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GENERAL STUDIES (TEST CODE : 2213)

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Medium Eng./Hindi	English	Registration Number	1083096
Center	ORR	Date	17/7/22

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
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15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

- Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
- There are **TWENTY** questions printed in **ENGLISH & HINDI**
इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
- All questions are compulsory.**
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one.
प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
- Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

1. An effective approach to green budgeting is underpinned by strong strategic framework, tools for evidence generation and an enabling budgetary governance framework. Discuss. (150 words) 10

हरित बजट के लिए एक प्रभावी दृष्टिकोण को सुदृढ़ रणनीतिक ढांचे, साक्ष्य निर्माण हेतु उपकरण और एक सक्षम वजटीय शासन ढांचे द्वारा सुदृढ़ता प्रदान की जाती है। विवेचना कीजिए।

Green budgeting can be defined as using the elements of the budget such as allocation of resource towards attaining the determined targets for the environment and climate. It is an important framework that accounts for the human impact on the environment.

Strategic framework + tools for evidence/monitoring + enabling budgetary governance framework = effective green budget.

Strategic framework

↳ clear targets for what needs to be achieved so that the requisite ministries can collaborate and achieve it.

eg:- Nationally determined targets of India

↳ targets that adhere to the local needs and are not one size fits all.

Tools for evidence generation

- ↳ Environment and social impact assessment for various projects.
- ↳ Social audits by the communities

Enabling budgetary framework

- ↳ on the lines of gender budgeting
- ↳ adequate discussions in the parliament on greening the environment.
- ↳ Appropriate resource allocation

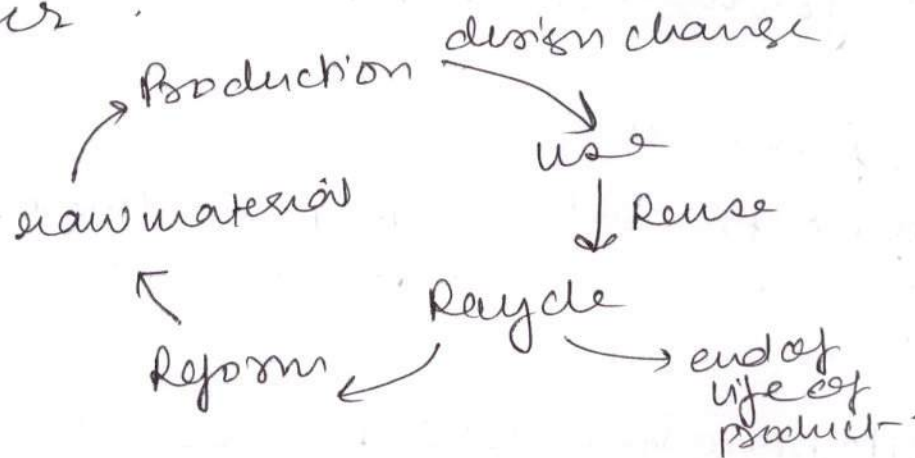
Green budgeting is an important aspect in the 21st century where the effects of climate change are more visible than previous centuries and there is need for collaboration and convergence

between the various stakeholders as it is an issue that affects all.

2. State the need for circular economy in India and the challenges associated with it. Also, discuss the measures that are required to build a circular economy in India. (150 words) 10

भारत में चक्रीय अर्थव्यवस्था की आवश्यकता और इससे जुड़ी चुनौतियों का उल्लेख कीजिए। साथ ही, भारत में एक चक्रीय अर्थव्यवस्था के निर्माण के लिए आवश्यक उपायों पर चर्चा कीजिए।

Circular economy is based on the premise that minimum waste is generated by changing the designs of production and keeping the products in use longer.



Need

① Waste generation

India's Recycle only 20% of the waste generated and hence a lot of product is wasted which could have served as raw material for other products.

② Increasing population and simultaneous increase in stress on resources. (Resource crunch)

- ⑧ Import dependence of India for a lot of critical elements in production of electronics which can be reused.

Challenges

- ↳ lack of technology to reform products.
- ↳ lack of awareness among masses.
- ↳ waste collection is largely an informal sector.

Way forward

- ↳ Investment in R&D to develop technologies needed for the circular economy
- ↳ collaboration with private sector to encourage investment and exchange of technology.
- ↳ Awareness campaigns to reduce wastage, workshops and seminars in educational institutions.

Circular economy should be adopted at a fast pace to keep up the sustainability of resource use and manage the resource crisis.

