



VISIONIAS

INSPIRING INNOVATION

ABHYAAS MAINS

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. : 1091252

अभ्यर्थी का नाम/Name of Student : Kuhoo garg

माध्यम: हिंदी/अंग्रेजी
Medium: Hindi/English

English

तारीख
Date

27/8/23

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

केंद्र
Centre

Delhaden -

निरीक्षक के हस्ताक्षर
Invigilator's Signature

	महत्वपूर्ण अनुदेश	Important Instructions
	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।	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.

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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)					



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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

उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
Candidates must not write on this margin

Food security is a state where

- calories demand is met [$\sim 2100 \text{ kcal/day}$]
- Macro nutrient demand is met
 - Proteins
 - Fats
 - carbohydrates
- Micro nutrient demands are met.
 - Vitamins
 - Minerals
- Quality of food is good - not adulterated

thus it is not merely absence of hunger but also availability of good quality food which supports the development of a person - physical and mental.

India is ranked very low on the World Hunger Index and still has high prevalence of undernutrition and undernourishment falling in the serious category.

The Status

1. Govt. through schemes like NFSA and PM Garib Kalyan Anna Yojana has tried to provide basic food security to the entire country.
2. However, India still sees high prevalence of diseases like anaemia (women-53%) showing nutrient deficiency.
3. India also sees high prevalence of
 | - stunting
 | - wasting
 indicating undernutrition of children.
4. There is increasing burden of Obesity ~~indicating food~~.

Therefore the focus needs to shift from mere calorie fulfillment to better nutrient balance.

2.

ब्लॉकचेन और चैटजीपीटी जैसी आधुनिक प्रौद्योगिकियां कृषि को अधिक कुशल और संधारणीय क्षेत्र 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
Candidates must not write on this margin

Blockchain - ^{decentralised} digitally distributed ledgers tech.

Making Agriculture more efficient

- storing land records - used for collateral
- govt schemes implementation monitoring
- calculating crop failure and claims
- Bank loans

Making agriculture sustainable

→

Chat GPT → generative AI tool

Efficient Agri

- It can be trained on agri practices and research. ~~and then~~ farmers can be taught

how to use Chat GPT for their queries
at the tip of their fingers.

→ It can guide farmers about the more efficient techniques.

- | | |
|------------------|------------------|
| - mulching | - water usage |
| - lesser tillage | - multi cropping |
| - agro forestry | - inter cropping |

sustainable

→ It ~~it~~ can be trained to tell farmers the most sustainable techniques

- agroclimatically suitable crops
- aquaculture
- organic fertilizers.

thus these 2 technologies can be a game changer for agri efficiency.

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)

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
Candidates ~~not~~ write on this margin

In the wake of the last three years which has seen the Covid-19 pandemic, Russia-Ukraine war and global supply chain disruptions, there has been an increasing stress on de dollarization.

1. US imposed sanctions on Russia preventing use of dollars for trade

+ blocking Russia out of the SWIFT system.

These have led to fear of weaponisation of dollar for geopolitical gain

2. Taper Tantrum - tightening of monetary policy by US federal bank → capital flight from developing countries

⇒ depreciation of currencies world wide.

3. 2008 global financial crisis → contagion effect

4. Economic crises due to BOP shortfall as seen

in India in 1991 and recently Sri Lanka

these have highlighted the need for diversifying the currencies used.

However there are many challenges which prevent dollar from losing its dominance anytime soon.

उम्मीदवारों को इस हिसाब में नहीं लिखना चाहिए
Candidates must not write on this margin

→ Dollar is used for more than 80% of global trade [as compared to rupee-1.2%]

→ Bilateral agreements do not work and multiple countries need to move away from dollar [eg: India - Russia failed Rupee - Rouble trade]

→ Volatility in other currencies

→ Lack of consensus on which other currency as seen in BRICS.

4.

विकसित देशों द्वारा भारत पर खाद्य सस्तिडी 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)

10

~~According to WTO Agreement on Agriculture,~~
~~a developing country~~

the WTO asks its member countries to reduce their food subsidy bill as it ends up distorting prices in the global market.

Developing countries under Agreement on Agri can only give 10% of Agri GDP as subsidy (De Minimis). However India gives around 20%.

Many developed countries have put pressure on India to reduce this food subsidy bill.

