Environmental Applications Syllabus

There is one paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks. The paper has two Sections. Section A (Compulsory) contains short answer questions covering the entire syllabus. Section B consists of questions, which will require detailed answers. There is a choice of questions in this section.

1. Caring for our Basic Resources

(i) Caring for our Soil

(a) Causes and consequences of soil erosion.

Study improper land use, deforestation, overgrazing, etc and also the impact of soil erosion on food production, generation of wastelands, silting of waterways and dams.

(b) Soil conservation strategies.

- Contour bunding.
- Tree breaks.
- Check dams.

A study of solutions and their applicability. Examples such as Auroville's work and Tarun Bharat Sangh's work.

(c) Fuel wood crisis.

To develop an understanding in students that a very large section of Indians still use firewood as fuel, the impact it has on nature in terms of a fast dwindling resource and the pressure put on surviving forests. Impact on health of the poor, particularly women, from inhaling the smoke.

(d) Waste generation - its toxicity and its impact on life and land.

The politics of waste dumping, the unmanageable wastes that we generate, leaching of toxins from land fills into water bodies, agricultural lands, and issues around incinerating waste.

(e) Treatment of wastes:

- Effluent treatment plants.
- Biological treatment.
- Strategies to reuse waste.

Evolving solutions to treat wastes. The scope and limitation of end of the pipe treatment.

- Combating deforestation.

JFM, community forestry.

(f) Alternatives to timber

Design solutions-alternate materials, etc.

(ii) Caring for our Air

(a) Technical methods to control air pollution.

Electro static precipitators, cyclone separators, wet scrubber, bag filters, fluid bed boilers.

(b) Strategies to reduce air pollution

- Economic - Penalties and subsidies, Bubble theory.
- Technical - Hybrid vehicles, alternate fuels, alternate energy vehicles.
- Traffic management

Study of Curitiba in Brazil, synchronised signals, use of lanes, one way roads, etc.

(c) Legislation as a means to reduce air pollution.

The role of law in controlling and reducing pollution with examples like the Taj Mahal trapezium, Delhi city, etc.

(d) Remote sensing satellites and their applications.

Why is it such a good tool? What can it be used for?

(e) International norms on air pollution.

What are the International norms on air pollution? How are they drawn? Limitations with the implementing.

Example: Euro 1, Euro 2.

(iii) Caring for our Water

(a) Techniques of watershed management

Conserving water bodies; Study of indigenous examples like the Eri system of Tamil Nadu or Rajasthan’s traditional systems and newly evolving modern techniques of water management; Ramsar convention.

(b) Rain water harvesting.

- Roof water harvesting through percolation pits etc.
- Water harvesting in rural areas through check dams, bunds etc.

The need for the above and the scope.

(c) Small dams vs. large dams.

An analysis - can many small dams replace a large dam? Do large rivers require large dams only? Issues around large dams.

Scope and limitation of small dams. Other possibilities like Micro hydel, Mini hydel, run off the river.

(d) Water recycling.

The scope of water recycling and importance.

(e) Alternatives to existing sewage treatment like dry compost toilets.

Decentralised answers to centralised ones, Use of decomposed night soil as a fertiliser as in China.

2. Resource use

(i) Impact of globalisation on environment.

Understanding the basic intention of globalisation; the possibility and challenge of a global economy; impact of globalisation on developing countries - increased disparities, national debt and recession; impact on human resources and natural resources.

(ii) Role of NGOs in sustaining environment.

Study the work of a few NGOs.

Choose an international, national and a local NGO working in different areas - issue based, women's collectives and child welfare organisations.

(iii) Evolving a sustainable growth paradigm eg. Gandhi. Large-scale development vs. Village community based self-sufficient growth.

What does sustainability mean? GDP vs Growth paradox. (Questioning the notion that increase in power will bring about economic growth and this in turn will alleviate poverty.)

How to integrate the principle of sustainability in development? Gandhi's model of decentralised governance like Panchayati Raj. A study of a few working examples like Khadi, Dastkar, Auroville, Gandhi gram.

(iv) North-South divide.

Patterns of resource use in the North and the South and the impact they have on the environment of both the regions.

3. Appropriate Eco friendly Technologies

(i) Scope and limitation of indigenous technology and modern technology.

Study an industry like fishing and/or weaving - where both technologies are practised.

(ii) Need for developing intermediate and appropriate technology.

To be studied through the analysis of the power sector - the limitation of all conventional sources and the scope of alternate energy sources.

(iii) Developing least cost options.

Environment Impact Assessments (EIA), their role including impacts while planning and the method to develop least cost options.

Dynamics of implementation.

Scope of grass root upward planning rather than trickle down planning.

(iv) Natural resource accounting.

What is natural resource accounting? How to go about it? - Basic understanding with the aid of examples.

4. Initiatives I can take

(i) In my local environment.

(ii) In my future career choice.

(iii) In supporting initiative in my State or Country.