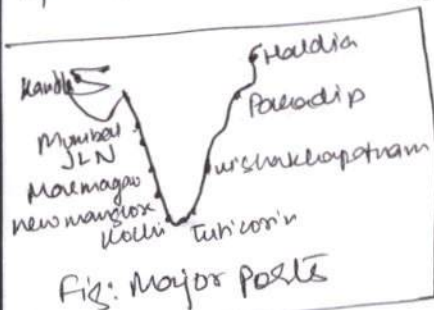
3. The Major Port Authorities Act, 2021, seeks to grant greater autonomy and flexibility to the major ports and professionalise their governance. Discuss.

(150 words) 10

प्रमुख बंदरगाह प्राधिकरण अधिनियम, 2021, प्रमुख बंदरगाहों को अधिक स्वायत्तता और लचीलापन प्रदान करने तथा उनके शासन को पेशेवर बनाने का प्रयास करता है। विवेचना कीजिए।

The ~~major~~ Ports in India handle 90% of export and import by volume and 70% by value. They are the gateways to the world for Indian commodities.

Hence to enhance ease of doing business the Major port Authority's Act 2021 has been enacted to increase the autonomy and flexibility of the major port except Ennore port.



Features:

① It establishes a Board for the Port which will have representative Trust which will have wider representation of the stakeholders.

② They are able to change rates set by themselves for the services and facilities offered on the ports.

③ They can collaborate with the private sector as per their choice.

for the development of the port and its facilities

4) They can use the CSR fund as per their wish in sectors like sanitation and hygiene which was not prevalent before.

5) They can raise funds from India and abroad for which they earlier required permission from the trusts.

These changes were much needed reform in the logistics sector considering the value of trade and the volume that the ports handle.

Way forward

- Audit by professional agencies to enable transparency.

4. Analyse the need for shifting from presumptive land titling to conclusive land titling system in India. Also, highlight the hurdles in its implementation. (150 words) 10

भारत में अनुमानित भूमि स्वामित्व से निर्णायक भूमि स्वामित्व प्रणाली में स्थानांतरण की आवश्यकता का विश्लेषण कीजिए। साथ ही, इसके क्रियान्वयन में आने वाली बाधाओं को रेखांकित कीजिए।

India is the 7th largest country in the world but the 2nd most populous. Land is a scarce resource considering the population.

NITI Aayog had suggested the need to shift from presumptive land titling which is prevalent in India presently to conclusive land titling.

Need

- to ensure define property rights
- Land reforms can be implemented if land titles are clear eg:- land pooling to benefit from economies of scale.
- Reduced litigation for title rights which form the majority of the pending cases in Judiciary.
- Access to credit by using mortgage. Currently it is based on the system of possession of land. Conclusive land titling will enable the govt. to

settle the land ownership

Challenges

- lack of requisite documentation with the people to prove their claims
- lack of resources to go for litigation against government.
- Lack of resources and personnel with the third tier of government to undertake exercise of clearing land titles on such a large scale.

Conclusive land titling is what India needs to day as on it rests the fate of further land reforms which can enhance the productivity of land and help manage the food security issues of the nation.

5. What do you understand by methanol economy? Critically discuss its role in achieving India's energy security and economic prosperity. (150 words) 10

मेथनॉल अर्थव्यवस्था से आप क्या समझते हैं? भारत की ऊर्जा सुरक्षा और आर्थिक समृद्धि प्राप्त करने में इसकी भूमिका की समालोचनात्मक विवेचना कीजिए।

Methanol Economy is one that is centred around the use of methanol, which is a low carbon fuel and can be used in gaseous form also. It is very less polluting and has negligible particulate matter emission.

Energy Security

- Can be used to power vehicles and reduce dependence on petrol and diesel.
- Can be used as cooking fuel instead of LPG.
- Can be generated from high ash containing coal found in India.
- Can be produced from natural sources such as agricultural waste etc.

Economic prosperity

- Reduce import dependence by mixing it with petroleum and diesel.
- Less polluting hence better living conditions for people which enhances human productivity.
- Production from farm can help in supplementing farmer's income.

Challenges

Technologies available for production from coal are not suited to the high ash content of Indian coal.

way forward

Investment in R&D to develop adequate technology for national production.

It is one of the nature based solutions which can be applied on a larger scale to tread towards sustainability and security.

6. Discuss the role of geospatial technologies in developing effective approaches for disaster risk reduction and disaster management.

(150 words) 10

आपदा जोखिम न्यूनीकरण और आपदा प्रबंधन के लिए प्रभावी दृष्टिकोण विकसित करने में भू-स्थानिक प्रौद्योगिकियों की भूमिका की विवेचना कीजिए।

Geospatial technologies use elements like geographical information system, geographical Positioning System and Remote Sensing to set data that is geo referenced and be used for multiple purpose.

