

NEXT IAS

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(To be filled by candidate)

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FLT ☐

FLT+ ☒

Time Taken : 3:05 hr.

SLT ☐

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MAIN TEST SERIES 2023 (TEST-11)

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SUBJECT/PAPER
GENERAL STUDIES

Invigilator's Sign. :

[To be filled by the STUDENT]

Student's Queries for the Evaluator (if any write them below)

[To be filled by the EXAMINER]

Evaluator's response

(For filling by Examiners only)

Evaluator Code :

Q.No	Pg No.	Maximum Marks	Marks	Total
1	1			
2	3			
3	5			
4	7			
5	9			
6	11			
7	13			
8	15			
9	17			
10	19			
11	21			
12	24			
13	27			
14	30			
15	33			
16	36			
17	39			
18	42			
19	45			
20	48			
Grand Total				

Signature

MACRO COMMENTS



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1. उपभोक्ता मूल्य सूचकांक (CPI) एवं थोक मूल्य सूचकांक (WPI) के बीच अंतर स्पष्ट कीजिए। क्या आपको लगता है कि WPI की तुलना में CPI मुद्रास्फीति का बेहतर माप है? सिद्ध कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Differentiate between Consumer Price Index (CPI) and Wholesale Price Index (WPI). Do you think that CPI is a better measure of inflation as compared to WPI? Substantiate.

(Answer in 150 words) 10 Marks.

Inflation can be measured by two popular tools used by most of the economies.

i.e. Consumer Price Index (CPI) and Wholesale Price Index (WPI)

CPI

- measures the change in retail prices of commodities
- Data presented by NSO, 1905PI
- 40% weightage of food items
- Include items such as fuel, food, fast moving consumer goods etc.

WPI

- measure change in wholesale prices of commodities
- Data presented by Office of Eco. Advisor, Dept. of Commerce
- less weightage to food items.
- Include items such as engineering goods • capital goods etc.

CPI - better tool to measure Inflation than
WPI

- (i) Captures the change in prices at consumer level - so more clear picture
- (ii) Include items which are more price susceptible e.g. milk, food, fuel etc
- (iii) Has direct bearing on monetary policy of RBI - measures CPI-core
- (iv) Its healthy level determines the credit availability & favourable interest regime

However, for a smooth financial management

the utility of WPI is equally
established and so, proper management
of both CPI & WPI is vital for
overall economic stability.

2.

रोजगारविहीन संवृद्धि भारत के विकास पथ का एक अंतर्निहित लक्षण है। भारत में उच्च बेरोजगारी दर के पीछे प्रमुख कारण क्या हैं? भारत में समग्र रोजगार वृद्धि दर में सुधार हेतु उपचारात्मक उपाय सुझाइए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Jobless growth is an inherent feature of India's growth trajectory. What are the major reasons behind the high unemployment rate in India? Suggest remedial measures to improve the overall employment growth rate in India.

(Answer in 150 words) 10 Marks

Unemployment rate is mathematically a ratio of idle employable force in the economy versus actual number of people working.

According to Economic Survey, 2023 the employment rate of India in FY22 was around 6%.

Despite robust growth, India faces high unemployment rate.

- Reasons**
- ① Sudden increase in the number of educated and skilled population
 - ② Lack of congruence between education imparted and industrial requirement e.g. Infosys says 80% of graduates require on the job skilling
 - ③ Insufficient skilling, re-skilling and upskilling ecosystem.

Reasons — (iv) High dependence on agriculture sector (45% workforce) and its seasonal nature (unemployed for 6 months).

Remedial measures

- ① Overhaul education + curriculum, training etc. to match demand of industry
- ② International partnership for training and skilling e.g. TIPP with Japan and UAE
- ③ Increase expenditure on ^{education} sector — from present 2.9% to 6% (UNESCO mandated)
- ④ Capital modernization — to improve monumental capital output ratio.
- ⑤ Permit credit facilities to startups — already 3rd among world — to boost their profitability (only 17/100 unicorns profitable)

Robust growth in employment rate augurs well for an Atmanirbhar Bharat.

3. यूरिया को NBS योजना के तहत लाया जाना भारत में उर्वरक सब्सिडी से संबंधित सभी मुद्दों के साथ-साथ कृषि की पर्यावरणीय समस्याओं के लिए रामबाण के रूप में देखा जा रहा है। यूरिया प्रबंधन से संबंधित मुद्दों पर प्रकाश डालते हुए भारत में टिकाऊ रूप से यूरिया के उपयोग में आवश्यक सुधारों हेतु सुझाव दीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Bringing urea under the NBS Scheme is seen as the panacea for all the issues related to fertiliser subsidies in India as well as for the environmental problems of agriculture. Highlighting the issues related to urea management, suggest reforms are required to improve the usage of urea in a sustainable manner in India.

(Answer in 150 words) 10 Marks.

India is the largest manufacturer as well as consumer of urea with 60% of global urea consumption share.

However, urea management is fraught with following issues:-

- ① Heavy dependence of farmers - due to proliferation of High yielding seeds.
- ② Indiscriminate use - leading to high fertilizer subsidy (1.5 L. crore in FY21)
- ③ Degradation of soil nutrient profile
i.e. N:P:K profile not in [4:3:1] ratio
- ④ Excessive leaching - degradation of water table & associated health issues.

