



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. : 1122829

अभ्यर्थी का नाम/Name of Student : Sayam Raza

माध्यम: हिंदी/अंग्रेजी
Medium: Hindi/English

ENGLISH

तारीख
Date

27/08/2023

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

केंद्र
Centre Bhai Joga Singh
School, New Delhi

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 मंदी 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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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

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

Food security refers to availability and affordability to enough nutrition required for a healthy life.

Dimensions of food security

1) Food production - amount of food produced directly impacts food security

2) Food distribution

↳ Availability of food

↳ Affordable prices

3) Nutritional dimension

↳ Basic macro and micro nutrient are available in sufficient quantity

Macronutrient - carbohydrate, protein and fat

Micronutrient - calcium, vitamins, zinc

India's status in these dimensions

1) Production

- ↳ Sufficient production of food grains and vegetables
- ↳ Lacks production of pulses and edible oil

2) Distribution

- ↳ Food availability is good due to government Public Distribution System (PDS)
- ↳ Food inflation is high in India
(forms ~35% share of wallet compared to 10% in developed countries)

3) Nutrition

- ↳ Poor nutrition level shown in NFHS-5
 - ↳ 57% women (15-49 yrs) are anaemic
 - ↳ 67% children (0-5 yrs) are anaemic

Govt. of India has ensured food security through various programmes such as National Food Security Act, Food Fortification, etc. There is also a need for special focus on the nutritional needs.

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

Agriculture modernization in India requires leveraging modern ICT based technologies such as Blockchain and ChatGPT.

Blockchain and Chat GPT role in agriculture

1) Blockchain - it is a decentralised form of record keeping which cannot be modified with respect to past transactions.

Use in agriculture

↳ Ensuring the quality of agri-supply chain (every stage of supply's information to be fed into blockchain through geotagging)

↳ Bring transparency in agri-trade

↳ Prepare blockchain based contracts for farming

2) Chat GPT - it is a generative text AI which can make conversations based on data pulled from the internet

Use in agriculture

- ↳ Information dissemination regarding weather, govt. schemes, etc.
- ↳ Provide technical inputs
- ↳ Provide market intelligence

Challenges that need to overcome

- 1) Increase digital connectivity in rural areas
- 2) Improve digital literacy among farmers
- 3) Secure data from being misused
(Digital Personal Data Protection Act is a good step)
- 4) Collaborate with civil society to teach farmers how to use specific apps

Therefore, PET technologies such as blockchain and ChatGPT can bring major disruptions to Indian agriculture.

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

De-dollarisation is a process of reducing use of dollar as a currency for international trade settlements.

Factors behind trend of de-dollarisation

- 1) US Federal Reserve policy - Fed interest rate increase leads to fall in value of domestic currencies
- 2) Geopolitical conflicts - weaponisation of dollar during Russia-Ukraine conflict (banning of Russia from using SWIFT system)
- 3) Domestic inflation - US Federal reserve tends to export its domestic inflation to other countries through monetary policy.

Will the dollar lose its dominance soon?

Factors that make a currency reserve currency

↳ Availability
↳ Convertibility
↳ Acceptability

} US dollar is the currency with highest amount in each parameters

2) Countries hold large amount of dollar reserves ⇒ Will not want dollar to lose its dominance soon

3) No real alternative to dollar

(Chinese Renminbi, India's Vostro account setup have limitations)

Therefore, though there is a visible trend towards moving away from dollar, the dominance of dollar in international trade will not go away soon.

4.

विकसित देशों द्वारा भारत पर खाद्य सब्सिडी 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

National Food Security Act, 2013 and the Public Distribution System under it is the longest food subsidy programme in the world.

Merit in India's food subsidy programme

- 1) Low levels of nutrition in the country (NFHS - 5 shows 32% of children are under-weight and 35% are stunted)
- 2) Small and marginal farmers - India needs to support its farmers through procurement policies
- 3) India's demographic transition - increasing young population requires a robust food security programme.

4) Vulnerable and marginalised sections

↳ High number of historically marginalised people (such as tribals constituting 8.8% of population)

5) Ensuring gender equality - Women suffer from acute malnutrition (NRHS-5)

Therefore, India's food subsidy regime is justified despite disputes raised by the developed countries at the WTO.