India's food subsidy = $MSP - PDSC$
+ Transport + storage

However India has argued that its subsidy is not for artificially increasing prices but to - make agriculture a viable option for the 45% population still engaged - make food affordable for the masses

- ensure food security .
- welfare function of state

given that 21% of India's population is still below poverty line (2011 census) and only 10% earns more than ₹ 25,000 per month, food subsidy is necessary for the govt to ~~incur~~ ensure survival and well being of the population .

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)

10

As per UN standards India is already a water stressed country [$< 1500 \text{ l/person}$] and is moving towards water ~~stressed~~ scarce, [$< 1100 \text{ l/person}$].

The govt has taken several initiatives

1. Jal Jeevan Mission
2. greywater recycling
3. Namami Gange
4. AMRUT
5. Integrated watershed Management.

However, challenges remain.

Water availability — not enough available

1. Monsoon → 75% rain in 3 months
↳ now more erratic due to climate change
2. Variation regionally
— Mawsynram — 400 cm rain
— Rajasthan — $< 25 \text{ cm}$ rainfall.
3. Groundwater overexploitation
— Punjab
— Haryana.

4. Concreteization and Illegal sand mining
1- decreased recharge of ground water
due to low percolation.

उम्मीदवारों को
इस कक्ष में
नहीं लिखना
चाहिए
Candidates
must not
write on
this margin

Water quality → unfit for use

1. Fertilizers pollute water bodies - eutrophication
2. Groundwater pollution - heavy metals
salt water
fertilizers
3. River water pollution - industrial effluents
religions

Thus these issues continue to plague
the water situation in India and require
prioritized intervention

6.

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

उम्मीदवारों को इस हाशिए में नहीं लिखना चाहिए
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The year 2022 saw the lowest Arctic ice cover in recorded history.

Major drivers

1. global warming → average global temp 1.1°C warmer than 19th century
2. Arctic Amplification → warming almost 4 times faster
3. Albedo → feedback loop
↳ reflecting sunlight.

4. ₹

Impact of glacier retreat on ecosystems

1. It can lead to collapse of the AMOC and thus disturb the global heat dist.
2. Sea ice is essential for arctic animals' survival - polar bears, reindeer, walrus. Thus this may lead to extinction.

3. It will lead to sea level rise across the globe → submergence of coastal ecosystems.

eg: already seen in Jakarta, Bangladesh and many small islands.

4. ~~A~~ Cause and accelerate climate change
↳ extreme weather events which could destroy ecosystems across the world.

thus the impact could be irreversible
collapse of the global ecosystems, as the Arctic is considered one of the tipping points of climate change.

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

Recently the likes of SpaceX, Blue Origin and Virgin Galactic were in news due to their space tourism missions.

Challenges

1. No common space law and regulation regarding space tourism
2. Space debris and fear of Kessler syndrome
3. Overcrowding of the lower Earth Orbit
→ challenges for strategic mission
4. Inequality - very high cost thus limited to ultra rich
5. Very high carbon emissions - again raises the issue of the ultra rich further expanding their carbon footprint at the expense of the vulnerable.
6. Danger to human health
+ cosmic radiation
- failure & risk (safety).

Measures to address

1. Proper regulations & ~~the~~ ethical guidelines
2. More sustainable tech with lower emissions → until then controlled and should not rush.
3. Extra fees ~~for~~ as Carbon Tax.
4. Proper liabilities and accountability
5. ~~Propt~~ mechanisms (well defined)

It is necessary to ensure that this develops as a sustainable practice from the very beginning

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

उम्मीदवारों को इस हाथिए में नहीं लिखना चाहिए
Candidates must not write on this margin

In Car-T Therapy, You take blood from the patient and separate his T cells.

Then the receptor CAR is added to them which enables them to better identify and target the cancer cells.

When these are again given to the patient, a good success rate has been seen in battling cancer.

~~In CRIS~~ In CRISPR-Cas 9, you use a molecular scissors to make a cut in the DNA at the undesired segment. CRISPR is the guiding / identifying molecule and Cas-9 the molecular scissors. → gene editing tool

→ Thus what we see is that ~~CRISPR~~ CRISPR-Cas9 being a gene editing tool is more effective at the embryonic stage and is difficult to fight cancer in adult where there are trillions of changes to be made.

