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1. केंद्रीय बजट 2024-25 में दीर्घकालिक पूंजीगत लाभ (LTCG) और प्रतिभूति लेनदेन कर (STT) के संबंध में महत्वपूर्ण परिवर्तनों पर टिप्पणी कीजिए। भारत की बचत और निवेश व्यवस्था पर ऐसे परिवर्तनों के प्रभावों का मूल्यांकन कीजिए।
(10 अंक, 150 शब्द)

Comment on the important changes with respect to the Long-Term Capital Gains (LTCG) and Securities Transaction Tax (STT) in the Union Budget 2024-25. Evaluate the impact of such changes on India's savings and investment regime.
(10 marks, 150 words)

Ans.

Long term capital gains (LTCG)

is profit earned by individual or organisation on sale of asset held for long period of time.
eg - more than 12 months in case of equity.

Security transaction tax

(STT) is type of tax charged by government as a fixed % of transaction value.

Union Budget 24-25 : changes proposed in LTCG and STT

- ① LTCG has been increased from 10% to 12.5%. (STCG increased from 15% → 20%)
- ② Exemption benefits on sale of real estate abolished
↳ however reinstated later due to demand from public.
- ③ STT increased in certain transactions.
eg F&O transactions in financial sector.

Impact of these changes on India's savings and investment regime:-

① Promote long term investments

↳ gap between STCG tax & LTCG increased (5% earlier to 7.5% now)

② Encourage savings and subsequent investment in financial sector

↳ Increased capital availability for private companies

↳ stability in economy (long-term)

③ Inflow of capital in Real estate

↳ due to indemnification benefits

However, increased tax rate may dissuade certain investors from financial sector.

④ Reduced speculative investments

↳ due to increased STT

Therefore, Budget 24-25 has pushed reforms, needed to achieve \$5 trillion economy by 2028.

2. भारत की एक कल्याण योजना "कोई भी व्यक्ति पीछे न छूटे" की कहावत के साथ आगत-आधारित दृष्टिकोण से परिणाम-आधारित सशक्तिकरण में परिवर्तन आया है। उपरोक्त कथन के आलोक में, चर्चा करें कि सरकार के दृष्टिकोण में इस परिवर्तन ने समावेशी विकास को किस प्रकार बढ़ावा दिया है। (10 अंक, 150 शब्द)

India's welfare scheme has undergone a shift from an input-based approach to outcome-based empowerment with the maxim of "no person left behind". In light of the above statement, discuss how this change in the approach of the government has fostered inclusive growth.

(10 marks, 150 words)

Ans OECD defines inclusive growth as a economic growth that is fairly distributed across the society and creates opportunities for all.

Shift in India's welfare scheme →
Input based approach to outcome based empowerment

① In the era of Planning commission

↳ 5 year plans → each new plan from scratch

↳ top to bottom approach

↳ no say for states

② However, In the time of Niti Aayog

↳ scheme formulation

↳ evidence based

↳ new allocation of resources

↳ based on success/failure of previous efforts.

Change in approach → fostering inclusive growth

① Benefits reaching needy

↳ leakages reduced

eg DBT using JAM trinity

(earlier ₹10/₹1 reached
now ₹1/₹1 reaching)

② Reduction in multidimensional poverty (MPE)

eg Niti Aayog → 24.8% people
elevated from MPE from 2015-21

③ Increase in women's condition

↳ reduced MMR

↳ increase Female LFPR (37% in 2023)

④ Subsidies to farmer eg - PM KISAN

↳ better life standard of farmer

However we
have miles
to go

→ skill gap in youth

→ feminization of agriculture

→ high out of pocket expenditure
on health (65%)

To become developed Nation by
2047, India will have to ensure growth of
all its citizens.

3. भारतीय कृषि की वर्षा आधारित प्रकृति इसे जलवायु परिवर्तन के प्रति अधिक संवेदनशील बनाती है। कृषि की जलवायु-अनुकूलता में गुणवत्तापूर्ण सिंचाई के महत्व पर प्रकाश डालिए। भारत में उपलब्ध सिंचाई पद्धतियों की समग्र दक्षता में सुधार के लिए क्या-क्या उपाय किए जा सकते हैं? (10 अंक, 150 शब्द)

The rainfed nature of India's agriculture makes it more susceptible to climate change. Highlight the importance of quality irrigation in the climate-adaptability of agriculture. What measures can be undertaken to improve the overall efficiency of the available irrigation practices in India? (10 marks, 150 words)

Ans. Climate change has caused extended dry spells with few extreme rainfalling days.

India's 51% of net sown area comes under rain fed agriculture. Any irregularities in rainfall, severely affects the crop yield and farmer's income.

Importance of quality irrigation in the climate adaptability of agriculture

- ① A 2019 research paper in 'Science' highlighted that
↳ use of micro irrigation, enhanced crop yield by 48-52%.
- ② Gujarat (1999-2009) adopted rainwater harvesting technique
↳ creation of 0.5 million micro-structures for irrigation such as bunds
↳ 9.6% year on year growth in agri-culture

Measures to improve overall efficiency of the available irrigation practices in India

- ① Support by government
 - ↳ microstructure creation for rainwater harvesting
 - ↳ Subsidies for adoption of micro irrigation
- ② Awareness generation among farmers
 - ↳ benefits of micro irrigation, rainwater harvesting
(at present, India's <10% area has micro irrigation)
- ③ Use of technology
 - ↳ IOT for need based application
 - ↳ data analytics for providing monsoon information to farmers
- ④ Rationalisation of subsidies
 - ↳ water and electricity subsidies have caused groundwater exploitation and soil salinity
 - ↳ crop diversification would help in improving efficiency of irrigation

Therefore efficient irrigation can be helpful in doubling farmer's income as desired.

