

**Ph.D. GEOLOGY
(PHDGY)**

00205

Term-End Examination

June, 2018

RGYE-105 : GEOCHEMISTRY

Time : 3 hours

Maximum Marks : 100

*Note : Answer any **five** questions. All questions carry equal marks.*

1. Explain the importance of trace elements in the petrogenesis of igneous rocks. 20
2. Elaborately discuss the procedures involved in processing samples for geochemical analysis. 20
3. Discuss in detail the basic principle of Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP – AES) technique. Add a note on the method of sample preparation required. 20
4. Explain any four physical controls on the values of partition coefficients in the mineral-melt systems. 20

5. Write short notes on any **four** of the following : 4×5=20
- (a) Oddo-Harkins Effect
 - (b) Europium Anomaly
 - (c) Lithogeochemical Sampling
 - (d) Tholeiitic Basalt
 - (e) PAAS
 - (f) Ocean Island Basalt
6. Answer briefly any **four** of the following : 4×5=20
- (a) Why do we normalize rare earth elements with chondrite values ?
 - (b) What are chalcophile elements ?
 - (c) What do you understand by element mobility ?
 - (d) Why are heavy minerals considered significant for provenance studies ?
 - (e) Discuss any two elements considered to be important indicators for crustal contamination.
 - (f) Why are rare earth elements important in order to understand provenance of sedimentary rocks ?
7. Explain the importance of radiogenic isotopes in the determination of age of rocks and minerals. 20
8. Explain the significance of trace elements in the petrogenesis of igneous rocks. 20
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