#

Whereas CAR-T Therapy enhances the
patient's own immune system and
equips the T cells to better fight cancer

Thus more success has been seen in
CAR-T therapy in fighting cancer.

उम्मीदवारों को
इस हार्डिप में
नहीं लिखना
चाहिए
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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

उम्मीदवारों को इस कक्ष में नहीं लिखना चाहिए
Candidates must not write on this margin

Recently, ~~the~~ many extremist groups have resorted to use of new and emerging technologies.

- cyber Terrorism - attack critical information infrastructure
- Bitcoin and blockchain
- Drones for weapons
drugs
remote bombing
surveillance.
- AI and deepfakes - ~~to~~ spread communal disharmony
panic
- Social media and AI algorithms
 - ↳ to identify and radicalise the youth
 - carry out remote attacks.

These demand global efforts

1. Anonymity has increased

2. Remote attacks - attacks may be located far away.

3. social media intermediaries
→ cooperation required to control
radicalisation

4. Cyber & security infra → cross border
attacks.

Due to these new technologies, the scale
and severity of terrorist attacks has
increased.

further distance and anonymity make
global coop. necessary for effective
management-

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)

10

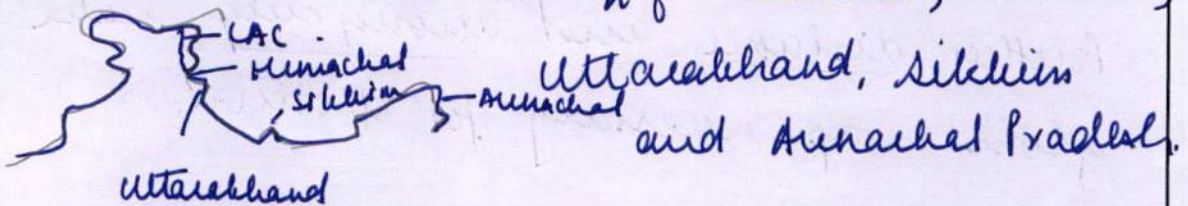
उम्मीदवारों को इस क्षति में नहीं लिखना चाहिए
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The Indo Tibetan Border Police is one of the many CAPFs under the Home Ministry.

They are tasked with manning the

Indo-china border and are active in

the states ^{of} Ladakh, Himachal,



Indo-china border.

Role

→ ~~They are not only~~

Role

1. They constantly patrol the border
2. They provide development support to local villages in border areas
3. Capacity building of border area villages
4. Eyes and ears of any chinese aggression.
5. First line of defence

→ army comes in only at the time of war.

6. Goodwill amongst the border population

7. Community Impact Programs

Thus ITBP has a very imp role given the aggressive and assertive Chinese policy at the border.

With programs like Vibrant Village Program and increased connectivity initiatives of SRO the role of ITBP is increasing.

उम्मीदवारों को
इस हशिप में
नहीं लिखना
चाहिए
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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)

15

Land productivity ^{in agriculture} refers to the crop produced per acre land and depends upon many factors:

1. Soil fertility - nutrient content
2. Water availability
3. Soil moisture
4. Quality of seeds
5. Farming practices
6. Inputs - fertilizers

Irrigation

Irrigation water productivity refers to the agri yield per litre of irrigation water used. It depends upon

1. Irrigation technique

flood
 \
 drip
 \
 sprinkler
2. Crop

water intense - rice, sugarcane
 \
 drought resistant - millets

In India the focus has been on increasing land productivity. This has many times resulted in environmental degradation due to:

1. choosing wrong agro climatically crop
 - ↳ water intensive crops in Punjab
 - This leads to salinization
2. Excessive use of fertilizers
 - ↳ Fertilizer imbalance [NPK]
 - leaching into ground water ⇒ pollution

Thus due to excessive focus on increasing land productivity, agriculture has become an unsustainable practice.

Focus therefore needs to shift on irrigation water productivity to optimize its use

- 90% of India's water is used for agri practices
 - ↳ 80% in water guzzling crops
- 30% of India's land area ~~facing~~ faces water stress

In this situation it is important to get 'More crop per drop' specially as climate change increases water stress in the face of a growing population

Challenges in making this shift

- open ^{procurement} MSP on rice which is water extensive
- Educating farmers
- Increasing demand for other crops
 - ↳ diversifying diets
- Expensive to use new technologies
 - drip
 - sprinklers

→

Therefore govt. steps like Kiishi Sanchayi
Yojana are a ~~good~~ step in the right
direction.

