

The Assam Royal Global University, Guwahati

Royal School of Environmental and Earth Sciences

M.Sc. Geology 2nd Semester

Semester End Examination, July 2022

Course Title: Earth and Climate

Course Code: GEOL164D201

Time: 3 Hours

Maximum Marks: 70

Note: Attempt all questions as per instructions given.

The figures in the right-hand margin indicate marks.

Section – A

1. Attempt **all questions**. (Maximum word limit 50) 2 x 8
- a. What is climate forcing?
 - b. What are the components of climate system?
 - c. What is monsoon?
 - d. What is thermo-hyaline circulation?
 - e. Define global warming.
 - f. What is the third highest abundant gas in atmosphere?
 - g. What is LGM?
 - h. Which stable isotopes of oxygen are used in paleoclimatology?

Section – B

2. Attempt **any one** of the following: 12 x 1
- a. Write an explanatory note on differing response rates and climate system interactions.
 - b. Explain the earth's heat budget and the interactions amongst various sources of heat.
3. Attempt **any two** of the following: 7 x 2
- a. Describe the role of global oceanic conveyor belt in controlling earth's climate.
 - b. Illustrate the mechanism of monsoon.
 - c. Explain the effects of monsoon on earth's climate.
4. Attempt **any two** of the following: 7 x 2
- a. Write the name of four greenhouse gases. Add a note how we can reduce the effect of greenhouse gases in environment.
 - b. Illustrate the evolution of oxygen in earth's atmosphere through geological history.
 - c. Illustrate the statement - "the percentage of CO₂ in atmosphere have increased manifold after the industrial revolution."
5. Attempt **any two** of the following: 7 x 2
- a. Explain how ice cores help in paleoclimatic reconstructions.
 - b. Describe how astronomical parameters of earth are responsible for global climate change.
 - c. Write a brief note on Pleistocene glacial-interglacial cycles.