Given, the issue, reforms and suggested to
improve the urea usage.

Following suggestions can be adopted:-

- ① Bring Urea under NBC scheme.
 - ② Revolution of PM-PRANAM - to balance
urea usage with natural fertilizers.
 - ③ Stress on conservation agriculture - to
minimise the use of urea
 - ④ Revolution of organic farming - to use
farm based substance
 - ⑤ Agrobiodiversity - as promoted by UN
FAO - used association with
local farming.
 - ⑥ Awareness regarding negative impact -
involving ICAR, Agri- Universities.
- Better urea management can decrease
the bulky fertilizer subsidy & help
maintain fiscal prudence.

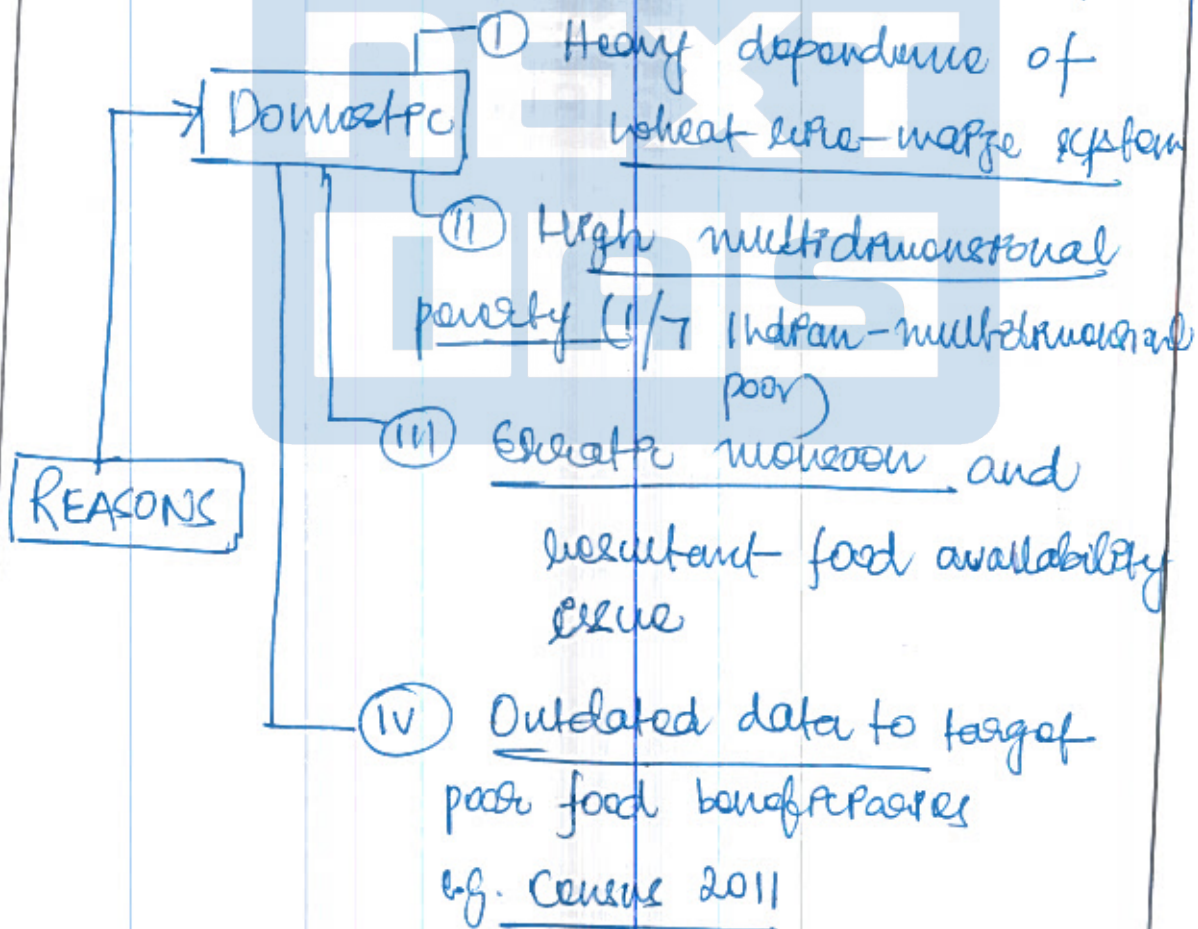
4. भारत की खाद्य सुरक्षा को न केवल घरेलू कारकों बल्कि वैश्विक कारकों से भी चुनौतियों का सामना करना पड़ता है। टिप्पणी कीजिए। भारत की खाद्य सुरक्षा को सुदृढ़ बनाने वाले कुछ उपायों की चर्चा कीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

India's food security faces challenges from not just domestic factors but also global factors. Comment. Discuss some ways to strengthen India's food security.

(Answer in 150 words) 10 Marks.

UN-FAO defines food security as access to affordable, nutritious and optimum amount of food to every individual on constant basis. Presently ~~more~~ 250 Mn people in India cannot afford balanced diet all round the year



- Global factors
- ① Decreasing food productivity due to climate change
 - ② Global food production confined to just 12 plant & 5 animal products
 - ③ Rice-wheat-maize system dominate 60% food chain - disruption possible
e.g. Ukraine war - disrupted wheat

Some ways to strengthen food securitys-

- ① Reformation of nutri-cereals - Shree Anna - special incentive by Budget 2023.
- ② Diversification of food in PDS system to seasonal & local food.
- ③ Revitalize agro-productivity - to increase yield and absolute income.
- ④ Incubation of Agro-startups v/a. Agro-Accelerator Fund setup by Budget 2023

Robust food supply chain can go long way
in ensuring SDG-2 & met by 2030.