4. भारतीय कृषि में पशुधन के महत्व को ध्यान में रखते हुए, विश्लेषण करें कि पशुपालन में निवेश भारतीय कृषि को प्रोत्साहित करने में किस प्रकार मदद कर सकता है। (10 अंक, 150 शब्द)

Considering the importance of livestock in Indian agriculture, analyze how investment in animal husbandry can help in incentivizing Indian agriculture. (10 marks, 150 words)

Ans. According to Situational Assessment Survey (SAS) 2018-19 by NSO, approximately 25% of farmer household's income is derived from animal husbandry.

Importance of livestock in Indian agriculture

① Level of mechanisation → approx. 45%.

In India

↳ majority of small and marginal farmers using bulks for ploughing.

② Animal waste → used as manure in farms

Farm residue → used as animal feed

③ Rearing of small ruminants such as goats → additional income for farmers (milk, wool, meat etc.)

④ Poultry farming → low cost high returns for farmers.

Investment in animal husbandry → incentivizing Indian agriculture

① Better breeds of livestock

↳ higher productivity in farming

↳ increased yield of milk, eggs, wool

↳ better income to

farmer

↳ invest surplus income

in agriculture.

② In times of distress

↳ farmer will have a source of backup

↳ reduced farmer suicides

③ Availability of credit

↳ loans on the basis of livestock ownership.

④ Reduced pollution

↳ instead of burning stubble

↳ fed to livestock.

Economic survey observed that animal husbandry can act as a catalyst in improving growth of agriculture and farmer's incomes.

5. आंध्र प्रदेश में भारतीय लॉरेल वृक्षों (Indian Laurel trees) की खोज ने पेड़ों में पानी को संग्रहीत करने और छोड़ने (store and release) की क्षमता में वैज्ञानिकों की रुचि जगाई है। इस संदर्भ में, पेड़ों में जल परिवहन और भंडारण (transportation and storage) की प्रक्रिया के पीछे के विज्ञान की व्याख्या कीजिए। (10 अंक, 150 शब्द)

The discovery of Indian Laurel Trees in Andhra Pradesh has sparked the interest of scientists in the capacity of trees to store and release water. In this context, explain the science behind the process of water transportation and storage in trees. (10 marks, 150 words)

Ans Recent discovery of Indian Laurel trees in Andhra Pradesh, displayed the capacity of trees to store and release water as per the atmospheric conditions.

Significance of these findings

- ① This capacity of storing and releasing water provides climate resilience to these trees.
- ② This technique can be used in areas - where native trees are under climate change stress
- ③ For creation of green wall
 - ↳ in Aravalli range areas
 - ↳ in sub-saharan areas
- ④ With use of hybridisation, we may create new species that will help us in climate action.

Science behind the process of water transportation and storage in trees

① capillary action

↳ responsible for upliftment of groundwater from roots to leaves

↳ narrow tubes (called xylems), due to high surface tension

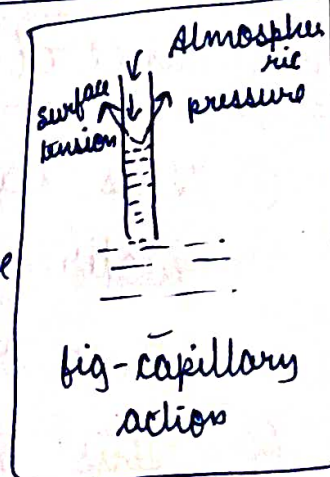
suck up the water.

② Structure of plant cell

↳ responsible for storage of water

↳ plant cells, unlike animal cells have cavities that store water in them.

↳ this provides shape to the cell as well as maintain temperature in control.



This discovery of water storage and release in Indian Laurel tree will be revolutionary to augment our climate action efforts.

6. सैन्य क्षेत्र में जिम्मेदार कृत्रिम बुद्धिमत्ता पर हाल ही में आयोजित वैश्विक शिखर सम्मेलन (आरईएआईएम, 2023 - responsible artificial intelligence in the military domain) ने सैन्य अनुप्रयोगों में कृत्रिम बुद्धिमत्ता के उपयोग से जुड़े अवसरों, चुनौतियों और जोखिमों को प्रदर्शित किया। इस संदर्भ में, रक्षा और सैन्य अनुप्रयोगों में कृत्रिम बुद्धिमत्ता के प्रभाव का आलोचनात्मक विश्लेषण कीजिए। (10 अंक, 150 शब्द)

The recently conducted global Summit on Responsible Artificial Intelligence in the Military Domain (REAIM, 2023) showcased the opportunities, challenges and risks associated with the use of Artificial Intelligence in military applications. In this context, critically analyse the impact of Artificial Intelligence in defence and military applications. (10 marks, 150 words)

Ans- Artificial intelligence refers to capabilities of computers to learn and process information similar to human mind.

Recently concluded global Summit on Responsible Artificial Intelligence in the military domain highlighted the need for responsible and sovereign AI

Impact of AI in defence and Military applications:

- ① AI helps in simulation exercises and training
 - ↳ enhanced military capabilities
- ② AI can be used for social media surveillance
 - ↳ identifies radical elements
 - ↳ better internal security

- ③ Use of AI in making military strategies. ~~eg~~ SWOT analysis of enemies
- ④ use of AI → to upgrade tactics in warfare in realtime.

However, experts argue that AI will produce certain challenges:

- ① Risk of Artificial general intelligence
↳ capable of replacing human
- ② Increased risk of cyber attacks
↳ can jeopardise military operation
- ③ Information provided may not be accurate
↳ dangerous for users
- ④ Increases inequality
↳ Since all the nations do not have equitable access to this technology.

Looking at above challenges, it seems prudent to ensure proper regulation of AI before deploying it in its full might.

7. लोक लेखा समिति ने हाल ही में प्लास्टिक प्रदूषण के बढ़ते खतरे के बारे में चिंता व्यक्त की है। इस संदर्भ में, प्लास्टिक प्रदूषण को रोकने के लिए सरकार द्वारा हाल ही में प्रारम्भ की गई पहलों पर प्रकाश डालिए। (10 अंक, 150 शब्द)
- The Public Accounts Committee has recently flagged concerns about the rising menace of plastic pollution. In this context, highlight the recent initiatives taken by the Government to curb plastic pollution. (10 marks, 150 words)

Ans

Public accounts committee, consisting of members of parliaments from both houses, highlighted issue of plastic pollution.

