

GENERAL STUDIES (TEST CODE : 1233)

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Medium Eng./Hindi	ENG.	Registration Number	225253
Center	ORN	Date	22/07/19

INDEX TABLE		
Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
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9	10	
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11	15	
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13	15	
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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।

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.

1. Discussing the reasons behind disappearance of springs, examine how springshed management can help revive springs, especially in the Himalayan region. **(150 Words) 10**

झरनों के विलुप्त होने के पीछे निहित कारणों पर चर्चा करते हुए, परीक्षण कीजिए कि किस प्रकार स्प्रिंगशेड प्रबंधन झरनों, विशेषकर हिमालयी क्षेत्र में झरनों को पुनर्जीवित करने में सहायता कर सकता है।

Springs are natural water source which provide constant supply of water
Can be

Hot springs

Cold/normal springs

Formation/Source - Mainly ground-water

Reasons for its disappearance

① Lowering of ground water



② Land slides, disaster - It closes down many springs.

③ Disaster like floods & especially Earthquake - changes the internal plate tectonics & arrangement - affect Spring.

④ An Anthropogenic factors - illegal construction, land use, urbanization etc

Springshed Management

like watershed management, it includes all the probable area where springs are there or used to be there

- ① It will help in proper re-plantment of groundwater.
- ② Illegal activity can be checked.
- ③ Area can be mapped and demarcated for better land-use
- ④ Revival of old springs.
Springs are lifeline in Himalayan regions and also can be developed as sustainable eco-tourism.

2. Highlight the importance of iron and steel industry as the basic building block of the economy. In this context, discuss the key features of the National Steel Policy, 2017. **(150 words) 10**

अर्थव्यवस्था के आधारभूत निर्माण खंड के रूप में लौह एवं इस्पात उद्योग के महत्व पर प्रकाश डालिए। इस संदर्भ में, राष्ट्रीय इस्पात नीति, 2017 की प्रमुख विशेषताओं पर चर्चा कीजिए।

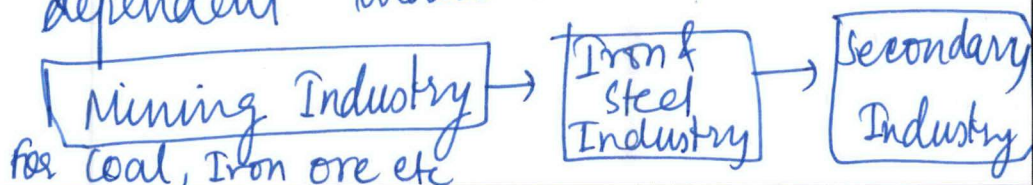
India just after independence developed ~~to~~ iron & steel industry
Now India have around 10 major
Iron & steel industry.

Importance

- ① Capital Industry
- ② Feeder industry - product from Iron & steel industry used in other industry
 ↘ to make machines
 ↘ to make end product like rails, steel equipments etc

- ③ Multiplier effect

- ④ Major job creator — If all dependent industries included :-



National Steel Policy 2017

- ① It sets the new target for steel products & steel consumption per capita steel consumption still low in India.
- ② Easing Raw material procurement like cooking coal - we import right now.
Also policy focussed on availability of raw material.
- ③ Debt restructuring so that debt ridden private sector companies can revive or exit market safely.

National steel policy will provide new boost to the industry. More focus should be now on developing secondary & tertiary industry.

3. Giving a brief account of rising nitrogen emissions in India, discuss why it is a matter of concern. What steps can be taken to limit such emissions?

(150 words) 10

भारत में बढ़ते नाइट्रोजन उत्सर्जन का एक संक्षिप्त विवरण प्रस्तुत करते हुए, चर्चा कीजिए कि यह चिंता का एक विषय क्यों है। ऐसे उत्सर्जन को सीमित करने के लिए क्या कदम उठाए जा सकते हैं?

Nitrogen account for 78% of all gases in atmosphere.

Harmful effect & Source of Nitrogen emission :-

① N_2 (gas) is ^{not} harmful, but in compound form like NH_3 NH_4^+ becomes harmful

② NO_2 , NO_3 - Nitrogen Oxides are released from fossil fuel and combustion.

③ Degrade the environment

④ Cause of acid rain

⑤ Cause respiratory problems and diseases.

⑥ Affect Ozone also.

Because of rising use of fossil fuel in transportation, Iron & steel industry, power sector, electricity generation etc. nitrogen emissions is on rise.

Steps that can be taken :-

- ① Filters & treatment especially in power sector before releasing the pollutants
- ② Moving to Electric vehicles and less polluting transport system — public buses, metro etc
- ③ Fertilizers - rationalizing its use
- ④ Burying of biomass especially by farmers after harvest. Proper monitoring & incentives should be given to reduce its emissions.

