

Climate Change & its Implications (CCI)

Mid Exam

Maximum Marks: 20

Batch-2

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) Assuming an exponential pressure and density dependence with $H=6.83$ km, estimate the heights in the atmosphere at which (a) the air density is equal to 1.34 kg/m^3 and (b) the height at which the pressure is equal to 1.55 hPa. [Earth's radius= 6371 km]
- 3) Estimate how much the sea level would rise if the entire Alpine glaciers were to melt. Area covered by Alpine glacier is 0.13% of the area of the surface of the Earth. The land area is 29.1 % of the surface of Earth. [Earth's radius= 6371 km; mass of Artic ice sheet= $0.2 \times 10^3 \text{ kg/m}^2$]
- 4) Briefly discuss the different Earth system components with necessary illustrations.