

Climate Change & its Implications (CCI)

Mid Exam

Maximum Marks: 20

Group-1

Answer all questions

(Each question carries 4 marks)

- 1) Assuming an exponential pressure and density dependence with $H=6.9$ km, estimate the heights in the atmosphere at which (a) the air density is equal to 1 kg/m^3 and (b) the height at which the pressure is equal to 1.2 hPa. [Earth's radius= 6371 km]

- 2) Estimate how much the sea level would rise if the entire Antarctic ice sheet were to melt. Area covered by Antarctic ice sheet is 2.7% of the area of the surface of the Earth, land area is 30% of the surface of Earth. [Earth's radius= 6371 km]

- 3) Briefly discuss about climate models, their spatial and temporal resolutions. What is meant by representative concentration pathway? Briefly discuss different RCPs available to account for future changes.

- 4) Briefly discuss the different Earth system components with necessary illustrations.

- 5) What are atmospheric aerosols? Briefly discuss different sources of aerosols from the Earth's surface, and the methods to remove them from the atmosphere.