4. What is Strategic Environmental Assessment (SEA)? Draw a comparison between Environmental Impact Assessment (EIA) and SEA. **(150 words) 10**
रणनीतिक पर्यावरण आकलन क्या है? पर्यावरण प्रभाव आकलन (EIA) और रणनीतिक पर्यावरण आकलन (SEA) के मध्य तुलना कीजिए।

Strategic Environmental Assessment
is new concept related to
Environmental Assessment.

Environmental ^{Impact} Assessment is
very important as

- It gives clear picture - Holistic
- gives importance to ecology environment.
- livelihood, culture rehabilitation costs etc are also included.

Strategic EA (SEA) focuses also
on

focuses on critical infrastructure

strategic importance like important highway

for eg - along border area
even though forest is there,
Army Cantonment becomes
more imp

Eg - Important national highway
or railway project → It's
multiplier effect on whole economy
is also considered.

∴ EIA & SEA are two
concept but inter related to
each other.

5. Montreal Protocol is often considered as the most successful international environmental treaty. Highlighting the achievements of the protocol, discuss the reasons for its success. (150 words) 10

मांट्रियल प्रोटोकॉल को प्रायः सर्वाधिक सफल अंतर्राष्ट्रीय पर्यावरण संधि के रूप में माना जाता है। इस प्रोटोकॉल की उपलब्धियों पर प्रकाश डालते हुए, इसकी सफलता के कारणों पर चर्चा कीजिए।

Montreal Protocol relates to the phasing out of CFCs (Chloro Fluoro Carbons) so as to control the hole formation in Ozone over Antarctica

Recent observation suggests that not only hole has stopped becoming wider but also showing sign of recovery and new Ozone formation

Achievement of Protocol

- ① Stopped the widening of Ozone hole
- ② Recovery of hole - new Ozone forming.
- ③ Phasing out of CFCs - nearly all countries have achieved their target.

Reasons for success

- ① Universal - It is the only international protocol which is universal - all countries of United Nations have signed it.
- ② Implementation - proper implementation
- ③ Political will - strong political will was shown
- ④ Continuous Evaluation & Monitoring

Now we are heading towards HFCs (Hydro Fluoro Carbon) elimination by next 30-50 years. This will further improve our ozone layer

6. Analyse the phenomenon of 'Resource Curse', by giving adequate examples from around the world as well as India. **(150 words) 10**

विश्व और भारत से यथोचित उदाहरण प्रस्तुत करते हुए 'संसाधन अभिशाप' की परिघटना का विश्लेषण कीजिए।

'Resource Curse' is referred to phenomena when resource rich area is not able to progress

It includes :-

① Resource rich area - supplying raw materials to other areas which are deficient in resources.

② Over dependence on the resource leads to risk and uncertainty

③ Corruption & Mismanagement because of high prospects & easy money leads to rise in illegal mining, mafia politico-criminal nexus etc.

④ Political Instability & Statelessness

Eg World

① African Countries like Algeria, Libya, Equatoria Guinea,

Congo - Democratic republic of Congo

Rich in mineral resources but because of corruption & statelessness and external interference - remain one of the poorest country

② Venezuela - One of the highest reserve of proven oil reserve. Problem of political instability.

India

① Chota Nagpur region - Jharkhand, Odisha - change of government more than 10 times in 18/19 years in Jharkhand. Rise of Naxalism & tribal problem & Unrest.

We should move towards equitable and inclusive growth

7. Discuss the reasons behind increased instances of human-wildlife conflict and suggest some mitigation measures to address them. **(150 words) 10**

मानव-वन्यजीव संघर्ष के बढ़ते दृष्टान्तों के पीछे उत्तरदायी कारणों पर चर्चा कीजिए और इनसे निपटने के लिए कुछ शमनकारी उपायों का सुझाव दीजिए।

→ Recently human-wildlife conflict has increased. In India last year more than 300 died because of only elephants - highest in world.

Reasons :-

① Encroachment of forest area

② Deforestation & decreasing area of forests

③ Destroying important connecting

forests eg - destruction of

elephant corridors - nearly 90* out of 110 roughly elephant corridors are affected

④ Mismanagement of Forest

- Because of fencing (poor), and miss management of forest by forest officials → animals escape from reserve & core area of forest.

Mitigation

- ① Participatory Management of forest . For eg Joint Forest Management
- ② Solutions from local community
 - ↳ local forest dwellers, they know forest well . ∴ their knowledge should be used.
- ③ Restoration of Corridors
- ④ Allowing animals to move freely by connecting important forest areas.
- ⑤ Important National highway, roads railway should be made on elevated platform
we need participative approach to solve this problem.

8. Elaborate on the concept of rat-hole mining. In the context of North-Eastern India, highlight its ecological consequences. Also, explain why it still persists despite the ban imposed by National Green Tribunal (NGT)?