5. हाल ही में भारत नासा के नेतृत्व वाले आर्टेमिस समझौते पर हस्ताक्षर करने वाला 27वाँ देश बन गया है। भारत में अंतरिक्ष अन्वेषण कार्यक्रमों के संदर्भ में इस समझौते के निहितार्थों का आलोचनात्मक विश्लेषण कीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Recently, India became the 27th signatory to the Artemis Accord led by NASA. Critically analyse its implications for the space exploration programmes in India. (Answer in 150 words) 10 Marks.

Artemis Accord is a US led peaceful space exploration programme for benefit of mankind. It is an extension to Open Space Treaty of 1960s.

Implications for India signing the Accord

- Positive
- ① In line with National Space Policy - exploration of space
 - ② Greater interoperability among Accord members of space nations
 - ③ Greater synergy among Indian and foreign space agencies/spacecraft
 - ④ Help to India in its future space mission e.g. Gaganyaan, Mangalyaan etc.
 - ⑤ India can tap space market of Accord members e.g. India launched Singapore satellites.

Negatives

- ① Control over withheld independent-
space programmes — need to take care
of members' apprehensions.
- ② Quite opposite to idealistic / socialistic
space policy followed till date — allows for
commercial exploration
- ③ May need to attune to US policies
on major missions / policies
- ④ May affect long term space relations
with Russia — Gaganyaan crew being
trained.

Although, signing of accord comes with
working diplomatic tight rope, it
is crucial step towards aim of
becoming developed nation by 2047.

6. मिट्टी में कार्बनिक पदार्थ का अपघटन कार्बन चक्र में किस प्रकार योगदान देता है, और इस प्रक्रिया को प्रभावित करने वाले प्रमुख कारक क्या हैं?
(150 शब्दों में उत्तर दीजिए) 10 अंक
- How does the decomposition of organic matter in the soil contribute to the carbon cycle, and what are the key factors that influence this process?
(Answer in 150 words) 10 Marks.

Organic matter refers to the compounds containing Carbon in them e.g. plant and animal waste etc.

Decomposition of organic matter contributes to carbon cycle

- ① Decomposition of organic matter leads to freeing of carbon compounds.
- ② these free carbon is added to the soil.
- ③ Plants absorb this free carbon from soil during these photosynthesis process..
- ④ Certain microbes also feed on the carbon-soil which form part of carbon cycle.

Key factors influencing the decomposition

- ① Presence of decomposing microbes in soil
- ② Abundant soil moisture • good precipitation
- ③ Optimum soil temperature to support decomposition.
- ④ Soil quality — alluvial soil ~~undergoes~~ helps ~~in~~ the decomposition process.

Carbon cycle is a vital process for maintenance of Earth's biodiversity.

7. जलवायु परिवर्तन पर शमन और अनुकूलन रणनीति न केवल भविष्य के उत्सर्जन को कम करने से संबंधित है, बल्कि इसमें वायुमंडल में पहले से उत्सर्जित कार्बन को सक्रिय रूप से हटाना भी शामिल है। इस संदर्भ में आप कार्बन संकलन, उपयोग और भण्डारण (CCUS) की अवधारणा से क्या समझते हैं? इससे संबंधित अंतराष्ट्रीय समुदाय की प्रगति पर चर्चा कीजिए।
(150 शब्दों में उत्तर दीजिए) 10 अंक

Climate change mitigation and adaptation strategy is not only about reducing future emissions but also involves active removal of already released carbon into the atmosphere. In this context what do you understand by the concept of Carbon Capture, Utilisation and Storage (CCUS) and discuss the progress of the international community in this regard.
(Answer in 150 words) 10 Marks.

Carbon Capture, Utilisation and Storage (CCUS) refers to the technology that captures the carbon emission from industries and either utilises the same for own commercial purpose or if stored in deep coal seams or coal beds using various tools.

Progress of International community towards
regard to CCUS

- ① CCUS is used to produce Blue
Hydrogen •



8. इमारतों की घटिया डिजाइन, भवन संहिताओं और अग्नि सुरक्षा मानदंडों का घोर उल्लंघन तथा बढ़ती भीड़भाड़ शहरी क्षेत्रों में आग के उभरते खतरे के लिए जिम्मेदार है। विवेचना कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Poor building design, flagrant violations of building codes and fire safety norms and overcrowding of spaces are responsible for the rising risk of fires in urban areas. Discuss.

(Answer in 150 words) 10 Marks.

Rising risk of urban fire can be attributed to plethora of factors viz. poor urbanization management, lack of monitoring of building codes etc.

Factors responsible

- ① Poor building design - not strict implementation of Building code
- ② Faulty products during construction
e.g. poor quality wires → short circuit
- ③ Improper risk oversight - due to complacency and corruption e.g. recent fire in popular coaching centre (Delhi)
- ④ Population explosion - and resultant resno viz. unhygienic living condition, flammable garbage generation etc.

