

# The Assam Royal Global University, Guwahati

Royal School of Environmental & Earth Sciences

M.Sc. Geology 1<sup>st</sup> Semester

Semester End Examination, March 2022

Course Title: Structural Geology

Course Code: GEOL164C101

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. What do you mean by deviatoric stress?
  - b. What are the strain types?
  - c. Differentiate between flexural flow and flexural slip.
  - d. Explain the mechanism of flow folding.
  - e. What are release joints?
  - f. What are duplex structures?
  - g. What are cataclasites?
  - h. What do you mean by fault gouge?

## Section – B

2. Attempt **any one** of the following: 12 x 1
- a. Write a descriptive note on Mohr's Stress circle and deduce the formulae for normal and shear stress.
  - b. What is strain? Also add a note on Flinn's diagram. Explain the behaviour of rocks under stress. (2 + 5 + 5)
3. Attempt **any two** of the following: 7 x 2
- a. Explain how sense of shear can be determined from fold geometry.
  - b. Give an explanatory note on the kinematics of folding.
  - c. Elaborate the mechanism of cleavage formation.
4. Attempt **any two** of the following: 7 x 2
- a. Write a note on the complex geometry of normal faults with natural examples.
  - b. What do you mean by fault zone weakening? Add a note on fault reactivation and its significance.
  - c. Explain the Mohr-Coulomb's criterion of failure.
5. Attempt **any two** of the following: 7 x 2
- a. Write a short note on analysis of strain in shear zones.
  - b. What are shear zones? Explain their importance in evolution of continental crust.
  - c. Write a note on mylonite and fault zone breccia.