Reforms India need

1) Reforms in agri-markets → Increase farmer's income
↳ Reduce food inflation

2) Promote crop diversity (millets, pulses)

3) Resort to methods like food fortification

4) Adopt recommendations of Shanta Kumar Committee to reform PDS.

Therefore, India's largely successful food subsidy regime can be further improved.

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

According to Falkenmark Water Index, 75% of India's population is facing water stress.

Issues of water availability

1) Water table depletion

↳ India accounts for 25% of global ground water extraction

↳ Sand mining has further exacerbated the crisis

2) Water pollution

↳ Ganga and Yamuna among most polluted rivers globally

↳ Groundwater pollution with fluoride, arsenic and uranium causing diseases such as Skeletal Fluorosis

3) Loss of traditional water bodies

↳ Encroachment due to unplanned urbanization

4) Climate change

↳ Erratic rainfall and melting of glaciers in Himalay - Hindukush

Interventions required

1) Implementation of principles of Jal Shakti Abhiyan

↳ Rainwater harvesting

↳ Revival of traditional water bodies

↳ Recharging of reservoirs

↳ Intensive afforestation

↳ Drinking water sanitation

2) Need for an immediate action on the groundwater extraction (CGWB needs to evolve policies)

3) Industrial pollution needs to be curbed through "polluter pays" principle

Therefore, water availability and quality needs to be urgently addressed.

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
Candidates must not write on this margin

Arctic is the northernmost region of the earth that is surrounded by ocean and ice sheets. Arctic glaciers have been observed to be melting rapidly.

Factors behind glacier retreat

- 1) Climate change - increasing atmospheric temperature due to GHG emission
- 2) Ozone layer depletion - anthropogenic emission of CFCs and HFCs
- 3) Emission of particulate matters such as Black Carbon (soot)
- 4) Arctic Amplification - arctic glacier melting has self reinforcing mechanism amplifying glacial retreat

Potential impact on ecosystem

- 1) Changes in ocean current circulation (such as Atlantic Meridional Overturning Circulation)
- 2) Changes in wind pattern (increases the frequency of El Nino threatening food security in Asia)
- 3) Polar vortex is more frequently going out causing harsh winters in northern hemisphere
- 4) Thawing of permafrost can release huge quantities of carbon
- 5) Loss of biodiversity unique to arctic
- 6) Rise of sea level $\Rightarrow$ causing erosion and storm surges in coastal areas

Therefore, arctic glacier retreat is a huge crisis threatening human and natural ecosystems across the globe.

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 is estimated to be of \$870 bn in value and likely to reach \$2bn by 2030.

Challenges associated with space tourism

1) Sustainability of space

↳ Kessler's syndrome predicts a chain reaction of destructive collisions due to increasing debris.

2) Lack of any international convention

↳ Status of ~~and~~ space travellers remain ambiguous

3) Increasing competition for space dominance - can lead to aggressive assertion in space technology

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4) Ensuring safety of space tourists
(there is a lack of rules regarding safety)

5) Increasing weaponisation of space
(use of anti-satellite weapons)

Measures to address the challenges

1) Adopt national policies to regulate space sector in sustainable way (India's Space Policy is a good example)

2) International agreement covering

- ↳ Status and safety of tourists
- ↳ Debris management
- ↳ Peaceful use of space

3) Increasing international cooperation in space sector (reduce aggressive competition)

Therefore, space can become a new arena for scientific and technology flourishing if nations come together to create a peaceful ecosystem for space tourism.

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

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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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New and emerging technologies have blurred the international borders and thereby strengthened the extremist organizations with new weapons.

Threats of new and emerging technologies

- 1) Use of social media to propagate extremist ideas (violent, fake information are rapidly disseminated over internet)
- 2) Cyber attacks - Palo Alto Network report says India received 2187. more cyberattacks in 2020
- 3) Money laundering - Cryptocurrencies have opened new dimensions of money laundering and terror financing.

- 4) Use of Dark Web to sell weapon and drugs.

