Syllabus -Entrance Examination for Ph.D. in Environment Management

As per new Ordinance No.11 (सत्र 2024)

Part A (Based on Research Methodology)

- Introduction and need of quantitative techniques.
- Frequency distribution. Measures of Central value.
- Normal and Binomial distributions.
- Sampling techniques.
- Testing of significance.
- Experimental designs.
- Correlation and Regression.
- Introduction to computers.
- Structural and functional aspects.
- Commonly used software programmes and packages.
- Internet and its applications in environmental research.
- Some basic methods (air, soil, and water monitoring and assessment of common qualitative and quantitative parameters) used in environmental research.

Part B (Based on Subject of Research)

- **Ecology, Ecosystem and Environmental Science: concepts structure and functions of** different ecosystem. Producer, consumer and decomposer, energy flow in ecosystem, ecological succession, food chains and food webs, ecological pyramids. An overview of forest, grasslands, deserts and aquatic ecosystem. Environmental education, desertification, climate change, culprit gases and Global Warming, ozone depletion. Environmental Politics.

- **Natural resources:** Renewable and non-renewable resources, forest resources, water resources, mineral resources, food resources, land resources, energy resources, and wild life resources. Equitable use of all resources and sustainable future. Conservation strategies for different resources.

- **Biodiversity and conservation:** Definitions, Genetic, Species and Ecosystem diversity, value of biodiversity, consumptive and productive use, social, ethical, aesthetic values, biological hot spots, conservation In situ and Ex-Situ. Endangered and threaten species of India, threats to biodiversity, habitat loss, pouching, man - wild life conflict.

- **Environment disaster and management:** Floods, earthquake, cyclone and landslides, Tsunami- Social issues and environment, water conservation, rain water harvesting, watersheds concept and management, resettlement and rehabilitation of the people, human population and environment, environment legislation- environment (protection) Act, (1986), Air Act (1981), Water Act (1974), Wildlife (Protection) Act (1972), Forest (conservation) Act (1980).

- **Eco-technology:** Basic techniques in genetic engineering, use of microorganisms in waste treatment, methane production. Eco-technology: concept and applications, bioremediation: concept and applications, genetically engineered products and environmental concerns, vermi-technology, bio-solid recycling and sludge treatment, green belt: concept and designing, eco-restoration: concept and success.

- **Environment pollution and waste management:** Air, water, soil, radiation, noise pollution: causes, sources and effects. Means to mitigate pollution, Indian and International standards for different pollutants, solid waste classification and characteristics, mitigation means, ETP/STP, waste water treatment, hospital waste management, hazardous waste: sources, effects and disposal options, bio-monitoring: concept and problems.

- **Modern tools in environment management:** Environment Impact Assessment (EIA) - concept and scope, environment audit (EA), Environment management plans: concept and success, ISO-organization and overview, Remote sensing and GIS-applications in the field of environment, computer applications and software used for environmental studies.