



UPPSC MAINS 2024 - CRASH COURSE

Generic Booklet

Test Name/Code/No. : **7712240**

Environment Sec. test.

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Mobile No.		Date	15/6/25

Allotted Time : 90 Minutes

Instructions to Candidates -

- There are 10 Questions in this Question paper.
- All Questions are Compulsory.
- Answers must be attempted in the QCA Booklet only.

Q. No.	Grade/Score
1	
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Overall Grade/Score	

(Don't
anything in a

Q.1) Differentiate between terrestrial and aquatic ecosystem with examples. Discuss their role in biodiversity conservation.

Ans:- Ecosystem is the complex interaction of living organism and their habitat with surrounding environment which consist biotic and abiotic factors.

Differentiate ~~from~~ Ecosystem

Terrestrial	Aquatic
(1) It is related to <u>land or lithosphere</u> Eg- Biosp National park → Valley of flowers in Uttarakhand.	Related to water and <u>under water ecosystem</u> Eg- lake or wetland → Chilika lake in Odisha.
(2) Organism usually stay on land	(3) Organism live in water and their body

or put under earth making holes or burrows.
Eg Rabbit

Suitable to live under water.
Eg: for breathing gill in fishes.

Role in biodiversity conservation

↳ Provide habitat and suitable climatic condition for survival.

↳ Directly affect human lives as play role in evolving and surviving + biodiversity.

↳ Provide regulation and support to ecosystem Eg → soil formation and humus richness.

Thus ecosystem is very much need for human survival and we need to protect it.

Overall Grading (✓)

Poor			Average			Good		
1	2	3	4	5	6	7	8	9

7.5/8

Q.2) Define biodiversity. Describe its different level and discuss the significance of biodiversity hotspots in India.

Ans:- Biodiversity refer to Bio + diversity means → living being and different kind of organism. In other words biodiversity is sum total of different organism their genetic and species diversity living in an environment.

Different level of biodiversity		
Genetic diversity	Species diversity	Ecosystem diversity
Related to one single species and their genetic mutation cause diversity	Related to many different species and their difference due to environmental	difference of different ecosystem due to variation of

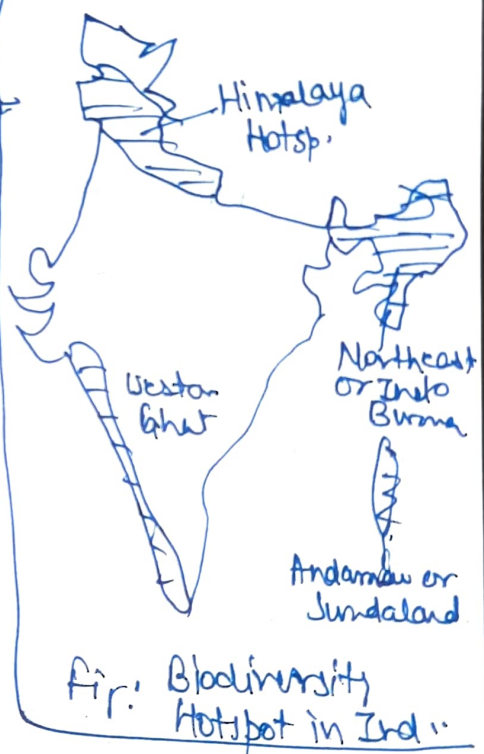
Eg - White Tiger and brown Tiger

Condition
Eg - Fox, lion, Tiger

climate, temp. and humidity level
Eg: Tundra, Tropical ecosystem

Significance of biodiversity hotspot in India

- Preservation of biodiversity
- Multiple species, plant and animal
- Provide tourism
- Research and innovation for their survival.



Thus biodiversity is basic unit of any ecosystem need to safeguard for multiplier effect.

Overall Grading (✓)

Poor			Average			Good		
1	2	3	4	5	6	7	8	9

Q.3) Compare and contrast climate change mitigation and adaptation strategies. How effective is the Paris Agreement in this regard?

Ans:- As per IPCC report Global climate is breaching the target of 1.5°C above industrial level by 2030.

In the adaptation and mitigation are important to check climate change.