Need for concerted global efforts

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- 1) A global convention on use of social media in a peaceful way (guidelines on robust content moderation)
- 2) Investment and collaboration for cybersecurity (ICET between India-US is a good example)
- 3) Global guidelines on data protection
- 4) FATF needs to evolve its mechanism to factor in use of modern tech. in money laundering

Therefore, new and emerging technologies have created new security threats which can only be dealt through concerted global effort.

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)

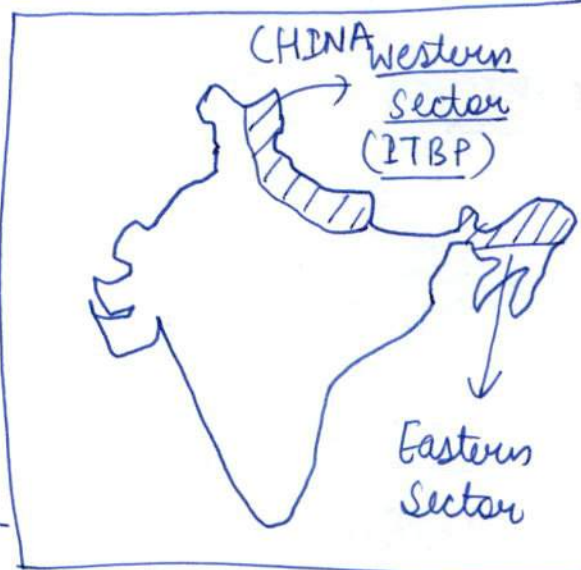
With the Line of Actual Control (LAC) remaining tense after the Galwan and Yangste incidents and both India and China ramping up infrastructure in the border areas, discuss the role that ITBP plays in the region. (Answer in 150 words)

10

Indo-Tibetan Border Police (ITBP) is a paramilitary force responsible for monitoring and managing Indo-China border in the western sector.

Role of ITBP

- 1) Regular border patrolling
- 2) Collecting intelligence and reporting
- 3) Maintaining law and order in the border region
- 4) Prevent any border violation or illegal encroachments



Challenges faced by ITBP

- 1) Harsh conditions in western sector
- 2) Poor infrastructure
- 3) Aggressive and assertive Chinese forces
- 4) Lack of finances, personnel and resources

Reform measures required

In the wake of tensions in Galwan and Yangste, following steps need to be taken :

- 1) Modernization of ITBP forces in terms of weapons and technology
- 2) Increase manpower and financial resources
- 3) Ramp up border infrastructure
- 4) Develop border villages (Vibrant Village programme)

Therefore, ITBP's role has been immense and more reforms can help the forces in a better effective management of LAC.

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

Productivity in Indian agriculture is low compared to global standards. It includes production both in terms of how much area is sown (land productivity) and productivity in terms of water use (irrigation water productivity)

Land and water productivity status

1) Land productivity

↳ Cropping intensity in India $\sim 140\%$.
(China has achieved 200%.)

↳ Increasing land fragmentation

↳ Lack of investment in agriculture modernization

2) Irrigation water productivity

↳ Almost 45% irrigation from wells and tube wells

↳ 90% of groundwater extraction for agriculture purpose

↳ Irrigation systems are not everywhere (55% of NSA is rainfed)

↳ Depleting groundwater is a cause of concern for water quality and food security

Therefore, both land and irrigation water productivity needs to be improved in India. Therefore, instead of a shift, there is a need for integrating the two approaches.

Challenges in making the shift

1) Small and marginal farmers are dependent on government supported irrigation schemes.

- 2) Micro-irrigation is expensive
- 3) Legacy irrigation systems have lost their efficiency

Reforms required

1) For land productivity

- ↳ Promote precision agriculture
- ↳ Investment in capital infrastructure
- ↳ Crop diversification
- ↳ Cooperative farming for economies of scale

2) For irrigation productivity

- ↳ Promote water saving crops (millets)
- ↳ Incentivise micro-irrigation
(per drop more crop under PM Sinchayi Yojana)
- ↳ Small individually owned irrigation systems

Therefore, by integrating land and water use, we can improve Indian agriculture.

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)

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Hydrogen is a clean fuel that has the capacity to solve the problem of India's rising energy demand.

