M. Sc. (Previous) Environmental Sciences
Semester I

Paper II

EARTH PROCESSES AND NATURAL CYCLES

Unit I

Evolution of atmosphere; Chemical composition and thermal stratification of present day atmosphere, Atmosphere and earth radiation balance; Circulation of earth's atmosphere and world precipitation pattern; precipitation to evaporation ratio; Hydrological cycle

Unit II

Climate classification; World climate regimes; Climate types of India, Indian Monsoon; El Nino; Climate control and distribution of plants and animals, Gaia hypothesis, Climate and biosphere feedback mechanisms, Climate elements in crop production.

Unit III

Climate and habitable areas; climate and rural housing; climate and buildings; Micro climate and architectural design; Human body and heat balance; climate and human health, climate and race temperament, clothing insulation and clothing zones of the world.

Unit IV

Meteorology fundamentals– Pressure, temperature, wind, humidity, radiation, atmospheric stability adiabatic diagrams, turbulence and diffusion. Scales of meteorology. Applications of micrometeorology to vegetated surfaces, urban areas, human beings, animals; Application of meteorological principles to transport and diffusion of pollutants.

Unit V

Scavenging processes; Effects of meteorological parameters on pollutants and vice versa; Wind roses; Topographic effects; Pollution climatology; Preliminary concepts of climate change – global warming sea level rise, ozone depletion, green house gases.