(150 words) 10

रैट-होल खनन की अवधारणा का सविस्तार वर्णन कीजिए। उत्तर-पूर्वी भारत के संदर्भ में, इसके पारिस्थितिकीय परिणामों पर प्रकाश डालिए। साथ ही, समझाइए कि राष्ट्रीय हरित अधिकरण (NGT) द्वारा इसपर प्रतिबंध लगाए जाने के बावजूद यह अभी भी प्रचलन में क्यों है?

Rat hole mining is disintegrated way of mining in which :-

① Practised in small scale

② Few people involved

③ No use of large machine

④ Hole is made & not the whole area is uncovered

⑤ No support & reinforcement

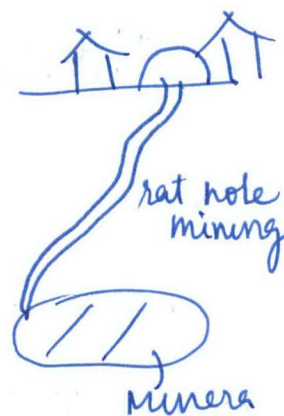
on the walls or roof of hole.

⑥ No proper safety mechanism followed

Recently in Meghalaya, many people died in rat hole mine

because rain water got filled inside it.

It is illegal in India, but quite prevalent especially in north eastern states.



Ecological consequences

- ① leads to severe exploitation - as many rat hole mining is prevalent.
- ② After mineral exhaust, it is left as such → leads to many problems
 - Affect ground dwelling animals
 - Contamination of ground water
- ③ Release of toxic gases - pollution

Why it is prevalent

- ① Livelihood - many areas, it is only job that is available.
 - ② Smaller deposits - so large scale mining not possible.
 - ③ Politico - Miners Nexus
 - ④ lax implementation by authority
 - ⑤ Vote-bank politics - so strict actions are not taken
- we need strong political will & multi stake holder cooperation to truly ban this practice.

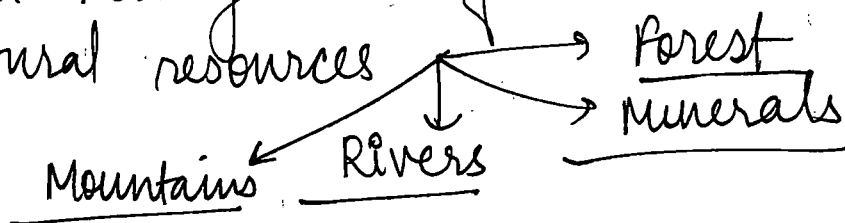
9. Growth of natural capital is vital for sustainable economic development in India. In this context, state the concept, strategy and broad policy guidelines for Natural Capital Accounting (NCA) for effective management of natural resources.
(150 words) 10

भारत में संधारणीय आर्थिक विकास के लिए प्राकृतिक पूंजी की वृद्धि अपरिहार्य है। इस संदर्भ में, प्राकृतिक संसाधनों के प्रभावी प्रबंधन के लिए प्राकृतिक पूंजी लेखांकन (NCA) की अवधारणा, रणनीति और व्यापक नीतिगत दिशानिर्देशों का वर्णन कीजिए।

Natural capital refers to the natural resources and consider it as valuable capital which can be utilized for economic growth.

Natural Capital Accounting

Concept - It is method of accounting and management of all the country's natural resources



Strategy

① Holistic approach for accounting instead of segregated approach

② Sustainable Use not exploitative

③ Resource replenishment - sufficient
time is given.

④ focussing on wise use.

Broad Policy

① Conserve our natural resources

② Sustainable use

③ Treating natural resources as
capital.

④ Enhancing use & using natural
resources more efficiently.

NCA is a great tool for
effective management of natural
resources.

10. Discuss the factors responsible for location of high-tech industries in the vicinity of major metropolitan regions. (150 words) 10

प्रमुख महानगरीय क्षेत्रों के समीप उच्च तकनीकी उद्योगों की अवस्थिति के लिए उत्तरदायी कारकों की विवेचना कीजिए।

High-tech industries refers to high technologically driven industries like IT, ITes, FinTech, AI etc

It is mainly located near major metropolis like Delhi, Mumbai, Bangalore, Hyderabad

Factors Responsible :-

① Require Human Resource instead of raw materials available in metropolis

② Availability of Infrastructure like high speed internet, electricity etc.

(3) Communication Network well established in cities.

(4) Presence of other high-tech Industries

↳ Usually they are dependent on other industry - interlinked.
↳ so once industry develops, more comes up -

(5) Work Culture, availability of good colleges for fresh recruitments etc.

India in recent years seen a boom in information technology sector. To make use of demographic dividend we require growth in this sector.

11. Analyse how far the Katowice Climate Package goes in achieving the objectives of the Paris Climate agreement amid the concerns of developing countries like India. **(250 words) 15**

विक्षेपण कीजिए कि भारत जैसे विकासशील देशों की चिंताओं के संबंध में पेरिस जलवायु समझौते के उद्देश्यों को प्राप्त करने में 'केटोवाइस जलवायु पैकेज' कितना कारगर सिद्ध हुआ है।

Paris Climate Agreement in 2015
was a landmark agreement for
climate change.