Significance of hydrogen

- 1) Environmentally friendly - almost no CO_2 emission, less emission of NO_x and SO_x
- 2) Has more energy per tonne (twice as much as natural gas)
- 3) Multipurpose usage
 - ↳ As a fuel in ~~cars~~ vehicles
 - ↳ As a substitute for coke in iron and steel industry
 - ↳ For various industrial purposes

4) Hydrogen can be used for making Ace battery storage

5) Easy to store and transport

6) Can be created through electrolysis
(no sophisticated raw material dependency)

Significance of National Hydrogen Mission

1) Targets

- ↳ Produce 5 MMT of Hydrogen by 2030
- ↳ 50 MMT of Carbon sequestration
- ↳ 60-100 GW of electrolyser
- ↳ 125 GW of renewable energy
- ↳ 6 lakh employment generation

2) Resolve India's dependency on oil and natural gas (bringing down import bill)

3) Achieve India's Nationally Determined Contributions under UNFCCC

4) Reduce import of coking coal

Challenges

- 1) Lack of skills
- 2) Less private participation
- 3) Dependency on government funding

Reforms required

- 1) National Hydrogen Mission seeks to develop capabilities through SIGHT and SHIP initiatives
- 2) Encourage private participation through industries incentives
- 3) Collaborate with universities to bring out more research

Therefore, National Hydrogen Mission is a great step towards making India energy independent.

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

Article 43 of constitution mandates that the state shall ensure just and humane wages for all.

From minimum wage to living wage

1) Minimum wage - based on the income required to obtain minimum amount of goods and services required for a dignified life.

↳ India had adopted ILO convention on Minimum Wage

↳ Minimum or floor wage is guaranteed for every state based on local price trends.

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↳ It ensures that every worker is able to obtain necessary things in order to remain in working conditions

2) Living Wage - it is a more humane approach where wage is determined on the basis of need to obtain things that are socially encouraged or approved

↳ MNREGA is an example where wages are now linked to CPI - Rural

↳ Living wage includes factors such as health, education, recreation, etc.

↳ It ensures a happy and dignified life with a social security

Thus, moving from minimum wage to living wage is fulfillment of constitutional mandate.

Constraints in adopting living wage

- 1) It will push firms into informal sector
- 2) Employment will reduce
- 3) Calculating a living wage is a problem
- 4) Difficult to implement in sectors where vulnerable sections such as women are hired informally

Way forward

- 1) Universal Basic Income suggested by the 2018 Economic Survey
- 2) Focus on social security such as pension and insurance
- 3) Research backed scientific methodology for calculating living wage.

Therefore, living wage is a good and humane approach. However, its actual implementation requires prudent policies

केंद्रीय बजट भारतीय अर्थव्यवस्था के लगभग हर क्षेत्रक 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
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Union Budget or the Annual Financial Statement is an account of estimated revenue and expenditure of the government of India. It impacts everything and everyone in the country.

Lack of public scrutiny

- 1) Budget document remains confined to parliament (no public participation)
- 2) No pre or post - budget suggestions are sought
- 3) Citizens have no platforms for budget criticism or asking questions
- 4) No consultation on broad policies that guide the budget document

5) Reports of Estimates Committee and Public Accounts Committee have largely become a formality

(Committee deliberations are outside of public domain)

Therefore, it seems correct that despite being such a crucial exercise budget policies escape public scrutiny.

Reform measures

1) A consultative process

↳ Suggestions should be sought from citizens

↳ Consultation on major policy issues

↳ Participative budgeting practiced in Rajasthan can be taken as a good template

- 2) Provide a platform for citizens to voice their concerns during budget session
- 3) Committees should be brought under RTI (2nd ARC report)
- 4) Committee reports should be discussed in detail before budget is passed
- 5) Citizens should be provided with a way to register dissent with the government

Therefore, there is a need to make the budget process more inclusive and participative by engaging with citizens.

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

India is world's largest producer, consumer as well as exporter of milk. Per capita consumption of milk remains at 350 ml per person per day.

