

NEXT IAS

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(To be filled by candidate)

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SLT SLT+

MAIN TEST SERIES 2023 (TEST-11)

GENERAL INSTRUCTIONS

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SUBJECT/PAPER
GENERAL STUDIES

Invigilator's Sign. :

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

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Evaluator's response

Handwritten area for evaluator's response with horizontal lines.

(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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4. For rough notes or calculation, the last two blank pages of this booklet should be used. The rough notes should be crossed through afterwards.
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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.

Consumer Price Index and Wholesale Price Index are measures of inflation in the country. The differences between the two are as follows:

CPI	WPI
<ul style="list-style-type: none"> ⊙ demand side measure of inflation. ⊙ basket consists of: <ul style="list-style-type: none"> ⊙ food (largest component) ⊙ clothing ⊙ fuel ⊙ Includes <u>services</u> that are consumed by lay people. ⊙ compiled by the <u>Ministry of Labour</u> 	<ul style="list-style-type: none"> ⊙ supply side measure of inflation. ⊙ basket consists of products sold in bulk like: <ul style="list-style-type: none"> ⊙ fuel ⊙ electricity ⊙ does not include <u>services</u>. ⊙ compiled by <u>NIO</u>.

Is CPI better than WPI?

- ① It is a more "reliable" measure as it captures the price conditions as felt by the people.
- ② RBI uses CPI as its target data to purpose its monetary policy.
- ③ However, CPI is also highly fluctuating due to high weightage of food which makes it an unreliable figure for overall economic health. Also CPI often follows WPI, so WPI gives a direction.
Both CPI and WPI are thus important for accounting for overall inflation levels in the country.

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 उपयुक्त 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

Despite growth rates being around 6-8%, job growth has not been satisfactory, leading to unemployment rates of 4.2% in India.

Reasons for High Unemployment

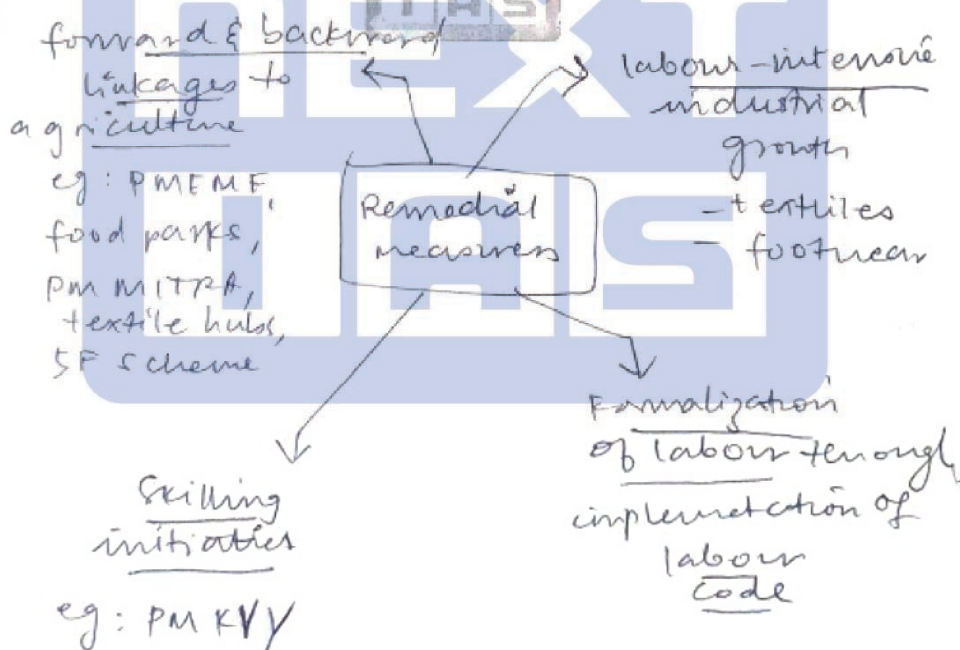
① "missing middle" crisis. There are approximately 6.5 cr MSMEs which employ 11 crore people. This averages to approximately 2 people per MSME. India suffers from many small and many large industries with few medium sized industries.

② Informal labor - more than 50% of the new jobs being created are part of the ~~market~~ gig economy leading to informal employment, casual labor & contractual work.

③ skill gap : only about $\frac{1}{4}$ th of the graduates from colleges are 'employable'. This leads to high levels of frictional unemployment.

④ seasonal unemployment due to 45:1 population dependent on agriculture with an off season crisis.

⑤ Structural reasons : "sons of soil policy" and capital-intensive industries like iron & steel.



unemployment can be resolved through structural and policy change so that India's dream of \$ 5 trillion economy is achieved.

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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.

Recently, the government has called for inclusion of urea in the Nutrient Based Subsidy scheme as a means to reverse the adverse impact of the perverse subsidy on urea.