Katowice Climate Package is result
of conference in Katowice, last year

Analysis

① Pull out of major contributor
United States from Paris Agreement

→ It's difficult to achieve target
without a country like US.

② welcoming of report by IPCC
which showed need to restrain
ourself- to 1.5°C heating above
pre industrial level.

as 2°C rise still have devastating
impacts.

- ③ Nationally Determined Contributions are not sufficient to achieve 2°C temp rise limit even if all nations achieve their goals 100%. More contributions are required.
- ④ Working model to implementation of Paris climate agreement from 2020 onwards was finalised.
- ⑤ Reporting & standardization for calculation of emissions etc was finalised.

Issues

- ① Contribution by Developed country still far from \$100 billion per year target
- ② Nationally determined aims are not sufficient.

Concern for India

① Developing countries are at highest risk and would be affected badly by climate change. In fact it is happening - recent instances of extreme climatic conditions

② Submergence of coastal areas. Many people live in these areas. Coastal cities - Mumbai, Chennai

③ Technology sharing & Investment. India needs investment in cleaner technologies

④ Adaptation, Mitigation - developing country face problem in these areas. would need stronger commitment and multi dimensional approach to deal with the greatest threat that humanity face today i.e climate change

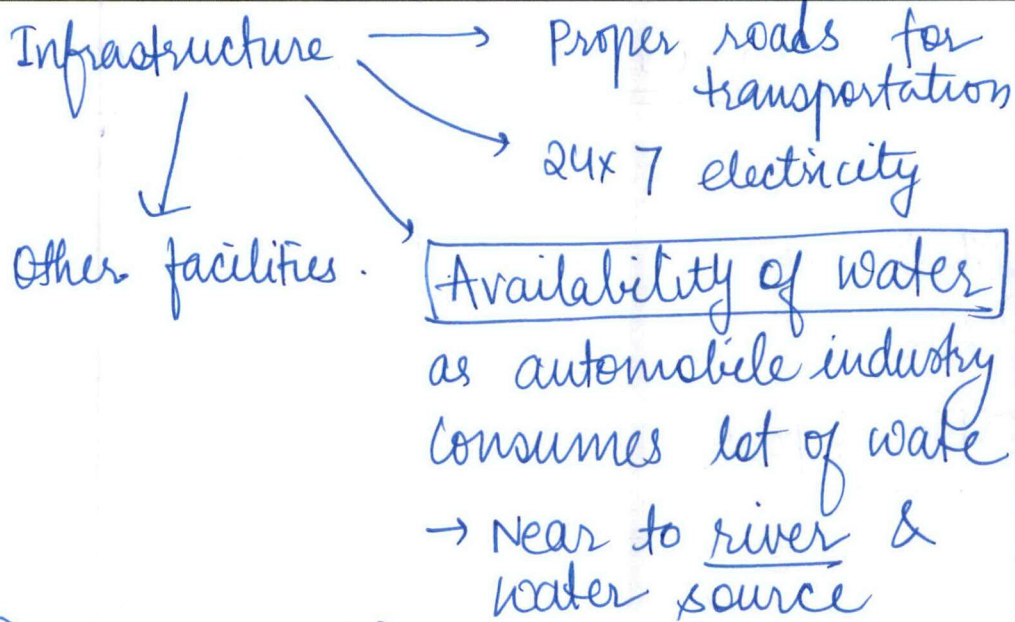
12. Highlight the factors responsible for location of automobile industries in India. Also, examine the challenges in the wake of transformations taking place in the automotive industry. **(250 words) 15**

भारत में ऑटोमोबाइल उद्योगों की अवस्थिति के लिए उत्तरदायी कारकों पर प्रकाश डालिए। साथ ही, ऑटोमोटिव उद्योग में हो रहे परिवर्तनों के आलोक में चुनौतियों का भी परीक्षण कीजिए।

Automobile industry recently has shown sluggish growth, even sales are decreasing in many months.

factors for location :-

- ① Closeness to Iron & Steel Industry
as automobile industry require steel.
- ② Port & shores - as many parts are imported especially engine & also for export purposes.
- ③ Human skill & Infrastructure
Southern states now have much of production units



- ④ Other Industries & Special Economic zones
 as many small industries & MSMEs supply parts to automobile industry
- ⑤ favourable state government policies
 like tax holidays or consistent policy etc

Challenges

- ① competition from Electronic Vehicles (EVs)
 → traditional automobile industry is facing problem → especially policy related
 ↓
 as government is firm on achieving target for EVs

② New Technology — every company is trying to innovate and produce better vehicles especially new line of EVs.