Geospatial technologies in Disaster Risk Reduction

- ① Preparedness
↳ Sensitivity maps can be prepared and according zonation can be done.
- ② Prevention / Mitigation
Continuous monitoring of the areas via satellite images can help in identifying factors like glacial lakes which could erupt and cause floods.
- ③ Response
During a disaster, geospatial technologies can be used to identify

the routes that are available to reach the affected area or the places where people are stranded so that priority basis help can be sent.

⑨ Recovery

After a disaster has happened and the immediate relief has been provided; geospatial technologies can help in recovery and creating resilience by identifying the sensitive areas, creating buffer zones, etc.

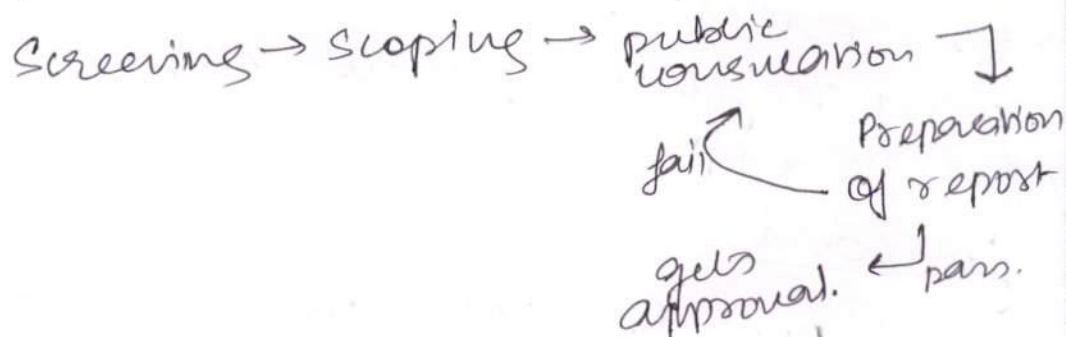
They also aid in early warning systems and protecting the back of cyclones or floods.

Geospatial technologies is an upcoming sector but it is majorly used in post disaster situation, there is a need to increase its use in the pre disaster stages to have a comprehensive disaster management.

7. The focus of Environmental Impact Assessment (EIA) needs to shift from utilization and exploitation of natural resources to conservation of natural resources. Discuss. (150 words) 10

पर्यावरणीय प्रभाव आकलन (EIA) का मुख्य ध्यान प्राकृतिक संसाधनों के उपयोग और दोहन से हटाकर प्राकृतिक संसाधनों के संरक्षण पर केंद्रित होना चाहिए। विवेचना कीजिए।

Environmental Impact Assessment is a series of steps that needs to be followed for a project to be set up in order to attain clearance for it to start.



The focus of EIA needs to shift from utilization and exploitation of natural resources to conservation of natural resources. because.

- ① not all the projects require EIA, some can be overlooked as they do not cross the threshold in terms of area or financial investment.
- ② There are too many exceptions in the recent amendment.

⑧ The reports are prepared by people selected ~~from~~ ^{by} the body that wants to get the EIA passed hence there is a conflict of interest.

⑨ They auditors do not pay attention to the sustainable manner in which the local population has been using the resources.

5) There are no follow up checks after granting approval.

Way forward

- Stringent punishment for flouting EIA norms and guidelines
- Independent authority to be set up for EIA
- adequate compensation to the local communities.
- fixed standards for projects with very few exceptions
- constant monitoring even after the approval is granted and power to revoke the clearance.

8. What do you understand by hybrid warfare? Discuss India's preparedness in this context. (150 words) 10

हाइब्रिड वारफेयर से आप क्या समझते हैं? इस संदर्भ में, भारत की तैयारियों की विवेचना कीजिए।

Hybrid warfare is when the conventional forms are mixed with unconventional warfare forms such that it puts the perpetrator in an advantageous position as the opponent's reactions are restricted.

India's Preparedness

- Lack of integrated command as various digital and technical issues are handled by different bodies.
- Anti satellite technology demonstrated.
- Median age of army soldiers is high which causes issues with adaptability of high technology

→ NATGRID

→ CERT-IN

Challenges

- low investment in creation of new technologies for upgradation
- less involvement of private sector hence low investment and less exchange of knowledge.
- Data breaches eg:- Pegasus may forward

→ Greater involvement of academia and private sector

↳ Increased investment in new technologies.

↳ Data laws.