Issues Related to Urea

- ① Excessive subsidization of urea has led to its overuse by Indian farmers, leading to low soil quality.
- ② Adverse NPK ratio from the ideal 4:2:1 to \approx 13:2:0.5 (as urea is heavy in nitrogen).
- ③ High fiscal burden on the government due to import and provision of urea has undermined financial prudence.
- ④ Overdependence on fertilizers has led to downstream issues like eutrophication due to runoff.

Reforms for Sustainable Use of Urea

↳ Adding urea to NBS scheme can positively impact agriculture:

- reduced use due to lower subsidy offered.

- balanced NPK through price incentive

- reduced soil ^{quality} erosion

↳ Better market incentives; now urea manufacturers will have to add micro & macro nutrients to receive subsidy benefit.

↳ structural changes in Agriculture like Natural farming, multicropping, organic farming via PM PRANAM Scheme.

Thus, urea use must be synchronized with the need for sustainable agriculture through Nature-based solutions.

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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.

Since the Green Revolution, India has made significant strides in its food grain capacities, buffer stocks & food security in the nation. Still, challenges remain.

Domestic
Factors



Global
Factors

- ① Meteorological factor: monsoon dependency of majority agriculture makes food production volatile.
- ② Institutional factor: procurement, post harvest facilities, storage and distribution (through NFSA 2013) affect food security in India.
- ③ Wars like Russia-Ukraine limit grain trade, putting pressure on India's export units.
- ④ Inflation ^{at global level} puts pressure on FOREX reserves, limiting scope of import of food into India.

Strengthening India's Food security

- ① Reduced dependency on monsoons through irrigation facilities, eg: PM Kishu Sinchai Yojna.
- ② precision agriculture for higher output per field
eg: drip/sprinkler irrigation / use of drone/geospatial technology and AI for better crop recommendation.
- ③ Direct Benefit Transfer to the poor so they can avail food during distress times.
- ④ Controlled inflation (recent tomato prices have caused concern).
- ⑤ Insurance for crop failure so that incomes of poor are not cause for food inaccessibility. eg: PM Fasal Bima Yojna.

Food security along with nutritional security can lift India from the dismal rank of 132 on the Global Hunger Index.

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.

The Artemis Accord is NASA's mission to send humans on the moon. With the successful landing of Chandrayaan 3's rover on the south pole of the moon, India is an inevitable partner in this program.

Artemis Accord Goals:

- landing the first woman on the moon.
- conducting experiments in space for the purpose of human prosperity and advancement.

Implications for Space Exploration

Programmes in India:-

- ① Greater support for missions like Gaganyaan that seeks to take people to outer space and conduct ^{zero-}gravity experiments.

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② Greater exploration and information sharing on aspects of the moon.
 Eg: Chandrayaan 3 rover can provide information for Artemis mission experiments - thereby contribute to the overall knowledge base.

③ Further partnership on outer space missions like Aditya L1, Mars orbiter mission 2 and Venus mission.

Joining the Artemis Accord is a step towards "global commons" in a sustainable and collaborative manner, as ordained by pm modi.

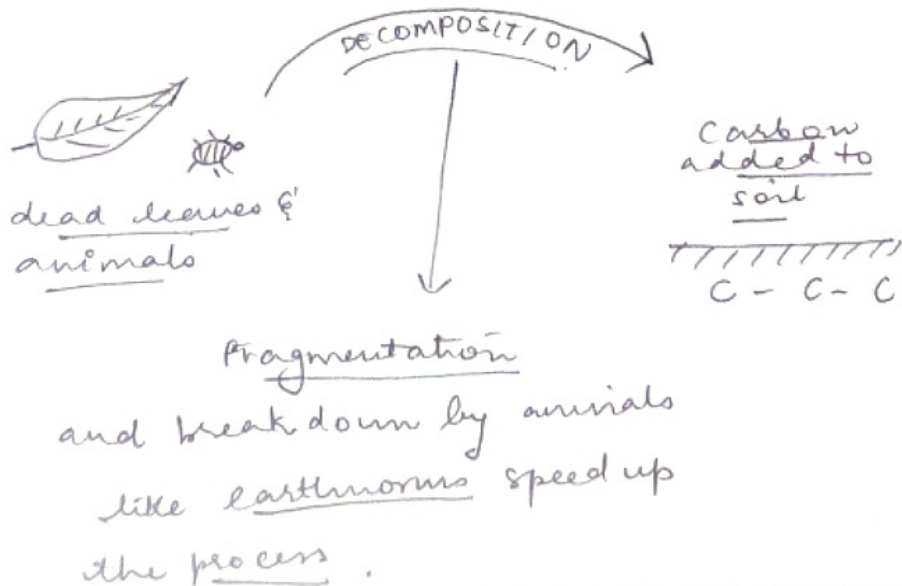
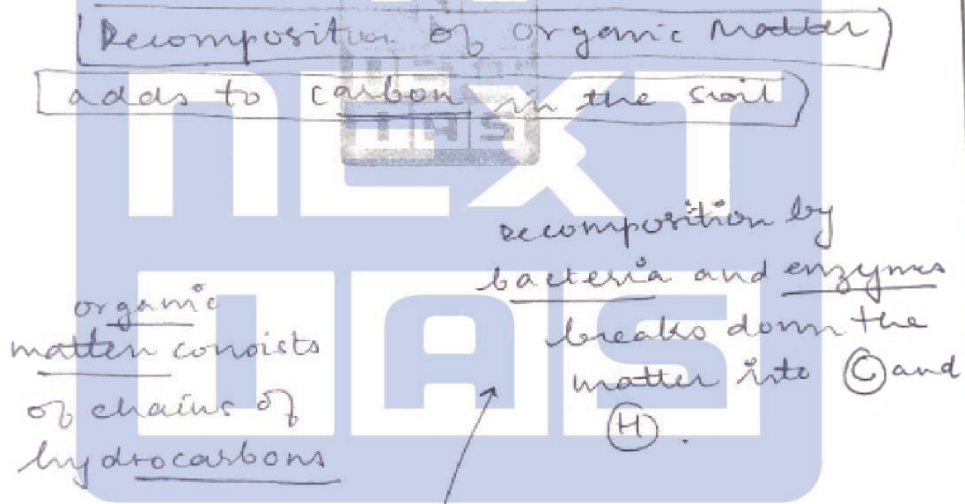
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6. मिट्टी में कार्बनिक पदार्थ का अपघटन कार्बन चक्र में किस प्रकार योगदान देता है, और इस प्रक्रिया को प्रभावित करने वाले प्रमुख कारक क्या हैं? (150 शब्दों में उत्तर दीजिए) 10 अंक
- How does the decomposition of organic matter in the soil contribute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