③ Man Power — new man power required as vehicles → more electronic

④ Production facilities — needs to be automatized & robotic machining are needed — for better quality control
↓
to remain competitive. → better efficiency

⑤ Charging infrastructure

⑥ Use of Artificial Intelligence for driverless cars — need data analysts etc

Because of transformative change, there are now plethora of challenges for automobile industry. Proper government support is needed to maintain this industry which provide one of the largest jobs in the country.

13. Examine the factors responsible for causing soil pollution in India. Discussing its impact on various ecosystem services, suggest some remedial measures to restore polluted soil. **(250 words) 15**

भारत में मृदा प्रदूषण के लिए उत्तरदायी कारकों का परीक्षण कीजिए। विभिन्न पारिस्थितिकी तंत्र सेवाओं पर इसके प्रभाव की विवेचना करते हुए, प्रदूषित मृदा का जीर्णोद्धार करने के लिए कुछ उपचारात्मक उपायों का सुझाव दीजिए।

Soil pollution refers to degradation of soil quality

Factors responsible :-

- ① Industry effluent - especially from pharmaceuticals, leathers, chemical etc.

Proper treatment not happening before releasing wastes.

- ② Soil waste Dumping - landfill sites leaching of chemicals (toxic) into the soil → also polluting groundwater

- ③ Use of excessive chemicals & fertilizers reduces fertility of soil eg - Punjab, Haryana

- ④ Lack of Sewage Treatment Plants in India, Open defecation etc

It's impact :-

① Disturbs the soil ecosystem

↳ Agriculture productivity goes down.

↳ Beneficial soil bacteria dies

↳ small soil organisms like worms, insects affected.

② Soils pollutants reach water bodies.

↳ leads to eutrophication

↳ Affect aquatic life eg fishes

③ Food chain - toxic

↳ harmful chemicals are taken up by plants

↳ Bio magnification & bio accumulation

↳ Affects animal, plants & human health

④ Livelihood - especially those directly dependent on soil eg - Farmers

Remedial Methods :-

① In situ remediation

↳ Use of organic fertilizers

↳ Tilling & sun drying

↳ Use of certain plants which takes up toxic chemicals

↳ certain micro organisms also break toxics.

② Out Situ Remediation - taking out top layer of soil and treating at separate place.

③ Controlling point of pollution - industry outlets etc.

④ Proper Infrastructure for waste treatment

⑤ strict implementation of pollution & environmental norms.

⑥ Afforestation

Thus by following these steps we can control & reverse the process of soil pollution

14. What is Conservation Agriculture? Highlight the prospects and challenges of adopting Conservation Agriculture in India. Also, mention some important policy considerations for its promotion. (250 words) 15

संरक्षण कृषि क्या है? भारत में संरक्षण कृषि को अपनाने की संभावनाओं और चुनौतियों पर प्रकाश डालिए। साथ ही, इसके प्रोत्साहन के लिए कुछ महत्वपूर्ण नीतिगत उपायों का भी उल्लेख कीजिए।

Conservation Agriculture is new method of agriculture in which everything is minimized like inputs and whole process is made efficient.

15. Delineate various regions which have high potential for hydro-electricity generation in India. Discuss the impact of hydroelectric projects on the environment. (250 words) 15

भारत में जल-विद्युत उत्पादन की उच्च संभावना वाले विभिन्न क्षेत्रों का वर्णन कीजिए। पर्यावरण पर जल-विद्युत परियोजनाओं के प्रभाव की विवेचना कीजिए।

Hydro-electricity contribute around 20% in India's energy mix of total energy/ electricity generation

Various Regions are :-

① Himalayan Region

various river basins :-

(a) Indus river system

→ Ravi, Satluj, Jhelum etc

(b) Ganga - Brahmaputra

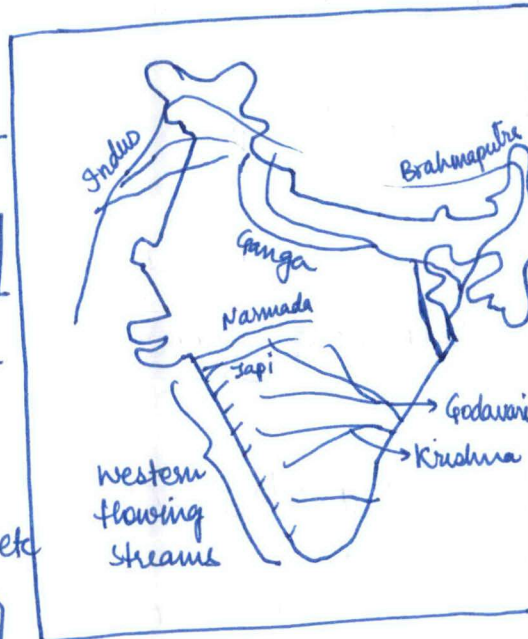
→ Yamuna, Dihang etc

② Krishna - Godavari Basin

because of deccan plateau & elevation several hydro-projects can be constructed

③ High speed western flowing rivers & streams

↳ Although many rivers are seasonal but this region enjoys higher drop in elevation



as compared to eastern flowing rivers -
↳ By making reservoirs, large hydro powerplants can be set up.