Mitigation	Adaptation
<p>(1) led to process which act on <u>reducing carbon emission</u></p> <p><u>Eg:-</u> Clean energy generation</p>	<p>led to process act on <u>reduce vulnerability and</u></p> <p><u>reduce the impact of climate change</u></p> <p><u>Eg-</u> Climate resilient infrastructure.</p>

2. It is the developed countries initiative as they wanted to use their technology
 Eg- Solar and wind mills and ultra modern power plant.

developing and poor countries want to adapt conditions to tackle the effect of climate change, like flood, sea level rise, melting glacier

Effectiveness of Paris Agreement

- ↳ Provide goal to measure progress
- ↳ Global Stocktake in 5 yrs.
- ↳ Nationally determined contribution to take action.

Thus India also pledge to undertake Panchamrit goal to fulfill Paris climate agreement.

Overall Grading (✓)

Poor			Average			Good		
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6:25

Q.4) Examine the sources of water pollution in India, especially in river like Ganga and Yamuna. How do industrial and agricultural activities contribute to this crisis?

Ans:- India is among the highest polluted countries in the world (WMO). Rivers in India are highly polluted due to agriculture, industrial and urban sewage runoff in rivers.

Sources of water pollution

- * Industrial effluent without treatment goes to rivers.
Eg- leather work in Kanpur.
- * Agriculture runoff due to indiscriminate fertiliser
- * Untreated solid waste drain

into rivers.

(4) Plastics and other harmful things directly goes to rivers.

Eg - 60% of single use plastic into river (NITI Aayog)

How industrial and agricultural practice contribute

Industrial	Agriculture
<ul style="list-style-type: none"> → <u>Untreated waste</u> → <u>detergent and chemical</u> → <u>Smelting and metal processing industry</u> → <u>Hotwater from the power plants.</u> 	<ul style="list-style-type: none"> → High use of <u>Urea based fertiliser</u> → <u>Pesticides and herbicides</u> → <u>Agricultural waste</u> like bagasse and stubble.

Thus River need to be safeguard for sustainable and prosperous economy and effective implementation of Namami Gange.

Overall Grading (✓)

Poor			Average			Good		
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7:41

Q.5) Suggest remediation techniques for restoring degraded soils. What role can bio-remediation and Phytoremediation play in sustainable agriculture.

Ans- Indian soils approx 60% led to degradation due to unsustainable agricultural practices includes flood irrigation, high use of pesticide and fertiliser.

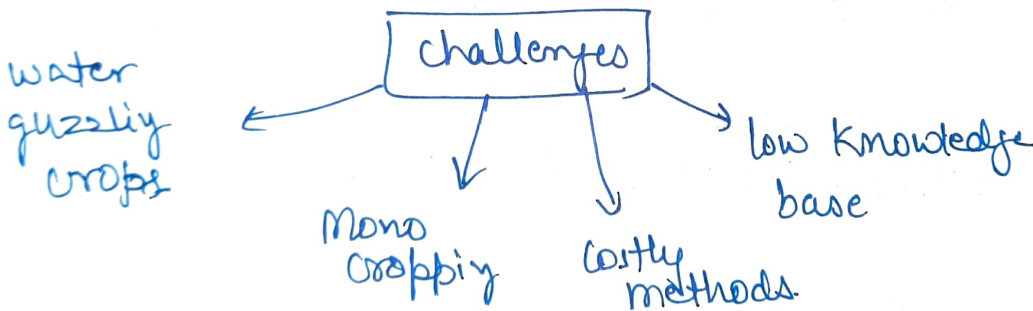
Remediation techniques.

- (1) Bio remediation using the organism
Eg Agrobacterium and Rizobium.
- (2) Nitrogen fixing bacteria.
Eg Rizobium bacteria in chickpea crops.
- (3) Using the Organic tools like -

mulching, waphasa, beejamitra.

Role of bioremediation and phytoremediation

- Improve soil productivity.
- Reduce pollution and stopping degradation.
- Using sustainable practice like cropping diversity
- Maintain the farmer livelihood.
- Boost resource efficiency.



It is high time to empower farmer to adapt sustainable practices for tackling climate change effect.

Overall Grading (✓)

Poor			Average			Good		
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7:31

Q.6) Discuss the socio-environmental impacts of illegal mining in tribal areas. How can governance and legal frameworks address these issues?

Ans:- Indian tribal areas like Jharkhand, Chhattisgarh and Andhra Pradesh etc facing the "Curse of resources" as rich in minerals but at the same time highest poverty and erosion from land.

Socio-environmental impact of illegal mining in Tribal area

(1) High poverty and poor socio-economic indicators →
Eg → > 50% malnourished pregnant women for tribals.