The carbon cycle refers to the circular movement of carbon from the soil to the atmosphere, through animals and plants and back into the soil.



Factors that influence the process

- ① Temperature of the soil:
warmer conditions lead to faster decomposition due to high bacterial activity. Colder biomes have low decomposition rates eg: tundra → poor soils.
- ② High precipitation - moisture aids fast decomposition, hence more carbon in soil.
- ③ Organic matter availability: the more organic matter there is, the higher the level of carbon released in soil.
- ④ Animals - burrowing animals stir the soil and allow bacteria to do its work.

Thus, organic decomposition supports soil health and pushes the carbon cycle, acting as the transfer channel of carbon from living things to the soil.

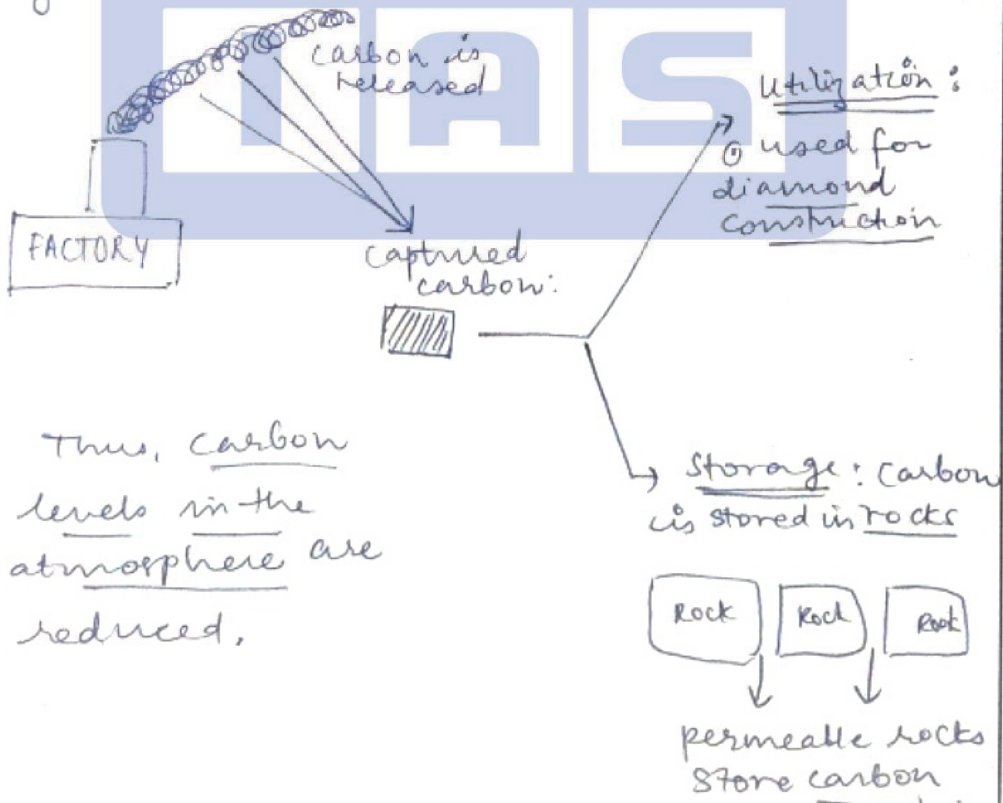
7. जलवायु परिवर्तन पर शमन और अनुकूलन रणनीति न केवल भविष्य के उत्सर्जन को कम करने से संबंधित है, बल्कि इसमें वायुमंडल में पहले से उत्सर्जित कार्बन को सक्रिय रूप से हटाना भी शामिल है। इस संदर्भ में आप कार्बन संकलन, उपयोग और भण्डारण (CCUS) की अवधारणा से क्या समझते हैं? इससे संबंधित अंतर्राष्ट्रीय समुदाय 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, Utilization and Storage [CCUS] is a method by which released carbon is "caught" and used through recycling or "stored" geologically to reduce the level of carbon in the atmosphere.

