weather events. Discuss. What strategy has been adopted under National Agriculture Disaster Management Plan to strengthen the resilience of the farming community in India? (Answer in 250 words)

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए।
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Climate change implies change in long term average condition of temperature and precipitation. It has impacted the agriculture in multifarious manner.

Climate Change responsible for crop failures

(1). Erratic monsoon and rainfall →
Longer drought periods with intense rainfall has increased crop failures
↳ ~48% of Indian agriculture is sarited

(2). Heat waves and other climatic extremities ex. wheat production declined in 2022 due to heat waves.

- (3). Increased microbial activity, thawing of permafrost $\rightarrow$ zombie virus
 $\rightarrow$ Increased pest attacks $\rightarrow$ crop failure

Agriculture sector as a factor

- (1). Agriculture contributes 25% of methane emissions of India and overall 18% GHG emissions $\rightarrow$ Flood irrigation in paddy cultivation
- (2). Excessive chemical use like fertilizers
 $\rightarrow$ reduces soil health $\rightarrow$ Soil's ability of sequestration declines.
- (3). Agricultural practices like slash and burn contributes to deforestation and land degradation.
- (4). Contributor to droughts : High groundwater extraction, ^{surface} runoff polluting water bodies.

Strategy under National Agriculture

Disaster Management Plan:

उम्मीदवारों को इस खंड में नहीं लिखना चाहिए
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- (1). Synchronizing agriculture as per agro-climatic condition ~~eg~~ Millets in arid regions
- (2). Regeneration of natural elements managing local ecosystem ~~eg~~ Local water bodies, rainwater harvesting
- (3). Promoting sustainable agriculture ~~eg~~ Zero Budget Natural Farming, Bamboo value Chain
- (4). Information dissemination and awareness
↳ m-kisan Suvidha App.

Resilience of agriculture is vital for food security, income of farmers and economic growth. Its importance has acquired greater significance due to climatic vagaries.

17.

दिल्ली सहित भारत के कुछ क्षेत्र हिमालय में आने वाले भूकंपों के प्रभाव के प्रति अत्यधिक संवेदनशील हैं। विवेचना कीजिए। भारत में भूकंप से होने वाली हानि को कम करने के लिए कौन-से संस्थागत उपाय किए गए हैं? क्या आपको लगता है कि कुछ उल्लेखनीय कमियां अभी भी मौजूद हैं? (उत्तर 250 शब्दों में दीजिए)

Some regions in India, including Delhi, are highly vulnerable to the impact of earthquakes originating in the Himalayas. Discuss. What institutional measures have been taken to mitigate earthquake losses in India? Do you think there are significant gaps that still exist? (Answer in 250 words)

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Earthquakes refers to shaking of Earth's surface due to release of energy within.

Regions like Delhi fall under Zone-IV in earthquake zonation.

Vulnerability reasons

- (1). Tectonic instability of earthquakes
 ↳ these young fold mountains are still rising
- (2). Isostasy hasn't been reached →
 Landslides and other hazards can trigger earthquake.
- (3). High population density of regions like Delhi acts as a multiplier for vulnerability.

- (4). Economic vulnerability - Greater number of migrants and poverty incidence
↳ slums, urban sprawl.

Institutional Measures

- (1). National Building Code, 2016 to ensure resilience during shaking.
- (2). Hazard Risk Zonation Mapping and subsequent classification of regions.
- (3). NDMA initiatives for capacity building like Aapda Mitra App, community training
- (4). Leveraging technological progress for early prediction ~~eg~~ NISAR satellite

Significant Gaps

- (1). Poor enforcement of building code.
Retro-fitting of seismic shock absorbers

is minuscule.

- (2). Reactive approach tendencies → Lack of disaster prudent master plan and urbanization policies

Earthquakes disasters can wreak havoc in absence of due safeguards and implementation of measures like in

Syria - Turkey. PM 10-point agenda

can be the guiding light in ^{such} disaster management.

हाल ही में, वैज्ञानिकों ने परमाणु संलयन अभिक्रिया में निवल ऊर्जा लाभ की घोषणा की है, जिसे स्वच्छ ऊर्जा के भविष्य के लिए एक बड़ी वैज्ञानिक सफलता माना गया है। परमाणु संलयन आधारित विद्युत उत्पादन के क्या लाभ हैं? व्यावसायिक स्तर पर विद्युत उत्पन्न करने के लिए इसके उपयोग की क्या सीमाएं हैं? (उत्तर 250 शब्दों में दीजिए)

Recently, scientists announced net energy gain in nuclear fusion reaction, which is considered as a major scientific breakthrough for the future of clean energy. What are the advantages of nuclear fusion based power generation? What are the limitations in using it to generate electricity at a commercial scale? (Answer in 250 words)

Nuclear ^{fusion} energy refers to energy derived from fusion of two small atoms during which some mass is converted into energy ($E = \Delta mc^2$)

Advantages of nuclear fusion

- (1). ^{Near} Limitless availability of raw material : water electrolysis can give the hydrogen atom or Lithium isotope decay can give ${}^3_1\text{H}$.
- (2). Clean fuel : Near zero emissions, can decarbonize the power, transportation, energy intensive industrial sector.

