

(No additional sheet will be supplied)

PART A — (5 × 3 = 15 marks)

Answer any FIVE questions.

Each question carries 3 marks.

Each answer should not exceed 1 page.

1. What is green house effect? Explain.
2. State Stefan-Boltzmann law and explain its importance in Atmospheric Physics.
3. What is Rawinsonde? Explain.
4. List various thermo dynamical parameters. What is the use of T-Phigram?
5. Write about the sources of NO_x in the atmosphere.
6. What are Aerosols? In what modes they exist in the atmosphere?
7. What is Bragg's scattering? Explain.
8. Explain the structure of a Thunderstorm.

PART B — (4 × 15 = 60 marks)

Answer ALL questions.

Each question carries 15 marks.

Each answer should not exceed 6 pages.

9. (a) Define solar constant. With a neat diagram, explain the solar irradiance spectrum at the surface and above the atmosphere of the Earth.

Or

- (b) Describe the major characteristics of troposphere and stratosphere and the factors influencing the vertical distribution of temperature.

10. (a) Explain the following:
- (i) Radiosonde
 - (ii) Surface rainfall measuring instruments
 - (iii) Upper air wind measurement

Or

- (b) List the various ground based instruments used for measurement of Temperature, Pressure, Humidity of the earth's atmosphere. Describe in detail the ground based instrument used to measure the direction and speed of wind.
11. (a) Write a detailed note on the measurement techniques of Ozone, CH₄ and Black carbon in the atmosphere.

- (b) Explain the working of a multi wavelength solar radiometer.
- (c) Sketch the block diagram of a micro pulse LIDAR System.
12. (a) Discuss briefly the signal processing of a weather radar. Explain with necessary diagram, the working of a cyclone warning system.

- Or
- (b) What are the various types of radars used in meteorological studies? Explain in detail the working of Clear Air Radar.