Diagrammatic Representation of CCUS

eg:



Thus, Carbon levels in the atmosphere are reduced,

Progress of International Community in CCUS

① Increased use ^{and production} of technology of CCUS

eg: China has built carbon capturing devices to be installed in cities.

② However, "storage" is still relatively unexplored due to fears of release of carbon from unknown leakages.

Thus, no foolproof method of storage has been conceived so far.

③ Technology is still expensive - unusable for developing nations.

④ Carbon markets & emissions trading ~~enables~~ makes carbon a commodity and encourages use of carbon.

Thus, CCUS can revolutionize emissions reduction and more research and development is required to make it a stronger mechanism.

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.

Recent fires in Vichakhapatnam firms as well as Delhi buildings has raised the concern of fire hazard in urban areas.

Reasons for Rising fire Risk in Urban Area

- | Poor building design : | violation of Rules | over-crowding of spaces |
|--|--|---|
| <ul style="list-style-type: none"> - building code is not followed - limited exit routes in emergency - faulty planning makes fires more probable eg: kitchens are congested, allowing fast spread of fire. - compact buildings blocking escape in case of fire | <ul style="list-style-type: none"> - No monitoring by DDMA allows builders to take cheaper way out. - lack of awareness of building code - Builders go unpenalized. - apathy for fire safety norms - unaware people carry out bad practices in panic. | <ul style="list-style-type: none"> - slum areas, highly populated - buildings built close to each other - crowded paths deter fire-truck from reaching victims on time. - fire catches quickly from one place to another. |

Reducing Risk of fires in Urban Areas

- ① Need to follow NDMA guidelines for what to do in case of fire.
- ② better surveillance by DDMA to ensure building code is followed.
- ③ making builders liable for damages, taking responsibility for negligence.

fires are an unfortunate but avoidable hazard and must be limited through legislative & structural reforms.

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.

India's internal security is often a factor of external variables like neighboring countries' ethnic and migratory issues.



Ethnic Conflicts

- ① Naga insurgency involved demands from neighboring Myanmar provinces for a separate Naga state.

① Even recent Kuki-meitei conflict in Manipur is spurred by ethnic tension sourced in Myanmar.

② Ethnic demands for statehood/identity/land and autonomy create a burden on India's internal security due to ethnic clashes and rising crime.

Cross border migration

① Creates pressure on limited lands in the North East - conflict over land issues.

② Conflict over limited employment leads to poverty and more crisis.

③ Drugs [Golden triangle], organs and weapons trade creates terrorist and Naxalite elements → boosts Red Corridor strength.

Thus, there is a need for Shekarkar Committee recommendation like Combined Comprehensive Integrated Border Management System for safer borders and reduced internal insecurity.

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 is the act of illegally obtaining and storing money for often illegal purposes like drug trade, organ trade and terrorism.

Challenges faced by Law Enforcement agencies in money laundering cases

- ① Inadequate tracking and surveillance of the cases due to lack of networking.
- ② Inability to prosecute the cases as some offenders flee to countries like the UK to avoid judicial action.
- ③ Unable to hit the root cause of money laundering due to deep-rooted nexus of launderers.
- ④ unable to deter common people from taking part in illegal action.

Overcoming the issues.

- ① SMART policing with NATGRID to combine intelligence information and use networking to track down hostile launderers.
eg: Malimath Committee Reforms.
using facial recognition technology.
- ② Fugitive Economic Offenders Act ^[~~FEA~~ FEOA] and targeting bilateral relations to ensure expatriation of offenders from foreign nations.
- ③ Enhancing powers of Enforcement Directorate, CSI, IB through independence and reduced political interferences.
- ④ Incentives-based mechanism to reduce partnership of ordinary citizen in money laundering.

Thus, stronger networking & inter-operability can reduce the impact & occurrence of money laundering.

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.

India's tax buoyancy has stagnated at around 10-11% for the past few years while India's current fiscal deficit lies at 6.4% and debt to GDP ratio is at 80%.

Low tax buoyancy means that with increase in GDP, tax revenues are not rising at the same right. Since the government is obliged to continue expenditure in the nation, this results in higher deficit and debt measures.

Direct
Can A Higher Tax improve tax-to-GDP in India? → Yes & No

① Higher direct tax would mean that a higher amount of tax will be paid by private and firms. This will logically raise tax revenue and thus tax to GDP ratio.

- ② However, a higher tax, as per Laffer Curve theory, leads to greater tax evasion and even discourages work because wage earners feel that government takes away all they earn - so why work?
- ③ Thus, increasing direct tax is beneficial only up to a point, after which it may even be a perverse policy of reduce tax to GDP ratio.