Factors : Plastic pollution rise

- ① Easy and cheap availability of single use plastic.
- ② Lack of awareness regarding its harmful impacts
- ③ Improper waste management
↳ in absence of segregation and recycling most of plastic generated is going into landfills, oceans and choking drainage.

Initiatives taken by government to curb plastic pollution

- ① Ban on single use plastic of thickness less than 120 microns.

② Polluter pays principle

↳ Responsibility of producer of plastic to take back certain % of it and recycle.

↳ penalty in case of non compliance

③ Swachh Bharat Mission

↳ Proper segregation of different types of waste

↳ Recycle plastic

④ Mission LIFE

↳ declining use of plastic, instead cloth bag or other alternatives.

⑤ Use of Jute in crop

↳ mandatory 100% jute bags for foodgrains

To fulfill SDG-13 life under water,

SDG-14 life on earth, we must eliminate the menace of plastic pollution.

While government efforts can help but active participation of citizens is required to achieve desired results.

8. भूस्खलन एक प्राकृतिक घटना के बजाय मानव-प्रेरित घटना बन गई है। भूस्खलन की बढ़ती घटनाओं के कारणों पर प्रकाश डालें और आपदा को कम करने के लिए क्या उपाय किए जा सकते हैं। (10 अंक, 150 शब्द)

Landslides have become more of a human-induced phenomenon rather than a natural phenomenon. Highlighting the reasons for increasing incidences of landslides, suggest measures that can be undertaken to mitigate the disaster. (10 marks, 150 words)

Ans -

Recent devastating incident of landslide in Waynad, Kerala that claimed life of more than 350 people, substantiate the fact the human activities are triggering landslides frequently.

Reasons for increasing incidents of landslides

① Mining activities

↳ iron mining in Goa region and other illegal mining activities along western ghats

② Increased human settlements

↳ Both in Himalayan region and western ghats, human population has crossed carrying capacity of ecosystem

③ Climate change

↳ Frequent episodes of cloudbursts, extreme rain etc. are also responsible for landslides.

- ④ unsustainable infrastructure
such as - roads, hotels, resorts
eg Silkyara tunnel collapse, UK

Measures to be taken to mitigate disaster:

- ① Early warning system
↳ for extreme weather events
↳ timely evacuation of people
- ② Ban on mining activities
↳ suggested by Cradgil panel
- ③ Sustainable tourism
↳ keeping in mind, the
carrying capacity of ecosystem
eg Odisha model → instead of
hotels, stay in existing homes
- ④ Preparedness in case of Disaster
↳ sufficient staff
including medical personnel

while both Himalayan area and
western ghats contribute greatly to tourism
industry, environmental sustainability will
make it long-term.

9.

राष्ट्रीय सुरक्षा के लिए खतरे धीरे-धीरे "भौगोलिक" से "विषयगत" (thematic) में बदल गए हैं। इस संदर्भ में, आंतरिक सुरक्षा की समकालीन चुनौतियाँ (contemporary challenges) क्या हैं और ऐसी चुनौतियों से निपटने के लिए क्या उपाय किए जा सकते हैं? (10 अंक, 150 शब्द)

The threats to national security have gradually transformed from being "geographic" to being "thematic". In this context, what are the contemporary challenges of internal security and what measures can be undertaken to deal with such challenges? (10 marks, 150 words)

Ans

Owing to its geographic location, India's security challenges have arisen from arc of instability (including - Iran, Afghanistan, Pakistan, Myanmar, China etc.)

However in changed times, these security challenges have transformed into thematic challenges majorly due to changing world order.

Contemporary challenges of internal security

① Unstable neighborhood

↳ political crises in Bangladesh, Sri Lanka, Myanmar

↳ mass and mixed refugee influx

② Cross border terrorism

↳ state sponsored by Pak, China

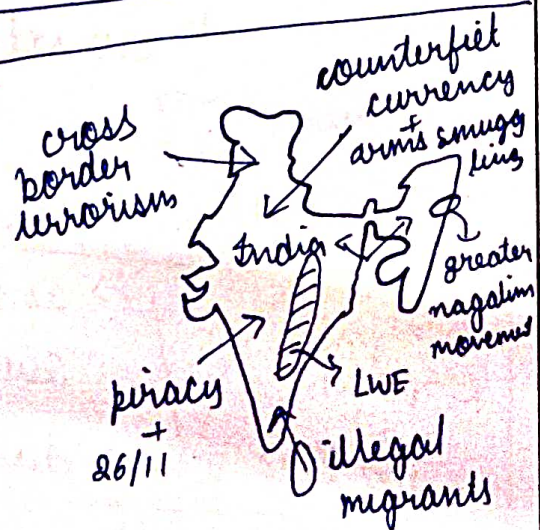


fig - India's internal security concerns

- ③ Insurgency in north east
↳ conflicts in Manipur, Assam
- ④ Arms, drugs smuggling
↳ due to ungoverned spaces
in neighborhood
eg BSF captured 119 drones carrying
drugs in 2023.
- ⑤ China factor
↳ border aggression eg - Doklam
↳ supporting anti-Indian elements
in neighborhood.

Measures to deal with such challenges

- ① Enhanced border security
↳ resolving 'porous border' issue
↳ surveillance using technology
eg Drone surveillance
- ② Intelligence collaboration
↳ among different agencies
such as - Police, BSF, CBI etc.
- ③ Economic development of these areas
↳ winning 'Heart and minds'
of natives

As external affairs minister S Jaishankar
said enhanced internal security will translate
into economic growth.