Impact of Hydroelectric plants :-

① Disturb the natural flow of river

↳ Government now came up with ecological flow which has to be maintained

② Earthquake risks

↳ can generate earthquake also.

③ Older dams + cracks - becomes vulnerable - any time can lead to disaster.

↳ Dam rehabilitation & restoration project - Government with the help of World Bank trying to restore some vulnerable dams.

- ④ High cost of maintenance once it becomes old
- ⑤ lead to large area - under water
Submergence initially
→ affect the forest cover area.
→ Release of methane gas due to anaerobic decomposition of organic material like trees etc.
- ⑥ large scale Displacement of Tribals and forest dwellers and people living near by.
↳ lead to problem of job, culture, rehabilitation problem.
- ⑦ Huge initial investment.

Because of these reasons, now many argue that large dams & hydro projects are not sustainable. Instead other techniques like small hydro project, run on river projects etc should be explored.

16. Elaborate the concept, objectives and distribution of Petroleum, Chemicals and Petrochemical Investment Regions (PCPIRs) in India. Also, examine why the PCPIRs have failed to achieve the desired success. (250 words) 15

भारत में पेट्रोलियम, रसायन और पेट्रोसायन निवेश क्षेत्रों (PCPIRs) की अवधारणा, उद्देश्यों एवं वितरण का सविस्तार वर्णन कीजिए। साथ ही, परीक्षण कीजिए कि PCPIRs वांछित सफलता प्राप्त करने में क्यों विफल रहे हैं।

India recently released Petroleum, Chemicals and Petrochemical Investment Regions (PCPIRs) so that private investment can come in these areas.

Concept & Objective

① Treating Petroleum & petrochemical industry as one unit

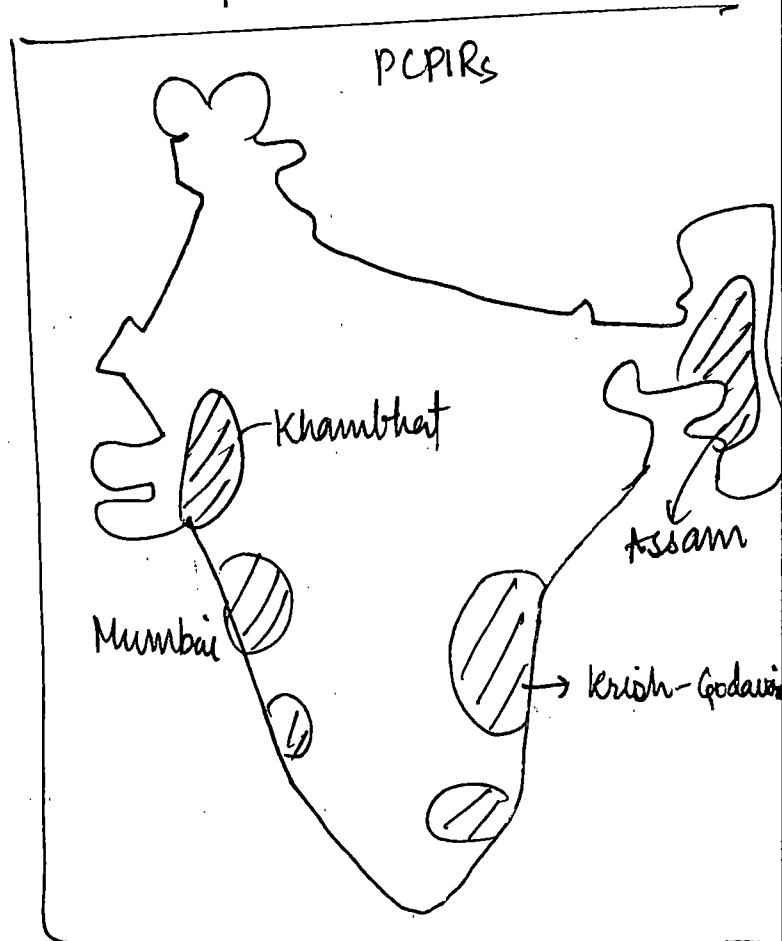
single policy is needed for effective implementation of any schemes

② Using single investment for different sector

③ Ease of doing business
easier to clear & give permission

④ Administrative Efficiency .

⑤ Closeness to ports - for exports



why it failed :-

① Not included other fossil fuels like Shell gas, Natural gas, Coals etc.

- ② Investment hurdles
rules strict.
- ③ less Incentives in form of
tax-holidays.
- ④ Infrastructure — like continuous
supply of electricity.
- ⑤ High cost of Capital & raw material
→ also electricity cost high.
- ⑥ States — not cooperated
properly.

We need synchronised effort
to make it a success. Instead
of having separate zone we
should have combined zones
like SEZs and should focus on
that.