Steps to Revamp the Tax Structure

① Increasing tax covers. In India, agricultural incomes are still not taxed, this makes it a channel for black money. Big profit earners can be taxed while safeguarding the majority small farmers. This can also make tax equitable while raising tax revenue.

② Reducing tax evasion through deeper penetration of GST trail and tracking of tax payments & obligations.

- ③ Introducing tax incentives for filing taxes
eg: remission of taxes for timely
filing, this will bring more people into
the tax fold.
- ④ Rationalizing slabs: eg: GST has 5 slabs,
these can be reduced to 3 to simplify
tax procedures.
- ⑤ Taxing petroleum and alcohol can raise
revenues of the government. within ambit
of GST.

Thus, tax reforms can help
raise tax revenue while reducing
fiscal deficit & debt burdens as
per Fiscal Responsibility & Budget
management Act of 2003.

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 स्टार्टअप 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.

India introduced startUp 20 alongside B20 (Business20) as part of G20 forum, calling the global attention to the StartUp Community. ~~It~~ India is currently the 3rd largest startUp economy in the world.



However, Indian startups have failed to realise their potential due to the following structural absences:

- ① labour law implementation has been inadequate leading to confusion and high labour costs.
- ② land acquisition and procurement laws are weak and ~~filled~~ ^{plagued} with administrative lethargy.
- ③ Credit provision mechanisms are still inadequate and slow.
- ④ Unskilled labour force creates a skill gap.
- ⑤ Low focus on R&D by government as well as inadequate Intellectual Property Rights discourages innovation.

As a result, there is a need to take reformative steps:

① Increase profitability:

- ① Credit provision through priority sector lending as per RBI.

① implement Open Network for Digital Commerce (ONDC) to increase marketability of goods

② Funding to Startups

eg: Budget 2023-24 introduced Agriculture Accelerator Fund to influence agripreneurship.

② Increase Performance

① Enhance skilling/training of labour force.

② Implement Labour and Land Codes

③ Enhance R&D and remove compulsory licensing clause for some unstrategic businesses to expand innovation

eg: Atal Innovation Labs, etc.

Startups are the "engines of India's growth." Their promotion & facilitation can transform India into an Atmanirbhar Bharat."

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 महत्त्व का मूल्यांकन कीजिए। भारत में बढ़ते पाम तेल उत्पादन से संबंधित पर्यावरणीय चिंताएँ क्या हैं?

(250 शब्दों में उत्तर दीजिए) 15 अंक

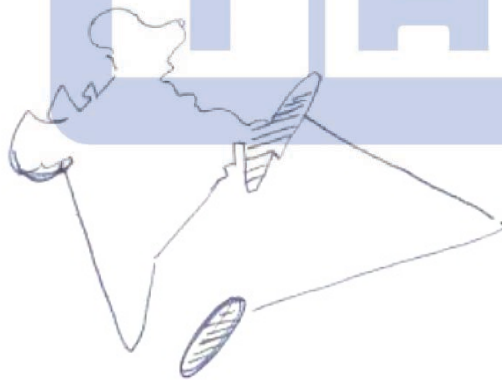
Import of edible oils forms a major part of India's import bill. In this context, evaluate the importance of the recently launched National Mission on Edible Oils and Oil Palm (NMEO-OP). What are the environmental concerns related to increasing palm oil production in India?

(Answer in 250 words) 15 Marks.

India is the largest edible oil importer in the world with more than 90% of its major edible oil coming through foreign trade. As part of the idea of a self-reliant India, the NMEO-OP scheme was launched to reduce import dependence.

Importance of NMEO-OP

- ① Production of Edible Oil in India:



Major regions outlined for plantation of edible oil:
North East India
and Andaman & Nicobar Islands.

- ② This will increase bulk output of edible oil within India → thereby reduce need for imports and save foreign exchange reserves.

- ③ This will also create employment for locals.
- ④ Increase involvement of north east & Indian islands in overall internal trade and their contribution to India's GDP.
- ⑤ Greater assimilation & capitalization of resources of the far east in India.

Environmental Concerns of Increasing Palm Oil Production:

- ① land use changes: land that was earlier used for ~~edible~~ food production will now be converted to edible oil use creating pressure on other land.
- ② Plantation agriculture hurts the biodiversity of the region and impacts bio-stock due to intensive agriculture.
- ③ Shifting away from traditional methods like jhumming can affect stability & quality of the ecosystem which was earlier maintained by the tribal societies.

④. Invasive species (new crops introduced) may affect local environmental stability.

Thus, import bill and environmental sustainability must be balanced through effective Environmental Impact Assessment (EIA) to ensure sustainable growth of India's edible oil output.

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.

India is the largest producer of milk in the world. This is a testimony to the White Revolution. A similar revolution is required in all other forms of livestock to transform the agricultural economy of India.

Role of Livestock Economy

- ① Acts as a parallel source of farmer's income, contributing to the goal of doubling farmer's income as per Dalhousie Committee.
- ② Reduces instability due to fluctuating monsoons and dependent nature of farming by giving assured incomes to farmers.
- ③ Brings farmer out of poverty trap & income contributes to health, education & reduced dependency on moneylenders.