Way out

- ① Strict Implementation of Building Code.
- ② Regular audit of buildings in crowded localities.
- ③ Certification of buildings - only after robust inspection.
- ④ Planned Rehabilitation - by schemes such as PM-Awas Yojana etc.
- ⑤ Responsible Resident behaviour - must go for quality product for safety & sustainability.

Urban form can be controlled by strict vigilance of concerned authorities.

9.

भारत-म्यांमार तथा भारत-बांग्लादेश सीमाओं पर होने वाले नृजातीय संघर्ष और सीमा-पार प्रवासन भारत की आंतरिक सुरक्षा को प्रभावित करते हैं। टिप्पणी कीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Ethnic conflicts and cross-border migration along India-Myanmar and India-Bangladesh borders impact India's internal security. Comment.

(Answer in 150 words) 10 Marks.

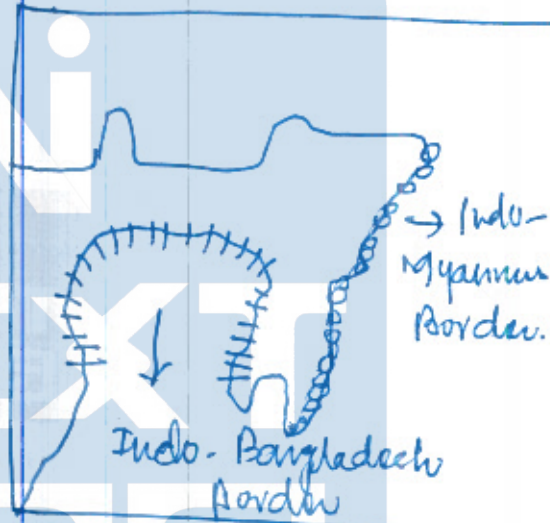
Eastern borders, particularly Indo-Myanmar and Indo-Bangladesh are most disturbed international borders plaguing India's internal security.

Indo-Myanmar border

is particularly affected by ethnic conflicts —

① Between Reang/ Bru & Other tribes (Jaintia)

② Between Mekong and Kuki-20 Communities in Nagaland and Manipur.



Reason — ① Unfulfilled land reform promises

② Unequitable development.

↳ Meities — rich & represented by 40 MLAs / 60 MPs

③ Lack of political representation

④ Free movement regime.

Indo-Bangladesh Border suffers from cross-border migration

Reason - ① Open border at most places.

② Many labour and essential foreigner
e.g. farm.

③ Tough terrain along Meghalaya part

Way out

Myanmar border

- ① Close co-operation between Indo-Myanmar forces (ex-Surak)
- ② Development packages of Aung San Chaw Aung is good
- ③ Political solution of underlying issues of status to Misch based on Naxal, Bhutan Commission recommendations

Bangladesh border

- ① Smart border fencing e.g. BCP QIT
- ② Regular joint patrolling of hotspot points

Securing borders is vital to maintain development and progress.

10.

धन-शोधन के मामलों की जाँच करने और अभियोग चलाने में कानून प्रवर्तन एजेंसियों के सामने कौन-कौन सी प्रमुख चुनौतियाँ आती हैं तथा उन चुनौतियों को कैसे दूर किया जा सकता है? (150 शब्दों में उत्तर दीजिए) 10 अंक

What are the main challenges faced by law enforcement agencies in investigating and prosecuting cases of money laundering, and how can they be overcome? (Answer in 150 words) 10 Marks.

Money laundering as defined by Prevention of Money Laundering Act, 2002, is the process of concealing the real source of income and hiding the same from tax authorities.

Involve 3 interconnected processes -



Challenges faced by law enforcement agencies in investigating and prosecuting such cases.

- ① Use of dark net - for carrying out processes of layering & integration
- ② International movement of money - causing jurisdictional issue.

- ③ Sophisticated channels - involving linkage between organised criminals & terrorists.
- ④ Nexus among criminals, builders, politicians etc. leading to law corruption.

Way Out: -

- ① State-of-the-art training to ED officials to track money flow
- ② International collaboration - to improve functionality and professionalism.
- ③ Synergy between - existing financial intelligence agencies e.g. DRI, ED, etc
- ④ Advance search and seizure powers to ED (II ARC recommendation).

Given the increasing menace of money laundering radical reforms are required in enforcement & investigative agencies.

11.

निम्न कर उत्प्लावकता प्रायः उच्च घाटे और ऋण में तब्दील हो जाती है। क्या उच्च प्रत्यक्ष कर दर लागू करके भारत में समग्र कर-जीडीपी अनुपात में सुधार किया जा सकता है? भारत की समग्र कर संरचना में सुधार के लिए अन्य कौन-कौन से कदम उठाए जा सकते हैं? (250 शब्दों में उत्तर दीजिए) 15 अंक

Low tax buoyancy often translates into higher deficits and debt. Can a higher direct tax rate improve the overall tax-to-GDP ratio in India? What other steps can be undertaken to revamp the overall tax structure in India? (Answer in 250 words) 15 Marks.

Tax buoyancy refers to percentage change in tax revenue collection against GDP

growth. India currently suffers from lowest Tax:GDP ratio of 16% among all BRICS nation.