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)

उम्मीदवारों को इस खण्ड में नहीं लिखना चाहिए
Candidates must not write on this margin

15

India is the 3rd largest consumer of energy ^{based on fossil fuels} in the world.

unfortunately more than 80% of our oil and around 10% of our coal is still imported.

green Hydrogen can play an important role in helping India meet its energy needs.

green Hydrogen is the Hydrogen produced through electrolysis of water using green energy (renewable). Its by products are only water vapour and energy and hence it is considered a 0 emission fuel.

Role

1. green Hydrogen can reduce our import dependency.

2. Mineral oil distribution is highly skewed and the major producers are often facing internal difficulties

[Russia-Ukraine war
gulf war

3. The suppliers have formed a cartel - OPEC which controls production and prices

4. Many choke points - str. of Malacca
Bab el Mandeb
further threaten energy security

- Green Hydrogen in this scenario can be abundantly ~~be~~ produced due to large availability of sea water.

- Further being a clean fuel it can be a sustainable step.

- It can relieve India from the forex requirement and current account deficit.

- No need to rely on outsiders - self sufficient

The Govt in this regard has launched

National green Hydrogen mission

- ~~many~~ manufacturing of electrolyzers
- R&D in green Hydrogen
- subsidy in setting up plants

With this the Govt hopes to produce 5 mmt
of green Hydrogen every year by 2030
thus helping India to achieve energy security.

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)

15

Minimum wage is a legally prescribed limit of amount of wage that an employer has to provide the employee.

It is generally sufficient to keep the employee above poverty line and meet his basic food requirements, but not much beyond that, depending on what the govt fixes.

Living wage on the other hand is the amount of income that would enable a person to live a dignified and better quality life, where not just his minimum requirements for survival are met, but also some scope for growth and development.

Benefits of adopting a living wage

- Income is enough to meet other expenses like education and skilling which improve the future production capacity.
- As Amartya Sen says, Development is freedom and this would give him freedom to make choices.
- He can focus beyond just survival onto living a good life and development of his children.

Challenges

- His Employers may not agree.
- If govt. increases the official wage, it ~~would~~ might lead to informalisation of workforce even further → contractualization.
- If govt starts paying living wage in programs like MGNREGS, it may disincentivize people from upskilling and trying for better jobs.

→ It may lead to an artificial increase in wages in private sector as supply of labour shifts towards govt

daily wage schemes → self-employment.
→ Discourage entrepreneurship among these wage earners
Thus ~~it~~ govt should focus on providing basic facilities and infra to improve the standard of living and encourage ~~entrepreneurship~~ by providing support and training (Capability Enhancement).

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 हिसाब में नहीं लिखना चाहिए
Candidates must not write on this margin

15

The Union Budget is prepared and presented by the finance minister.

It highlights the government's financial plans for the entire year.

→ Expenditure $\begin{cases} \text{Revenue} \\ \text{Capital} \end{cases}$

= Receipts (Resources) $\begin{cases} \text{Revenue} \\ \text{Capital} \end{cases}$

After the finance minister's budget speech, the budget is passed on to the department related standing committees for detailed scrutiny.

In the days of the budget debates in the parliament, it is a common phenomenon for the whole nation to be discussing it as it impacts their every activity for the coming year.

Through media and debates the public is able to express its grievances and satisfaction.

However in a democracy, it is impossible for the elected representatives to spend longer than a month in passing the budget. as that would have negative repercussions for the entire year.

taking the public scrutiny into account in a nation of 1.4 billion becomes difficult.

Thus, as ^{our} ~~the~~ elected representatives, ~~and~~ and through the scrutiny of DKSCs, ~~we~~ the govt tries to fulfill the aspirations of the people.

The govt. is always held accountable in the next elections and through pressure groups.

With the onset of operation, food which

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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 onset of Operation Flood which focused on → cooperatives
→ scientific ~~and~~ techniques
→ better infrastructure.
→ better credit and marketing

India became the largest milk producing nation in the world.

However one of the major reasons for this is that India has the largest ~~number~~ of number of cattle. But the productivity

of our dairy animals remains low.
Challenges — methane emission
— water stress
— land availability.