④ Strong livestock economy acts as buffer in case of emergency.

⑤ linkage to sustainable agriculture & circular economy
eg: livestock waste becomes fertilizer for organic farmers in India.

Challenges of livestock sector

① Infrastructural gap: eg: in Switzerland, there are milking machines which allows the dairy industry to flourish. In India, the sector lacks capital and hence leads to low output.

② Health of livestock: low veterinary service penetration and asymmetric information leads to livestock death and low productivity.

③ Farmers lack knowledge and skill for better output.

④ markets are lacking & inefficient/ unexplored due to inadequate support by government.

⑤ High Carbon footprint eg: cows are methane stores.

Interventions to strengthen the sector

- ① National livestock mission to be implemented by equal focus on:
 - ① National livestock health mission, veterinary service provision and monitoring of livestock health.
 - ② National feedstock development for better quality and low priced feed to increase productivity.
- ② Training and skilling of farmers, especially women through SHG programme & recently introduced Lakshmi Didi schemes to create self-employed businesses.
- ③ Encouraging cooperativization like dairy (AMUL) and pooling of resources to expand incomes.
- ④ Marketing and branding support as well as linkages to allow export of Indian livestock products.

Livestock can revolutionize agriculture in India and uplift 45% of the population that is directly dependent on it.

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.

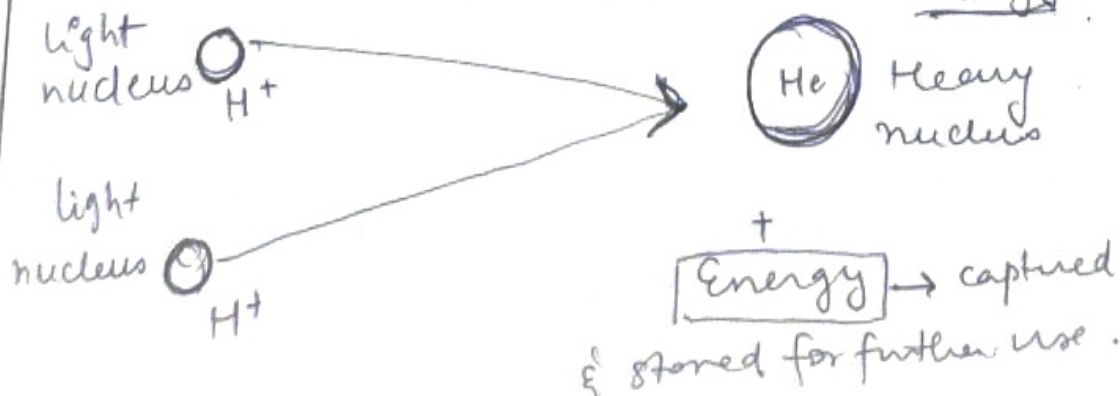
(Answer in 250 words) 15 Marks.

Nuclear fusion is a new age technology being explored by all countries as a source of sustainable energy. Recent developments like Tokamak reactor & China's New Sun Project show an increasing trend towards this technology.

Scientific Principles of Nuclear Fusion

- ① Found naturally in the Sun: Stars produce light through fusion.
- ② Carried out under high pressure & extremely temperature.

- ③ Procedure involves combining two light nuclei to create a heavier nucleus which releases energy.



Challenges in ~~the~~ Hammering Fusion Tech

① It involves creating condition of very high pressure & temperature - this creates infrastructural costs, energy costs.

If costs outweigh benefits, then this technology will not be feasible.

② Technology for sun-like condition is still in nascent stage.

③ safety and reliability of fusion reactors. These may become targets for terrorist outfits and lead to human loss.

④ Continued dependence on coal based energy as well as ecocentric move towards Nature-based-solutions may take attention away from fusion technology.

However, opportunities also exist for this technology:

① Research & development countries to take place in this direction.

- ② Safety & hazard monitoring is also under way.
- ③ Fusion will reduce the dependence on limited resources like coal and even uranium/thorium.
- ④ Also aids research in the direction of semiconductor and superconductor industries - encouraging innovation and industrial growth.

Thus, although not immediately feasible, fusion technology has the potential to become a futuristic source of sustainable and controllable energy.

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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.

The World Trade Organization's TRIPS has often had concerns with India's Intellectual Property Regulation administration. However, this hasn't stopped India from becoming an innovation hub.

Difficulties in Administration of IPRs

① Legislative concerns:

- India's "compulsory licensing" clause creates fears in innovators that the government will overtake their IPR for "public benefit". This stifles innovation.
- India does not have an "evergreening" clause. This means India does not promise an endless IPR which also deters innovation.

② Procedural Difficulties :

- administrative lethargy and delays with excessive red tape makes the process slow and impact even slower.
- bureaucratic apathy creates even more latency.