However, a higher direct tax rate although beneficial may not improve the overall tax:GDP ratio.

① Out of 100 ₹, 49 come from indirect taxation — no hole vs. a- vs Income tax rate

Reasons — ① Tax base is quite low — only 2% Indian file return

- Reason
- (III) May lead to more tax evasion due to low tax base
 - (IV) Penalise high income individuals to conceal tax details
 - (V) May lead to increased instances of money laundering and Black Money market (presently 200-500 B \$)

Hence, radical reforms are required to boost tax: GDP ratio. Some of them could be —

- (I) Improving formalisation of economy (presently 50% economy is informal)
- (II) Improving financial inclusion — bringing more people under banking channel.
- (III) Tax incentives for high paying entities & high net worth individuals
- (IV) Recognition to high tax payee — at

disturb level, monuments, streets, woods
can be named after highest tax payers

- ⑤ Creating more formal jobs - by
improving competitiveness of industry
- ⑥ Boosting export to link it with
Disturb as Export Hub scheme to
improve individual earnings.

Improving tax: GDP ratio will be first
step towards 5T\$ economy target
in medium term and developed
economy in longer term.

12.

स्टार्टअप तेजी से बदलती आधुनिक अर्थव्यवस्था के प्रेरक इंजन हैं। भारतीय स्टार्टअप अपनी क्षमता का उपयोग करने में क्यों विफल रहे हैं? भारत में स्टार्टअप्स की लाभप्रदता और प्रदर्शन में सुधार हेतु कौन-कौन से कदम उठाए जा सकते हैं? (250 शब्दों में उत्तर दीजिए) 15 अंक

Startups are the driving engines of the fast-changing modern economy. Why have Indian startups failed to realise their potential? What steps can be undertaken to improve the profitability and performance of startups in India? (Answer in 250 words) 15 Marks.

According to Economic Survey, 2022, India has globally 3rd largest startup ecosystem with close to 100 unicorn registered with Mo commerce (DPIT).

Startups — driving engine of economy

- (i) Bring in much needed FDI & FDI - increase foreign reserves (~600 B\$)
- (ii) Improve ease of Doing Business - India ranks 63 (most improvement in last 5 years)
- (iii) Leverages digital push - most startups are tech-based e.g. fintech, e-commerce
- (iv) Poor step delivery model - Affects consumer satisfaction and overall economic sector performance.

However, Indian startups have failed to realise their potential.

- Reasons
- ① High failure rate during early days
— 60% startup fail during first 5 years
 - ② Capital dependence — on venture and angel funders — not sure
 - ③ Profitability issue — out of 100 unicorn — only 17 profit making
(Troxin Report)
 - ④ Take over by big companies — leads to duplication of ideas.
 - ⑤ High compliance burden — young entrepreneurs not capable to handle cumbersome bureaucratic process

Given the condition, following steps are needed to boost their performance and profitability :-

- ① Remove compliance burden — for atleast 10 years or until they turn profit making.

- ② Collaboration with strong companies during initial days.
- ③ Capital at cheap rate for all registered startup eg. Funds of fund scheme
- ④ International collaboration - for eg. SEO-Startup forum for improvement in capabilities
- ⑤ More progressive schemes wrt. Startup India, NIDHI scheme (eg. IIC, IITech) etc to boost their performance.
- ⑥ Tax exemption - for 5 years at least after turning profitable - to ensure greater market reach

Startups are backbone of 21st century
Indian economy as per Budget 2022

13. भारत के आयात बिल में खाद्य तेलों का आयात एक बड़ा हिस्सा है। इस संदर्भ में हाल ही में शुरू किए गए खाद्य तेल एवं तेल पाम पर राष्ट्रीय मिशन (NMEO-OP) के महत्व का मूल्यांकन कीजिए। भारत में बढ़ते पाम तेल उत्पादन से संबंधित पर्यावरणीय चिंताएँ क्या हैं?
(250 शब्दों में उत्तर दीजिए) 15 अंक

Import of edible oils forms a major part of India's import bill. In this context, evaluate the importance of the recently launched National Mission on Edible Oils and Oil Palm (NMEO-OP). What are the environmental concerns related to increasing palm oil production in India?

(Answer in 250 words) 15 Marks.

National Mission on Edible Oils - Oil Palm

(NMEO-OP) is a central sector scheme to boost the production of edible oil and reduce the import dependence on palm oil.

Importance of NMEO-OP

- ① India is currently world's largest palm oil importer - scheme targets to decrease this.
- ② Huge dependence on import - high import bill → dwindling forex reserves
- ③ Consumption of edible oil increasing at CAGR of 8% for last few years.
- ④ Global supply chain disruption - fuels domestic inflation - scheme tries

to insulate India from such supported inflation.

⑦ Ensure affordable rates - supported palm oil - expense (₹200/L).

However, increasing palm oil production comes with certain environmental concerns

- Issues
- ① Naturally suitable to equatorial climate - India → monsoon type
 - ② High gestation period - short yielding after 2/3 years - farmers may not find it feasible
 - ③ Need vast tract of land - can fuel forest clearance - against National forest policy
 - ④ Plantation agriculture disturbs local biodiversity and GHG absorption capacity
 - ⑤ Requires sophisticated soil preparation may alter soil properties for use.