Steps like Defence startup concave are steps in the right direction and need to be supplemented by more openness and adaptability to newer technologies to keep pace with the changing nature of warfare

9. Discuss the challenges associated with inclusion of women in armed forces, particularly in combat roles in India. How can these challenges be addressed? (150 words) 10

सशस्त्र बलों, विशेष रूप से भारत में युद्धक भूमिकाओं में महिलाओं को शामिल करने से संबंधित चुनौतियों पर चर्चा कीजिए। इन चुनौतियों का समाधान कैसे किया जा सकता है?

women form 50% of the population yet their representation in the armed forces is meagre. The army has ~~less~~ less than 1% women and they are not allowed in combat roles.

Army < Airforce < ~~the~~ Navy.
Increasing order of % composition of women, which is overall less than 10% in each of the forces.

Causes for exclusion/challenges in inclusion

- ① Patriarchal mindset, soldiers not taking orders from a woman.
- ② Lack of infrastructure in rugged terrain.
- ③ Physically considered less capable and most crucially in developed along male capabilities.
- ④ Staying away from family for long periods of time.
- ⑤ Sexual offences have been reported in countries where women are

inducted in combat roles also.

b) If a woman soldier ~~is~~ is caught, it puts the army in a compromising position.

way forward

- change the patriarchal mindset so that there soldiers can create a better generation ahead.
- Infrastructure can be built and provided
- Those women who qualify the requisite physical benchmarks should not be discriminated against.
- Women can aid in the adapting to the changing nature of warfare.

women form a considerable chunk of the population and with the adequate training they are as capable as male soldiers, hence these challenges which are superficial need to be addressed as soon as possible.

10. S. Chandrasekhar was one of the greatest scientists of the 20th century whose prolific contributions spanned across astrophysics, space and mathematics. Elaborate. (150 words) 10

एस. चंद्रशेखर 20वीं सदी के महानतम वैज्ञानिकों में से एक थे, जिनका खगोल भौतिकी (एस्ट्रोफिजिक्स), अंतरिक्ष और गणित के क्षेत्र में विपुल योगदान था। सविस्तार वर्णन कीजिए।

S. Chandrasekhar was one of the greatest scientists of the 20th century born on 19 October in undivided India.

Contributions

① Astrophysics and space

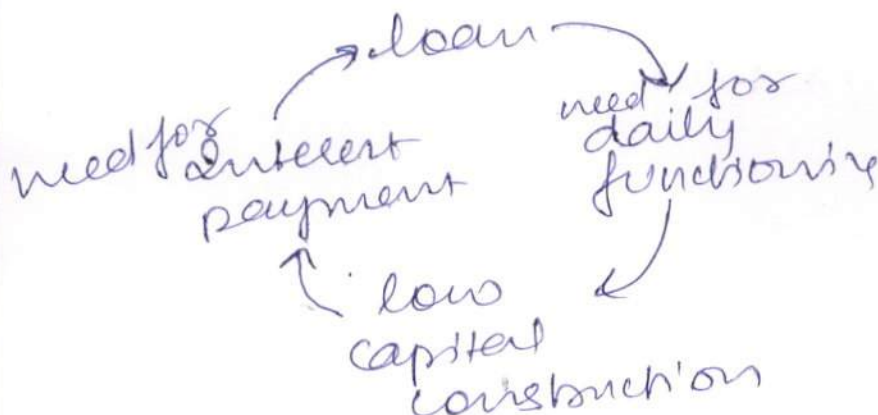
- Chandrasekhar limit, i.e., limiting the size of the sun. These kind of stars don't become white dwarf but continue to collapse and become ~~near~~ blackholes eventually.
- worked on the principles of stars and their formation for which he was awarded nobel prize in physics.
- Theoretical physics. working on the impact of sun's rays on the earth etc.

In mathematics he worked on the concepts of that had already been developed and used them in his theories.

11. State finances in India present a worrying picture, with debt sustainability being a major concern. Discuss in context of the recent RBI report on state finances. (250 words) 15

भारत में राज्य वित्त एक चिंताजनक स्थिति प्रस्तुत करता है, जिसमें ऋण संधारणीयता एक प्रमुख चिंता का विषय है। राज्य वित्त पर आर. बी. आई. की हालिया रिपोर्ट के संदर्भ में विवेचना कीजिए।

The RBI has released a report on the state of state finances and through the the condition is worrisome particularly in the context of debt sustainability where the states are at 31% interest rate to capital investment ratio which was recommended to be 20% by PRBM Act ~~by~~ by 2023.



Since there would be low capital contribution the chances of returns in the future are also diminished and it may lead to a debt trap situation.

Challenges

- reduced devolution of taxes as the pool is reduced in size
- increased cess and surcharge
- lack of compensation from low GST collection.
- People pleasing politics have increased subsidies and linked ~~MOP~~ procurement prices
- farm loan waivers.
- Pandemic → increased expenditure on crisis control.