③ Product based vs Process based patents. ~~How~~ India used to follow product based patent meaning innovators were not willing to design new processes for the same drugs/innovations due to lack of incentive. These raised costs & reduced impact of patenting.

Improved IPR Administration

- ④ There is a need for both a demand side & supply side approach.
- ① Administrative proactiveness through stronger surveillance/monitoring/reduced delays.
- ② Legislative reforms like ~~but~~ minimizing use of compulsory licensing clause can encourage innovation.

- ③ Atal Tinkering Labs for innovation and greater R&D investment (at least 3% of GDP) can fuel innovation led growth.
- ④ Startups and greater private sector involvement can spur innovation alongside greater educational focus on STEM subjects.
- ⑤ Shifting to process-based patenting to enhance growth in pharma, bio-pharma and related industries.
- IPR reforms can create an innovation-led economy and block the brain drain from India.

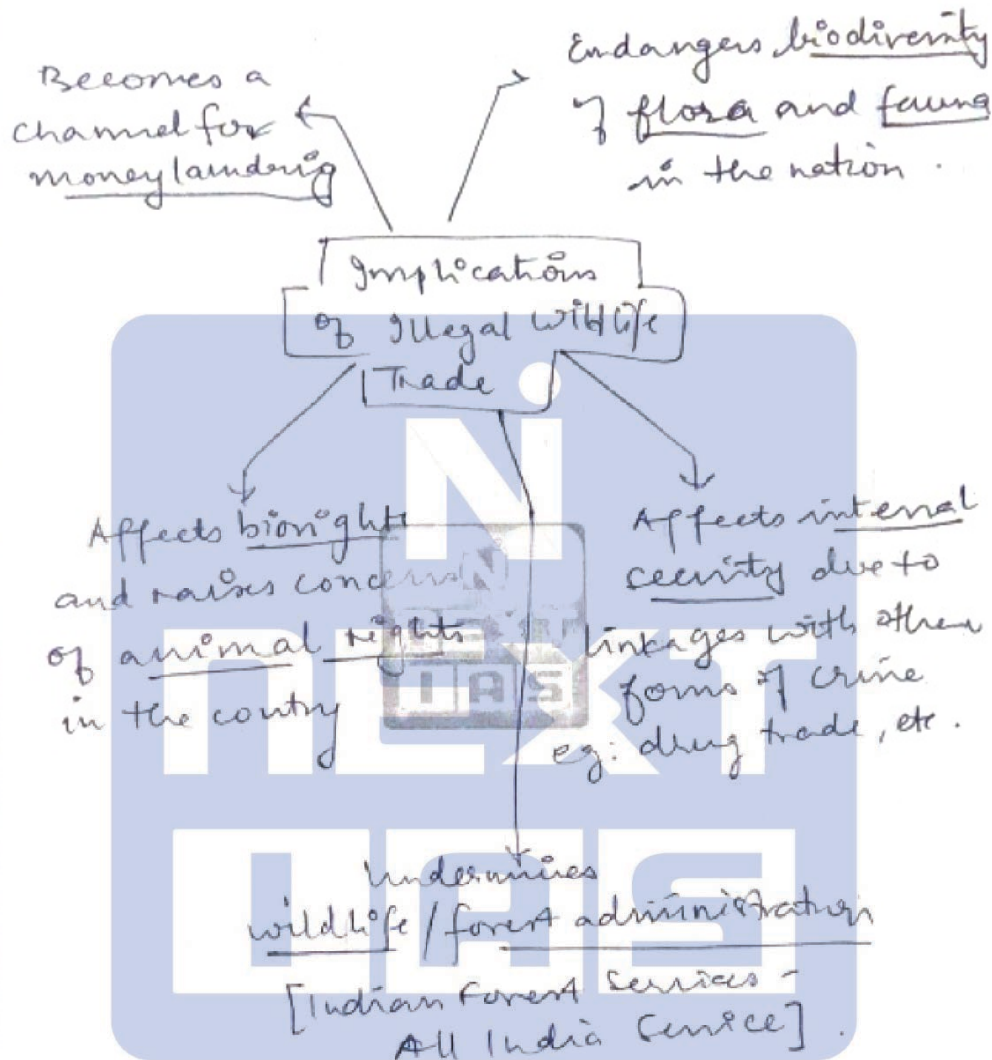
17. वन्यजीव संरक्षण अधिनियम में हालिया संशोधन जंगली जानवरों और पौधों के अवैध व्यापार को रोकने के लिए एक रूपरेखा प्रदान करते हैं ताकि यह सुनिश्चित किया जा सके कि उनके अस्तित्व को खतरा न हो। इस संबंध में भारत में अवैध वन्यजीव व्यापार के निहितार्थों का उल्लेख कीजिए तथा इस मुद्दे को हल करने के लिए हाल के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

Recently, the wildlife protection Act was amended to streamline its objectives and adopt an outcome-based approach to biodiversity preservation.

Amendments to WPA 1972

- ① 6 schedules have now been rationalized to 4 [first two have been grouped together for equal protection clause].
- ② Introduction of CITES animals in need of protection as Schedule 4 of the Act to give the Act a global character and link with international conservation goals.
- ③ Stronger penalties for illegal wildlife trade and violation of laws.



