

45073

M.Sc. DEGREE EXAMINATION, MARCH/APRIL 2019.

FOURTH SEMESTER

Physics

Paper III — ATMOSPHERIC PHYSICS

Time : Three hours

Maximum : 75 marks

(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. Briefly explain the composition of the atmosphere.
2. What is Green house effect? Explain.
3. Explain how the atmosphere temperature will be measured using an automatic weather station.
4. What is Radiosonde? How it will work?
5. Explain the effects of primary gaseous pollutants on human health.
6. What are aerosols? How they effect the climate?
7. Derive the basic Radar equation.
8. What is Bragg's Law? Explain.

PART B — (4 × 15 = 60 marks)

Answer ALL questions.

Each question carries 15 marks.

Each answer should not exceed 6 pages.

9. Write an essay on accretion atmosphere of the earth. Discuss briefly the Chemistry and Dynamics of the earth's atmosphere.

Or

10. Explain the black body radiation. Write about the significance of Plank's Law, Stefan Boltzmann Law and Wien's displacement Law in the atmospheric physics.

11. Explain the estimation of Convective boundary layer height using GPS-Sonde.

Or

12. 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.

13. Explain the measurement Techniques for the gaseous pollutants in the atmosphere with relevant theory.

Or

14. Explain the working of a multiwave Solar radiometer with necessary theory.

15. Explain briefly the working principle of a meteorological radar. Discuss in detail the propagation and attenuation of microwaves in the lower atmosphere of the Earth.

Or

16. Discuss briefly the signal processing of a weather radar. Explain with necessary diagram, the working of a cyclone warning system.