Way forward

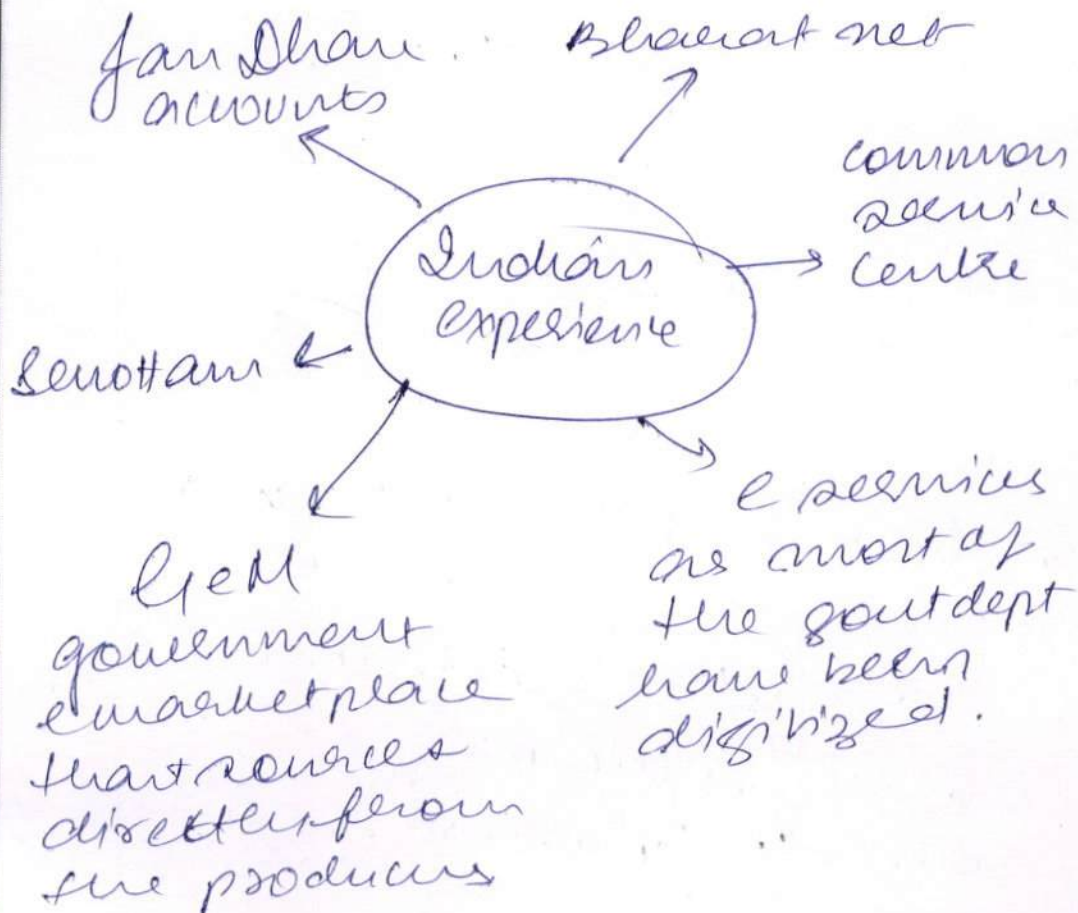
- ↳ Need to Relook the PRBM and recommendations in the light of the Pandemic.
- ↳ Better compensation from GST collection
- ↳ Public funding of development project
eg:- UP, if you donate land in public area for hospital it can be named after you. and compensates land in low populated area.
- ↳ PPP model for construction of assets

Fiscal health of the states needs to be taken care of as it is the states that determine the overall functioning of the nation's financial wellbeing.

12. The Indian experience provides several lessons of an inclusive digital economy model that enables formal digital governance structure at a low cost and with easier access. Discuss. (250 words) 15

भारतीय अनुभव एक समावेशी डिजिटल अर्थव्यवस्था मॉडल के कई सबक प्रदान करता है जो कम लागत पर और आसान पहुंच के साथ औपचारिक डिजिटल शासन संरचना को सक्षम बनाता है। विवेचना कीजिए।

Inclusive digital economy model is one that leaves no one behind while enhancing the efficiency and the efficacy of the government functioning.



Formal digital governance

- Transparent due to digitization and RTI
- Answerability as monitoring of application status is enabled
- Low cost
India has the lowest Internet charges.
- easier access
as the people don't need to travel far off to get things done since it can be accessed digitally by themselves or at the cc.

Challenges

- ↳ Digital divide
- ↳ Digital illiteracy
- ↳ Lack of infrastructure in areas that have rugged terrain etc.

- lack of human interface and hence mechanical grievance redressal.