Effectiveness of Recent Amendments

The recent amendments are effective in the following ways:

- 1) Greater international linkage due to addition of CITES schedule can signal better interoperability of national mechanism and CITES for wildlife preservation

- 2) Schedules are rationalized which reduces confusion and offers greater protection to more fauna and flora.
- 3) Stronger penalties act as deterrent to illegal trade.

However, more is needed:

- ① Increasing training/modernization of forest official investigative wings.
- ② Targetting the nexus of wildlife trade with other illegal mechanisms like money laundering.
- ③ Working on better surveillance systems and early warning.

WPA Amendments are necessary but not sufficient conditions for reducing illegal wildlife trade in India.

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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.

Recently, Yamuna river waters crossed the 205.33 meters mark (upper limit) and flooded all of Delhi, creating a socio-economic crisis in the region.

[Factors Behind Increased Incidence & Severity of Floods:]

① Climate Change, induced by anthropogenic changes like higher GHG emissions creates changing weather patterns like severe climate events due to El Niño, etc.

② Unplanned Urbanization :

⊙ Congested cities, overcrowded slum areas.

⊙ concrete roads leading to run off and reduced percolation of water.

⊙ encroachment of the sea (Mumbai) and of natural lakes in the region (Bengaluru)

③ unsustainable River Administration makes the rivers incapable of absorbing rains and thereby cause flash floods.

Measures to Reduce Risk of Floods

① Short Run Measures :

- NDMA and DDMA action through National Disaster Response Force.
- targetted support through food/aid provision through use of geospatial technology and universal basic income.
- Rehabilitation and relief with special focus on women and children.
- involvement of health sector to reduce disease risk.

② Long Run Measures :

- blue-green infrastructure through sponge-city development, rainwater harvesting and miyawaki method.

- River Cities Alliance for planned infrastructure and ecosystem-based urbanization and disaster management
- Early warning systems (eg: ifloods in Mumbai) for better planning and adaptation to changing landscapes.
- Reduced GHG emission and nature-based solutions for sustainable development to reduce extreme climatic events causing floods.
- International support through Common But Differentiated Responsibilities, CDRI and climate justice pacts.

Thus, an integrated & holistic approach is required to reduce the risk & severity of urban flood crises in India.

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.

There is an increasingly entrenched link between organized crimes like drug trafficking, sex/slave trafficking, child labour and terrorism. It poses a severe challenge to intelligence & law enforcement agencies in India.

Link between Organized Crime & Terrorism

- ① One fuels the other through fund provision through money laundering.
- ② Channels of illegal trade become channels for terrorism eg. Indo-Pak border.
- ③ Movement of personnel, weapons and information are movement through similar channels thereby providing resources to fuel terror.

Intelligence Agencies and Law Enforcement in India have been relatively successful in tackling this litage seen in the reduced terror crimes since 2008 Mumbai attack, as per VAPA records.

However, more resources & capabilities are required:

- SMART policing as per Malimath Committee ref recommendations
- need to target hybrid terrorists - men and women that act as channels for movement of info/weapons but do not perform terror themselves.
- new scope of terrorism in the form of greyzone warfare needs to be targeted through cybersecurity like TechSagon and IC4.
- Shekatkar Committee for CIBMS implementation to reduce cross-border illegal trade.

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- linking of agencies through NATGRID
to increase synergy of law enforcement
and investigative agencies.

Thus, the linkage of organized
crime & terrorism poses new challenges
to the system of investigation &
law enforcement. Nevertheless, augmenting
these agencies can curb such crimes
and enhance the nation's security.

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। विवेचना कीजिए।

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.
(250 शब्दों में उत्तर दीजिए) 15 अंक
(Answer in 250 words) 15 Marks.

The Information Technology Act 2000 is a legislation that seeks to regulate ICT services in the country.

Emerging Challenges in Internal & External Communication Security

- ① Rising cases of grey zone warfare in which cyber threat is used to threaten nations/people.
- ② Data becoming a target for terror.
eg: China's log4j, Israel's Pegasus
- ③ Emerging crisis of data privacy and surveillance raising concerns of democratic rights to personal liberty.
- ④ Rise in social media creating fake news, sensationalism
eg: deepfakes, LockerBoys crisis.

Need for Safer CyberSecurity Ecosystem through ITA 2000

- ① The new, ^{Digital Personal} Data Protection Bill needs to be considered and IT Act must be aligned with the bill for adequate administrative functioning.
- ② Need for data localization clarity so that industrial misuse of data does not take place while businesses are not discouraged to invest in India eg: Google and facebook demands for data use.
- ③ Interoperability with Right to Information such that misuse of data by the government does not take place and accountability is ensured.
- ④ need to introduce clause for better security for critical information infrastructure to safeguard nationally strategic data centres.

Thus, there is a need to adhere to the Puttaswamy Judgement that privacy is part of the fundamental right to life and personal liberty (Article 21) while ensuring India's internal & external communications security.