17. What is seabed mining and why is it important for India? Highlight the environmental challenges associated with seabed mining and discuss how these can be addressed. **(250 words) 15**

सीबेड माइनिंग क्या है और यह भारत के लिए क्यों महत्वपूर्ण है? सीबेड माइनिंग से जुड़ी पर्यावरणीय चुनौतियों पर प्रकाश डालिए और चर्चा कीजिए कि इनसे कैसे निपटा जा सकता है।

Seabed mining refers to extracting of minerals from the sea floor.

Mainly polymetallic nodules are extracted which is rich in manganese and other rare earth metals.

Importance

India has also got permission in mid indian ocean region for seabed mining

- ① Rare earth metals - not so much found on mainland.
Eg - Berellium, Manganese, Cadmium etc
- ② These metals are used in high technology electronics industry
↳ semi conductor industry use it to make chips & electronic circuits.
- ③ Economic boost - more jobs and new resources will boost the related industry.

④ To decrease dependence on imports and save crucial foreign exchange and reduce the trade deficit.

⑤ Strategic minerals - used in wide variety of areas.

⑥ Gas hydrates - energy security

Environmental challenges :-

① Technical know how - as it is complex

② Mining of gas hydrates from basins like Krishna-Godavari pose challenges like leakage of methane gas into water & atmosphere.

Green House Gas leakage - eg Methane

③ Sea bed ecosystem will get disturbed.

④ Oil spill and other pollution as oil is required to run any machines

used for drilling purposes.

- ⑤ Turbidity caused by mining affect corals also and whole ecosystem of the area.

Remedies

- ① Research & innovation - is require to minimize the negative impacts.
- ② High sensitive area should be left
- ③ Regions close to shores, corals etc where there is high density of fishes etc — should be left and more environment impact assessment should be done before proceeding.
- ④ collaboration with like minded countries eg Israel, US, Russia

We need to balance our economic progress and environment so that we achieve Sustainable developmental goals (SDG 14 - life below water) by 2030.

18. National Policy on Biofuels 2018 primarily tries to address supply-side issues that have discouraged the production of biofuels within the country. Elaborate. What other benefits are expected from the policy? **(250 words) 15**

जैव ईंधन पर राष्ट्रीय नीति- 2018 मुख्य रूप से आपूर्ति पक्ष के मुद्दों का समाधान करने का प्रयास करती है जिन्होंने देश के भीतर जैव ईंधन के उत्पादन को हतोत्साहित किया है। सविस्तार वर्णन कीजिए। इस नीति से और क्या लाभ होने की उम्मीद है?

National Policy on Biofuels 2018 which came last year focussed on biofuels and the supply side of it.

Biofuels - are fuels generated from bio materials like plants, food crops, food waste, oils etc.

eg - biomethane, bioethane.

biofuels can be blended with traditional fossil fuels.

Supply Side

① First Generation Biofuel - It includes food crops, food waste etc.

Policy allows use of food crops during bumper production or excess production in biofuel industry.

② Second Generation Biofuel

It includes non food crops like Jatropha etc.

Policy encourage this biofuel.

It will help in increasing farmer's income.

③ Third-Generation fuels like algae

→ more R&D needed - supported by policy

④ Incentives to farmers

→ Guaranteed procurement

→ fixed price & remunerative also

⑤ Development of Industries for mixing of fuel

⑥ Use in new sector

like spicejet flight for the first time used biofuel (mixed 20%).

Benefits expected

- ① Farmer's Income - will help in doubling it by 2022
- ② less dependence on Imports of fossil fuels - save foreign exchange
also strategically beneficial
- ③ Environmental - as biofuels are less polluting
- ④ Vehicles & Machines need less maintenance if used on biofuel
- ⑤ Future Technology will promote further research, development & innovation
- ⑥ Growth of New Industry - will create new jobs

Government has take good step by promoting better & cleaner fuel.

19. Explain how the Indian Forests Act, 1927 forms the backbone of governance framework of forests in India. Examine the need for its comprehensive amendment in light of rights based approach to governance.
FRA . (250 words) 15

व्याख्या कीजिए कि किस प्रकार भारतीय वन अधिनियम, 1927 भारत में वनों के अभिशासन (गवर्नेंस) की आधारीय रूपरेखा निर्मित करता है। अभिशासन के प्रति अधिकार आधारित दृष्टिकोण के प्रकाश में इसमें व्यापक संशोधन की आवश्यकता का परीक्षण कीजिए।

Indian Forests Act 1927 was brought by Britishers and still form the backbone of our all the forest Act.

Backbone :-

- ① Further Policy & Acts are based on this

Eg - Forest Act of 1952
Forest Policy 1988

- ② It introduced new concepts like Forest Management

- ③ Considered Forest as valuable resource

① Forest Officials

All India service - as Indian
Forest Service created for
dedicated monitoring &
management of forest.