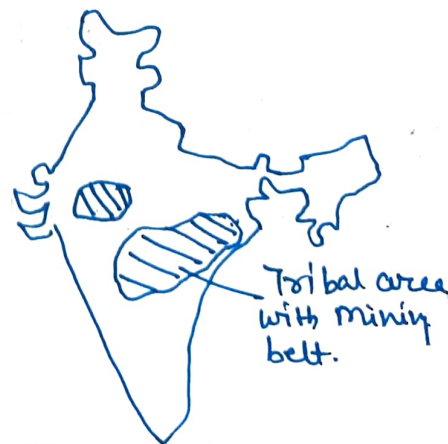


Fig:- Mining Area in India

- (2) High disease burden! - Sickle cell Anemia, Malnutrition, wasting and stunting prominent.
- (3) Improper implementation of PESA act → Using power and collusion of politician industrial use mineral and deprive royalties
- (4) High rate of rehabilitation and eviction from tribal land - due to mining huge no. of tribal relocation and not provided enough compensation
- (5) Deprive of livelihood and traditional practices → Collapse of intimate relation of Jal - Jangal - Jameen
- (6) Issue of law and order → Jains Naxal cadres due to injustice.

Governance and legal framework to rectify it

- ↳ Proper implementation of PESA → Gram Sabha have autonomy to provide land for minor mineral.
- ↳ District Mineral foundation for royalty and development work in mining affected area.
- ↳ Corporate Social Responsibility → to develop education and health care.
- ↳ Govt initiation → PM-Janman, KABIL scheme for mining areas, Education by Eklavya model residential schools.

Thus for the holistic and strong India and true spirit of 'Sabka sath Sabka vikas' only be realise to take Tribal in this inclusive growth journey.

Overall Grading (✓)

Poor			Average				Good		
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12/29

Q.7) Examine the environmental impacts of deforestation and forest fires in India. How can sustainable forest management reduce these impacts.

Ans:- With the Rising temp. and climate change due to warming phase of earth, we are witnessing extreme weather events which also getting stronger by anthropogenic activities.

Environmental impact of deforestation and forest fires in India

(1) Habitat destruction → loss of species and on the verge of large group in vulnerable and endangered category.

Eg Pygmy hog in Assam Critically endangered.

(2) Rising Animal-human conflict → due to habitat shrinking.

Eg:- Wolf attacks in Bahraich (U.P.)

(3) Loss of environmental value of economy

→ loss of livelihood and agriculture distress

Eg. 80% himalayan people based on agriculture.

(4) Extreme weather events → rising

melting of glacier, GLOF event and flash floods.

Eg. GLOF in Sikkim 2024.

(5) Destruction of economy, ~~envi~~ infrastructure

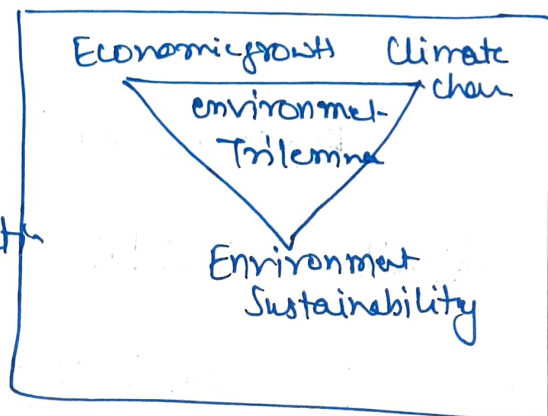
and GDP loss → India is top 7th

among the climate change effects (WMO).

Role of Sustainable forest management

(1) Optimum utilisation of resources based on study. to check

(2) Focus on research and better conservation and growth of Forest Eg Miyawaki Techniques.



(3) Technology based surveillance → for stringent conservation use Drone, GIS mapping, Satellite imagery.

(4) Undertake effort to reduce forest fires. → monitoring and evaluation, ELNino effects. Thus forest need to be protected for the sustainable life and sustainable earth.

Overall Grading (✓)

Poor			Average			Good		
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11:27

Q.8) The environmental protection Act 1986 is considered an umbrella legislation. Examine its relevance in addressing modern environmental crisis.

Ans:- Environmental Protection Act 1986 is umbrella legislation in India to address the environment, water & Air pollution and NGT also function under such legislation.

Major acts under EPA 1986

- ↳ Water pollution act 1974
- ↳ Air pollution Act 1981
- ↳ National Tiger conservation Auth.
- ↳ Genetically modification rules.
- ↳ Solid waste management Rules 2017.

