

The Assam Royal Global University, Guwahati
Royal School of Environment and Earth Sciences
B.Sc. (Hons.) Geology 1st Semester
Semester End Examination, February 2022
Course Title: Earth System Science
Course Code: GEOL162C101

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 the primary difference in composition between a comet and an asteroid?
 - b. How did differentiation take place during formation of Earth's core?
 - c. Write about the sources of earth's internal heat.
 - d. What are the different types of seismic waves?
 - e. What is meant by western intensification of subtropical gyres?
 - f. Which factors influence the amount of solar insolation reaching the Earth's surface?
 - g. What are the various geochronological methods?
 - h. What is radioactive decay law?

Section – B

2. Attempt **any two** of the following: **6 x 2**
- a. Briefly discuss about the nature and characteristics of Terrestrial and Jovian planets.
 - b. Describe and illustrate the occurrence of P and S wave shadow zones with reference to the composition of Earth's core.
 - c. Write a note on the general characteristics of the Earth with reference to its shape, mass, rotational and revolutional parameters.
3. Attempt **any two** of the following: **7 x 2**
- a. Explain the mechanism of volcanic eruption. What leads to the formation of shield volcanoes? **4+3**
 - b. Explain the tectonic process of collision of two continental plates. Also provide the necessary diagrams.
 - c. Write a brief note on earth's magnetic field and its various features. Explain the process by which it is produced. **5+2**
4. Attempt **any two** of the following: **7 x 2**
- a. Explain the atmospheric circulation pattern with the help of a diagram. Why is Coriolis Effect maximum at the poles? **5+2**
 - b. Mention the vertical extents of different layers of the Earth's atmosphere. Discuss the heat budget of the Earth. **3+4**
 - c. Write about the impact of surface ocean currents on global climate with reference to the occurrences of El-Nino and La-Nina.
5. Attempt **any one** of the following: **14 x 1**
- a. Explain the concept of Uniformitarianism. Write in detail about the concept of Neptunism. **7+7**
 - b. Write about the laws of superposition of strata. Also add a note on laws of faunal succession. **7+7**