(3). No concern of nuclear proliferation!

Unlike fission, it does not involve such nuclear development.

(4). Very low radioactive waste.

(5). Overcomes the disaster possibility in fission → The reaction itself is difficult to sustain (very high temperature, pressure)

(5). International Thermonuclear Reactor (ITER) - Tokamak represents rare collaboration of global powers → Such initiative success will improve coordination.

Limitations

(1). Though it achieved net energy gain, the initial energy required is abnormally high.

(2). The condition to initiate reactions are very difficult to emulate at commercial scale $\rightarrow$ Magnetic confinement, such superconducting magnets

(3). The reaction instead of ^1H uses other two isotopes as ^1H requires even greater temperature $\rightarrow$ finite sources of Deuterium, Tritium.

The net energy gain is a great leap ahead. Further scientific advancements can enable nuclear fusion even at commercial scale. Meanwhile, judicious use of renewables and non-conventional sources is needed.

19.

हालिया संशोधन को ध्यान में रखते हुए, भारत में धन शोधन (मनी लॉन्ड्रिंग) के खतरे से निपटने में धन शोधन रोकथाम अधिनियम, 2002 की प्रभावकारिता का परीक्षण कीजिए। (उत्तर 250 शब्दों में दीजिए)

Keeping in view the recent amendment, examine the efficacy of the Prevention of Money Laundering Act, 2002, in tackling the menace of money laundering in India. (Answer in 250 words)

15

उम्मीदवारों को
इस कक्ष में
नहीं लिखना
चाहिए
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Prevention of Money Laundering Act (PMLA),

2002 makes money laundering a
cognizable offence. Money laundering causes

2-5% global GDP loss (IMF)

Money Laundering
← Integration → Layering → Placement

Recent amendments

(1). Criteria of beneficial ownership reduced
from 25% to 10%.

(2). It defines politically exposed person

(3). Greater powers to Enforcement Directorate (upheld in Vijay Madanlal case)

Efficacy of PMLA Act

(1). It will act as a deterrence for

money laundering crimes. Power to confiscate ~~attach~~ such assets gives teeth to enforcement agencies.

(2). Reduction in beneficial ownership criteria will prevent frauds like Nirav Modi scam.

(3). Breaks the nexus between corrupt government elements and launders by defining and clarifying politically-exposed person.

Limitations

(1). ED has powers to inquire not investigate. Also, pondering of agencies due to executive whims raises ^{its} independence question. E.g. Recent extensions to ED chief termed illegal by SC.

(2). Money laundering operates through hawala networks, ~~and~~ transfer pricing, shell companies, etc. There is a need of whole - of - the government approach.

(3). It is a global offence and requires global coordination on lines of organized crime ~~leg~~ Palermo convention.

(4). Neo - threats ~~eg~~ 'Crypto is the new hawala'.

Money laundering reduces monetary sovereignty, fiscal strength and people's trust. Along with these amendments, a new all - encompassing agency (SFIO, ED, etc.) can help in tackling this ~~menace~~ menace.

हिंद महासागर क्षेत्र (IOR) में मौजूद उन सुरक्षा खतरों पर चर्चा कीजिए, जिनका भारत के समुद्री सीमा संबंधी हितों पर सीधा असर पड़ता है। इन खतरों से निपटने के लिए एक मजबूत रणनीति सुझाइए। (उत्तर 250 शब्दों में दीजिए)

Discuss the security threats present in the Indian Ocean Region (IOR), which have a direct bearing on India's maritime border interests. Suggest a robust strategy to deal with these threats. (Answer in 250 words)

15

उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
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Indian Ocean is the region which China eyes, where India asserts and US intervenes. Maritime Security (7500+km) is essential for national security

Security Threats

- (1). Piracy - Closeness to Horn of Africa and Gulf region.
- (2). Smuggling networks through coastal regions
- (3). Greater Chinese Influence e.g. Yuan Wang-5 carrying out reconnaissance.
- (4). Terrorism e.g. Terrorist of 26/11 attacks came through maritime routes.

- (15). Militarization of region - small conflict might escalate (eg India's backyard, China's control on Hambantota, AUKUS submarines).

Robust strategy

- (1). Strengthen intelligence network
eg Collaboration with fishermen, inter-agency network.
- (2). Greater coordination among Navy, Indian Coast Guard and Coastal State Police for swift response during emergency.
- (3). Coordination with other nations along with domestic reinforcement to counter piracy (eg Recent enactment of Anti-Piracy Act)

(4). Leverage networks like Information Fusion Centre, platforms like BIMSTEC to bolster not only domestic but neighbours security.

The shift from Atlantic to Indo-Pacific as hotbed of geopolitics and non-state actors has made security of IOR vital. India should promote greater maritime collaboration like Malabar to ensure its national security.

SPACE FOR ROUGH WORK

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