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**ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)**  
**ORGANISATION OF ISLAMIC COOPERATION (OIC)**  
**DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING**

**Semester: Mid Semester Examination**

**Winter Semester: 2022-2023**

**Course No.: GS 4351**

**Full Marks: 75**

**Course Title: Geology and Geomorphology**

**Time: 1.5 hours**

There are 3 (Three) Questions. **Answer all questions.** Programmable calculators are not allowed. Do not write on this questions paper. The symbols have their usual meaning. Assume reasonable values for any missing information.

- 1(a) Define types of Tectonic Plate Boundary (including sub-types, such as Ocean-Ocean, Ocean-Continent etc) with neat sketches of movement directions and resulting plate deformations. Also, provide at least one example of each type of boundary. (12) [CO1 PO1]
- (b) What do you understand by i) strike, ii) anticline, iii) geologic dome, and iv) strike-slip fault? Explain with sketch. (7) [CO1 PO1]
- (c) Identify the plate boundaries near Bangladesh, specifying their type and movement direction. (6) [CO1 PO1]
- 2(a) Write down the Mohs hardness scale and at least one mineral associated to each hardness number. Distinguish between cleavage and fracture of a mineral. (8+4) [CO2 PO1]
- (b) Distinguish between regional and contact metamorphism. What is meant by 'foliations'? (4+3) [CO2 PO1]
- (c) What do you understand by i) lithification, ii) ripple marks, iii) weathering? (6) [CO2 PO1]
- 3(a) Discuss the process of fractional crystallization. What do you understand by 'mafic' and 'felsic' magma? (5+5) [CO2 PO1]
- (b) Discuss the process of Diagenesis. What do you understand by i) conglomerate, ii) chemical sedimentary rocks, iii) extrusive and intrusive magma? (5+6) [CO2 PO1]
- (c) Write down different types of silicate structure with at least one mineral example. (4) [CO2 PO1]