Challenges in productivity of dairy animals

- 1) Prevalance of diseases (Foot and Mouth Disease, Black Quarter disease)
- 2) Lack of several veterinary services
- 3) Lack of artificial insemination
- 4) loss of indigenous breeds due to excessive cross breeding
- 5) livestock farmers face challenges in availing credit (M. K. Jain Committee)

- 6) Increase in Anti - Microbial Resistance in livestock
- 7) Milk loss due to Mastitis alone amounts to 10 litre per farm per day.
- 8) Distress sale of cattle in drought affected areas

Reform measures required

- 1) Improve immunization and access to veterinary services
- 2) Protect indigenous breeds which are drought resistant
- 3) Improve credit dissemination through PACs and RRBs
- 4) Investment in improving infrastructure
Schemes such as National Dairy Development Scheme and Animal Husbandry

Infrastructure development fund are good steps.

5) Provide government supported artificial insemination services by creating a bank of good genes using biotechnology

6) Tracking of livestock through unique ID to keep a track of diseases and epidemics

Therefore, livestock sector which provides 16% of income to several poor families need to be developed on scientific lines as mandated in Act. 47.

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)

Climate change has led to changes in weather patterns creating erratic rain-falls, which has Threatened food security and agricultural systems.

Role of agriculture in climate change

1) Agriculture is 3rd largest emitter in India after Power sector and Industry.

2) Largest emission factors in agriculture

↳ Enteric fermentation in livestock

↳ Rice cultivation

↳ Meat industry

↳ Water logged cultivation systems
(act as wetlands emitting methane)

3) Deforestation due to agriculture land expansion.

4) Faulty agricultural practices such as excessive use of fertilizers

National Agriculture Disaster Management Plan

- 1) Seeks to prevent threats to food security from increasing disaster vulnerability
- 2) Promotes crop insurance
- 3) Focus on mitigation and adaptation
- 4) Securing crops and livestock from disasters such as drought by creating ecosystem for effective drought management

5) Prepare communities for dealing with food related disasters

6) Prepare responsive measures

Further steps required

1) Reforms in agricultural practices

↳ Crop diversification

↳ Using System of Rice Intensification

↳ Micro-irrigation

2) Climate Smart agriculture (cultivation based on agro-climatic zones)

3) Revive and protect traditional biodiversity in seeds and livestock

Therefore, with climate crisis impending upon us, there is an urgent requirement to secure our food system from possible disasters.

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)