Reasons

1. Quality feed is not available
2. Disease burden.
3. Local breeds are slowly declining which were more suitable for this climate.
4. ~~Low~~ less veterinary support

45. Unscientific techniques.

6. Not enough cold storage and marketing facilities.

47. Local Indian breeds have lower productivity

Steps taken by the govt

1. Artificial insemination → to improve the breed and genetic quality
2. Programme for preservation of Indian breeds like Sahiwal.
3. CSIR has introduced monitoring tags which help monitor the cattle's nutrition and health status
4. Vaccination programme
5. Animal husbandry Infra Development fund to organise animal husbandry on scientific lines.
6. Inclusion in Kisan Credit Card for timely availability to credit.
7. Provision of good quality fodder.

Thus many steps are being taken.

India currently produces 20% of the world's milk despite low productivity.

Thus with improvement in productivity animal husbandry can become more sustainable. ~~as that~~ as that would enable India to reduce the number of cattle without compromising on production helping address challenges.

16.

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)

15

This year India saw the prices of tomato reach ₹ 250/kg due to crop failure caused by excessive rainfall, a result of climate change.

How climate change is causing crop failure

- 1. Extreme weather events
 - droughts - eg: Europe 2022 → wheat failure
 - extreme - eg: India 2023 → tomato rain

2. Unseasonal rainfall

↳ eg: wheat in 2023 due to rain during harvest time and not when required.

3. Pests - as climate becomes warmer, they become more resilient.

How agriculture causes climate change

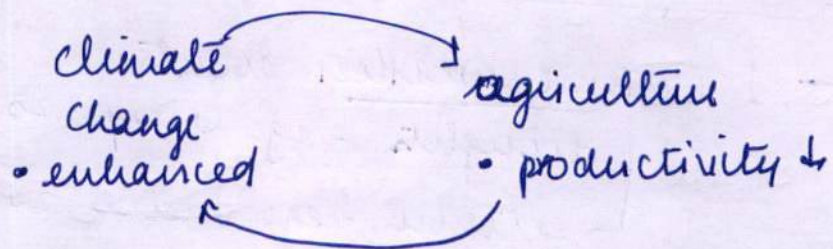
- 1. One of the largest producers of methane
 - flooded rice cultivation
 - animal rearing

2. When the earlier drier areas become wet due to irrigation, they don't attract the rain clouds, thus affecting rainfall.

3. Extensive fertilizers use

↳ carbon emissions in production.

Thus the 2 reinforce each other.



The National Disaster Management Plan has suggested.

1. Drought resistant crops
eg: Millets, pulses
2. Dams and canals to control flooding
3. Better irrigation facilities
4. Agro climatically more suitable crops
5. Hazard mapping and zoning to identify areas prone to climate disasters

6. Capacity building of farmers

7. Export procurement during surplus
and release during deficiency

↳ maintain buffer.

8. Scientific techniques to make agri

sustainable - water use - drip

less methane - SCR
for rice.

9. allied activities

9.

thus by following these NMIP guidelines

farmers can better adapt and mitigate

climate change.

climate change is a reality and every
sector has to now learn to live with it.

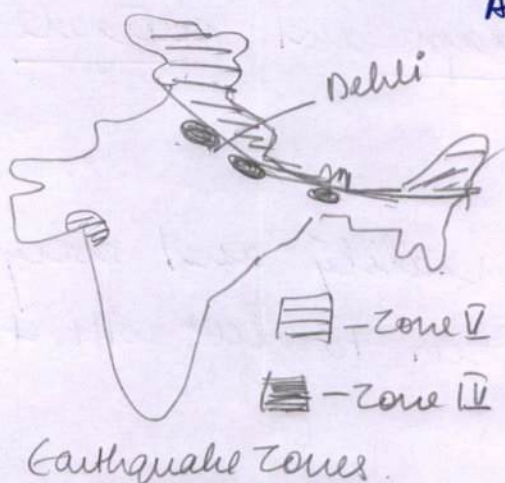
17.

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)

15

The Himalayas are a young fold mountains still tectonically active due to the Indian plate pushing into the Eurasian plate. Due to this, the area around Himalayas is highly prone to seismic activity.



As seen in the map, Delhi lies in zone IV area and is very close to zone V Himalayan area. Thus a large part of India is vulnerable to earthquakes.

