

AWADHESH PRATAP SINGH UNIVERSITY, REWA (M.P.) 486003



Pre-Ph.D. Entrance Test Syllabus

Environmental Biology

2022-23 Onwards

Dr. Asha
17.06.22

Subject- Environmental Biology

Part-A

Unit-I

Meaning objectives and types of research, Basic experimental design, Interpretation and report writing, Science of sampling, need of sampling, sample size and its determination, Random and non-random sampling, Plant and Animal sampling, Community analysis, IVI, indices of species diversity, Richness and similarity index.

Unit-II

Analytical methods: Micrometry, chromatography, electrophoresis, HPLC, GLC, Spectroscopic technique of Analysis, Spectrophotometry, Flame photometer, Air Pollution monitoring techniques, Gaseous and particulate sampling, High volume air sampler, Respirable dust sampler, Water sampling techniques, water quality analysis techniques, Estimation of productivity- primary and secondary productivity.

Unit -III

Microbial culture sterilization techniques, culture media-types preparation, colony counting techniques, Identification and enumeration of microorganisms, Preservation, storage and maintenance of microorganism, Determination of MPN, confirmatory tests, Microscopic study of blood cells, cell organelles, spores etc.

Unit -IV

Basic elements and tools of statistical analysis, Measures of central tendencies-mean, mode, median, standard deviation, planning and execution of survey, test of significance, student's 't' test, chi square test, correlation and regression analysis, probability distribution, Analysis of variance-one and two way classification.

Unit-V

Computer hardware, components and functional structure, Computer softwares- MS Windows, MS office 2003-07/XP including, MS word, MS Excel, MS PowerPoint, Designing of document and file handling, Database management, Basic idea of Internet, E-mail.

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17.06.22

Subject- Environmental Biology

Part-B

Unit-I

Basic ecological principles; types, structure and functions of ecosystems, Ecological characteristics of various ecosystems, Ecosystems services to the society, Ecological succession, ecological niche, interspecific interactions.

Unit-II

Natural resources and associated problems; Energy resources, forest and wildlife resources, conservation and management strategies of natural resources, sustainable development. Biodiversity, levels of biodiversity, Threats to biodiversity, ecosystems diversity, tools of biodiversity conservation, project Tiger, Biosphere reserves.

Unit-III

Air pollution management and control technologies, water pollution management and control technologies, solid waste management, Bioremediation, phytoremediation, e-wastes, Biodegradation of xenobiotics, Role of microbes in control of air and water pollutants, concept of 5 'R'.

Unit-IV

Current environmental issues in India, air pollution in Indian cities, pollution in Indian rivers, surface water crisis in India, threats to forests and wildlife of India, deforestation, Environmental Laws and policies, Environmental impact Assessment.

Unit-V

Global environmental problems: Greenhouse gases, global warming and climate change, extreme weather events, Impact of climate change on ecological systems, Recent international conventions on environmental problems, International efforts of environmental protection.



17.06.22