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**The Assam Royal Global University, Guwahati**  
**Royal School of Environmental and Earth Sciences**  
**M.Sc. Geology 4<sup>th</sup> Semester**  
**Semester End Examination, June 2023**  
**Course Title: Environmental Geology, Mapping and Surveying**  
**Course Code: GEOL164D402**

**Time: 3 Hours**

**Maximum Marks: 70**

**Note: Attempt all questions as per instructions given.**  
*The figures in the right-hand margin indicate marks.*

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**Section – A**

1. Attempt **all** questions. (Maximum word limit 50) **2 x 8**
- a. Define mineral mining.
  - b. What are the causes of soil erosion?
  - c. What are the parameters of potable water as per Indian standards?
  - d. What are the different types of water pollution?
  - e. What is a projection system?
  - f. What is a closed loop traverse and an open traverse?
  - g. What are the uses of compass and clinometers in geologic surveying?
  - h. What are base maps and what is their role in geologic surveying?

**Section – B**

2. Attempt **any two** of the following: **6x 2**
- a. Describe the hazards associated with mining activities and their impact on the environment.
  - b. Discuss the causal factors of landslides and their impact on the environment.
  - c. Describe the measures that can be taken to mitigate soil erosion and their effectiveness.
3. Attempt **any two** of the following: **7 x 2**
- a. Explain the method of flood frequency analysis and its significance.
  - b. Describe the various parameters used to measure water pollution.
  - c. Explain the flood situation in Assam and the measures taken for flood management.
4. Attempt **any two** of the following: **7 x 2**
- a. Explain the projection system used in mapping and the significance of datum and datum transformation.
  - b. Discuss the advantages of total station surveying over traditional surveying methods.
  - c. Discuss the various methods of RL transfer used in surveying.
5. Attempt **any two** of the following: **7 x 2**
- a. Explain the principles and techniques of geological field mapping in sedimentary terrain.
  - b. Describe the techniques used for structural analysis in geologic surveying.
  - c. Describe the techniques used for resource evaluation in geologic surveying.