

Climate Change & its Implications (CCI)

Mid Exam

Maximum Marks: 20

Batch-3

Answer all questions

(Each question carries 5 marks)

- 1) What is the difference between climate variability and climate change? Briefly discuss the natural reasons for climate change.
- 2) Briefly discuss the different Earth system components with necessary illustrations.
- 3) Assuming an exponential pressure and density dependence with $H=7.81\text{km}$, estimate the heights in the atmosphere at which (a) the air density is equal to 1.44 kg/m^3 and (b) the height at which the pressure is equal to 1.65 hPa . [Earth's radius= 6371 km]
- 4) Estimate how much the sea level would rise if the entire permafrost were to melt. Area covered by permafrost is 5.02% of the area of the surface of the Earth, land area is 28.9% of the surface of Earth. [Earth's radius= 6371 km ; mass of Artic ice sheet= $1 \times 10^3\text{ kg/m}^2$]