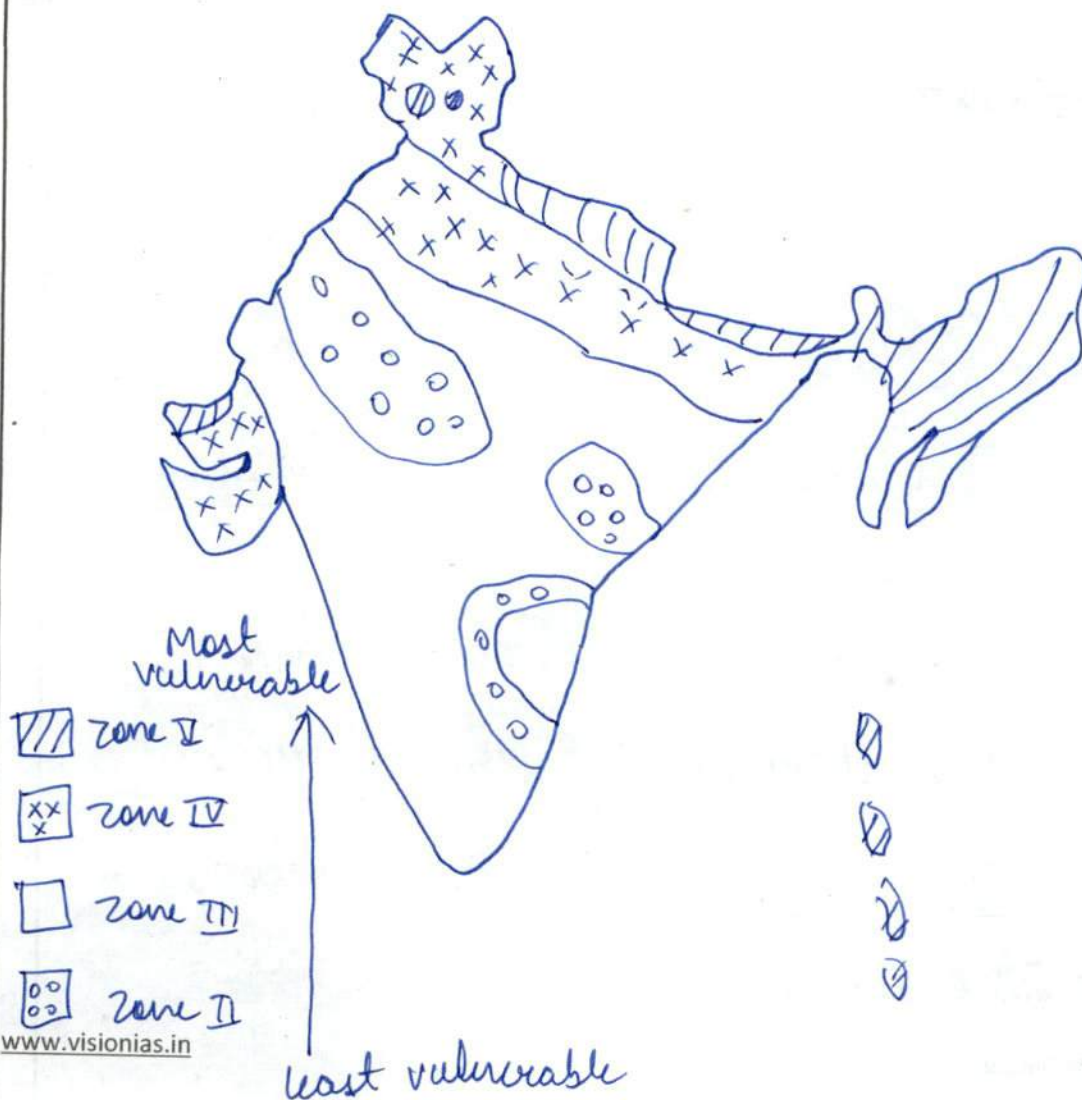
Some regions in India, including Delhi, are highly vulnerable to the impact of earthquakes originating in the Himalayas. Discuss. What institutional measures have been taken to mitigate earthquake losses in India? Do you think there are significant gaps that still exist? (Answer in 250 words)

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Earthquake refers to release of seismic energy from the interior of earth due to tectonic movements.

Earthquake vulnerability in India



Institutional Measures taken to mitigate earthquake losses

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- 1) Earthquake resistant constructions
- 2) Seismic strengthening and selective seismic retrofitting
- 3) Awareness and Preparedness
- 4) Effective response system
- 5) Developing capabilities

Govt. initiatives

- ↳ NDMA guidelines
- ↳ Formation of NDRF
- ↳ Guidelines for buildings in form of Building Bye-laws
- ↳ Formation of volunteer corp called "Aapda Mitra"

Craps in planning

- 1) Challenges in seismic retrofitting of old buildings
- 2) Lack of robust monitoring mechanisms
- 3) Lack of awareness among citizens
- 4) Community preparedness is less
- 5) Local bodies are not in good shape for disaster management

Further reforms

- 1) Strengthen disaster management in local governments and community level
- 2) Strict implementation of construction norms
- 3) Public investment in developing ways for seismic retrofitting.

Therefore, through further reforms current gaps can be filled

18.

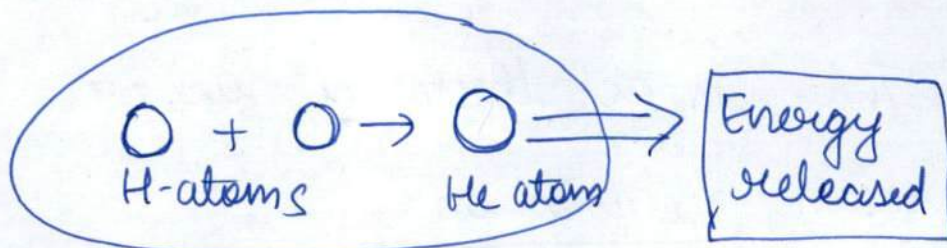
हाल ही में, वैज्ञानिकों ने परमाणु संलयन अभिक्रिया में निवल ऊर्जा लाभ की घोषणा की है, जिसे स्वच्छ ऊर्जा के भविष्य के लिए एक बड़ी वैज्ञानिक सफलता माना गया है। परमाणु संलयन आधारित विद्युत उत्पादन के क्या लाभ हैं? व्यावसायिक स्तर पर विद्युत उत्पन्न करने के लिए इसके उपयोग की क्या सीमाएं हैं? (उत्तर 250 शब्दों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

15

Nuclear fusion is the process of fusing nuclei of two atoms in which energy is released. This process fuels the stars in the universe.