Role of EPA 1986 in faculty environmental conservation

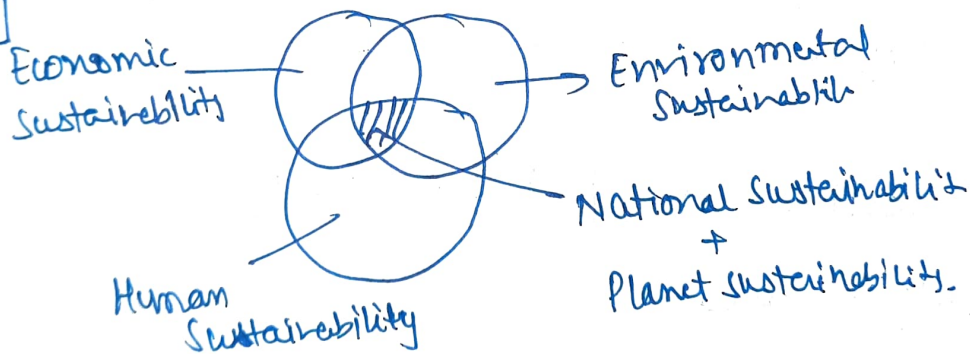
- Wide power to safeguard biodiversity.
Eg. Wildlife protection act 1972
- Provide the mechanism to study and research mechanism.
- Sustainable development
- Conservation of forest and Natural habitats.
- Protection to protected areas and buffer area
Eg. Eco sensitive zones.

Relevance of EPA in Addressing environmental crisis

- Act provide power to central govt for legislation in environmental field.

- National Green Tribunal → justice under the act.
- Constitutional obligation → DPSP (Art 48 A) Fundamental duties (51A), Art 21 → right to clean environment.
- Community partnership and knowledge sharing → for equitable benefits and use of traditional knowledge.

W/A



Thus holistic approach provide by ~~EPA~~ EPA 1986 to safeguard of earth and Indian biodiversity, with whole of society approach

Overall Grading (✓)

Poor			Average			Good		
1	2	3	4	5	6	7	8	9

11:10

Q.9) Evaluate India's engagement with Green climate fund. What are the opportunities and obstacle in accessing GCF financing for sustainable development?

Any 'Green climate fund' is the finance mechanism to foster sustainable development, growth of Green energy projects and mitigation and adaptation, work under UNFCCC.

India's engagement with Green climate fund

↳ Offer help to development clean energy projects.

Eg Solar Power project in Bhadla and Panagada.

↳ India active recipient of funds for sustainable development and adaptation techniques development.

Opportunities for India

- India as leader of Global South can provide Lot of support against the global North agenda.
- India is 3rd largest clean energy producer country can get fund to expand the clean energy.
- With its global voice in G20 and various programs of consensus building like Global biofuel alliam. OSOWOG, International Solar alliamce, Mission ~~lifestyle~~ LIFE (Pro planet people)

Thus Indian could leverage the opportunity with robust climate diplomacy and active participation in transformity toward sustainability.

Overall Grading (✓)

Poor			Average			Good		
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11/45

Q.10) Explain the role of international environmental conventions like CITES and Ramsar Convention in biodiversity conservation. Highlight India's participation in these conventions.

Ans Global world is witnessing the worst phase of warming and moving towards the 6th mass extinction led by anthropogenic activity, need CITES and Ramsar convention for biodiversity conservation.

Role of International environmental convention in biodiversity conservation

- (1) Provide the legislation mechanism → CITES, Global earth summit, Montreal Protocol.
- (2) monitoring and research based studies

→ for the corrective measure.

Eg Global Stocktake 2023.

(3) Rules and Regulation for biodiversity conservation :- Cross border wildlife trade, preservation of wetlands, and holistic conservation including animals.
Eg- National wildlife Crime Control Bureau.

(4) Consensus building and negotiation platform → UNFCCC, CBD and UNCCD
Eg → Negotiation on Loss & Damage funds.

(5) Protection of habitat and monitoring of species growth → Red data book, Migratory avian routes, provision for reviving the extinct or critically endangered species.

India's participation

- India declared 82 sites of Ramsar site for wetland protection
- CITES provision included in India's wildlife protection schedule (4)
- Active among the negotiations and climate diplomacy.
- Highest protection to wildlife by declaring National park, wild life sanctuary, Tiger Project, Project Elephant, Operation Kurma.
- Hon'ble SC order to save Black Bastard from high tension wires.

Thus India truly show casing the value of "Vasudhivaiv Kutumbakam" and "One earth" for human, animals and plants.

Overall Grading (✓)

Poor			Average				Good		
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11:58