

### **Theory**

Meaning and scope of Agricultural Meteorology; Earth atmosphere - its composition, extent and structure; Atmospheric weather variables; Atmospheric pressure, its variation with height; Wind, types of wind, daily and seasonal variation of wind speed; Cyclone, anticyclone, land breeze and sea breeze; Nature and properties of solar radiation, solar constant, depletion of solar radiation; Atmospheric temperature, daily and seasonal variations of temperature; Atmospheric humidity, concept of saturation, vapour pressure, process of condensation, formation of dew, fog, mist, frost, cloud; Precipitation, types of precipitation such as rain, snow, sleet, and hail, cloud formation and classification; Monsoon mechanism and importance in Indian agriculture; Weather hazards - drought, floods, frost, tropical cyclones and extreme weather conditions such as heat-wave and cold-wave; Potential Evapotranspiration and Actual Evapotranspiration; Agriculture and weather relations; Weather forecasting - types of weather forecast and their uses; Climate change, Climatic variability, Global warming, Causes of climate change and its impact on regional and national Agriculture; Effect of temperature on crop productivity, Effect of CO<sub>2</sub> on C<sub>3</sub> and C<sub>4</sub> plant, Climate resilient agriculture, Effect of climate change on pest proliferation, Climate change adaptation and mitigation strategies.

### **Practical**

Visit of Agrometeorological Observatory, Site selection of observatory, Exposure of weather instruments and data recording, Measurement of albedo and sunshine duration, Computation of Radiation Intensity using BSS, Measurement of maximum and minimum air temperatures, its tabulation, trend and variation analysis. Measurement of soil temperature. Determination of vapour pressure and relative humidity. Determination of dew point temperature. Measurement of wind speed and wind direction, Measurement, tabulation and analysis of rain. Measurement of open pan evaporation and evapotranspiration. Computation of PET and AET.

## **Reference Books**

1. Fundamentals of Agrometeorology - G S Mahi and P K Kingra (2014).
2. Principles of Agricultural Meteorology - O P Bisnoi (2007). Oxford & IBH Publishing Co. Pvt. Ltd.
3. Agricultural Meteorology - GSLHV Prasad Rao (2008).
4. Agrometeorology - D S Reddy and S R Reddy (2012). Kalyani Publishers
5. Agrometeorology - S R Ghadekar (2006). Kalyani Publishers
6. Introduction to Agriculture and Agrometeorology - S R Reddy (2014). Kalyani Publishers
7. Agrometeorology : Principles and Applications of Climate Studies in Agriculture - Harpal S. Mavi, Graeme J. Tupper (2004). CRC Press
8. Climate Change Impacts - Singh, Vijay P, Yadav, Shalini, Yadava, Ram Narayan (2018).
9. Managing Weather and Climate Risks in Agriculture - Sivakumar, Mannava, V K , Motha, Raymond P. (2007).
10. Crops and Weather – VenkatRaman
11. Climate, Weather and Crops in India - D Lenka