② Securing Forest - through
declaring Reserve & Core
Forest Area

Need for Amendment :-

① doesn't recognised forest
rights as there in Forest
Rights Act of 2006

② Community & Individual rights
of Scheduled Tribes & other

Forest dwellers not recognised.

③ Role of Gram Sabha in managing of forest is not there.

According to FRA, 2006, permission of Gram Sabha is mandatory for taking forest land
↓
Not recognised in Forest Act, 1927.

② It is a colonial act which focussed on exploitation of forest — maximum powers are given to forest officials

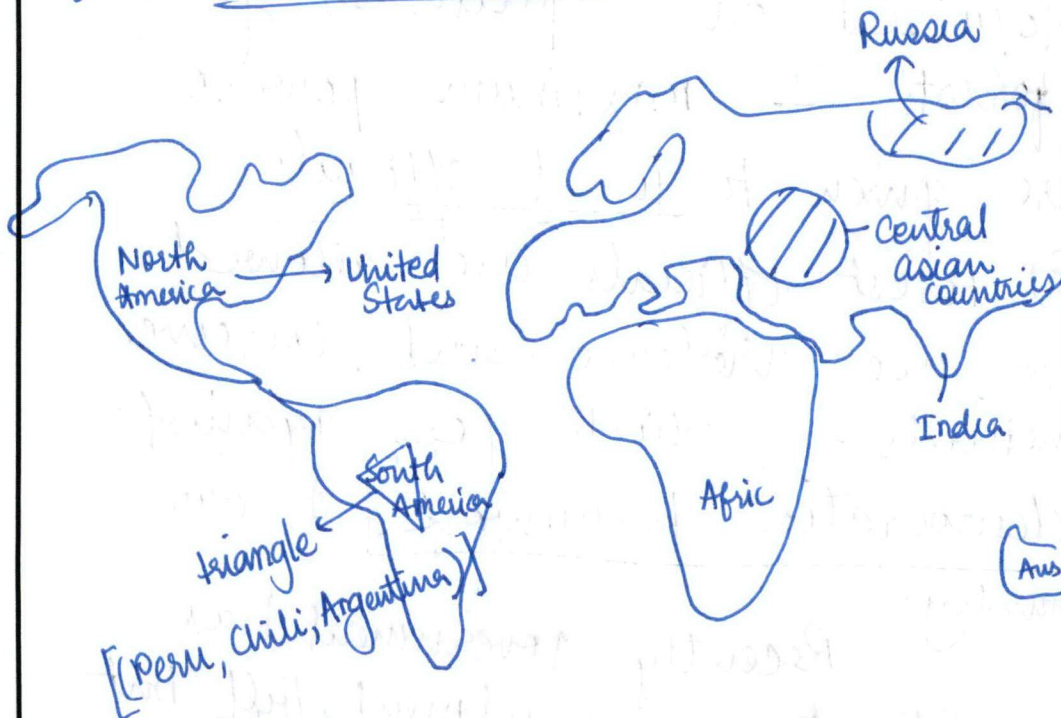
⑤ Forest officials are allowed to use violence and coercive methods — which goes against democratic framework of our country.

Recently government has brought up the amendment bill, but it also needs a fresh look as it reinforces what already there in

20. Identify the major Uranium reserves in the world and the countries from where India sources it. What measures are required to ensure supply security of fuel for nuclear plants in the country? **(250 words) 15**

विश्व के प्रमुख यूरेनियम भंडारों और उन देशों की पहचान कीजिए जहाँ से भारत इसका आयात करता है। देश में परमाणु संयंत्रों के लिए ईंधन आपूर्ति की सुरक्षा सुनिश्चित करने के लिए किन उपायों की आवश्यकता है?

Uranium reserves are there in only few areas (countries) in world. It is considered as strategic mineral because of its actual use i.e. in nuclear power plants (electricity generation) and nuclear bombs.



Major Nuclear Reserves :-

① Central Asian Countries

namely - Uzbekistan, Kazakhstan,
Tajikistan, Turmenistan, Kyrgyzstan

② South America - Peru, Chili, Argentina

③ Russia - especially siberia region
many areas are yet to be explored.

④ North America

India sources from :-

① central Asian countries

recently MOUs & deals were signed
between India & Uzbekistan

② South American countries like

Peru, Chili & Argentina

③ Russia

Besides Home reserves such in
Sighthum (Jharkhand) provides Uranium.

Measures required :-

- ① Increasing collaboration & signing of MOUs & deals eg - Uzbekistan
- ② Cooperation of IAEA (International Atomic Energy Agency)
- ③ landmark deals like India-US Nuclear deal helped us to secure nuclear supply without facing any sanction.
- ④ Declarating nuclear for energy & security purposes.
- ⑤ Maintaining high standards at nuclear power plants & security as IAEA verify periodically.

For energy security we need constant supply of nuclear material like ~~Urb~~ Uranium. Also we should advance our nuclear program towards Thorium which is abundant in India to reduce dependency.