Net energy gain in Nuclear fusion



↳ Tokamak (a nuclear fusion reactor)

When energy released is greater than energy used to create fusion reaction, it is called Net Energy Gain.

Advantages

- 1) It is a safe method, no chance of any explosion as in fission reactions
- 2) Can produce more energy than nuclear fission reactors
- 3) It is a clean method $\Rightarrow$ No emission
- 4) No nuclear waste generated
- 5) There is no threat of nuclear weapon proliferation
- 6) It can very well fulfill the increasing energy demand

Limitations

- 1) Technology limitations - a very few experiments going on and only one has produced net energy gain

2) Capital intensive $\Rightarrow$ Tokamaks are very expensive and require multilateral collaborations

3) Lack of skills and capabilities

4) Not enough development to produce enough energy for commercial consumption

Way forward

1) International collaboration (India is a contributor in a multinational effort)

2) Increasing investment in research and development

3) Raise blended finance to support nuclear fusion projects

Therefore, nuclear fusion should be encouraged as an investment for future energy sustainability.

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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Prevention of Money Laundering Act, 2002 is an Indian legislation as a result of its international commitment under the UN Convention Against Money Laundering.

Recent amendments in PMLA

- 1) Any entity having 10% stakes in a reported entity shall be considered to be involved in the crime
- 2) Brings digital assets such as cryptocurrency and NFTs under the purview of PMLA

Significance of PMLA

- 1) Helps in ~~not~~ punishing money launderers in this age of technology and globalization
- 2) Stringent provisions help in attaching properties
- 3) Empowers Enforcement Directorate to act as civil court in summoning a person or asking for a document.

Challenges

- 1) PMLA has been criticised for being too draconian (for having reverse onus principle for bail)
- 2) Directorate of Enforcement has been empowered to not share the ECIR

3) ED criticised for targetting the political opponents of the ruling party

4) Chargesheet has been filed in very few cases

Reforms required

- 1) PMIA should not be used as a political weapon - need to evolve mechanism to ensure independence of ED.
- 2) Reforms in provisions to prevent harassment through indefinite detention.
- 3) Enhancing international collaboration in view of global nature of money laundering

Therefore, PMIA if reformed further can be effectively used as a deterrent against money laundering.

20.

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

90% of India's trade by volume and 70% by value passes through ocean. In this view security of Indian Ocean Region (IOR) becomes vital.

Threats in IOR

1) Increasing geopolitical tensions

↳ Assertive China

↳ AUKUS collaboration as a reaction covering Indo-Pacific

2) Maritime piracy

3) Narcotics trade - India lies between ^{Crescent} Golden Triangle (Pakistan, Afghanistan, Iran) and Golden Triangle (Malaysia, Thailand and Myanmar)

4) Invasion through sea (during the terrorist attacks in Mumbai)

5) Illegal fishing and violation of maritime boundaries

Strategy for security in IOR

1) India needs to emerge as the Net Security Provider in the IOR

↳ Security and Growth for All in the Region (SAGAR) initiative

↳ Indian Ocean Naval Symposium (IONS)

↳ India as Security pillar in BIMSTEC

2) Effective EEZ patrolling

↳ Strengthening the coast guard with modern technology.

3) Robust security measures at ports and in shallow waters

↳ Coastal Marine policing needs to be strengthened

4) A national maritime security policy required ~~as~~ as per modern needs

(National Maritime Security Advisor should evolve this)

5) Effective implementation of Anti-Maritime Piracy Act

Therefore, the growing threats from the sea can be managed through enhancing security strategy and developing the capabilities of security forces.

SPACE FOR ROUGH WORK

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