10. भारत के सीमा सुरक्षा ढांचे को मजबूत करने और सीमा पार खतरों से निपटने में उन्नत सीमा निगरानी प्रौद्योगिकियों (enhanced border surveillance technology) की भूमिका का मूल्यांकन कीजिए। (10 अंक, 150 शब्द)

Evaluate the role of enhanced border surveillance technologies in bolstering India's border security framework and addressing cross-border threats. (10 marks, 150 words)

Ans. India has traditionally dealt with 2-front threat i.e. China and Pak. However in recent time, political crises in our neighborhood, chinese expansionist activities in Indian Ocean such as String of pearls have presented 360° border threat to India's security.

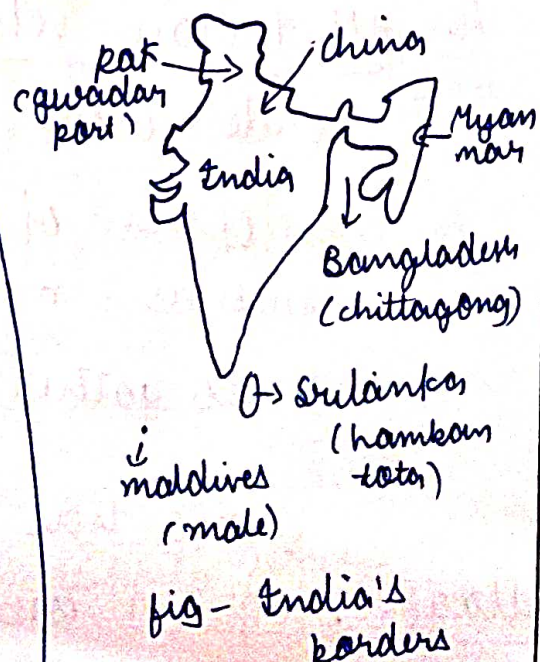
Role of enhanced border surveillance technologies in bolstering India's border security framework and addressing cross-border threats:

① Cross border terrorism

- ↳ from Pakistan border
- ↳ using drone surveillance, infiltrators can be intercepted

② Refugee influx

- ↳ on eastern border
- ↳ IR technologies to detect human movements



- ↳ use of night vision goggles
- ↳ to intercept movements in night

③ Drug trafficking, Arms smuggling

- ↳ Intelligence sharing will help

↳ NATGRID (national intelligence grid)

- ↳ training to personnel to shoot down drones carrying these consignments.

④ Screening technologies

- ↳ Such as explosive vapors detector, full body scanners at crossings

⑤ All terrain vehicles to patrolling in border areas.

⑥ Development of infrastructure such as - mobile networks, wireless etc. to gather ground intelligence.

India has initiated Vibrant village program in 2023 to enhance border security.

11. जबकि भारत में स्टार्टअप्स ने अर्थव्यवस्था में उद्यमशीलता और नवाचार को बढ़ावा देने में उल्लेखनीय सफलता हासिल की है, भारत में स्टार्टअप्स की स्थिरता को चुनौती देने वाले कुछ संरचनात्मक मुद्दे हैं। स्टार्टअप्स के सामने आने वाली इन चुनौतियों पर प्रकाश डालें और समस्याओं के व्यावहारिक समाधान सुझाएं। (15 अंक, 250 शब्द)

While startups in India have achieved notable success in fostering entrepreneurship and innovation in the economy, there are certain structural issues challenging the sustainability of startups in India. Elucidate upon these challenges faced by startups and recommend practical solutions to the problems. (15 marks, 250 words)

Ans-

In recent times, India has emerged as hub of startup economy, creating a number of unicorns.

Startups fostering entrepreneurship and innovation

① From job seekers to job providers.
↳ According to a report, India has 5th largest no. of startups in world

② Providing equal opportunities to women.

eg Falguni Nayar - Nayakaas

③ Promoting innovation and culture of excellence

eg zerodha → discount brokerage

Flipkart → e-commerce

④ Enhanced service quality for customers.

⑤ Startups in social sector

eg data backed Goodfellows

However, many of startups have not been sustainable due to certain structural issues:

- ① Funding - by VC, angel investors etc.
 ↳ Post pandemic, during sharp economic recovery, startups witnessed tremendous growth.
 ↳ However as growth rate declined, startups faced the heat.
 eg → Byju's - bankruptcy.
- ② Regulatory burdens
 ↳ As the scale of organisation grows, compliance burdens increase disproportionately.
- ③ Lack of infrastructure
 ↳ startups in the field of food processing, agro-products suffer from this. eg → cold storage infra
- ④ Monopolistic practices in certain sectors
 such as - telecom, airlines etc.
- ⑤ Excessive competition killing startups
 ↳ ed tech sector
 ↳ Hotel industry etc.

Practical solutions to above problems

- ① Reduce compliance burdens
 - ↳ self certification for certain industries
- ② Incentives to startups
 - ↳ tax breaks
 - ↳ PLI extended to other sectors
- ③ Ensure availability of skilled labour
 - ↳ skill India mission
- ④ Increase expenditure on R&D
 - ↳ from present 0.8% of GDP to 3% of GDP
- ⑤ Integration in global supply chain
- ⑥ Promote export oriented startups
- ⑦ Further liberalise the economy
 - ↳ space, defence, atomic energy, railways
- ⑧ Strengthen bodies such as -
competition commission of India
to discourage monopoly practices.

Sustainable startups are required to achieve \$5 trillion economy by 2028.

12.

भारतीय रेलवे के बुनियादी ढांचे के आधुनिकीकरण में सार्वजनिक-निजी भागीदारी की प्रभावशीलता का आलोचनात्मक मूल्यांकन कीजिए। सुरक्षा क्षेत्र को रेलवे के लिए प्रमुख चुनौतियों में से एक मानते हुए, भारतीय रेलवे के समग्र सुरक्षा मापदंडों में सुधार के लिए क्या उपाय किए जा सकते हैं? (15 अंक, 250 शब्द)

Critically evaluate the effectiveness of public-private partnerships in the modernization of railway infrastructure in India. Considering safety as one of the major challenges for railways, what measures can be taken to improve the overall safety parameters of Indian Railways?