Way out :-

- ① Careful selection of area for plantation of palm trees.
 - ② Initial cheap credit facilitation to promote its adoption among farmers
 - ③ Proper soil nutrient profiling - before decision on farming.
 - ④ Promoting intercropping & mixed farming to offset for temporary loss and maintenance of soil nutrient profile.
- Oil palm plantation is an answer to
fresh problem of high import bill
and increasing food inflation.

14.

एक सुदृढ़ पशुधन अर्थव्यवस्था कृषकों की आय के एक समानांतर स्रोत के रूप में कार्य कर सकती है। भारत के कृषि क्षेत्र में पशुधन अर्थव्यवस्था की भूमिका पर प्रकाश डालते हुए इसके समक्ष आने वाली चुनौतियों पर चर्चा कीजिए। ऐसे उपाय सुझाइए जो किसानों के समग्र कल्याण में योगदान देने के लिए पशुधन क्षेत्र को सशक्त कर सकें।
(250 शब्दों में उत्तर दीजिए) 15 अंक

A robust livestock economy can act as a parallel source of farmers' income. Highlighting the role of the livestock economy in the agriculture sector in India discuss the challenges faced by the livestock sector in India. Suggest interventions that can strengthen the livestock sector to contribute to the overall well-being of the farmers.
(Answer in 250 words) 15 Marks.

Livestock sub-sector of agriculture sector
contributes to 30% of total agricultural
GVA. It includes — poultry farming, sheep
rearing, goat rearing etc

Role of livestock economy in agriculture sector

- (i) Contribute 30% to overall agro-GVA
- (ii) A strong tool to ensure doubling of farmer's income.
- (iii) Hedge against crop failure, price volatility or low yield.
- (iv) Lead to creation of ancillary activities e.g. food for livestock, poultry farm etc
- (v) Vital component in ensuring overall food & nutritional security
(eggs — cheapest source of protein).

Despite these endeavours, the livestock sector is fraught with some structural and functional challenges.

- (i) Scalability — Livestock is still regarded as 2nd option by many farmers.
- (ii) Apprehension of majority of farmers to adopt integrated farming.
- (iii) Scarcity of cheap credit — due to lack of financial inclusion.
- (iv) Disrupted supply chain — to realise the true potential of sector.
- (v) Lack of agro-based food processing industry — to capitalise on livestock market.
- (vi) Dependence on outdated farming method → low productivity.

Some measures to strengthen the sector

- ① Recognition of livestock farmers for credit facilitation.
- ② Improved connectivity of livestock farmers with animal husbandry department to leverage existing schemes.
- ③ Network of co-operatives - to realize the potential of sector.
- ④ Easy credit availability - through linkages between RRBs and co-operative
- ⑤ Awareness and sensitization of farmers about potential through Radfo-programmes etc.

A robust livestock sector is vital to ensure doubling of farmer's income by 2025 -

15. परमाणु संलयन को भविष्य का ऊर्जा स्रोत माना गया है, जिसमें स्वच्छ, सुरक्षित और वस्तुतः असीमित ऊर्जा प्रदान करने की क्षमता है। परमाणु संलयन के पीछे के वैज्ञानिक सिद्धांतों और व्यावहारिक अनुप्रयोगों के लिए इस तकनीक के उपयोग में आने वाली चुनौतियों और अवसरों पर चर्चा कीजिए।

(250 शब्दों में उत्तर दीजिए) 15 अंक

Nuclear fusion has been hailed as the energy source of the future, with the potential to provide clean, safe, and virtually limitless energy. Discuss the scientific principles behind nuclear fusion and the challenges and opportunities in harnessing this technology for practical applications.

(Answer in 250 words) 15 Marks.

Nuclear fusion refers to the fusion of two small nuclei of light atoms viz. Hydrogen or Helium to generate energy. The process requires high amount of energy to reach the stage of fusion.

Scientific principle behind nuclear fusion

- ① It is based on idea that two small nuclei can fuse together and the process of fusion releases massive energy (e.g. Energy of sun is due to constant fusion of H atoms)
- ② It requires technology such as Tokamak to reach the stage ~~called~~ of equivalent Q factor.

Nuclear fusion — potential to provide clean energy

- ① The fusion process is a clean source of energy — negligible carbon emission
- ② Produces minimum waste product as part of fusion process
- ③ Can be solution for carbon neutrality targets of developed and developing nations.
eg. India targets 2070 for carbon neutrality
- ④ Can decrease dependence on fossil fuels based energy — presently largest source of carbon emission.

However, there are certain challenges in harnessing the energy —

- ① Process of fusion occurs at very high temperature — initial power source is required.

- ② Requires strong magnetic field and
its continuous maintenance.
- ③ The reactors such as Tokamak are
highly sophisticated - need expert
handling
- ④ Expensive process - procurement of
fusion reactors, maintenance of facility
- ⑤ High professional / technical know-how
required
- ⑥ Sustainability - of entire process is
also an issue.

Despite these issues, nuclear fusion
can be the solution to achieve carbon
neutrality and avert losses
due to climate change

16.

भारत में आईपीआर के प्रशासन में कौन-कौन सी कठिनाइयाँ रही हैं? भारत में नवाचार आधारित अर्थव्यवस्था को प्रोत्साहित करने के लिए आईपीआर के प्रशासन में सुधारात्मक उपाय सुझाइए। (250 शब्दों में उत्तर दीजिए) 15 अंक

What have been the difficulties in the administration of IPRs in India? Suggest measures to improve the administration of IPRs in order to encourage an innovation-led economy in India.