Way forward

- ↳ Human capital development
- ↳ Superior service enhancement
eg:- Completing Bharat net targets



The Indian experience can serve as an example for inclusive governance and economy in the digital world ~~the~~ by providing it at a low cost and making it accessible, but there is scope for improvement which needs to be worked on.

13. Dairying is a viable livelihood option for a large section of the population. In this context, discuss the significance, challenges faced and associated government initiatives for the dairy sector in India. (250 words) 15

डेयरी व्यवसाय, आबादी के एक बड़े हिस्से के लिए आजीविका का एक व्यवहार्य विकल्प है। इस संदर्भ में, इसके महत्व, विद्यमान चुनौतियों और भारत में डेयरी क्षेत्र के लिए सरकार द्वारा की गयी पहलों की विवेचना कीजिए।

India is the largest producer of milk in the world and also has the largest cattle population. It is no surprise that Dairying is a viable livelihood option for a large section of the population.

Significance

- Diversity in Income
- work in lean season of crops
- Beast of Burden.
- Provides employment in rural areas.

Challenges

- very low production per animal in India when compared to the

Averages such as that of China or USA.

- ~~lot~~ smaller cattle.
- Prevalent Disease such as foot and mouth disease, Brucellosis etc.

Government Initiatives

- goat goats
- radio tagging of cattle to reduce cost cattle
- Artificial insemination to increase productivity
- Preservation of indigenous hardy breeds.
- vaccination to prevent FMD etc which cuts down the production of milk dramatically

The dairy sector has great potential to double farmers income when combined with other elements like horticulture and fisheries as it provides an alternative source of money in the face of climate change which has enhanced the variability in the production of crops.

14. The imperative to increase farmers' income must shift to creating value chains and must not be reliant on the MSP regime and subsidy bias prevalent in the current Indian agricultural system. Examine.

(250 words) 15

किसानों की आय बढ़ाने की अनिवार्यता को मूल्य श्रृंखलाओं के सृजन से जोड़ा जाना चाहिए और इसे वर्तमान भारतीय कृषि प्रणाली में प्रचलित एम. एस. पी. व्यवस्था एवं पूर्वाग्रहयुक्त सब्सिडी पर कतई निर्भर नहीं होना चाहिए। परीक्षण कीजिए।

The aim to double farmers' income is a magnanimous one and can be attained by diversification

being not be reliant on MSP and Subsidy?

- ↳ burden on the finances of state
- ↳ indiscriminate water use
- ↳ monocropping
- ↳ only crops with high MSP are grown which might not suit the agroclimatic region.
- ↳ excess buffer stock due to collection of food grains under MSP.

Why shift to creating value chains?

- ① diversified source of income
by horticulture, dairy etc.
- ② Cold storage
↳ money for cost
↳ less post harvest wastage
- ③ Partnership with firms
such that they have a
regular source of income
and not market dependent
- ④ Farmer producer organization
(FPO) to have greater access
to credit and economics
of scale.
- 5) greater security of income.

Challenges

- lack of cold storage facilities or
if present only for one crop
hence lay vacant for half year.
- lack of awareness.

← Land reforms not successful
due to unclear land titles.

Measures taken

- ⇒ SAMPADA food parks.
- ⇒ Kisan rail
- ⇒ Mobile cold storage
- ⇒ Formation of FPO.

Value chains need to be
cashred into by the farmers
considering the globalization
partly they want to come
out stronger in the market
and get the adequate price
for their produce.

15. What are the challenges in ensuring sustainable river management in urban areas? Highlight the remedial measures that can be taken for river management with a special focus on the recently launched River Cities Alliance. (250 words) 15

शहरी क्षेत्रों में संधारणीय नदी प्रबंधन को सुनिश्चित करने में कौन-सी चुनौतियाँ विद्यमान हैं? हाल ही में प्रारंभ रिवर सिटीज एलायंस पर विशेष ध्यान देते हुए नदी प्रबंधन के लिए किए जा सकने वाले उपचारात्मक उपायों को रेखांकित कीजिए।

Sustainable river management means the entire river basin is engaged in sustainable use of the water with conservation as well.

Challenges

Discharge of effluents from factories and drains

→ landfills

→ Religious practices such as idol immersion etc.

→ Percolation of chemicals from ground into the ground water and in the river system

→ Lack of ground that is not concretized to ensure ground

water recharge

↳ low sewage treatment

The River cities Alliance has been launched for those cities on the river banks such that they can cooperate and enhance the efforts to manage the river system by learning from best practices.

Remedies

- water front development on the river bank so that it attracts tourists and is mandated to be kept clean
- apportionation near the river banks so that the water is able to percolate down and recharge the groundwater while filtering it

- Miyawaki technique.
- identify point sources of pollution so that they can be remedied.
- Sewage treatment plants so that direct waste water is not disposed in the rivers.