(15 marks, 250 words)

Ans.

Indian railway has more than 60,000 km of railway track connecting all the parts of India.

Despite this, it is not able to cater to the demand. According to data by railway ministry - in 2023, the railway infrastructure was overloaded by 125%, leading to delays and accidents.

This calls for modernization of railway infrastructure in India.

Effectiveness of Public-Private Partnership in modernisation of railway infra

- ① Ensures capital availability
↳ Since fiscal capacity of government is limited.
- ② Better quality of work and material at competitive price
↳ due to efficiency of private sector.

③ Built-operate-transfer model

- ↳ reduces risk for private sector
- ↳ better service to travellers
- ↳ reduces burden on government

eg → Tejas train - operated by IRCTC

④ Availability of modern technology

- ↳ available with private sector

⑤ Timely completion of project

⑥

In recent times railway accidents have devastated the country. Some of the accidents are

- Odisha - Balasore
 - ↳ 3 trains collided (>200 fatalities)
- Andhrapradesh collision
- derailling in Rajasthan etc.

Measures to improve the overall safety parameters of Indian Railways

① Use of Technology

such as - Anti collision devices

to prevent accidents

↳ Animal movement sensors to prevent accidents

② Filling vacant posts

↳ According to a report, more than 20% of safety personnel posts are vacant in Railways.

③ Training to employees

↳ to avoid accidents.

④ Proper duty schedule

↳ active loco-pilots can prevent ~~set~~ accidents.

⑤ eliminating railway crossings

↳ underbridge / overbridge

⑥ providing wildlife corridor in certain areas

↳ no train-animal accident

⑦ Proper inspection of tracks

↳ and preventive maintenance

Modernisation of railway infra
will increase productivity of Indian railways
and preventing accidents will make it a
reliable travel mode.

13. "अगर उपज समय पर हमारी थाली तक पहुंच जाए तो खेती लाभकारी हो जाती है।" इस संदर्भ में, भारत में कृषि विपणन और परिवहन क्षेत्र के समक्ष आने वाले अपस्ट्रीम और डाउनस्ट्रीम मुद्दों पर प्रकाश डालिए। इस क्षेत्र की समग्र दक्षता में सुधार के लिए कौन-सी पहलें प्रारम्भ की जा सकती है? (15 अंक, 250 शब्द)

"Farming becomes remunerative if the produce reaches our plates in time". In this context, highlight the upstream and downstream issues faced by the agriculture marketing and transport sector in India. What initiatives can be undertaken to improve the overall efficiency of the sector? (15 marks, 250 words)

Ans. Farming sector has largely been unproductive for farmers. According to SAS 2018-19 by NSO, average monthly income of farmer household was only ₹ 10,218.

Experts argue that farming can become remunerative if supply chain issues are resolved and food processing sector is developed.

Upstream issues in agriculture marketing and transport

① Lack of infrastructure
↳ such as - cold storage infra
due to which perishable items are wasted.

② Existing middle man
↳ appropriate lion's share of profit
for vegetables, farmers not getting even 50% of market price.

② Lack of different modes of transport

↳ road transport → time taking
+ costly

↳ kisan rail → available in
selected routes only

↳ air transport → required to
transport exotic vegetables,
fruits etc. from N-E, other
regions

Downstream issues in agriculture marketing and transport sector

① Lack of supply chain integration

↳ instead of supplying directly to
restaurants, supermarkets, food processing
industries → selling to middle man

② Immature food processing industries

↳ lack of big units in this
sector

③ Use of technology

↳ could be used for dynamic
price discovery → increased farmer
income

④ Inconsistent demand → cobweb phenomenon

Initiatives to improve the overall efficiency of farming sector:

- ① 'Farm to fork' approach
 - ↳ based on customer feedback, grow what is needed.
 - ↳ contract farming
 - ↳ assured sale
- ② Push to food ~~sect~~ processing sector
 - ↳ can enhance farmer's income.
- ③ Mechanisation of farms
 - ↳ enhanced productivity
- ④ Micro-irrigation
 - ↳ increased productivity by 48-52%.
- ⑤ Export oriented
 - ↳ better income of farmer.

Agriculture sector employs 45% of population and contributes 18% to GDP.
Increasing efficiency will boost income of half of the population of India.

14. भारत की कृषि संबंधी निर्यात-आयात की नीतियां किसानों के बजाय उपभोक्ताओं की ओर अधिक झुकी हुई हैं। दिए गए कथन के आलोक में, किसानों पर आयात और निर्यात नीतियों के प्रभावों का आलोचनात्मक विश्लेषण कीजिए। किसानों को आयात-निर्यात संबंधी मूल्यों के दहशत से बचाने के लिए क्या उपाय किए जा सकते हैं? (15 अंक, 250 शब्द)

India's agriculture export-import policies are tilted more towards the consumers rather than the farmers. In light of the given statement, critically analyze the impact of import and export policies on farmers. What measures can be undertaken to shield farmers from import-export price shocks?

(15 marks, 250 words)

Ans. Indian government make agricultural export-import policies to control local prices of food products, to ensure that interest of both consumers and farmers are secured.

However, critics argue that these policies are more tilted towards consumers, because -

① Primary aim is to control inflation

eg India banned rice (non-basmati) export to ensure availability of rice in market and therefore price control.

