

B. Sc. 2nd Semester (Honours) Examination, 2021

GEOLOGY

Course Id: 22011

Course Code: SHGEL-201C-3(T)

Course Title: Elements of Geochemistry

Time: 1 Hour 15 Minutes

Full Marks: 25

The figures in the right-hand side margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer *any five* of the following questions: 1x5 = 5
 - a. Which group and period of the long-form periodic table of elements contain the Rare Earth Elements (REE)?
 - b. Name one mineral in which covalent bond is present.
 - c. Give an example of mineral which shows couple substitution of elements during formation of solid solution.
 - d. State the Oddo-Harkins rule.
 - e. Define lanthanoid contraction.
 - f. Name one alkali metal whose coordination number in ionic compounds may be 12.
 - g. What is Clarke of concentration?
 - h. Define advection.

 2. Answer *any two* of the following questions: 5x2 = 10
 - a. Describe the relation between ionic radius ratio and coordination number of cations.
 - b. Write short notes on: (i) isomorphism, and (ii) solid solution. 2.5x2 = 5
 - c. Compare between oceanic and continental crust with special emphasis on geochemistry.
 - d. Briefly describe the isotopic fractionation of stable isotopes in magmatic system.

 3. Answer *any one* of the following questions: 10x1 = 10
 - a) Compare among siderophile, chalcophile, lithophile and atmophile elements.
 - b) Describe the principal modes of magma formations in the crust and upper mantle.
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