Academic year 2022-2023 (Even Sem)

DEPARTMENT OF

CHEMICAL ENGINEERING

Model Questions - Global Climate Change (22EM204)

Sl. No.	Questions
1	Explain transfers of carbon between rock and atmosphere.
2	How are humans perturbing the carbon cycle?
3	Assume a planet with a one-layer atmosphere has a solar constant of S = 2,000 W/m^2 and an albedo of α = 0.4. a) Derive the expression for planet's surface temperature and calculate the same. Make the standard assumption that the atmosphere is transparent to visible photons but opaque to infrared photons.
4	Explain how "chemical weathering" removes CO_2 from the atmosphere. What is the weathering chemical reaction? Can this process play an important role in counteracting the increase in atmospheric carbon dioxide caused by humans?
5	Assume a planet with a two-layer atmosphere has a solar constant of S = 2,000 W/m^2 and an albedo of α = 0.4. a) Derive the expression for planet's surface temperature and calculate the same. Make the standard assumption that the atmosphere is transparent to visible photons but opaque to infrared photons.
6	Discuss on emission of methane into the atmosphere from various sources and atmospheric abundances of methane.
7	Describe the composition of our atmosphere, with a particular focus on greenhouse gases.
8	Explain the exchange of carbon exchange between the atmosphere, land biosphere, and ocean with the help of schematic diagram.
9	Explain the factors that control emissions.
10	Explain how factors that control emissions have changed in the recent past
11	Explain how factors that control emissions will change over the 21st century
12	Discuss about the summary of emissions scenarios constructed by IPCC.
13	Write a short note on predictions of future atmospheric composition based on emissions scenarios created by IPCC.
14	What are the names of the four main emissions scenarios discussed in this chapter? In just a few sentences, explain the main differences between them.
15	Explain how your level of wealth impacts how much emission of carbon dioxide you are responsible for.
16	Summarize predictions on climate change beyond 2100.
17	How temperature, precipitation, sea level, extreme events, and other such phenomena will change in future
18	How the impact of climate changes impact on humans and those aspects of the environment that we rely on.
19	Why abrupt climate changes is a serious problem.