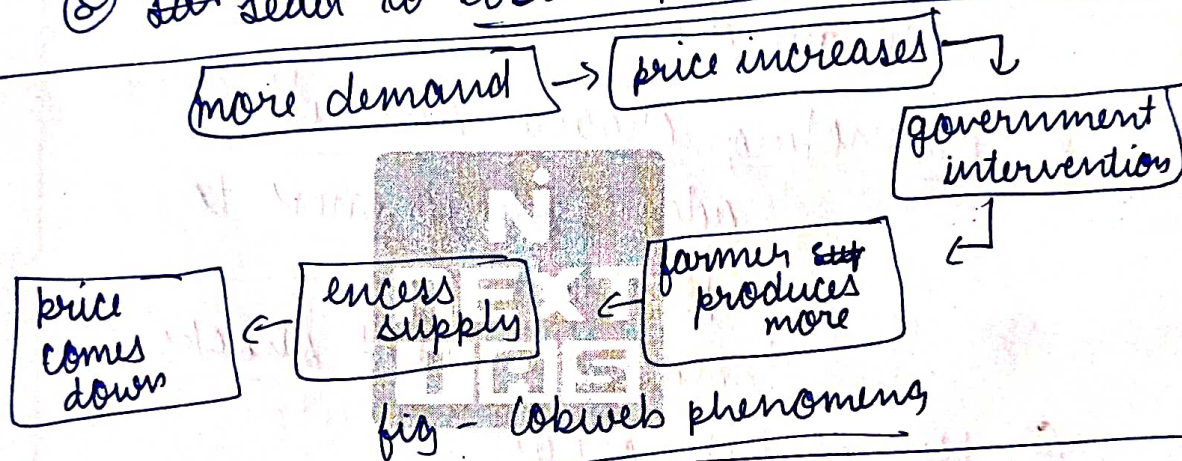
② For many items, minimums export price is fixed.

↳ to ensure majority of food is not exported

↳ availability in local market

Impact of import and export policies on farmers:

- ① Due to such interventions, farmers are not able to realise potential profits.
- ② Forced to sell in local market
- ③ ~~can~~ lead to cobweb phenomena



However, there are several positive impacts as well

- ① Protects farmers from competition from foreign producers

eg → Import ban on certain food products.

- ② Excess imports could lead to dip in prices → loss for farmers

- ③ export promotion → creation of infrastructure

↳ beneficial for farmer.

Measures needed to shield farmers from import-export price shocks

- ① Evolve import-export policies
↳ farmers can pre-decide,
which crop is beneficial for them.
- ② Infrastructure creation
↳ so that desperate sales
are avoided.
- ③ Promoting organic agriculture
↳ adds premiums to
product
↳ reduces market shocks
- ④ Use of technology
↳ such as - micro irrigation,
mechanization to increase
productivity
- ⑤ Increase value addition
↳ such as - food processing
eg Irradiation technology
increases shelf life.

Therefore, using these measures we
can double our farmer's income and
improve their living standards.

15. चिकित्सा विज्ञान में भारत की उन्नति, भारत की पहली कैंसर रोगी के इलाज के लिए CAR-T सेल थेरेपी का उपयोग करने में सफलता में परिलक्षित होती है। कैंसर और संबंधित बीमारियों के इलाज में CAR-T सेल थेरेपी के कामकाज और प्रभावशीलता पर चर्चा कीजिए। (15 अंक, 250 शब्द)

India's advancement in medical science is reflected in India's success in using CAR-T cell therapy to treat the first cancer patient. Discuss the working and effectiveness of CAR-T cell therapy in treating cancer and related diseases. (15 marks, 250 words)

Ans.

Chimeric antigen receptor-T cell (CAR-T cell) therapy is a genetic engineering technique useful in treatment of hard to cure diseases such as Cancer.

Recently, India has achieved milestone of successfully treating a cancer patient using CAR-T cell therapy.

Working of CAR-T cell therapy

In human body T-cells are designated to fight pathogens and restore immunity.

However, cancer cells render T-cells ineffective, therefore we modify these T-cells with receptors suitable to interact and identify cancer cells and destroy them.

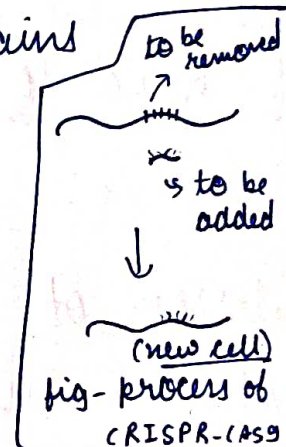
CRISPR - CAS 9

↳ This is the genetic nuclear engineering technique used to modify T-cell.

↳ CRISPR is a genetic scissor while CAS-9 is a guiding protein

↳ After replacing the desired set of nucleus code, we get new T-cell (chimeric because it contains foreign gene)

↳ capable of eliminating affected cancer cell

effectiveness of CAR-T cell therapy① Customised solution

↳ more effective

↳ does not damage healthy cells as in chemotherapy, radiation therapy.

② Has shown no side effects till date

↳ unlike conventional methods that cause many complications.

③ less chances of relapse into cancer

However, there are several challenges to this therapy:

- ① costly
 - ↳ due to customized nature
 - ↳ not every one can afford
- ② process takes time
 - ↳ complexity of genetic engineering
 - ↳ high precision required
- ③ effective against blood cancers
 - ↳ solid tumors are not easy to be treated by CAR-T cell therapy
- ④ Difficult to implement at mass level.
- ⑤ cancer cells might adapt to T-cell
 - ↳ by evolution
 - ↳ hence relapse into cancer
- ⑥ Still trials are not done at large number of people → extrapolating the results might not be accurate.

Such New technologies are helpful in achieving SDG-3 i.e. health for all.

16.

भारत के गगनयान मिशन और भारतीय अंतरिक्ष स्टेशन का मुख्य उद्देश्य क्या है? किन अन्य देशों ने अंतरिक्ष में अपने मानवयुक्त मिशनों को सफलतापूर्वक लॉन्च किया है? गगनयान मिशन और उससे संबंधित भारतीय अंतरिक्ष स्टेशन के सफल क्रियान्वयन के लिए कौन सी प्रमुख प्रौद्योगिकी की आवश्यकता है? साथ ही, इन मिशनों से जुड़ी चुनौतियों को भी स्पष्ट कीजिए। (15 अंक, 250 शब्द)

What is the main objective of India's Gaganyaan Mission and Bharatiya Antariksha Station? Which other countries have successfully launched their manned missions into space? What major technologies are required for the successful execution of the Gaganyaan Mission and related Bharatiya Antariksha Station? Also, elucidates the challenges associated with these missions. (15 marks, 250 words)

Ans

India, after successful Chandrayaan-3 and Aditya L-1, is planning for Gaganyaan mission in 2025, for which preparations are underway.