(Answer in 250 words) 15 Marks.

Intellectual property rights (IPRs) are the rights regarding ownership, possession and loyalty of certain novel products, discoveries and technologies.

e.g. Copyright for intellectual products.

[Difficulty in administration of IPRs]

①





17. वन्यजीव संरक्षण अधिनियम में हालिया संशोधन जंगली जानवरों और पौधों के अवैध व्यापार को रोकने के लिए एक रूपरेखा प्रदान करते हैं ताकि यह सुनिश्चित किया जा सके कि उनके अस्तित्व को खतरा न हो। इस संबंध में भारत में अवैध वन्यजीव व्यापार के निहितार्थों का उल्लेख कीजिए तथा इस मुद्दे को हल करने के लिए हाल के संशोधनों की प्रभावशीलता का विश्लेषण कीजिए।
(250 शब्दों में उत्तर दीजिए) 15 अंक

The recent amendments in the Wildlife Protection Act provide a framework to prevent illegal trade in wild animals and plants to ensure that their survival is not threatened. In this regard, mention the implications of illegal wildlife trade in India and analyse the effectiveness of the recent amendments to address the issue.
(Answer in 250 words) 15 Marks.

Illegal wildlife trade as reported by international monitoring organs TRAFFIC has threatened the existence of vital fauna species viz. Indian Rhino, Royal Bengal Tiger, Pygmy Hog etc.

Implications of illegal wildlife trade

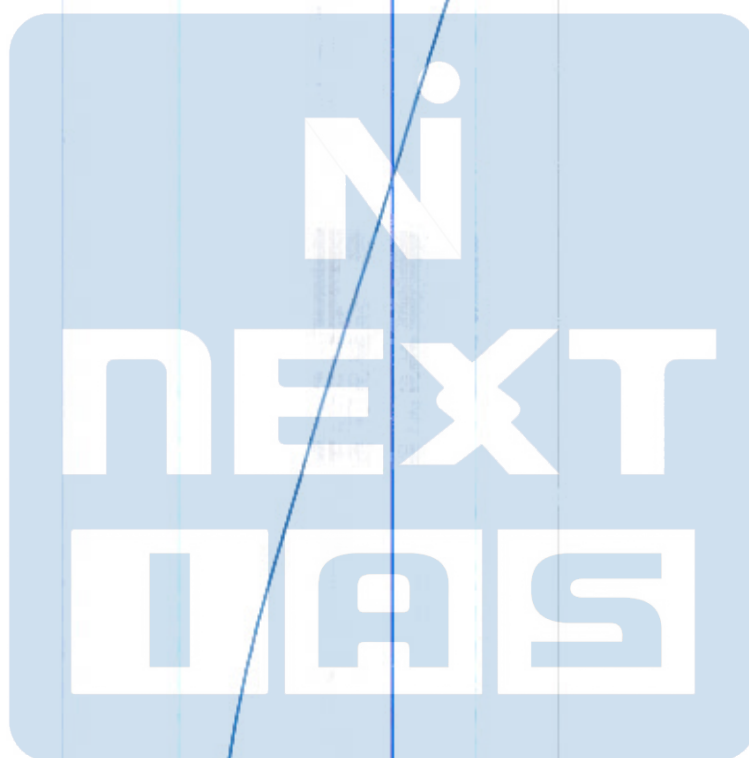
- (i) Threatens existence of vital species
eg. Sumatran rhino are extinct now
- (ii) Threatens wildlife ecosystem and food chain — decreasing figures lead to increasing deer.
- (iii) Threatens biodiversity — due to interdependence of flora & fauna species

- ④ leads to endangering of threatened species eg. Pygmy Hog, Red panda
- ⑤ Promotes illegal trade in wildlife products fueling crime.

In this regard, Wildlife Protection (Amend.) Act, 2022 is a vital step to thwart the menace of illegal wildlife trade:—

- ① Rationalises the list of threatened species into three lists for uniform protection.
- ② In sync. with global standards of protection eg suggested by TRAFFIC.
- ③ Increases the penalty for trade in animal products such as skin, claws, bones.
- ④ Exclusive wildlife related crime data and its monitoring by Home Department.

Given the importance of biodiversity in maintenance of climate induced changes, survival of wildlife species is vital.



18.

उन कारकों का विश्लेषण कीजिए जो शहरी क्षेत्रों में बाढ़ की घटनाओं एवं विनाशकारिता को बढ़ाने में योगदान देते हैं तथा उन उपायों का भी विश्लेषण कीजिए जो जोखिम को कम करने और आबादी की सहनशीलता बढ़ाने के लिए अपनाए जा सकते हैं।
(250 शब्दों में उत्तर दीजिए) 15 अंक

Analyse the factors that contribute to the increased incidence and severity of floods in urban areas and the measures that can be taken to reduce the risk and enhance the resilience of the population.
(Answer in 250 words) 15 Marks.

Urban floods have become a regular issue

In the last few years due to increased instances of increased rainfall - eg. recent urban floods in Chennai, Todiapur etc.

