U.G. 5th Semester Examination-2021

PHYSICS

[HONOURS]

Discipline Specific Elective (DSE)

Course Code : PHS-H-DSE-T-02

(Atmospheric Physics)

Full Marks : 40 Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five** questions : 2×5=10

   a) What is atmospheric boundary layer?

   b) State the fundamental forces that govern atmospheric motion.

   c) What is Rossby No.?

   d) Differentiate sea breeze and land breeze.

   e) What do you mean by aerosols?

   f) Define Mesoscale Convective System (MCS)?

   g) What is Hadley scale?

   h) How do atmosphere maintain Earth's average surface temperature?

2. Answer any **two** questions: 5×2=10

   a) Discuss Rayleigh scattering and Mie scattering.

   b) Write down the working principle and application of an atmospheric LIDAR.

   c) Describe different large-scale mid-latitudinal and tropical waves.

   d) Describe the importance of Brunt-Vaisala frequency in determining atmospheric stability.

3. Answer any **two** questions: 10×2=20

   a) What is Radiosonde measurement? Describe the process of vertical atmospheric profiling using a Radiosonde instrument.

   b) Discuss spectral distribution of solar radiation. Define absorption and scattering of solar radiation.

   c) Explain different types of clouds with their identifying features.

   d) Describe working principle of atmospheric RADAR. How it forecasts cyclonic storm?

———————