Objectives of India's Gaganyaan Mission and Bharatiya Antariksha Station:

- ① Technological expertise
 - ↳ in manned space mission
- ② Space exploration
 - ↳ possibility of human settlement
 - ↳ space tourism
- ③ Experiments in space
 - ↳ to test material properties
 - ↳ behaviour in absence of gravity
 - ↳ growth of plant and impact of humans in space

④ strategic autonomy

↳ Bhartiya Antariksha mission will reduce our dependence on other countries.

other countries that have successfully launched manned missions into space:

① USA → Apollo-11 mission

↳ even recently astronaut Sunita Williams was sent into ISS.

② USSR → they took our Indian astronaut Rakesh Sharma with them.

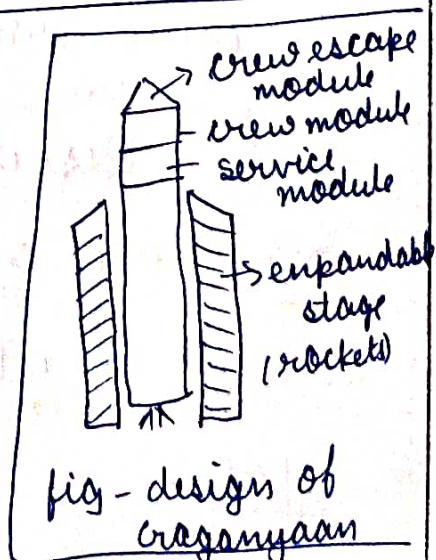
③ other countries are

Major technologies required for the successful completion of Gaganyaan mission and Bhartiya Antariksha station:

① Human rated launch

vehicle → launch vehicle with at least 98% successful launches

↳ India has LVM-III



- ② crew escape module
↳ to ensure safety of crew in case of any mishap
- ③ Human environment → in crew module
↳ to allow astronauts to survive mission duration in space
↳ we don't have this technology at present → ISRO is working on it.

challenges associated with these missions

- ① High upfront cost
- ② training of astronauts
- ③ technology → taking help of friend countries.
- ④ Involvement of Human life
↳ slightest of mistake can cause irreparable damage.

Despite these challenges, India is marching ahead with full enthusiasm, capability to establish our superiority in space.

17. "भारत की अपतटीय पवन ऊर्जा के क्षेत्र में उच्च क्षमता है, लेकिन कार्यान्वयन अभी भी कम है।" अपतटीय पवन ऊर्जा के दोहन में बाधा डालने वाली चुनौतियों पर चर्चा करें और संभावित समाधान सुझाएँ। (15 अंक, 250 शब्द)

"India's offshore wind energy has high potential but remains low on implementation". Discuss the challenges impeding the harnessing of offshore wind energy and suggest possible solutions.

(15 marks, 250 words)

Ans. According to International energy agency (IEA), India ranks 4th in the world, in wind energy installed capacity.

High potential of India's offshore wind energy

- ① Extensive coastline
of over 7000 km,
in addition to several
islands in A&N, Lakshadweep



fig - high potential
of India's offshore
wind energy

- ② Favourable winds
↳ Southwest monsoon
(May - September)
↳ retreating monsoon winds
↳ sea breeze

- ③ Land availability
↳ to install generation equipments

- ④ Energy demand
↳ domestic energy demand is there.

④ However, its implementation remains low, because

- ① High population density in coastal areas
- ② Land requirement is very high
- ③ high upfront cost in installation.
- ④ Energy price may not be competitive compared to fossil fuel.
- ⑤ Climate change is altering wind patterns
 - ↳ ~~eg~~ Europe faced severe losses due to this.
- ⑥ Lack of private investment
- ⑦ corrosion in coastal areas, increase the maintenance cost.
- ⑧ Endangers biodiversity
 - ↳ such as in Andaman & nicobas islands
 - ↳ difficult to get environment clearance
- ⑨ Lack of government push in this field.

Possible solutions to increase the share of offshore wind energy in India's energy basket :-

- ① Government subsidies
 - ↳ to install projects
- ② Power purchase agreements
 - ↳ make it compulsory to purchase wind energy → electricity.
- ③ Technology upgradation
 - ↳ material science → for corrosion resistance
 - ↳ small wind turbines
 - ↳ easy to install in lesser space.
- ④ Encourage PPP model
 - ↳ decreased risk to private sector
 - ↳ capital availability and technical expertise for govt.
- ⑤ awareness generation among natives
 - ↳ to allow such projects

Offshore wind energy is a useful method to achieve SDG-7 and fuel economic growth of these islands.

18. विकास के केंद्र होने के अलावा, शहरी क्षेत्र आपदा जोखिमों के संचय के केंद्र भी हैं। मेगा-शहरी समूहों (Mega urban cities) में आपदा प्रबंधन विशेष रूप से जटिल क्यों है? शहरी क्षेत्रों में आपदा प्रबंधन और जोखिम न्यूनीकरण की समस्याओं को दूर करने के लिए क्या उपाय किए जा सकते हैं? (15 अंक, 250 शब्द)

In addition to being the centres of growth, urban areas are also centres of accumulating disaster risks. Why is disaster management particularly complex in mega-urban cities? What measures can be undertaken to address the problems of disaster management and risk reduction in urban areas? (15 marks, 250 words)

Ans.

Urban areas house one-third of the population but contribute more than 2/3rd in the GDP.

However, apart from their economic growth, they are increasingly becoming centres of disaster risk. Recent flooding in Delhi, where 3 students lost their life is an example in this case.

Reasons for complexity of disaster management in mega-urban cities

① High population density

↳ Due to accumulation of industries, certain cities are overcrowded.

↳ slums are developed

↳ buildings constructed, with drainage encroachment, without following slope etc. → leading to disaster

② Narrow streets

↳ mainly due to encroachment
make rescue efforts difficult

↳ in case of fire, fire tenders
not able to reach in time.