Factors leading to increased incidence

(i) Climate change induced extreme rainfall events eg. more than 25 cm/hour rainfall in Todiapur (July 2023)

(ii) Increased urban heat island effect - creates low pressure area - attracting rainfall

(iii) Deforestation - no green patch to regulate the urban climatology

(iv) No area for water seepage due to abundant of concrete construction

- ⑤ Outdated urban sewage plant and
insufficient chocking - leading to overflow.
- ⑥ Inappropriate population explosion and
insufficient unorganised urban space.

Measures to manage urban flooding

- ① Promotion of urban forestry eg.
Miyawaki method, Nagar Van scheme.
- ② Replanning of urban sewerage
system to ensure smooth flow of
flood water.
- ③ Integrated disaster planning - involving
district and block administration
when planning at state & national level.
- ④ Integrated watershed management -
to ensure ecological flow of
river waters.

- (V) Capacity building - of both administration and local - specially women.
- (VI) Anti-encroachment drive - on floodplains, ~~streets~~, ~~land~~ to free up space for water flow & seepage.

The four point recommendation of Sondar framework on PRR can ensure effective management of disaster at local level.

19. क्या आपको लगता है कि भारत में आसूचना विभाग तथा विधि प्रवर्तन एजेंसियों के पास संगठित अपराध और आतंकवाद के गठजोड़ से प्रभावी ढंग से निपटने के लिए आवश्यक संसाधन और क्षमताएँ हैं?

(250 शब्दों में उत्तर दीजिए) 15 अंक

Do you think that intelligence and law enforcement agencies in India have the necessary resources and capabilities to effectively tackle the link between organised crime and terrorism?

(Answer in 250 words) 15 Marks.

Organised crime refers to the criminal activities carried out by established groups such as D-Company of Mumbai.

While terrorism is an extreme activity that targets common people and state with with aim of instilling fear among them.

Organised crime & terrorism link act
on these main level

- ① Co-operation - separate area of activity with occasional co-operation
e.g. D-company providing help to L&T.
- ② Co-existence - exists side by side without any significant co-operation.

③ confluence - simultaneous existence and actions.

Our intelligence and law enforcement agencies viz. IB, RAW, NTR, CRPF, NSG etc., though effective lack the required resources and know how as -

① Use outdated technological system
- easily bypassed by nefarious actors.

② Are understaffed by 20% vacancy in
NIA and CERT-In

③ Overlapping in jurisdiction & non-cooperation
eg. Defense Intelligence Agency & NTR

④ Different political agencies monitoring
them eg IB - Mo Home.
RAW - PMO..

⑤ lack state-of-art offensive & defensive
capabilities - found wanting during
9/11 attacks.

In this regard, some radical reforms
are necessary: —

- ① An all encompassing legislative statute to break departmental silos.
- ② Increase in investment — for procurement of state-of-art tools eg night vision goggles
- ③ International collaboration — with CIA, FBI and Scotland Yard for professional upgradation.
- ④ A central Intelligence Command to oversee all intelligence activities.
- ⑤ Improving pay, perk & scientific quality of offensive/enforcement agencies eg CRPF, NSG etc.

With increasing complexity of modern warfare, it is highly recommended to bring radical reforms.

20.

भारत को उभरती आंतरिक एवं बाह्य संचार से संबंधित सुरक्षा चुनौतियों से निपटने और साइबर पारिस्थितिकी तंत्र को अधिक सुरक्षित और संरक्षित बनाने के लिए सूचना प्रौद्योगिकी अधिनियम, 2000 को अद्यतन करने की आवश्यकता है।
(250 शब्दों में उत्तर दीजिए) 15 अंक

India needs to update its Information Technology Act, of 2000 to deal with emerging internal and external communication security and to make the cyber ecosystem more safe and secure. Discuss.
(Answer in 250 words) 15 Marks.

with evolving technology in the form of

IR. 4.0 and its facets such as AI, ML,

Cryptography etc, security challenges have also evolved.

Emerging Internal and external communication security threats—

- ① Increased instances of cyber frauds
- ② Changing nature of financial scam
- Internal — ③ Use of media for propaganda
- ④ Sexual offences — online harassment
- ⑤ Disinformation — fake news, paid news etc
- External — ⑥ Cyber warfare e.g. Pakistan cyber army defacing Indian bank websites
- ⑦ Cyber sabotage — attack on Mumbai power grid by alleged Chinese group.

- External
- (iii) Increased radicalisation by religious fundamentalists
 - (iv) High dependence on foreign device plans to compromise eg Pegasus spyware

In this regard, the existing legislative framework needs an update. Following recommendations ~~are~~ can be followed —

- (i) Update IT Act, 2008 in sync. with global laws viz. EU data protection Bill and Budapest Convention.
- (ii) Inclusion of clauses for emerging threats viz. cyber crime, bio terrorism, espionage
- (iii) A dedicated institutional setup — to deal with cyber security risk
- (iv) Revision of robust grievance redressal mechanism — both institutional and functional

- (V) Comparative study of Paris Call,
Churchill Call to include relevant
clauses in updated law.
- (VI) An Integrated Intelligence Command to
thwart any external cyber security threat.

Ajit Doval, NSA says that ability to become
a developed nation also includes
ability to strongly handle the emerging
security threats.

Space for Rough Work

Candidates must
write on this margin

