

Code: EM**Environmental Management****Elementary Mathematics and Statistics:**

Solutions of Simultaneous Linear Equations, Quadratic Equations, Progressions, Perambulations and Combinations, Concepts of Matrices and Determinants.

Sample Mean and Variance, Random Variable, Distributed and Continuous Distributions, Mean and Variance of Distribution, Correlation, Coefficient, Confidence Intervals, Goodness of Fit, Test, Pairs of Measurements, Fitting Straight Lines.

Computer Science

Introduction to Computers and Programming: Components of Computers, Characteristics of Computer, Modes of Operation, Type of Computer Algorithms, Flowcharts, Programming Languages, Operating Systems, Fundamentals of C, Structure of C, Variables and Constants, Arithmetic and Logical Expression

Ecology & Environment: Nature and types of Ecosystems, Energy Flow in Ecosystems-Energy Fixation by Autotrophs -Energy Beyond the Producers, Biogeochemical Cycles and Ecosystems, Ecology of Populations - Population Growth -Biodiversity of India.

Microbiology: Major Characteristics of Microorganisms - Cultivation of Microorganisms- Aerobic and Anaerobic. Control of Microorganisms - Physical and Chemical Agents. Microorganisms in Aerobic & Anaerobic Biological Waste Treatment- Major Groups of Microbes and their Role.

Environmental Chemistry: Basic Concepts and Scope of Environmental Chemistry - Environmental Segments. Atmosphere - Structure - Chemical and Photo Chemical Reactions - and Ozone Chemistry - Green House Effect. Hydrosphere - Hydrologic Cycle-Chemistry of Water and Waste Water. Lithosphere - Micro and Macro Nutrients - Wastes and Pollution of Soil, Air and Water. Environmental Effects of Pollution - Health Effects of Pollution.

Pollution Control Engineering: Solid, Liquid and Gaseous Wastes, Various Pollutants and their Harmful Effects. Water Quality, Water Purification Systems. Waste Water Characteristics, Primary / Secondary Treatment Methods. Air Pollution Control Methods. Noise Pollution and Control Measures.

Geology and Geospatial Technology: Origin and Age of the Earth, Internal Constitution of the Earth, Geological Processes - Exegetic and Endogenic, igneous, Metamorphic and Sedimentary Rocks, Distinguishing Features of These Three Types of Rocks, Basic Principle of Structural Geology, Geology of Dams and Reservoirs. Geomorphic Cycle, Geomorphic Agents. Weathering -Cycles of Erosion, Landforms Created by Geomorphic Agents.

Map Terminology and Map Projections. Classification of Maps. Basic Concepts and principles of Surveying, Photogrammetry and Remote sensing. Over view on Indian Remote Sensing Programme, Satellites and Sensors. Applications of Space Technology.

Fundamentals of Surface Hydrology: Hydrologic Cycle - Precipitation: Different Types and Forms of Precipitation and their Mechanism. Rain Gauges. Evaporation and Transpiration: Concepts, Measurements and Factors Affecting Evaporation and Transpiration. Infiltration - Concept, Measurement and Factors Affecting Infiltration, Runoff, Definition and Factors Affecting Runoff, Stream Gauging - Computation of Run-Off.

Fundamentals of Ground Water Hydrology: Occurrence of Ground Water in Consolidated and Unconsolidated Formations - Types of Aquifers. Properties: Porosity, Specific Yield, Storativity, Hydraulic Conductivity and Transmissivity - Darcy's Law, Ground Water Management – Artificial Recharging Methods. Types of Wells - Construction of Wells. Environmental issues of Major River Valley Projects.

EIA and Global Environmental Issues: Concepts, methodology of EIA. Environmental Management plans with reference to Air, Water and Soil. Global Warming, Climate Change. Natural and Human induced disasters.

Global Environmental Treaties. Sustainable Development Goals (SDG) 2030.