③ Lack of safety measures

↳ corrupt officials certify
without inspection → disaster

↳ Industrial activities in basement

④ Lack of funding

↳ due to this, infrastructure
upgradation remains pending

measures to address the problem of disaster
management and risk reduction in urban
areas

① UNDRR in its guidelines specify

↳ trained personnel

↳ upgraded infrastructure

↳ mock drills at regular
interval

↳ awareness among citizens
to comply with norms

② All encroachments must be removed
↳ clear drains
↳ wide roads
↳ reduced risk and timely response

③ Periodical inspection of industrial premises
↳ to check violation of norms

④ Streamlining chain of command from local level to up to national disaster management authority (NDMA)

⑤ establish standard operating procedures.

Therefore, reducing risk and effective disaster management will ensure that innocent lives are not lost and economic activities are not hampered.

19.

भारत की आंतरिक सुरक्षा के लिए सोशल मीडिया और नेटवर्किंग साइट्स द्वारा उत्पन्न खतरों पर चर्चा कीजिए। सूचना और प्रौद्योगिकी नियम, 2021 के तहत तथ्य-जांच इकाइयाँ (FCU) सोशल मीडिया पर फर्जी खबरों के प्रसार के समग्र खतरे को नियंत्रित करने में किस प्रकार मदद करती हैं? सरकार द्वारा तथ्य-जांच इकाइयाँ (फैक्ट चेक यूनिट) स्थापित करने के बारे में प्रेस प्रसारकों और डिजिटल मीडिया प्रतिभागियों को क्या-क्या चिंताएँ हैं? (15 अंक, 250 शब्द)

Discuss the threats posed by social media and networking sites to the internal security of India. How do the fact-check units (FCUs) under Information and Technology Rules, 2021 help in controlling the overall menace of the spread of fake news on social media? What are the concerns of press broadcasters and digital media participants about the Government establishing fact-check units? (15 marks, 250 words)

Ans

Recently Supreme Court is a landmark judgement struck down fact-checking unit (FCU) established under IT act 2021, citing it violative of Article 19(1) freedom of speech and expression.

Threats posed by social media and networking sites to the internal security of India

① Spreading fake news, misinformation

↳ has the ability to cause social unrest

~~Ex~~ Mob lynching of engineers in Rajasthan due to fake news

② Radicalisation of youth

↳ unemployed youth falling prey to ISIS and other radical organisations.

③ Cyberfrauds
↳ taking information from such sites, cyberfrauds are carried out.

④ election manipulation
↳ social media is widely used to propagate narratives.

FCU → controlling in helping ~~sp~~ arrest of fake news

① Review any fact being spread on social media
↳ if not true, restrict its circulation.

② Accountability of social media companies

↳ trace the first person to generate the message

↳ take action against him.

③ Penalty for supporting fake news

↳ suspension of social media account

↳ fine / jail or both

as per severity of act.

concerns of press broadcasters and digital media participants about FCU

- ① May amount to censorship of press
↳ only that news can be released, allowed by government.
- ② Doesn't allow criticisms of ruling dispensation.
- ③ What are the objective parameters - to decide correctness of information.
- ④ Press will not be able to function freely
↳ required for vibrant democracies
- ⑤ Digital media participants
↳ will not be able to express their thoughts in a manner - critical of government.

Keeping in view the concerns of press, it becomes clear that while national security is paramount, it must not become a tool to suppress freedom of expression.

20. कश्मीर घाटी में हिंसा भड़काने में हिंसक गैर-राज्य अभिकर्ताओं (वीएनएसए-अपवसमदज Non-state actors) की भूमिका पर प्रकाश डालते हुए, चर्चा कीजिए कि सशस्त्र बलों द्वारा "ऑपरेशन सद्भावना" स्थानीय युवाओं की आकांक्षाओं को संबोधित करके वीएनएसए-ओजीडब्ल्यू (ओवर ग्राउंड वर्कर्स) गठजोड़ से कैसे निपट सकता है। (15 अंक, 250 शब्द)
- By highlighting the role of Violent Non-State Actors (VNSAs) in inflicting violence in Kashmir valley, discuss how "OPERATION SADBHAVNA" by armed forces can tackle the VN-OGW (Over Ground Workers) nexus by addressing the aspirations of local youth. (15 marks, 250 words)

Ans Kashmir valley has been affected by insurgency since independence. Presence of violent Non-state actors (VN-OGW) as well as support of Pakistan sponsored terrorists has made the situation explosive.

Role of VN-OGW in inflicting violence in Kashmir valley:

① With support of over ground workers (OGW) regarding - arms, ammunition logistics, stay etc., they are spreading violence in Kashmir valley.

The resistance force
↳ took responsibility of recent attack.

② Funding and training support from Pakistan and China
↳ easy to operate for them.

③ Targetting military convoys
in difficult terrains

④ Recruiting local unemployed youth
↳ even abducting non-willing
and forcing them to participate

⑤ Brainwashing youth
↳ to carry out human bomb
attacks

⑥ Attacking minorities in valley

Operation Sadbhawna → by armed forces

In addition to replying to
terrorists in the language of bullet,
armed forces are engaging with local
youth, to instil confidence and skills
among them.

The strategy of 'operation
Sadbhawna' is 'to win hearts and minds'
of natives.

Op. Sadbhavana → tackling the VNSA-OGW nexus by addressing aspirations of local youth

① Training to youth → skills → employment
↓
not vulnerable to radicalisation ← economic prosperity

② Instilling confidence among youth

↳ become eyes and ears of army on ground

↳ better info gathering

↳ effective elimination of VNSA-OGW

③ Bringing in open, the intention of VNSA

ie. to gain political, economic power

↳ Youth will desert these groups

Recent announcement of union territory legislative assembly election

for Jammu & Kashmir is indicator of

the fact that 'ballot has replaced bullet'

in J&K through efforts of government of India & armed forces.