Rivers have been the cradles of civilization since a long time and will continue to be so provided they are maintained. Else we also have instances like the Indus valley civilization ~~which~~ where the lack of water led to its decline.

16. Haphazard growth and poor management make the Indian cities the locus of disasters, both large and small. Comment. Also, discuss the current gaps in policies in addressing these challenges. (250 words) 15

अव्यवस्थित विकास तथा निम्न स्तरीय प्रबंधन ने बड़े और छोटे दोनों प्रकार के भारतीय शहरों को आपदाओं का केंद्र बना दिया है। टिप्पणी कीजिए। साथ ही, इन चुनौतियों का समाधान करने में नीतियों में विद्यमान वर्तमान अंतराल पर चर्चा कीजिए।

Nearly 31% of the population lives in urban areas in India and this number is only set to increase in the future.

The urbanization has not been planned but rather haphazard which is evident by the cropping up of slums and squatter settlements in various pockets of cities.

Cities as locus of disaster due to haphazard growth and poor management

① Pandemics as was seen in the case of Corona where the major metro politician

cities were the hub of contamination zones.

2) Malaria, Dengue, Chikungunya etc with the advent of rainy seasons due to stagnant waters as the drains are not desilted timely.

3) heatwaves due to enhanced concretization creating the urban heat island

4) Pollution due to vehicular emission deteriorates the air quality and causes diseases like asthma and tuberculosis

5) Poor management and lack of building protocols lead to haphazard construction which eventually collapses taking a toll on the human lives.

Gaps in policies

↳ uncontrolled migration to urban areas due to lack of employment opportunities in villages.

↳ not enough infrastructure to absorb the immigrants.

↳ lack of funds with the municipalities to ensure regular fossing and desilting of drains.

↳ informal economy that engages majority of migrant hence they stay despite inhuman conditions.

way forward

- employment generation to control migration
- Devolution of funds to local governments
- formalization of workforce.
- Slum rehabilitation.

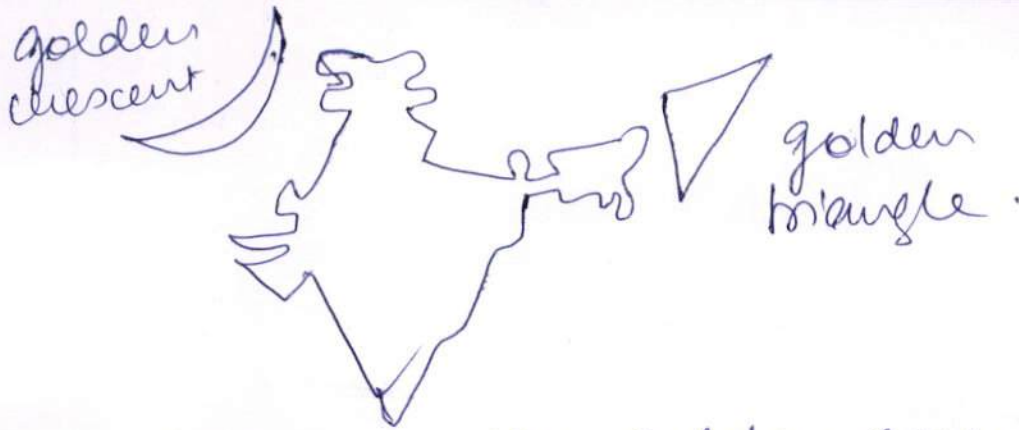
17. Discuss the extent of the problem of narco-terrorism in India. What measures have been taken by the government to counter and control this problem? (250 words) 15

भारत में नार्को-आतंकवाद की समस्या के प्रसार पर चर्चा कीजिए। इस समस्या से निपटने और नियंत्रित करने के लिए सरकार द्वारा क्या उपाय किए गए हैं?

Narco terrorism is when there is a nexus between the narcotics suppliers and the terrorist groups ~~and~~ who help in smuggling and trafficking of these substances and use the money generated from these activities as the source of financing terrorism.

Extent of narco terrorism in India

- ↳ Insurgency in Jammu and Kashmir
- ↳ Unrest in Punjab
- ↳ North east India greatly affected by narcotics abuse due to porous borders.



Lying between the golden crescent on the west and the golden triangle on the east, India is the middle ground for trafficking of drugs and substance abuse.

Measures taken

- Enforcement directorate
- Narcotics Control Bureau
- Psychotropic substances act
- Rehabilitation facilities for those affected by drug abuse
- Awareness generation programmes.

- Stricter border controls.

