Syllabus for Entrance Examination for Ph.d. Environment Science and Technology

Institute of Environment Education and Research

Bharati Vidyapeeth University, Pune

Syllabus for Entrance Test for Ph.D. Environment Science and Technology

The syllabus for the entrance test for Ph.d. in Environment Science and Technology is based on the syllabus for the Masters in Geoinformatics course conducted by Bharati Vidyapeeth University. The Entrance exam will be based on the following topics.

1. Biosciences and Natural Resources

Basic ecological concepts and ecosystems: types, functions and structure; Biodiversity-levels, values, threats, conservation measures; Natural resources and associated problems; Planning conservation areas-criteria for conservation, approaches for conservation, tools for conservation and design criteria; Integrated watershed management-watershed management strategy, ecological assessment, Ecosystem Services

2. Urban Planning

Introduction; Urbanization and its impacts; Urban climatology; Disasters and urbanization; Housing; Slums; Urban traffic; Urban utility planning; Open space provisions; Planning laws and environment; Planning Agencies

3. Fundamentals of Geographic Information Systems

Introduction to GIS; Geographic data and data measurement map basics, basic geographic concepts; data models, data structures and data input; Global Positioning Systems; Database management; Data Analysis; GIS Project Design and Management

4. Applications of geospatial technologies

Remote sensing and GIS applications in ecosystem studies and conservation, agricultural applications, urban applications, water resources and related applications, health studies, Remote sensing and GIS applications in forest studies, marine sciences, urban mapping, disaster management.

5. Statistics

Data in ecology and environmental sciences; Statistical techniques; Basic elements and tools of statistical analysis; Concepts of probability ; Distribution; Contingency tables and χ^2 ; χ^2 - test of goodness – of – fit and homogeneity ; Correlation of measurement; Regression analysis; Introductory multivariate statistics and Partial correlation; geostatistics.

6. Sustainable Development

Basic concepts of sustainable development, challenges for sustainable development, tools for sustainable development, education for sustainable development, change management

7. Technology for Pollution Control and Management

Basics of water and waste water treatment-process; Air and noise pollution control-metrology and air pollution dispersion, air quality measurement and monitoring, air pollution control; Units is water and waste water treatment; Solid and hazardous waste management-source reduction, recycling, integrated solid waste management, e-waste management; Environment Impact Assessment-integrated impact assessment –tools and techniques, biodiversity inclusive impact assessment, strategic impact assessment.

8. Environmental Law

Overview and key components of Indian Environment laws-forest laws, pollution control laws, conservation laws