

U.G. 5th Semester Examination-2020

PHYSICS

[HONOURS]

Discipline Specific Elective (DSE)

Course Code : PHY-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
- What is adiabatic pulse rate?
 - How do atmosphere maintain Earth's average surface temperature?
 - State the fundamental forces that govern atmospheric motion.
 - What is Rossby No.?
 - What do you mean by Easterly Jet Stream (EJS)?
 - Define Mesoscale Convective System (MCS).
 - What is Hadley scale?
 - What is the difference between geostrophic and gradient flow?

2. Answer any **two** questions: 5×2=10
- Discuss the formulation of Navier-Stokes equation.
 - Describe different large-scale mid-latitude and tropical waves.
 - Write down the working principle and application of an atmospheric LIDAR.
 - Describe the importance of Brunt-Vaisala frequency in determining atmospheric stability.
3. Answer any **two** questions: 10×2=20
- Discuss spectral distribution of solar radiation. Define absorption and scattering of solar radiation.
 - Describe working principle of an atmospheric RADAR. How it forecasts cyclonic storm?
 - Explain different types of clouds with their identifying features.
 - What is Radiosonde measurement? Describe the process of vertical atmospheric profiling using a Radiosonde instrument.