~~→ use of~~

may forward

- use and engagement of digital technologies to identify rackets using dark web for smuggling of drugs.
- Enhancing the capabilities of the existing agencies with greater convergence of functions.
- Campaigns among youth to about the ill effect of drug abuse.

Naxalism is one of the aspects that threatens the internal security of India and has both internal and external agents hence this nexus needs to be broken to ensure stability on the Indian soil.

18. The dark web can be an ideal platform for several criminal and terrorist activities. Discuss with examples. Also, suggest measures to tackle the misuse of dark web. (250 words) 15

डार्क वेब कई आपराधिक और आतंकवादी गतिविधियों के लिए एक आदर्श मंच हो सकता है। उदाहरण सहित चर्चा कीजिए। साथ ही, डार्क वेब के दुरुपयोग से निपटने के उपायों का सुझाव दीजिए।

The web that all of us can access is just the tip of the iceberg and the dark web underneath forms a major part of what stays hidden or requires a special software to access it.

Misuse of dark web

- Anonymous and secretive hence several criminal and terrorist activities take place here.
- ISIS uses it to radicalise the youth in India as per government reports
- Breach of personal information and selling it on the

dark web as a data base eg:-
Dominoes.

- Illegal goods such as drugs
are bought and sold on the
dark web due to difficulty
in tracing.

- human trafficking.

- Use of cryptocurrency further
adds another layer to the
anonymity and untraceability
of those who use the dark web.

- Parallel economy due to
money laundering using NFT.
Measures:

- Generate awareness about
the dark web among the
law enforcement agencies

- Research and development
in cyber criminal activities
eg:- Kerala Cyber Crime Project.

- Enhancing the capabilities of the enforcement agencies to keep pace with the fast changing technologies.
- Awareness among the masses so that they can report if they find suspicious content.

Digital empowerment is necessary but it also opens the Pandora's box to a lot of other things and hence an individual needs to be vigilant of what he/she comes across and has access to.

19. What is catalysis? Highlight the characteristics of catalysts. Also, elaborate why catalytic reactions are important for human beings. (250 words) 15

उत्प्रेरण क्या है? उत्प्रेरकों की विशेषताओं पर प्रकाश डालिए। साथ ही, उदाहरण प्रस्तुत करते हुए समझाइए कि मानव के लिए उत्प्रेरकी अभिक्रियाएं क्यों महत्वपूर्ण हैं।

Catalysis is a chemical reaction in which a catalyst is added other than the reactant and base which enhances the rate of reaction.

Characteristics of catalyst

- Do not undergo change in form or volume during the course of reaction
- Only increases the rate of reactions cannot initiate a reaction.
- Do not react with the other elements itself.

Importance for humans① Metallurgy/Commercial,↳ used to make metals that
are used in daily life② Organic reactionssuch as those that occur
inside our bodies like
breaking down of complex
sugars.③ Food processinghydrogenation of fats
to increase shelf life.④ Air purification eg : PlatinumChallengesMetabolic catalyst are very
expensive and scarcely
available.

The discovery of bio catalyst can help in increasing the production at a cheaper rate when compared to the metallic catalysts.

20. Electric mobility offers solutions to the problems associated with climate change, growing fuel prices, and urban transportation issues. Discuss in the context of India. (250 words) 15

इलेक्ट्रिक मोबिलिटी जलवायु परिवर्तन, ईंधन की बढ़ती कीमतों और शहरी परिवहन के मुद्दों से जुड़ी समस्याओं का समाधान प्रदान करती है। भारत के संदर्भ में चर्चा कीजिए।

Electric mobility alludes to the use of electricity as the means to power vehicles and automobiles instead of the regular fuels like petrol and diesel that require an internal combustion engine.

Solution to climate change

- ↳ Electric cars and buses have almost nil particulate waste generation.
- ↳ No dangerous gases such as NO_x , CO_x are released.
- ↳ Renewable sources of electricity production where traditionally polluting agents are not used.

Solution to growing fuel prices

↳ Reduce import dependence.
↳ higher efficiency hence higher performance.

↳ Diversified fuel basket hence more energy security.

Solution to urban transportation issues

- can be used in public transport like buses.
- doesnot create as much noise ~~as~~ as there is no engine under the hood.
- non polluting, doesnot create urban heat dome

Challenges

- Lack of adequate charging infrastructure.
- Recent shift from BS IV to BS VI hence low enthusiasm among producers to develop electric cars.
- Expensive not affordable by all.
- Maintenance requires specialized training, lack of skilled work force.

Way forward

- Invest in R&D to make it accessible to all at affordable price.
- Charging infrastructure in non metropolitan areas.
- Skill enhancement and develop human capital.