

B.Sc.III

PAPER VII - ENVIRONMENTAL PROBLEMS, PUBLIC HEALTH & REMOTE SENSING

Environmental disasters. Natural hazards - floods, earthquakes, landslides, desertification and fires (forest and buildings). Industrial disasters - episodes, disaster management cell. Safety issues in industries disaster and accident prevention, risk and management for hazardous chemicals. Identification, minimization, analysis and plan for emergency.

Public health: Communicability of diseases or disorders. Etiology of air borne respiratory infections. Intestinal infections transmitted through food, drink and water. Water borne, soil borne and diseases induced by human use of land. Measure to prevent the epidemiological issues. Vector borne infections transmitted through inoculation. Dengue, malaria, plague, goitre, Cancer. Sanitation and health education. Population explosion. Factor affecting the population increase. Industrialization, urbanization and population dispersion (migration, emigration and immigration). Population stabilization.

Remote Sensing - Principles & its Applications in Environmental Sciences. Application of GIS in Environmental Management.

PAPER VIII ENVIRONMENTAL MICROBIOLOGY & BIOTECHNOLOGY

Environmental Microbiology- Concepts & Scope, Distribution of microbes in nature- soil, air, water. Cultivation of micro-organisms. Influence of environmental factors on microbes. Importance of microbes in the Environment. Contamination of microbes in Env. Microbial metabolism Eutrophication, Waste water resources, Biological treatment of waste water, Bioremediation.

Food Microbiology- Spoilage & preservation of foods, Microbiology of milk & milk products. Heavy Metals in food.

Industrial Microbiology - Industrial uses of bacteria, fungi, yeasts, Biogas production, Vaccine production.

Scope & Importance of Biotechnology, Cell & Enzyme immobilization. Biotechnology & its application in Pollution Control, energy generation, restoration of degraded land. Biofertilizer, Vermiculture Technology.

PAPER IX - NATURAL RESOURCE CONSERVATION & MANAGEMENT

Ancient Ethics of Environmental Conservation. Modern Concept of Environmental Conservation (Sustainable Resources Consumption). Definition & classification of natural resources & causes of their depletion. Renewable & Non- Renewable Natural Resources. Impacts of conventional energy resources. Alternative renewable energy resources. Water Resources & their Management, Wet Land Conservation.. Forest Resources & their Management, Wild Life Conservation, Soil Conservation (Waste land Development). Urban & Rural Land use planning & use pattern in India. Concept & Strategies of Sustainable Development. Ecodevelopment. Biodiversity & its Conservation. Environmental Education & Public Awareness.

PAPER X - ENVIRONMENTAL MONITORING & TOXICOLOGY

Air Pollution Monitoring - Introduction, Sampling methods, Air Quality Standards & Criteria, Instruments, Control of Gases & Particulate Contaminants, Combustion, Absorption, Episodes & Case Studies .

Water Pollution Monitoring - Introduction, Sampling methods, Water Quality Standards & Criteria, Instruments pertaining to Waste Water Treatment (Effluent & Sewage). Episodes & Case Studies .Ganga Action Plan.

Solid Waste Management, Control of Soil Pollution, Radioactive Pollution, Thermal Pollution & Noise Pollution.

Toxicology- Introduction and scope of toxicology. Nature of toxicity (acute and chronic) Dose and time response relationship. Teratogenicity, Carcinogenicity, Mutagenicity.

Uptake, distribution, metabolism, accumulation and excretion of xenobiotics (ADME). Impacts and control of different xenobiotics -Heavy metals , food additives, pesticides, synthetic dyes and effluents (Paper and pulp, sugar, fertilizer, distillery and tannery).

Prasen Kumar
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J. Singh
11/7/22

Prof. G. C. Pandey
(PROF. G. C. PANDEY)
HEAD, DEPT. OF ENV. SC.
DR. R.M.L. AVADH UNIV.
FAIZABAD-224001