Institutional measures to mitigate

1. ~~Earthquake~~ 1. National Disaster Management
- They are responsible for planning and oversight
- under PM ← Authority
- ↓
- under CM ← State Disaster Management Authority
- ↓
- under DM ← District Disaster Management Authority

→ Further Ministry of Home Affairs is the nodal ministry for coordination.

→ National Disaster Response Force (NDRF) and ~~state disaster management~~ and state Disaster Response Force (SDRF) as dedicated forces for

→ National Disaster Relief fund dedicated to disaster relief and rehab.

However gaps still exist

1. Not enough focus on mitigation and more focus on response.

2. Not strict enforcement of building and construction bye-laws leading to hazardous construction.

3. Capacity building and awareness among locals

4. funds and functionaries

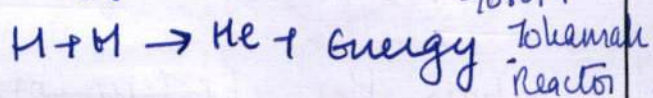
5. Sustainable infra

होल 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)

उम्मीदवारों को
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Candidates
must not
write on
this margin

Nuclear fusion energy is produced when 2 small nuclei fuse to form a larger nuclei. This type of energy is produced in stars like the sun which shows how rich a source of energy it is:



Advantages

1. Huge amount of energy
2. Fuel is easily available - Deuterium
 \ Tritium.
3. No risk of meltdown. - no disasters like
 like Chernobyl
 or Fukushima.
4. No carbon emissions
 ↳ clean energy - environmentally
 sustainable.
5. No radioactive waste disposal problem.

Limitations

- Nuclear fusion reaction requires the nuclei to fuse which happens at very high temp. At this temp, matter is in the form of plasma which is very difficult to control.
- currently scientists have only been able to gain very miniscule energy gain for hardly a few seconds.
- thus the technology is still ~~not~~ far from developed for commercial use.
- Huge cost as the scientists have been trying to achieve this for many years but have seen limited success.

Thus though nuclear fusion is the energy of the future, there is still a long way to go before we create our Artificial sun.

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)

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Money laundering is a serious crime.

It involves ~~the~~ making money earned from illegitimate sources appear as clean and legitimate.

This money could have been earned from

- criminal activities
- corruption
- evading tax.

and thus has multidimensional effects

- economic - ^{inflation} reduced effectiveness of monetary policy
- social - ^{crime} corruption.

Thus the recent amendments of PMLA aim to make the punishment harsher and give more power to the Enforcement Directorate for search, seizure and arrest.

- The ED can now arrest begin proceedings
- It can attach any property
- It can summon anybody for questioning.

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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)

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India is present right at the centre of the Indian Ocean Region and thus any threats there have huge bearing on India's maritime border interests.

Security Threats

1. Piracy off the coast of Somalia
↳ securing sea lanes of communication (SLOC)
2. Presence of China
 - Hambantota port - Yangtze River
 - Gwadar port
 - Djibouti

This threatens India's presence.

3. Terrorism using oceans
 - Mumbai 26/11 attacks - terrorists came from sea
4. Organised crime
 - Bangladesh - Sundarbans → smuggling humans, weapons, drugs.

5. Fishermen issue

└ Katchatheevu Island - C. Lanka

- Unintentional crossing of fishermen across borders. They are often caught and mistreated
└ Sir creek.

- Given that 90% of India's trade happens by sea, it is important for India to secure the IOR.
- Further many strategic installments are near the coasts → Nuclear power plants which need to be → oil refineries.
protected
- Infiltration of terrorists need to be monitored along with cross border smuggling.

Strategy to deal

- India has 3 layers of maritime security
 - └ Navy - high seas
 - └ Coast guard - ~~sea~~ territorial waters
 - └ Coastal maritime police.

thus strict patrolling of our borders is necessary to ensure safety and prevent infiltration and terrorism.

2. Coordination ~~is~~ and dialogue with our neighbours

eg: Bangladesh maritime boundary has been resolved in 2015.

similar approach with Sri Lanka and Pakistan.

3. Enhancing strategic presence of INLOR

↳ Andamans

→ Maldives

→ Mauritius

→ Seychelles

4. Joint patrolling and exercises

↳ Indonesia

↳ France

↳ Japan.

thus securing our maritime borders is essential to maintaining our security

SPACE FOR ROUGH WORK