

[This question paper contains 3 printed pages]

Your Roll No. :

Sl. No. of Q. Paper : **1817 GC-4**

Unique Paper Code : 32191201

Name of the Course : **B.Sc.(Hons.) Geology**

Name of the Paper : Elements of Geochemistry

Semester : II

Time : 3 Hours

Maximum Marks : 75

Instructions for Candidates :

- (a) Write your Roll No. on the top immediately on receipt of this question paper.
 - (b) Attempt any **five** questions.
 - (c) **All** question carry equal marks.
1. Discuss principles governing crystallochemical properties of elements in the periodic table.
 2. What do you understand by K-electron capture ? Discuss application of ^{40}Ar - ^{39}Ar as a geochronometer for dating of Deccan basalts.
 3. What do you understand by Water-Rock interactions ? How does speciation help in the study of distribution of chemical components in solutions ?

P.T.O.

4. Discuss chondrite petrology and classification. Comment on chemical fractionation in chondrites.
5. Discuss kinetic factors involved in the diagenesis. Add a note on the role of silica in the diagenesis.
6. Discuss any **three** of the following pairs :
 - (a) Enantiotropy and Monotropy
 - (b) Chalcophile and Siderophile
 - (c) Mass fractionation and Bond strength
 - (d) Eh and pH
7. Write short notes on any **three** of the following :
 - (a) Tektites
 - (b) Geological thermometers
 - (c) Gains and losses of ocean
 - (d) ^{10}Be dating

8. Give explanatory notes on any **three** of the following :
 - (a) Mineral stability series in secondary environment
 - (b) Fractionation of S-isotopes in hydrothermal systems
 - (c) Geochemical model for Planetary Differentiation
 - (d) Relative and Absolute abundance of elements